

In Pursuit of a Good Glass and Good Company

A Thesis Presented for the
Master of Arts
Degree
The University of Tennessee, Knoxville

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August 2017

Acknowledgements

Dr. Barbara Heath was incredibly patient and encouraging. Brad Hatch and Lauren McMillan were very forthcoming with explanations of their understanding of Nomini Hall contexts, and Clifts data, plus degree writing commiseration. I have much appreciation for my defense committee members, Dr. Gerald Schroedl and Dr. David Anderson for their willingness to read drafts and schedule a defense within just a few weeks. Thank you also to the former librarian at the Corning Museum of Glass Amy deSimon for pulling loads of books for me, the former Corning Museum Curator of American Glass, Jane Spillman for showing me the whereabouts of lead glass exhibits, and Dwight Lanmon and Hugh Wilmott for their correspondence about folded feet. I also thank Dr. Julia King and Scott Strickland for giving me access to the glass from so many Potomac area sites. Hearty thanks go out to Dee DeRoche at the Virginia Department of Historic Resources, the curators Becky Morehouse and Sarah Rivers-Cofield from the Jefferson Patterson Park and Museum and Karen Louvar at Stratford Hall for allowing me so much time and space to examine glass under a glowing lamp. Silas Hurry at Historic St. Mary's City kindly let me examine early colonial Maryland glass from St. John's, as well as the cabinets full of Lois Green Carr's probate files stored at St. Mary's City. This research would have been a lot tougher to pull together if not for a Patricia Black travel scholarship from the University of Tennessee. A wonderful grant from the University of Tennessee Graduate Student Senate enabled me to go to the 2013 Society for Historical Archaeology Conference in Leicester, England, which later led me to work with collections in Maryland. I'd also like to thank Spider, Laura, and my family for their patience in listening to me say "I'm finishing this thesis this semester..." for 3 years. And Mary W... thanks, Lady, for talking with me through the last year.

Abstract

While glass appears rather homogeneous compared to ceramics and pipes, these small bits of amorphous solid silica can still reveal hidden information when aspects of their chemical composition are tested using a means as simple as short-wave UV light or as complex as X-Ray Fluorescence. Using short-wave UV light and a comparative approach, this thesis reevaluates archaeological table glass collections from Southern Maryland and the Northern Neck of Virginia dating from the mid-17th century to the early 18th century to find evidence for the presence and absence of English lead glass (flint glass). Using these data, the patterns in access, acquisition, and use of glass tableware in this Chesapeake region show a steep difference in the occurrence of lead glass in assemblages before and after the turn of the 18th century. Before 1700, lead glass at these sites tends to comprise less than half the tableware assemblages, yet on sites with occupations extending into the 18th century, more than three quarters of the glassware contains lead. Some inhabitants of this region may have begun consuming English lead glass by the 1680s, primarily in the form of drinking glasses and other beverage related tableware. By the 1690s, lead glass was taking over table space, and by 1700, it was the dominant type of glass tableware.

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Introduction

During archaeological excavation of a shovel test pit at Coan Hall, the site of a colonial tobacco plantation in the Northern Neck of Virginia, students from the University of Tennessee, Knoxville came across some tiny fragments of lead glass on a domestic site that likely dates from the 1640s and 1720s (McMillan et al. 2012; pers. comm. B. Heath 2017). This thesis springs from an attempt to make sense of what this lead glass meant at Coan Hall. The historical record shows English lead glass began to enter the world markets by 1676. It soon dominated the English glass tableware industry, eventually becoming the most desirable glass drinking ware for hospitable households and public meeting places all over Europe and the colonies in the first half of the 18th century. However, analyses of glassware in archaeological assemblages from the American colonial period commonly do not go beyond a simple "Table glass" and "Container glass" count. Where did the colonists in America stand in acquiring this new ware type? Just how quickly did English flint glass come to the rivers and deep water harbors of Maryland's Western Shore and Virginia's Northern Neck? Herein is the main historical problem: when was English flint glass (lead glass) adopted by residents of the Potomac River Valley? Did (and how did) a new glass spread quickly in a region without towns? What are the patterns of that glass in the material culture record? By looking more closely at glass, specifically table glass and even more specifically, English lead glass, we might begin to flesh out patterns of consumption and access among those who used lead glass in the Chesapeake colonies in the vicinity of the Potomac River before the mid-18th century.

As one of a new crop of collections-based research papers on Chesapeake sites (Pecoraro and Givens 2006; Hatch 2015; McMillan 2015a; King 2016), this work is based on a comparative analysis of archaeological data from collections previously excavated from late 17th-century and early 18th-century plantation and tavern sites in and around the Potomac River valley. My study is not meant to be a reconstruction of a single community nor a general overview of one class of people. The intent is to cast a wider regional net. The glass tableware assemblages examined here are all part of “legacy collections” currently kept in the hands of repositories like the Maryland Archaeological Laboratory and the Virginia Department of Historic Resources. The data originate from eight Maryland sites and five Virginia sites with occupation phases of roughly 1670 to 1720. These dates were chosen because lead glass began to be made around 1676, and an end date of circa 1720s avoids overlap with the period of accelerated consumption known as the “consumer revolution” in the mid-18th century. One courthouse-tavern assemblage is examined as comparison to the plantation assemblages, especially as ordinaries and taverns represent a more urban community profile and would be expected to have used far more drinking vessels (Bragdon 1981). As Julia King (2016:7) has noted, comparative studies unfortunately have limitations based on decisions made in the field and the subsequent (mis)care and keeping of the artifacts and field notes. As I found, it was curiously difficult to work with legacy collections.

At the time English lead glass began to enter the world markets, the planters of the colonial Chesapeake were experiencing a shift from dependence on indentured servants to the creation of a large enslaved labor force (Menard 1977; Coombs 2011). Information on these earliest sites of slavery in the Chesapeake remains sparse at this time, particularly for Virginia.

When I began my project, data from the Digital Archeological Archive of Comparative Slavery (DAACS) and the Comparative Chesapeake Archaeology (CCA) database did not offer a panacea for questions about the use of tableware related to this period. Determining the presence of lead in glass remains uncommon in archaeological artifact cataloging, so it became necessary to seek out collections and determine the potential presence or absence of lead glass.

English lead glass is usually easy to identify from stylistic characteristics with certain parts, like the stem, which also tends to be the best-preserved portion of a vessel (Noël Hume 1969a:189). However, what happens when only body fragments or foot fragments turn up? How is it possible to link a stem to many small pieces of vessel glass and to begin to identify leaded “flint glass”? Whether a given sherd contains lead may be determined by using an expedient, cheap method: a UV lamp. There are various other ways to test for lead content, but testing fluorescence response to UV rays is a qualitative, quick, cheap, non-destructive means, although UV lamps cannot be used to indicate specific lead percentages (Brain 2002; Lanmon 2011:58). If there is lead content, the glass should fluoresce an icy blue under short-wave UV light (Grant 2000). If only a small sherd turns out to be leaded, but it comes with other evidence of a 17th- or 18th- century occupation, it may be possible to make an educated guess that this glass is English lead glass and probably did not arrive until post-1675 at the earliest.

This project is perhaps a bit ambitious; some of the artifacts were largely recovered from plowzone proveniences, some are from features with well-dated contexts, and not a few were found during surface collection and thrown in a storage box together with other items dug out of foundations. Varying degrees of excavation proficiency and of excavation completeness also

complicate the analysis. Despite these problems, the hope is that patterns in the use of lead glass and glass tableware may still be inferred from these assemblages.

This thesis is structured into eight chapters. The first chapter sets a background for glassmaking and the general drinking habits encouraged by glassware. Chapter 2 includes a literature review of research undertaken on 17th- to 18th-century glass tableware, consumption, and colonial trade in Maryland and Virginia. Chapters 3 and 4 cover the cultural history of English flint glass plus the specific styles and uses of glass tableware in drinking and entertainment, with Chapter 4 also including analysis of 17th-century probate records to document the use of glass in Maryland during that period. Chapter 5 explains the methods used for this study. Chapter 6 provides the historical contexts of the sites from Maryland and Virginia that are included in the study and is followed by the archaeological data in Chapter 7. Chapter 8 presents conclusions and suggestions for future research.

Chapter 1

Towards a “Flint Glass”: Chemistry, Manufacture, and History

To emulate exotic, highly coveted, and quite expensive carved rock crystal vessels from Asia, Europeans had long sought to create colorless glass vessels in imitation of crystal (Hughes 1956:32). The Venetians almost succeeded with their colorless and delicate soda glass called *cristallo*. English entrepreneurs became the catalyst for the successful creation of a glass “Christall de roache” (rock crystal) that would surpass the *cristallo* of the Venetians. After the London Glass Sellers Company hired George Ravenscroft to create a superior glassware for domestic use and export, Ravenscroft's glassblowers came out with a leaded “flint glass,” so called because the first sources of silica were calcined flints from stream beds (Charleston 1984:115; Berg 2005:119). Sometimes the terms “white glass” and “white flint” appear in period sources. This terminology served to distinguish between the colorless glasses and the more common green glass, rather than referring to opaque white glass (Noël Hume 1969a:198). Very early on, the term *flint glass* became synonymous with potash-lead glass (Francis 2000:51), so much so that heavier-bodied lead glassware was sometimes advertised as “double flint” in the early 18th century (Lanmon 2011:103).

Many drinking glass collectors know 17th- and 18th-century English lead glassware as “Georgian glass,” since lead glass was the material of choice and Ravenscroft's glass-house the progenitor of the sparkling, clear, oft balustered, mouth-blown glassware that would come to grace 18th-century Georgian tables (Hughes 1956; Thorpe 1961; Hughes 1968; Lloyd 1969; Bickerton 1971). This study is concerned only with the early so-called “Georgian glass,” a term

which is not quite accurate for this period. Not only was a King George not on the throne of England until 1714; the term “Georgian” in the Deetzian sense (Deetz 1977), referring to a society that prioritized the individual over the communal, valuing certain refined manners and individual tablewares, may be incorrectly applied to the colonial societies that used the earliest English lead glass. Proponents of the Consumer Revolution model have argued that not until the 18th century did a modern, individualistic society fully emerge in English speaking colonies (Carson 1994; Pogue 2001). Dissenting scholars argue that the 18th century may be the Century of Commercialization, but hardly the era of the Consumer Revolution (Pennell 2012:70). In terms of overall drinking habits, a consumer revolution may have preceded the industrial revolution, creating new demands on trade and manufacture, further constituting an ideological change in the way that early modern Europeans viewed themselves and their place (Burnett 1999:2). Given the “fashionable” similarities of English flint glass to other materials that gained consumer traction in the 18th century, like Asian porcelains and Wedgwood’s Queensware, understanding lead glass on the household and regional scale may help deepen the understanding of certain characteristics of consumer habits that predate the 18th-century Consumer Revolution.

In the European Union today, modern lead crystal glass is defined by its lead content. "Traditional English full lead crystal" has a minimum of 30% lead oxide. Any glass with at least 24-to-29% lead oxide is termed “lead crystal glass.” Modern substitutes for lead crystal can be made by replacing potassium oxide, barium oxide, or zinc oxides for lead oxide for a similar product called “crystal glass,” with oxide contents equal to or greater than 10% (European Union 1969). For early English leaded glass, “flint glass” or “flint crystal” was the period term

following its invention until the 20th century. The terms “English lead glass” or “flint glass” will henceforth be the main terms used in this thesis to refer to that type of glass tableware.

Glass

Conventional silicate glass, including the glasses seen on 17th-century sites, may be defined as “inorganic non-crystalline products that are hard, brittle, generally transparent, with high chemical resistance and deformable at high temperature” (Fernández-Navarro and Villegas 2013:3). Molten glass is sometimes called a “metal” in period sources (Davidson and Newton 2008:80), though cooled glass still lacks the grain boundaries that characterize metallic materials (Fernández-Navarro and Villegas 2013:9). The popular conception of glass is more of a transparent, brittle material used in various things from bottles to windows and even jewelry, but in chemistry, a “glass” refers to any material in a glassy state. Glasses are solids without crystalline structures; a silicate glass has no crystalline molecular structure compared to a grain of regular sand made of silicon dioxide (SiO_2). In a silicate glass, the tetrahedral ionic units made by the union of oxygen and silicon are randomly distributed, rather than ordered in the regular, geometric framework of a grain of sand (Fernández-Navarro and Villegas 2013:8). Glasses can even be organic as well as inorganic. A material reaches a glassy state when the temperature of its liquid state drops below the melting temperature without crystallizing. In this super cooled state, the viscosity of the material increases until the components can no longer slide as easily past each other as in a liquid state. Once this cooled liquid drops below another temperature threshold called its transition temperature, the material reaches a glassy physical phase where it becomes rigid and brittle (Fernández-Navarro and Villegas 2013:2-3). It is essentially a “rigid liquid” (Frank 1982:3). Fernández-Navarro and Villegas (2013:2-3) suggest

glasses are better defined through their physical properties as materials that can be cooled below a super cooled range and reversibly heated back up without the creation of crystalline structures. For the purposes of this paper, “glass” refers to an inorganic silicate-based material in a glassy state, capable of being formed into a myriad of objects used by humans to enable certain every day and ritual behaviors, and sometimes even melted down and remade into new vessels or sheet glass when its useful life has come to an end.

Conventional glasses primarily contain silicon dioxide (SiO_2), sodium oxide (Na_2O), and/or lime (CaO). These formulations have been used from antiquity in different times and places (Frank 1982:22; Fernández-Navarro and Villegas 2013:10). Secondary metallic oxides added to the silicon dioxide base modify the properties and reactions of the glass. These additional metallic ions cause the silicate bonds to weaken and modify their bonding behaviors, changing melting temperatures and viscosity (Fernández-Navarro and Villegas 2012:8). Soda-lime is the most commonly found combination, while potash-lime versions were seen in Northern Europe in the medieval period (Frank 1982:75). Understanding the changes that different materials cause in a given glass is crucial to understanding the manufacture of English lead glass. This study is mainly concerned with a specific element used in that glass: lead, usually in the form of lead oxide added to silicate glass along with potash. The addition of lead causes significant changes to the fluidity and viscosity of the glass compared to a basic soda glass in its super cooled state (Frank 1982:10). These changes include less resistance to thermal shock, a longer working time, a heavier body, and an occasional darker tint with a much more sparkly appearance due to greater reflectance of light, all of which affected the forms and uses of

flint glass made in the 17th and 18th centuries. The specific chemistry of lead glass will be discussed further in Chapter 3.

Lead has been used in glass as an opacifier since the 4th century BC in various forms ranging from lead antimonates to lead-tin oxides (Biron and Chopinet 2013:60). Venetian glassmakers made an opaque glass using pigments and powders added at various stages of the glass making process (Biron and Chopinet 2013: 62). These included glasses used for faux jewels (Frank 1982:83) and a certain type of thin milky white glass called *lattimo*, which had calcined lead and tin added to the formula (Verita 2013). Lead has also been found in the composition of Anglo-Saxon glassware made during the 8th and 9th centuries AD in the British Isles, probably the result of recycling old Roman colored glasses (Freestone et al. 2008:41). Wedepohl et al. (1995) cataloged the isotopes of a series of yellow and green glass vessels from Northwest Europe that contained high proportions of lead (averaging around 60%), including several from Nottingham and London from 14th century contexts. Colored glass beakers from the Netherlands exist that were made ca. 1250-1350, which contained greater than 60% lead oxide (Henkes 1994:24). The glass that the Ravenscroft glasshouse manufactured was the first successful *colorless* leaded glass (Verita 2013), and a totally new glass on the consumer scene (Charleston 1984:144). It was a brighter, tougher, more shatter resistant ware (Willmott 2005:10), and a true invention rather than a gradual development (Thorpe 1961:44). Though lead in glass was not a new idea, the speed of adoption and the production scale of English flint glass was certainly new (Willmott 2002:34).

Technology and Process

The Romans imported the technology of glassmaking to Britain from the Levant (Frank 1982:21; Willmott 2005:18). Before the Romans, Britons only knew glass mostly in the form of rare imported glass beads (Willmott 2005:17). After the Roman Empire fell, glass was not produced consistently until the medieval period when a successful glass industry in the Weald of England sprang up in the 15th and 16th centuries (Willmott 2005:46). As in pre-medieval Europe, most of this English industry consisted of one-man workshops using sand and local vegetable matter with wood to fire the crucibles (Hughes 1956:27). During this time, the Venetians built an entire city around the glass industry in the northeast of Italy, blowing and working glass into the fine, very exclusive material called *cristallo*. Until the rise of the English flint glass industry, Venetian *cristallo* was what glassblowers strove to emulate (Frank 1982:29).

Historical glass generally has at least two to three major components (Willmott 2005:8). Pure silica requires an extraordinarily high temperature to melt, about 1700 °C (Frank 1982:9). Thus, one must do to the silica something akin to boiling water faster by the addition of salt; by means of a chemical reaction caused by the addition of a flux or “network modifier,” the melting point of the silica is lowered. These fluxes are usually one of two types of potash or lime, with alkali salts being the most common (Willmott 2005:9). Lead oxide was a flux as well. By 1700 it was commonly in the form of litharge, a term for protoxide of lead, or in modern nomenclature, lead (II) oxide, PbO (Charleston 1984:114). The addition of a flux enabled early glassmakers to more easily melt glass with the technology they had at hand. By the 17th century, most glass recipes also included a third addition of a stabilizer to protect the metal against deterioration. Deterioration, or glass disease, also called “crizzling” was caused by an alkali

deficient layer on the glass and a result of unstable chemical bonds in the glass (Frank 1982:13; Willmott 2005:9).

Hugh Willmott has written extensively on the glass industry in England, and his descriptions of glass-houses in England inform most of the following summary. Almost all post-medieval glasshouses required several different work stations: a fritting oven, a furnace, and an annealing oven. Making glass using 17th-century methods requires a two-step process. First, the silica, often in the form of sand, is placed in a fritting oven along with the flux (often alkali) to begin a solid-state chemical reaction at a lower temperature. This process burns off most of the carbons and contaminants in the raw materials and begins a partial vitrification (Willmott 2005:10). Resulting frit is then placed in crucibles in the furnace proper for the second step and melted to the proper consistency for blowing. Many glass houses relied on “cullet,” or broken glass and discards from previous cycles of glassmaking, to speed up the second step of the process because adding cullet lowered the melting temperatures required to convert the frit into workable metal (Willmott 2005:80). Thus, it is rare to find discarded glass in and around glasshouses, and remnants of vessels could show up in a glasshouse that were not originally made there (Kieron and Willmott 2005:48, 67). Some lead probably entered soda-lime glasses in low percentages due to discarded English lead glass that was used as cullet during the 18th century (Kieron and Willmott 2005:51).

The metal was held ready for use in large ceramic crucibles. Glasshouses specializing in tableware required crucibles that were covered, in contrast to the open crucibles used in earlier furnaces of the 17th century. English flint and finer clear soda glass required purer metal. Open

crucibles allowed more contaminants to enter the metal from the sulfurous fumes caused by the fuel. Open crucibles thus were normally only found in window and bottle glasshouses where controlling the color of the metal was of less importance (Kieron and Willmott 2005:45). With the introduction of coal fired furnaces, closed crucibles became doubly necessary for tablewares (Turnbull 2001:13). A flue directed air to the furnace once the glass frit was ready to melt. After the glass was successfully melted, the glassblower would stand at the “glory hole” that allowed access to the crucible of molten glass and draw up a gather of metal, then blow it into whatever form he or she fancied.

A glassblowing team could include two to three people, with the gaffer being the most skilled and the person in charge of forming the vessel itself. Assistants, or “servitors,” would gather a blob (paraison) of glass onto a blow pipe and hand it off to the gaffer, who would marver (smoothe) the gather before blowing by rolling it against a block (Kieron and Willmott 2005:16). Some vessels required additional gathers of glass. Willmott distinguishes three types of vessels and glass waste by their blown manufacture method: open, closed, and compound. Closed and open vessels could be made from one paraison of glass, and represented bottles and cups or beakers, respectively. Compound vessels required the use of multiple gathers of glass to make each individual part of the goblets and stemmed vessels (Willmott 2005:12-13). Most of the vessels covered in this study are considered compound vessels.

Gathers required several basic steps. An initial gather of glass was obtained from the furnace on the end of a blowpipe. This paraison was marvered before the gaffer inflated it, continually smoothing it as he worked. This initial paraison became a bowl of a vessel. The

gaffer kept the bubble constantly moving to prevent sagging. The servitor brought a second gather on the end of a blowpipe, which was placed on the end of the first bubble to become the stem. The second blowpipe was separated from the smaller second gather before a third bubble was brought over. The gaffer created the foot of the goblet by attaching it to the second gather, opening the bubble, spreading it, and folding the rim under to form a base. The servitor attached a pontil rod to the base of the vessel, which allowed the vessel to be broken away from the initial blow pipe at the rim. The gaffer opened out the rim if necessary and finished smoothing and forming the bowl before the vessel was separated from the pontil (which often created a characteristic pontil mark) and the vessel was placed in an annealing oven to slowly cool off, guarding it against shattering due to thermal or physical stress (Lanmon 2011:46-47; Willmott 2005:13).

This complex series of steps to create one glass vessel required skilled workers. There were very few native skilled glass-blowers in England during the 17th century. Quite a bit of “English” glass (including window, table, and other glass) prior to the later 17th century was made in factories with expatriates from the Continent as head or subordinates (Willmott 2005:71-73; Lanmon 2011:16, 18;). Most 17th to early 18th-century glass-houses in Antwerp, Amsterdam, London, and Liverpool employed expatriate Venetians who taught their glass-making skills to local glass-blowers. Since glass wares were a lucrative manufacture, English royals and merchants were enticed to promote the creation of a native trade. Many of the patents and contracts granted to foreign glassblowers working in England stipulated that they were to train Englishmen in the arts of making fine glassware (Francis 1926:2; Willmott 2005; Lanmon

2011). These glass-workers and their trainees were the ones that blew the first few decades' output of English flint glass.

Forms

It is necessary here to quickly define some of the common forms of glassware that are mentioned in this study. Most glassware discussed are drinking forms, from non-stemmed cups to stemware and beverage serving-ware, including beakers, tumblers, dram glasses, decanters, jugs, and more. Other wares used for activities besides drinking include salvers or serving plates, candle-sticks, and even decorative vases.

Beakers are a form of drinking glass whose zenith of fashionability predates flint glass. They were a descendant of green waldglas vessels and commonly made with *façon de Venise* details. They were made much like free-blown bottles, had no stems, could come with or without raised feet, and were often cylindrical, with decorations such as bosses (raised dots of glass), molded comet-tails or raspberry prunts (also called strawberries, c.f. Hartshorne 1987), and pinched or ruffled trails of glass, as well as bands of opaque filigree applied enamel, called *vetro a fili* (Henkes 1994:138, 163). Soda-glass beakers with bands of multi-colored *vetro a fili* were often made in Amsterdam towards 1600 into the mid-17th century up to 1700 (Henkes 1994:179; Willmott 2005). The bases were often conical and concave, somewhat similar to free blown bottles. To my knowledge, beakers were not a common form found in flint crystal.

A close cousin to the beaker, roemers, were vessels with globe-shaped bowls set atop a cylindrical hollow stem-like base. Roemers shared many similar decorative attributes to beakers,

particularly prunts (Lanmon 2011:110), but were not generally decorated with colored filigree, being primarily a northern European form that was usually made from green waldglas. Some late 17th-century roemers do appear made from clear flint glass (Lanmon 2011:35 figure 12a), but this combination of form with flint glass seems to have been uncommon.

The term “tumbler,” used to refer to a cylindrical water glass, did not begin to take precedence over the term “water glasses” until the second quarter of the 18th century (Francis 1935:205). Flint glass tumblers may have borrowed their name and footless forms from 17th-century silver plate drinking vessels, also called tumblers (Hyman 1994:26). Glass tumblers were more expensive than stemware during the 18th century, and did not really show up on tables often until the last quarter of the 18th century (Jones and Smith 1985:38; Bickerton 2009:22).

Glass tankards with handles were used like mugs today, sometimes with footed bases. They were called “cans” in the 18th century. The earliest dated tankard was found in a context of 1710 in glassworks on Whitefriars street in London, but the form would have been common to the first three quarters of the 18th century (Lanmon 2011:80).

A dram referred to a small drinking glass that was used for strong liquors like aqua vitae, rum, gin and cordials that were drunk in a swallow or two (Hughes 1968:69). Goblets, or stemmed drinking glasses with larger volume, were "part of the usual appointments of well-ordered households for... the consumption of liquids in considerable quantity" like ciders and small beers (Francis 1926:105). Alternately, “goblets” may have been equivalent to glasses for “wine and water,” which sported larger bowls than normal wine glasses (Lanmon 2011:50). On

the European continent, goblets often had covers, but very few of these survive (Lanmon 2011:106).

Decanters were a bottle-like form used to serve casked beverages at the table (Davis 1972: 18).¹ While the basic green wine bottle could serve this task, more decorative serving vessels were sometimes called for by consumers. Green glass handled wine-bottle like shaft and globe bottles were used from the 1640s to the 1720s, and flint glass decanters followed. The earliest decanters were called “bottles” by Ravenscroft; the term decanter did not become used until after the 1690s (Davis 1972:18-19; Lanmon 2011:284).

Punch bowls were, as the name suggests, used for serving or drinking punch. While they were mainly ceramic, glass bowls and large goblets could be used for punch. Other serving vessels made of glass included salvers, which were flat-topped, broad stemmed glass vessels in appearance not unlike modern footed cake plates. Salvers were used to serve or present food and drink. Salvers often had pedestal-molded stems (Lanmon 2011:144). Monteiths, finger bowls, or wine cooling bowls, are a stubby wine-glass like stemmed form that probably was quite rare to find in glass before the 18th century, but relatively common in the 18th and early 19th centuries (Bickerton 2009; Jones and Sullivan 1989: 132). Other less common forms like “Cream bassons”—were bowls with stands. Syllabubs and possets were both vessels used to serve concoctions of cream and wine in either hot or cold form. Seventeenth-century versions of earthenware or glass possets had a spout to suck the liquid from (Lanmon 2011:23), while

¹ The term decanter does not appear until the last decade of the 17th century, shifting from meaning the pouring of liquid from one container to the other, by tilting containers, to pouring from a storage vessel such as a barrel to a serving container (Davis 1972: 18-19).

eighteenth-century glass syllabubs required spoons or drinking from the lip. Cruets were wide mouth flasks with no foot. Castors were containers with pierced tops. Caudle cups sported two opposing handles, and were named because they were used to served caudle—a mixture of ale or wine mixed with eggs, gruel, and spices— to invalids or convalescents (Downs 1947:186). Their use need not be limited to this “caudle;” for instance, caudle cups of silver were used by colonial congregations in New England during passing of the Communion wine (Ward 1988:16).

English Lead Glass

English lead glass marked an innovative addition to the world glass industry and the growing capitalist world market. Basic glass had been made by men and women at least as early as the days of the Roman Empire, often in one-person enterprises using sand and wood (Hughes 1956:27). Coal burning was one of the most transformative technologies of the 17th century (Pennell 2012:71), and the British glass industries developed in tandem with the coal furnaces (Berg 2005:120). The introduction of the coal furnace in 1615 and the Franke draft furnace in 1635 lead to cheaper and better quality glassware (Hughes 1956:28). English lead glass would not have been possible without these technological advances, in addition to political monopolies in England (Berg 2005:119; Peck 2005:76). One reason for its success and the speed of its adoption was that it was an English product, created at a time of English expansion (Willmott 2002:34).

By the 18th century, three major types of colorless glass dominated the market in Europe: “ordinary” glass (soda-lime glass), white (chalk) glass—not to be confused with white flint—and flint crystal (potash-lead glass) (Kunicki-Goldfinger et al. 2001:226). Before the English potash-

lead glass came on to the scene, most glasshouses throughout Europe and Britain made ordinary glass with variants of a soda-lime mixture using fuel sourced from seaweed or wood ash (Frank 1982:75-76). This soda glass was usually greenish, yellowish, brown, and generally not quite colorless. Impurities in the glass flux and in the fuel often caused the glass to take on colors whether or not they were desired by the glass-blower (Frank 1982:12). The fine and often intricate Venetian *cristallo* glass from Murano used more pure materials. This *cristallo* was then considered the most glorious of glassware. English authorities recognized the demand. Even in 1689, Venetian glass was levied the heaviest duties of all foreign table glassware upon importation into England, at 18 shillings per dozen compared to 25 shillings for 100 Flemish drinking glasses, or 15 shillings per 100 Scotch/French drinking glasses (Francis 1926:3). During the early 17th century, a domestic English market for Venetian imitations sprang up when Anglo and Dutch glass-blowers taught by Venetian expatriates like Giacomo (Jacob) Verzelini began to make skilled imitations that competed for market space with the Venetian wares (Charleston 1984; Berg 2005:119; Willmott 2005). However fine their glass creations, neither the Venetians nor Anglo-Venetian glassblowers could manufacture a perfectly colorless glass- the best of their glass was still very fragile and ever so slightly yellow (Hughes 1956:37).

Although technological advances allowed an appetite for luxuries to be stoked, Royal monopolies both helped and hindered progress in English glass-making. Jacobean policies of economic improvement and diversification lead to an English industry of imitation in glass-making during the 16th and 17th centuries (Peck 2005:75-76). The English Crown patented and financed nearly all the glass made in England during the early and mid-17th century. Queen Elizabeth I granted the first monopoly over glass making in England to a Frenchman named Jean

Carré, who later was responsible for bringing the Venetian Giacomo Verzelini to England (Charleston 1984:55). In 1618, King James granted Robert Mansell a monopoly over glass making in London. Mansell placed tight limits on the availability of ash flux to anyone else in England. These monopolies intentionally crippled glass making output from independent glasshouses and individuals, giving Mansell's glasshouses the lion's share of the domestic market. Glassmaking in England continued under Mansell's monopoly until the Commonwealth era, when the monopoly was rescinded. During the Commonwealth, demand for fine glass declined, possibly due to outcries by the Roundheads against “sinful extravagances,” a category under which 17th-century glassware certainly might fall (Hughes 1956:32; Thorpe 1961:135; Willmott 2005:107). Archaeological examples of glass too decline in this period (Willmott 2005). However, Linda Levy Peck argues that overall demand for luxury goods did not die in this time, but even grew, bolstered by the appetite of Royalist and Roundhead alike (Peck 2002). What we do know is that with the Stuart restoration, English glass making resumed (Hughes 1956:32) and the English glass industry soon gained a new role in manufacturing a “modern luxury” for a new market—flint glass (Berg 2005:119).

Although production of English and Northern European imitations of Venetian glass, termed *façon de Venise*, played a part in lowering prices for fine glassware in the 17th century, their impact remained limited in scope (Berg 2005:119). The invention of lead glass was engineered by the “Worshipfull Company of Glass-Sellers” in London. Chartered in 1664, this group of merchants held an oligarchic power over the manufacture and sales of all glassware in the city of London (Charleston 1984). Because of the proven draw of luxury glassware, these merchants sought to influence British consumer buying decisions and guard against the influx of

imported Venetian and *façon de Venise* glassware, particularly those glasshouses beyond the power of the Glass Sellers Company who made “wares very slightly insufficiently and deceitful...” (Moore 1899:6).

The Worshipfull Company of Glass-Sellers’ desire to make and market the perfect glass that looked like rock crystal led them to hire a series of scientists and glassmakers, including George Ravenscroft, to come up with a rival to Venetian glass. When Ravenscroft submitted a successful formula about 1675, the Company granted him an exclusive patent to make glass for seven years. Ravenscroft set up shop by the Thames River at the Henley glasshouse. Ravenscroft had before been an English merchant of Venice (Charleston 1984:110). He was probably the financier for the flint glass venture, rather than a glassmaker, which means that some other unknown skilled person(s) dealt with the glass making (Lanmon 2011:27). Period sources suggest the true initial blower of English flint to be da Costa de Montferratees (sometimes called John Baptista da Costa), an Italian who worked in the Low Countries before coming to England to work in the Henley Glasshouse for Ravenscroft (cited in Lanmon 2011:27; Willmott 2005:118).

The Magic Flint Glass Formula

Ravenscroft hit some hiccups on the way to figuring out a superior flint glass, namely “crizzling.” His early formulations were soda-based, made of very pure calcined and crushed flint from Northern Italy. The rarified source of his silica lent to the name of his new “Flint glass” (Hughes 1956:48; Lanmon 2011:27). Alas, this glass was so pure, it was extremely susceptible to glass disease. Many of the early samples showed cracking and clouding of the

exterior due to unstable chemical bonds brought about by a lack of stabilizing agents in the glass that were typically at least 98% composed of mixtures of silica, potassium oxide, and lead oxide. His earliest known glasses typically had the highest potassium oxide and lowest lead oxide (Dungworth and Brain 2009). Ravenscroft began to add more lead oxide as a stabilizer to the metal and saw improvements in the longevity of the finished glass, although at least half of his later glasses did eventually crizzle anyway (Lanmon 2011:32). The additional lead also provided a superior clarity and resonance to the colorless vessels (Hughes 1968:16). The London Glass Sellers granted Ravenscroft permission to sell off £400 worth of these diseased early glasses abroad in 1675 (Charleston 1984:111). Fortunately, crizzling in English glass was fixed for the most part in the early 1680s (Charleston 1984: 115, 122; Lanmon 2011:32), and lead oxide continued to be the hallmark of English crystal glass into the 20th century.

Before 1675, not much glass was made for export from England. Royal patents during the 17th century created monopolies that curtailed developments in the glass industry (MacLeod 1987). To compete, English glassmakers enticed expatriates from Venice to come work in glass factories, but even in the 1670s, the Glass Sellers were still sending to Venice for specific glass vessels to be made to order (Willmott 2005:114). After Ravenscroft, this state of affairs changed. However, Ravenscroft did not make glass for long; he surprised the Glass Sellers when he gave notice that he would cease glass production by mid-1679. His patent still had three more years left at that time. Charleston (1984:121) suggests that Ravenscroft, as a Catholic, may have been worried about unrest during the Popish Plot. By 1682, the London Glass Sellers had hired Hawley Bishop of the Savoy glasshouse to continue the manufacture of flint glasses. The expiry of Ravenscroft's patent enabled other English glass-houses to legally begin producing their own

versions of flint crystal by 1681 (Charleston 1984:122). Most glass continued to be made in London, but about 1688, the Glass-sellers became alarmed about an influx of “country made” glasses to London that they claimed were of bad quality (Hartshorne 1897:243). By the 1680s, England manufactured enough glass to meet demand and share with neighbors like the Low Countries (Hartshorne 1987:242). Although England retained the prestige of making the best flint glass, the new technology spread swiftly and uniformly across England and the glass industry (Brain and Dungworth 2003:252).

Although George Ravenscroft has been credited with “inventing” and making flint glass synonymous with English glass, in the last decade several authors have traced the early development of leaded glass to three glassblowers in the Netherlands. Before 1674, John Odacia Formica, John Baptista da Costa (soon to be of Ravenscroft's glasshouse), and Jean Guillaume Reinier experimented with glasses of lead in Nijmegen, Holland. Formica later went to Dublin, da Costa to England, and Reinier to Sweden (Francis 2000; Willmott 2005: 119). Ravenscroft, with the aid of da Costa, was the most successful in marketing this glass. Even though glasshouses in Holland, Scotland, and Dublin are confirmed to have made lead glass at some time before 1700, and some Dutch glasshouses may have experimented with lead oxide around 1700 (Henkes 1994), England remained the major manufacturing hub for flint glass until the mid-18th century.

At least ten factories made vessels of crystal in England in the 1670s and 1680s (Lanmon 2011:58). A 1696 document listed 88 glasshouses in England, and of these 61 made “flint, green and ordinary glass,” and 27 made “crystal glass” (Francis 1926:15). Twenty-four of these

glasshouses were in London, where nine made bottles, two made looking-glass plates, four produced crown glass and plates, and nine manufactured flint and ordinary glass (Willmott 2005:10-11). Just because a factory generally made one glass does not necessarily mean it was not the source of others; Francis (1926:107) for example identifies a greenish, heavy balustered goblet as having been made in a glasshouse that generally made window glass and/or bottle glass. This glass was most likely not leaded, but its balustered and folded base still followed the styles of heavy flint baluster glasses in vogue at that time.

In contrast, a single glasshouse existed in Scotland in 1695, compared to the 88 glasshouses throughout England making various kinds of glass (Turnbull 2001:283). In Dublin, lead glass was being made in two glasshouses from 1675 to 1680 (Francis 2000:50). The English glasshouses, particularly those in London, remained the major sources of tableware made from lead metal in the late 17th and early 18th centuries. The “new” English lead glass sparked a major shift in the glass market and the use of glass in the Early Modern period (Berg 2005:119). The Worshipful Company of Glass-Sellers eagerly and successfully brought lead glass tableware onto the market in England where it began to surpass Venetian and Anglo-Dutch *façon de Venise* in popularity. At the start of the 18th century, English flint crystal dominated the European tableware vessel markets, and *façon d’Anglais* influenced the glass industry into the second quarter of the 18th century (Willmott 2004:297; Willmott 2005:14). English flint glass of the late 17th century “introduced a whole new British style of modern consumer goods to middling and upper class homes as well as in Europe and in the colonies” (Berg 2005:117).

Selling Flint Glass

Members of the Worshipfull Company of Glass Sellers were successful retailers who defined the nature of selling glass for years (Thorpe 1961:163). Company members were further licensed to sell earthenwares along with glasswares by their charters (Britton 1990:65). This means that English citizens and customers interfacing with members of the Glass Sellers Company could easily have seen glasswares sold alongside Delft tin-glazed earthenwares and salt-glazed stoneware vessels. Members were also required to report anyone selling glassware in London that was not licensed by the Glass Sellers Company (Moore 1899:9). Thus, one might assume, if early flint glass was coming from London to the colonies, it was sold by a member of the Glass Sellers Company, perhaps even by prominent Glass-sellers like John Greene or Thomas Apthorpe (Charleston 1984:108, 113).

Glass was sold by weight in the 17th and early 18th centuries. The list of prices and weights agreed between Ravenscroft and the Glass Sellers indicates how prices increased with weight; an 8-ounce Beer glass with *nip diamond waies* cost 1 shilling and 8 pence, while a 7-ounce beer glass of plain or ribbed nature sold for 1 shilling and 6 pence each (Hughes 1956:44; Lanmon 2011:82). In 1676, Thomas Apthorpe sold “12: new fflint wine glasses mrd...” for 16 shillings sterling (Charleston 1984:113). The prices fell as time went on; in 1682, one “fflint sullibub glass” sold for 1 shilling and 2 pence each, but by 1690 the same sold for 10 pence apiece (Charleston 1984:119). Flint glass was five times more expensive than soda-glass in 1677 (Hughes 1956:44).

Health Impact

Although the hazards of lead exposure during the manufacturing process were known in the post-medieval period (Riva et al. 2012), warnings of lead crystal as a potential source of lead poisoning appeared only as recently as the late 20th century (Altman 1991). Tests of lead release into food and drink showed that acidic beverages like wines and liquors can cause leaching of lead when poured into or stored in crystal glassware. White wines can cause leaching within minutes, though the amounts released by beverages in glasses are miniscule compared to the safe levels of allowed lead ingestion in the US and Canada (Graziano and Blum 1991; Health Canada 2003). Storage in particular appears to be problematic, with up to 10 ppm being released from lead decanters when wine was stored inside for weeks (Health Canada 2003). Tests at Columbia showed similar findings when brandy in a crystal decanter leached 21,500 micrograms per liter after five years in storage (Graziano and Blum 1991). The leaching of lead from ceramic and glass tableware is suggested as a possible vector for the “dry bellyache” that commonly afflicted slaves and white colonists in colonial Barbados. Slaves would likely have had less contact with leaded glass, assuming it was afforded the status of a luxury good out of their reach, and more lead probably entered alcoholic drinks such as rum in the actual manufacturing process than from objects of dispensing and drinking (Handler et al. 1986). However, if the use of lead glass had been in fact widespread and part of every-day life, it could conceivably have had some impact on the health of colonial individuals.

Chapter 2

Consuming Glassware

Most colonial glassware is linked to a colonial drinking culture. As Thomas Wilson (2006:5) puts it: “with drinking cultures we are simultaneously examining the consumption of commodities and the behaviors of social and cultural integration and differentiation.” Indeed, drinking is a means of socially constructing a world, and Mary Douglas (1987:8-12) identifies three ways it happens: drink can construct the world “as it is.” It can mark personal identity as well as the bounds of inclusion and exclusion. Drink can also construct an ideal world, making chaos bearable. Drinks are also an economic activity of consequence. The subject of drinking is too large for one thesis, but it is worth keeping in mind as we consider glass tableware, a very specific part of the ceremonies of drinking culture in early colonial Maryland and Virginia. In this chapter the focus shifts from glassware production to glassware consumption and the cultural background of the colonists.

Consumerism and Consumption

“It is the position of domestic goods in household expenditures that made it possible for domestic goods to be adopted very quickly, if people chose to do so” (Weatherill 1988:136). Buying small domestic goods, like glass tableware, was part of a wider economic strategy for survival (Weatherill 1988). Weatherill’s 1988 study of probates from working class English households covered everything from domestic goods to household cycles and income disparities, but one of her most instructive observations is that “meals are front activities” (Weatherill 1988:156). They are intended to be viewed by others, or to be partaken of in company. Recent studies of drinking paraphernalia in the form of punch bowls have shed new light on how

individuals in the late 17th and 18th centuries may have used punch ceremonies and punch bowls to stage sociable scenes, parlay their good taste, or to uphold their status and display connectedness (Harvey 2008; Breen 2012; Antczak 2015). The use of refined punch bowls in individual serving sizes in an open-air “tavern” by ship captains docked in La Tortuga may have been calculated to reflect their taste and excellent links to the world of goods while cementing sociable connections with peers (Antczak 2015). By consuming punch bowls, or to extend the argument, by consuming glass tableware, colonists furthered their chances for survival by leveraging the social meanings bound in those goods.

Ann Smart Martin (1993:142) defines consumerism as “the cultural relationship between humans and consumer goods and services, including behaviors, institutions, and ideas.” Consumption is normally a term that evokes the using up of something, and it generally comes as a foil to production, the creation of something. Yet conflating consumption with consumerism is common (Martin 1993:143). Stearns (2001:23) for example, uses consumption to mean methods that “anchor consumers in society”, while for Reynolds and Alferoff, consumption indicates “identity construction” (1999:246). Some scholars even consider “consumption” a “crass elevation of material acquisition to the status of a dominant social paradigm” (Princen et al. 2002:3). Paul Mullins recognizes that determining one definition of consumption is impossible, given all the various ways archaeologists, not to even mention scholars in other fields, define it. Consumption can cover the symbolic, social, and cultural aspects of manufacture, marketing, purchase, display, and discard (Mullins 2011:5). In this study, the term consumption follows Hearn and Roseneil in referring to ways in which society is structured and organized by acts of consuming (Hearn and Roseneil 1999:1) and even acts of being consumed. Consumption does

not necessarily need to indicate the using up of something; nowadays it can include activities like downloading, whether by eyes or ears, print or computer bytes. One can consume a television show, and one can consume a vessel of flint glass. The effect of these acts of consumption on society is a key point in understanding the “interaction of people, ideas, and material objects,” meshing together consumerism, consumption, and material culture (Martin 1993).

Colonial America is often represented as colonies of commercial primitives, but the underdevelopment of certain sectors like money markets and textile industries is hardly the fault of having no market presence. The legacy of consumer activity in America is a result of British political and fiscal policy which required the colonies to produce a limited range of commodities while relying on the mother country for most finished goods (Shammas 1982:83). The main distinction for 17th-century consumption, in contrast with later consumerism, was its limited scope to specific regions and colonies before 1700. “After 1700 [new things] were to be had in most corners of the world...” (Pennell 2012:70). Sara Pennell channels the economist Joan Thirsk and argues that the 18th century may be the Century of Commercialization, but hardly the era of the Consumer Revolution (Pennell 2012:70). The lack of analytical work done on 17th-century consumption compared to the 18th century tends to obscure consumer behavior during the earlier period.²

² Pennell makes a very applicable point, problematizing museum collections that often contain “what people think they should see”- all later medieval or Georgian period artifacts (Pennell 2012:69), a practice that is quite relevant here, given the emphasis on 18th-century glass tableware.

I hoped to use political consumerism as a theoretical framework for this thesis. Every product consumed is embedded in a political context. This “political consumption” is not necessarily a conscious act (Micheletti 2003:2). The changing way of life identified by Deetz, Shackel, and Leone as Georgianization in the 18th century would be a form of political consumption, in that the acceptance and desire to accumulate material culture like clocks and individual serving wares was calculated to convey certain ideas about the persons that owned them. Exploring political consumerism in the second half of the 17th century offers a framework for understanding the reasons for using English flint glass because it opens up the field of interpretation to go beyond the “preindustrial colonist” versus his or her market-savvy Georgianized descendant. Historian T.H. Breen (2004) argued that the English goods that men and women of the 18th-century bought and used in such massive quantity were a means to fashion themselves as true English men and women, despite being an ocean apart. By consuming English tea from English teacups, they sought to prevent being dismissed as backwater provincials; though in the end, the colonists came to realize the Crown did not see the colonies as legitimately capable of controlling their own regional business (Breen 2004). Does glassware take on Georgian tones, or political tones? Could using English flint glass have been a means to reinforce Englishness, even in the 17th century?

Archaeology has given tantalizing examples of possible politicized consumption in this thesis’ region of interest. Yellow bricks have been found on multiple sites in the Wicomico drainage, including Westwood, Notley Hall, upper Notley Hall, and Fendall. They may have been bricks from a confiscated haul out of a Swedish ship in 1672 that were shared among neighbors after Thomas Notley, attorney for the ship captain, kept a portion of the cargo.

Evidence of yellow bricks have been found on other (mostly elite) sites in southern Maryland, and it has been suggested to correlate to the households of supporters of the Calverts (Strickland and King 2011:29-31; King 2016:10). A large decorative Höhr stoneware vessel with a molded decoration depicting King William was found at Westwood Manor, suggestive of the pro-Rebel loyalties of the inhabitants (Samford 2011). Lauren McMillan's study of local tobacco pipes revealed a pattern in the distribution of pipes that appears to correlate with the political allegiances of men and women along the Potomac and water-based local trade. Those with anti-Calvert tendencies on both sides of the Potomac showed a tendency to use locally made pipes from the same sources (McMillan 2015b:10, 12).

Luxurious Glass

Glass served as a visual symbol of standing, and a highly visible type of conspicuous wealth, particularly as it was totally wasted if broken (Willmott 2002). Most archaeological studies begin with the assumption that glass tableware is a luxury good (Galle 2011). Even today, quotes from non-anthropologists, like the following from Representative Marsha Blackburn (R-TN): "I will remind you: some people like to drive a Ford and not a Ferrari, and some people like to drink out of a red solo cup and not a crystal stem," (Blackburn 2013), show that people still consider glass tableware to be a luxury good of sorts. A study of glass tableware cannot escape dealing with this association. "Luxury" in this study is defined as the "habitual use of, or indulgence in what is choice or costly, whether food, dress, furniture, or appliances... or surroundings" (Peck 2005:5).

Although studies by Lorna Weatherill (1986) and Carole Shammas (1982) brought more clarity to the new consumer goods that filtered into the homes of early modern England and the colonies, most historians of luxury goods have until recently focused mostly upon the “long 18th-century,” leaving 17th-century luxury consumption poorly understood. Linda Peck (2002:3) argues that “Luxury consumption significantly marked 17th century England.” Luxury consumption was not a new thing in the 18th century, but a continuation of what Pennell terms “innovative reinvention” supported by new shopping habits for old and new luxury goods that surfaced in the 17th century, in spite of wars and political strife (Pennell 2012:76). For Maxine Berg, English flint glass serves as an example of how imitations of luxury goods from the exotic Far East became new luxuries accessible to the middle class as exportware (Berg 1996:189).

Venetian glass was, and still is, the definition of a luxury tableware. *Façon de Venise* and English flint glass can be argued to share this association, despite being imitations of a sort, and cheaper—much like early white salt-glazed stoneware and creamware teacups imitated porcelain ware (Miller and Hunter 2001). The assumption that glass tableware is a luxury ware often results in a belief that the users of a singular archaeological example of a glass vessel without context must have been affluent. This does not necessarily have to be the case. High quality glass was expensive, but the cost of glassware fell throughout the 17th century, and by the second quarter of the 17th century, glass tablewares were cheaper and more available to middling income English households (Willmott 2002:23). The power of what Jan de Vries (2008) coined as the “industrious revolution” and 18th-century consumer choice was such that colonists could and did often choose so-called “luxury tableware” like teacups over spending excess income on

fixing up their dwelling or improving their general “comfort” (Shammas 1990; T.H. Breen 2004; de Vries 2008; Hodge 2010).

Glass assemblages from urban sites in England tend to reflect the actual patterns of use better than rural sites inhabited by elite households, perhaps in part because the patterns of discard at elite sites in the countryside are not uniform (Willmott 2002:23, 26). However, a larger number of imports are observed on the rural elite sites (Willmott 2002:26). Glass found on elite sites in England is not significantly higher in quality than on other sites (Willmott 2002:23).³ Comparing our colonial assemblages to England may be made more difficult by a tendency of export goods to the colonies to display a more “mass-produced” character. The lack of a face-to-face contact between consumer and producer made “bespoke” items like hats rarer; by the 1680s goods sent to the colonies in a batch tended to be more standardized (Zahedieh 1994).

An economic study by Zahedieh (1994:250-252) on exports from London to the colonies shows that the value of exports of “glass” in 1686 from London to Jamaica (including Port Royal) far outweighed the exports to North America by threefold: £2,947 to £888. In this time, Jamaica was a colony with a very large number of wealthy inhabitants. Zahedieh (1994) does not specify the North American colonies, nor what is included in “glass” (aside from window glass which is a separate value in her table), but makes a suggestive point for colonial wealth level being proportionately related to the consumption of “glasses.”

³ Noël Hume (1968) also observed that Port Royal glassware was not of especially high quality, despite the high wealth of the area.

Differentiating who could afford luxury goods, and those who choose to buy them, can be quite difficult without archaeology. Luxury goods were certainly a feature of life in the lower Potomac and Western Shore. The *façon de Venise* tableware used in St. Mary's City was probably not intended as a heirloom but rather as a reflection of the status of people in the "capital city" of the colony's provincial government (Grulich 2004:6-7). With the transient nature of the city's inhabitants, the vessel glass found on the urban elite properties conveyed an "instant urbanity and status" (Grulich 2004:2). Clearly Grulich leans towards Douglas's characterization of consumerism: the "drinking [glassware] creates an ideal world." At the Patuxent Point site, a raspberry prunt from a glass vessel is among the artifacts, including remains of a large earthfast structure and graves of servants, which allow King and Ubelaker to argue that the inhabitants were of the middling sort, with a "spacious and well-appointed dwelling" (King and Ubelaker 1996:32, 120). At Mattapany Manor, the trend of discard evident in the glassware distributions does not quite mesh with the high status of its inhabitants. That site displayed an unusual lack of high status goods on the area surrounding the home, perhaps suggesting that trash was being disposed of elsewhere away from the dwelling (King and Chaney 2002).

Chesapeake Drinking Culture

Colonists in the 17th-century Chesapeake did not own as many drinking vessels as they did serving vessels. Instead, people drank communally out of pewter or earthen vessels regardless of economic class or status (Beaudry 1988). Glass vessels were also a feature of communal conviviality, and could be used or shared among a crowd along with mugs and beakers. The Victoria and Albert Museum and Corning Museum of Glass own examples of giant

glasses used in European societies of this era for ceremonial purposes. Such large glasses, like the Dudmaston ale glass painted by George Alsop (Figure 2.1), termed the “Fool’s Glass,” may have been used for events like initiations to social clubs (National Trust 2011). As we will see in Chapter 4, after the turn of the 18th century, individual tablewares began to proliferate in colonial inventories and in the archaeological record. At the Clifts in Virginia, the number of drinking vessel sherds tripled over 15 years from 1705 to 1720 (Neiman 1980a:38).

Marylanders and Virginians alike drank heavily in part because of their cultural backgrounds. English people were known to be heavy drinkers, and alcohol was enmeshed with public life (Nye 2007; Regelski 2014:55). The stereotype of the Englishman as a sot persisted throughout the 17th century (McBride 2004), and excessive drinking remained a hallmark of the Chesapeake world at the turn of the century. Period commentators in the last quarter of the 17th century like Virginia planter-merchant William Fitzhugh complained of the social pressure towards “drinking more than preferable” at social events (Fitzhugh 1963:17). Even enslaved individuals from West Africa came from drinking cultures, so the liberality of alcohol at the table and sociability associated with alcohol consumption would not have been totally foreign to them. Not until the 18th century did concerns with selling liquor to slaves appear in the middle Atlantic colonies (Kross 1997:33-35).

Despite the incredible amount of ethanol coursing through the bodies of colonists and their contemporaries in the Old World, being drunk was viewed as unseemly. Social commentators commonly decried the large number of taverns and tippling houses and drummed



FIGURE 2.1: “The Kitchen-lad, called 'Jack', with the Dudmaston Ale Glass” by George Alsop, 1719. Dudmaston, The Labouchere Collection. Image reproduced with permission. ©National Trust Images

up worries about the “increasing drunkenness” of colonials (Salinger 2004:18). As the 17th century progressed and colonial populations grew, the provincial governments created increasingly strict laws about public drunkenness. Not only did Virginia laws begin to outline strict monetary and career penalties for Justices and ministers who came to court or the church altar drunk (Thomann 1887:55), they also regulated who could get drinks on credit and how much credit colonists could use at the local ordinaries. In 1691, the Virginia province outlawed innkeepers from selling more than 300 lb. of tobacco worth of drinks on credit to patrons with a worth less than 50 pounds sterling or who owned fewer than two servants (Thomann 1887:58). Maryland also enacted similar blue laws, forbidding sales on Sundays in 1674, and legislating

that no sales on credit over 400 lb. tobacco be made to freemen who were not also freeholders (Thomann 1887:76, 78). This legislation limited the liquor that the poorer sort could consume.

In one of the first anthropological tomes to broaden discussions of drinking, Mary Douglas and Dwight Heath lamented that too much focus has been placed by reformers on drunkenness and less on the cultural underpinnings of drinking (Douglas 1987; Heath 1987). Kross' 1997 survey of alcohol culture in New York, Pennsylvania, and other middle Atlantic colonies persuasively argues "alcohol could bind or rend the social order" (Kross 1997:28). Drinking together became a social contract of sorts, used to remedy arguments and bind individuals. Crossing those boundaries could also lead to conflict, particularly from lower- class individuals entering into higher class establishments (Kross 1997:41-42). Like many of the contemporary descriptions of the day, a turn-of -the-20th-century article written on the Singer flint glass collection by W.R. Penny (1903) describes 17th- and 18th-century men and women as a "little too much addicted to the pleasures of the table." Penny (perhaps influenced by early American reformers) gives these early modern colonial Americans too little benefit of the doubt. Colonists clearly understood the double-edged nature of drinking. Alcohol's nature as a psychotropic substance was the reason it worked as a social binder (Kross 1997:49), particularly in a region where populations were dispersed and new faces were not always immediately trusted.

Hospitality was an attribute supremely important to convey in the colonial period. Virginians claimed it as their characteristic attribute (Upton 1997:166). Upton outlines two threads running through this hospitality— one where it "indulged the convivial spirit prevalent

among Virginians, a spirit promoted by their rural isolation and by the chance for competitive self-display,” and another where it carried the ritual obligations of a Christian man and woman for charity to others (Upton 1997:168). With a small population, colonists could and were often tasked with boarding travelers in the region, as well as neighbors, family, and any provincial officers coming by for a visit. Alcohol was a major feature of any social event, and was virtually required to be served, whether at funerals, drop-ins to pay yearly rents, an evening discussion with the ”old boys” at the local inn, the meetings of provincial assemblies, or even sermons in churches throughout Maryland and Virginia (Burns 2004:16-17; Meacham 2009:15-16). The opportunities for an “interplay of public and private life” (Hyman 1994:91) were therefore quite common. Recent popular non-fiction volumes on the history of drink in America by Burns (2004) and Standage (2006) tend to focus more on the business side of drink in the 18th century to modern day, but shore up the literature on the importance of alcoholic beverages to American history. They note that rum was consumed when businesses or contracts were settled (Standage 2006:115), and that 18th-century storekeepers kept a keg of rum or whiskey near the front door, signifying the value that their business placed on customers (Burns 2004:16). Late-17th-century factors trading in Maryland, like Thomas Starke, used a similar practice (Price 1986).

This emphasis on hospitality is especially evident in the practice of punch drinking. Punch was introduced from the East Indies to England and became the most popular mixed drink in the 18th century (Lanmon 2011:90; Breen 2012:88). The drinking of punch allowed a “controlled conviviality” in that punch could be ladled into individual glasses or mugs from a bowl (Neiman 1980:40), as opposed to the tankards shared gregariously in the 17th century. No matter how it was drunk (by personal cup or by shared vessel), “punch drinking reinforced

feelings of hospitality among the drinkers” and punch bowls became ever larger as mass-produced wares were being rolled out (Breen 2012:81). As this study will demonstrate, glass tableware likely came to the fore of this interplay since paraphernalia was an integral part of colonial drinking culture, capable of being loaded with symbolic value (Burns 2004:17). As Upton points out, “... Hospitality was judged by the quality of one's table” (Upton 1997:166).

Sources of Glassware

The early colonial Chesapeake is often described as a place lacking in cities and towns, with colonists flung far across the landscape. The lack of nucleated urban areas has been conjectured to have hamstrung the business and shopping activities of colonists. In a dissertation discussing the town of Mount Calvert in what is now Upper Marlboro, Maryland, Mike Lucas (2008) argued that the colonial towns that were present (and managed to prosper for a time) were more like “public spaces” where colonists gathered to share and partake of commodities, labor, and gossip. For most of the 17th century, the semi-urban environment closest to the Northern Neck of Virginia, Charles County, Maryland, and the St. Mary’s and Calvert peninsulas in Maryland, was St. Mary’s City. Before 1700, St. Mary’s was a cosmopolitan “Baroque city in the wilderness,” (Miller 1988:69) until it withered away after the provincial capital moved to Annapolis. St. Mary’s City functioned more as a center for political power than commercial activities (Hurry 2001). Although most trading was done from ships coming to local landings up and down river, there was probably at least one store present on a lot in St. Mary’s City. However, most 17th-century traders did not keep stores well-supplied all year long (Hurry 2001:142). Attempts to shore up the local trade in the town were limited. William Digges may have planned to open a waterfront shipping enterprise including a store in 1686 (Hurry

2001:132). That store (if it ever came to be) likely faded quickly, given the troubles to arrive in 1689 when rebels seized control of the colony from the Calverts and proprietary power reverted to the British Crown.

There was no early local glass industry known in the Chesapeake colonies aside from two brief, aborted attempts at making glass in Jamestown (Hatch 1941; Harrington 1972). Any glass tableware found in the colonies in the late 17th- and early 18th-centuries was imported either from England or the Continent. Even while English glassmakers were experimenting with flint crystal, there were still glasshouses in England making fine soda crystal and “ordinary” table glasses into the 18th century (Willmott 2005), so the continued presence of soda glass tableware along with flint crystal should be expected at least during the early period of English lead glass. Some of this glass was English, and some may have been Dutch. The largest non-English trade in the colonies, before the Navigation Acts, originated from Holland. We know now that some Dutch trade activity likely continued in the Potomac River drainage some years after the 1660 ban was first enacted (McMillan 2015a, 2015b). ⁴

Colonists in Maryland and Virginia were at a disadvantage in several ways regarding their access to goods. First, their mother country suppressed the development of manufacturing.

⁴ Noël Hume cites several unusual flint glass stemware forms found in Port Royal, Jamaica, among a cache of other stemwares including many forms dating to roughly the last 15 years of the 17th century, that were hitherto unknown to English glass scholars and could potentially be early Dutch copies of English lead crystal (Noël Hume 1968:20). Although they are most likely English in origin, were they Dutch, such Dutch material would not be legally available to English colonists in any quantity after 1660 when the Navigation Acts were instituted. Dutch material in Port Royal after 1660 could likely only arrive by means of illegitimate trade mechanisms (Noël Hume 1968:32).

Second, tobacco, as the king crop of the era, discouraged colonists from smaller trade ventures due to the complexities in production, collection and sale (Martin 1993:10). In the Chesapeake, the tidal rivers and creeks allowed goods to be delivered directly inland (Martin 1993:13). This system of trade, combined with the lack of central towns or urban areas and the very low population density of the area, made it impossible for distribution of goods to proceed in ways reminiscent of the Old World. It took until the 1730s for factors to begin to make permanent “stores” in certain location in Virginia, but not until 1755 was a retail trade “institutionalized” (Martin 1993:13). This trade centered on two forms of distribution; the old consignment mode, and a new organized method of local sales where planters brought their tobacco to local stores and the factor combined their barrels with others to send back to England (Martin 1993:14-15).

To get their lovely glass baubles, colonists had to obtain glass from the same sources that plied them with all their other imported necessities and luxuries. If colonists had the capital and ability to take on risk (generally elite planters), they could consign their tobacco directly onto a ship and make their own requests on credit for goods to be sent back. For everyone else, their options were likely limited to “storekeeper” planters, the local taverns, and the private tobacco and mercantile ships that trawled the local rivers and bays. Ann Martin calls planter-merchant storekeepers, peddlers, and seasonal stores that were open depending on availability the early “incipient forms of redistribution” (Martin 1993:13). By 1700, planters primarily bartered with neighbors, made orders on account and credit through merchants or factors in Britain, or bought things through planter-merchants, or what Bushman calls “storekeepers.” These storekeepers of goods were often more affluent planters who took in large shipments of goods to keep on hand for exchanges with neighbors. These large planters’ networks were widely cast in their

neighborhoods (Bushman 1994:236). The storekeepers often had more direct access to the ships and merchants that frequented the rivers, even serving as central repositories for tobacco loading and trade. The objects these local merchant-planters chose to stock may have influenced the types of tableware seen on community tables and in the hands of neighboring consumers. There may have been differences in sources of imports: St. Mary's County tended to have more links to Bristol merchants, whereas Lancaster and Northumberland Counties in Virginia showed strong links to London merchants (Miller 1983; Horn 1988:76). Clifts Plantation in Westmoreland County on the other hand, appears to have had deep Bristol connections and wider trade connections than other sites in the area (McMillan 2015a:340).

Taverns, inns, and ordinaries also served as locations to make sales of real estate or imported goods, and provided for a social meeting place. Tavern owners and innkeepers sometimes functioned as moneylenders, and their taverns, particularly in the 18th century, were the sites of auctions, sales, transfers of goods by advertisements, vendue sales, and stops by traveling merchants (Salinger 2004:56-57). This social effect was especially noticeable at local inns and ordinaries near the local courthouses during busy court days (Lounsbury 1989). Taverns were also major consumers of glassware and drinking paraphernalia. Several early studies of tavern archaeology assemblages showed a far higher incidence of drinking vessels at tavern sites than at individual households (Bragdon 1981; Rockman and Rothschild 1984). Even in England before the 18th century, inns tended to have larger, but less varied, archaeological assemblages of glass than households, with a larger proportion of matching sets. Individual households were more likely to have an assortment of vessels of limited number, with fewer sets, perhaps due to differences in buying habits (Willmott 2002:24). Perhaps colonial innkeepers known to have

dabbled in mercantile activities on the side, like Mark Cordea (Archives of Maryland Online [AOMO]5:339) or Garrett Van Sweringen, could have kept stocks of glassware on hand, in addition to surplus beverages of all sorts for thirsty travelers to bring back home. Anne Dowling Grulich observed that *façon de Venise* glassware found at the Smith's Townland site in the cellar of the outbuilding showed evidence of paired beakers. If the paired glassware were used in a household or tenant setting, Grulich suggests it may indicate a difference in the "ordering and distribution" of access to glassware that citizens of St. Mary's City had compared to English households, especially given that the Marylanders would have had direct access to Dutch traders into the last quarter of the 17th century (Grulich 2004:17).

Taverns were a major locus for alcohol and beverage consumption in the 17th century. Early on, ordinaries catered to a wide customer base. The types of drinks patrons chose to consume served as a marker between economic and social classes in a typical ordinary in provincial Maryland (Li 1992:176). Thus, if glassware were used as a social marker, it makes sense to have visible symbols like fine wine glasses among the more utilitarian mugs and tankards in communal drinking halls. During the 18th century, differences in the elite inns versus working-class taverns and corner drinking establishments became more distinct.

It behooves the archaeologist to consider more than just glass tableware to determine socioeconomic status of the user or the source of the assemblage. At Rumney's Tavern in historic Londontowne near Annapolis Maryland, the excavation of a cellar revealed a minimum of 18 vessels of stemmed flint glass and a variety of bottles and phials dating from 1690 to the 1730s (Luckenbach and Dance 1988). The cellar at Rumney's was probably filled in quickly

circa 1725 when innkeeper West renovated the place. In comparing it to the nearby and contemporary Freeman's Ordinary, Luckenbach suggests that Rumney's served an elite clientele, plying more wine than the Freeman's Ordinary, which focused on beer and working-class patrons. Unfortunately, he does not indicate how many stemwares were recovered from Freeman's, but both taverns held "significant numbers of wine bottles, wine glasses, mugs, and bowls." The socioeconomic status of the clientele is best supported by the presence of brass cork stopper wires at Freeman's (for beer), the presence of many Delft plates at Rumney's with nearly no plates at all at Freeman's, and the existence of newfangled forms like tea bowls and coffee pots at Rumney's (Luckenbach 2002).

The archaeological assemblages of several ordinaries dating to the turn of the 18th century in Charles Town, MD are also indicative of differences in clientele. Fragments of vessel glass from a cellar that may be related to Moore's Ordinary. Along with tin glazed punch bowls, this vessel glass may show an "enhanced level of refinement" that Moore's Ordinary offered patrons, compared to Tracy's Ordinary and other sites at Charles Town that contained no vessel glass (Lucas 2016:100, 107).

Lorna Weatherill (1996:105). argued that having cash income increased the likelihood an early Modern English man or woman would consume a wider variety of household goods. On the other side of the Atlantic, colonists did not have cash on hand. Instead, they relied on credit due to the lack of a colonial money market (Shammas 1982:80). However, Muldrew argues their fellow Englishmen and women were little better off for having cash. Credit was the "only alternative that could circulate throughout the entire economy" (Muldrew 2001:119).

As this chapter shows, Chesapeake colonists lived within a drinking culture. They were dependent on England for most of their drinking needs. The goods would have been obtained through personal consignments of tobacco if they had the capital, and if not, from their neighbors, neighboring taverns, and visiting merchants or sea captains trading for tobacco. As most glassware was used for drinking, the next chapter will delve into the beverages drunk by colonists.

Chapter 3

The Beverages and Uses

Most glassware used and sold in the 17th and 18th centuries was in the form of drinking vessels and bottles (Noël Hume 1969b:31). In Anglo-American, as well as British military contexts during the 18th century, glass tableware was mainly associated with drinking, with a small number of vessels for eating (Jones and Smith 1985). Drinking behaviors were used to define and bond peer groups through new forms of material sets of goods (Shammas 1990:8; Harvey 2008; Smith 2008). Drinking alcohol out of glassware showed observers “serious evidence about the drinker” and gave the act of drinking a “greater permanence” (Hancock 2009:364). The public and fraternal roles of alcohol drinking were significant; toasts were given at many gatherings, and healths were often drunk to each other and between groups, even through correspondence between far flung individuals (Keblusek 2004:55; O’Callaghan 2004). The alcoholic beverages available in the colonial Chesapeake were quite varied, ranging from wines out of the Continent and the islands of the Azores and Madeira, to home-grown fermented fruit and grain beverages, as well as liquors distilled in the West Indies, and gin imported from England and the Netherlands. Coffee, chocolate, and tea were new drinks of this era, but not generally drunk out of glassware (Burns 2006; Meacham 2009; Lanmon 2011:48). Medicines were sometimes served from glasses (Jinner 1660; Glasse 1664); alcohol itself was viewed as healthful and a necessity for life (Curth and Cassidy 2004). Here follows a short summary of beverages as found in the colonial Chesapeake ca. 1670 to 1720s.

Domestic beverages

Water

Water could be served from a spoonful out of a barrel, a piggin, a mug of stoneware, or even a water glass (Francis 1935). Colonists often drank water mixed with wine, rum, or cider (Carter 1723:Folio 15 recto), as well as plain water— when they were sure the water wouldn't poison them. Water was not generally favored as a first choice for drinking from hand by Britons, Europeans, or colonists in this period (Kimball 1945:349). Water was not only associated with poverty, but also lacked calories and did not encourage merrymaking. It was often considered a corrupt element, both by common belief and due to the reality of polluted sources (Burnett 1999:9). Many Chesapeake colonists still had to deal with less than optimal water sources not unlike the stagnant, brackish water of early Jamestown that led to many deaths and dehydration (Earle 1979:370-371; Stahle et al. 1998). Drinking alcohol instead of straight water in the form of weak beers and ciders each day was believed to ensure a healthier and safer liquid source in the absence of known potable water (Vallee 1998; Burnett 1999:9). Even children were given alcoholic beverages like small beers and cider rather than water (Meacham 2009:6, 8).

Milk

Unlike their contemporaries in the home countries of the British Isles and the Netherlands, Chesapeake colonists in the 17th century did not have an abundance of milk products. This was particularly true in the early period when women, livestock, and extra labor were lacking in the colonies. Colonists allowed their livestock to range freely, rather than penning up the domestic animals nearby. Even when someone was available to put in the labor to

milk the cows, Chesapeake cows did not produce very well, with just a quart or two of milk per day (Anderson 2002:385-386). That milk would spoil very quickly. Back home in England, milk and cream were used in syllabubs and possets. These drinks too became part of the new beverage traditions springing up in the Old World and in the New World. By 1700, the emerging tea ceremony in England included the addition of dairy cream or milk in the cup before the tea. Dairy (and sugar) also enabled the developing taste for coffee and chocolate by alleviating some of the bitterness (Burnett 1999:30). While milk was not as abundant in the Chesapeake, it still had its place in the diet and drink of the region, though its relationship to glassware, if any, was probably limited to mixed drinks.

“Syder, Perry and Quince Drink”

Most of the alcohol colonists drank probably came in the form of cider (Meacham 2009:25). From 1696 to 1701, cider made up at least 43% of the recorded drinks vended at Charles Town, Maryland ordinaries (Lucas 2016:96). Even enslaved individuals would have been more likely to have access to and the ability to produce their own cider than beer (Regelski 2014:66). Colonists who were lucky enough to have time and labor to branch out into fruit husbandry often had orchards that supplied a quantity of apples, pears, and other fruits like quince. With these fruits, they made their own cider and perry (pear cider) which they could consume, share, or sell to the local ordinaries and ale houses (Thomann 1887:79). In the colonies, it was normally the women who were responsible for cidering tasks (Meacham 2009:25). Some colonists parceled out their cider making to other planters with more time, infrastructure, and the labor or physical means to press cider. Presses were available, but not every cider-maker invested in the presses, which had to be imported at high cost from England.

Robert “King” Carter of Virginia, for example, removed the juice of his apples via “beating” on the part of his slaves, rather than a press (Meacham 2009:55). Carter either obtained apples from other plantations for his own fermenting, or made cider for other people in his neighborhood—perhaps both. His diary references bottling ciders sourced from other plantations including Nominy Plantation (Carter 1722/3:folio 10 recto). In England, cider was promoted as the beverage “suitable for English constitutions.” Cider makers of the period touted it as a true English alcoholic product, as well as an alternative drink that supposedly avoided the “pitfalls of unseemly conduct” caused by the harder drinks of ale, beer, wine, and spirits (di Palma 2004:174-175).

Ciders were not the only home brews. Wines were also made in the colonies, but early attempts to create grape vineyards suffered from the climate. Instead, wild grapes were used for colonial wine-making efforts, as well anything non-grape, from peaches and elderberries to parsnips and gooseberries (Kimball 1945:356). Apple and peach brandies were also found in the larders of colonial households whose female members found time to distill fruits into harder liquors (Meacham 2009:34).

In 1667, the Virginia legislature set prices on domestic ciders and drams higher than imported drinks, with the (misguided) intention to stimulate the production and consumption of more domestic beverages—“... the greater rates to encourage anything that is the produce of the country.” This pricing continued through the turn of the century, with the addition of duties on domestic and “plantation” brandies, spirits, rum, cider and imported wine, yet English liquors and beers were not taxed (Thomann 1887:54, 60).

Ales and Beers

Unlike the new hot beverages, which were first found in elite households, beer had been the drink of all classes (Burnett 1999:111). The term “Beer” was used interchangeably with “Ale” until the 17th century. To add to the confusion, beer was frequently split into two types: strong beer and small beer. Per its name, “strong beer” contained a higher alcoholic content than small beer. Ale eventually came to mean a traditional unhopped fermented beverage, while beer included hops. Hopped beer was introduced to England by the Flemish, but did not gain prominence in England until the 17th century. In the early colonial Chesapeake, the term “Beer” could mean anything brewed with “malt.” Due to a dearth (and/or inability to afford importing) of beer malt, colonists pressed into service persimmons and corn, squash, and other starchy items to make “beer” of a sort (Kimball 1945:49). English and colonial women were largely responsible for beer brewing until the 18th century, when advancements in industrial brewing and the increased stability of hopped beer for storage and transport brought it into the province of male brewers and large wholesale “Common Brewers” (Burnett 1999:115; Meacham 2003:119). The Council of Maryland frequently set rates for innkeepers to charge for accommodation, food, and drinks. In 1671 for example, innkeepers were to charge for beer made with “malt of the growth of this province and brewed within this province” 2 shillings per gallon. Beer of foreign malt and foreign make was to be 1 shilling and sixpence per gallon (AOMO2:267).

In England, beer consumption reached a peak of two to four pints per person per day in the late 17th century. It was an important part of the diet for people, comprising almost a fifth of the nutritional needs per day (Burnett 1999:114). Beer (and cider) was served in a variety of containers: mugs, tankards, cups, beakers, glasses, horns, and even bowls.

Imported Alcohol

“Claret for the wealthy, Port for the middle sort”

No matter your class, you showed hospitality by offering a guest a glass of alcohol. If you had the means, this beverage was often wine (Hancock 2009:293). Maryland Governor Thomas Notley's counting house held four drinking glasses at his death (Bauer, King, and Strickland 2013: Appendix II: 45), quite conceivably to offer a beverage to his visiting clients. Even colonial storekeepers would proffer wine to their customers (Main 1982). The most popular wines of the late 17th and early 18th centuries were claret and port. French wines like claret were sought after throughout the 17th century but became more difficult to come by in England and the colonies in the late 17th century. Due to wars with France, importing French goods including wine (one of the largest groups of imported foodstuffs other than sugar coming into England ca. 1700) was banned during the later 17th century (Nye 2007:47-49). In illustration, in 1675, 62% of the wines imported to London were French, and 1% Portuguese; by 1700 the French wine proportion had fallen to 10% and two-thirds of the wine brought to London was Portuguese (Ludington 2004:91). Given this economic understanding, one could presume that in the colonies after about 1689, when heavy tariffs on French spirits took effect, any drinking glasses used for wine were being used for southern wines and what few luxury French wines made it through the customs borders. Among the foreign wines imported to Maryland from England in the year of 1698 to 1699 were “Canary, Florence, Port, Rhenish, Spanish, and Sherry” wine (Morriss 1979:145). The Canary, Spanish, Madeira, Port, and other southern wines were sometimes collectively called by the name of “sack.” These were available at a more modest cost (compared to the luxury French wines that were allowed through), to be used in homes and taverns (Curth and Cassidy 2004:146.) Note that no French wines were present in the 1698 import list, at least

not legally— smuggling and even sometimes selling wine under another name did occur (Nye 2007:37). The loss of access to French wine (which could be cellared longer) meant that the wine found in the colonies tended to be strong. The southern wines did not travel well to the colonies; they needed to be fortified with brandy or spirits to survive the long year's voyage (Nye 2007:38). This also makes clear that "sack cups" would probably have been meant for strong wines.

The perceived class and political distinctions of wine have differed at times. Wine was not strictly an elite beverage in the 17th century, but by the mid-18th century, access to good imported wine was a marker of gentility (Hancock 2009:334). Still, even in the 17th century, certain wines had a cachet, particularly if they were foreign and expensive. The merchants John Addison and Garrett Van Sweringen of St. Mary's City, Maryland had a whole cargo of imports on their chartered ship, the *Liverpoole Merchant*, seized in 1679 by the Maryland Colony's Royal collector Christopher Rousby on charges that much of the cargo had not been "bona fide laden in England Wales or the Towne of Barwick upon Tweed" per the English Navigation Acts. This cargo included 18 hogsheads of French claret wine that had been brought on board in Ireland (an illegal port of loading), as well as a hogshead of brandy, which Addison and Van Sweringen claimed should be returned to them (if nothing else) since it had been loaded in Liverpool, a technically legal port (AOMO5:334-342). Even preferences in desirable wine changed over time: while claret was favored by those with the means to pay well or smuggle it in at the turn of the century (Ludington 2004), fortified wines like Madeira did not gain popularity until the 18th century. Madeira was available in the 17th century relatively cheaply, being no

more expensive than hard liquors or ales. By the mid-18th century, demand surged and it became so expensive that only the rich could afford it (Hancock 2009:282).

Note that wine of this period before the 18th century was different from the sorts dispensed from bottles today; wines then were not clarified or matured. They were often consumed while young, and dispensed from the barrel just before serving (Curth and Cassidy 2004:150-151).

Mixed drinks

Punches, shrubs, syllabubs, and arracks were popular mixed alcoholic drinks for social occasions. Punch was one of the earliest, if not the earliest “mixed drink” in the New World (Kimball 1945:351). It generally required five ingredients: spirits, acidic citrus juices, water, sugar, and spices (Kimball 1945:354; Breen 2013:254). Like tea and wine drinking, punch started out as a less regimented communal drinking ceremony, evolving into a complex social ritual complete with “implements” like cups and ladles (Goodwin 1999; Breen 2012). Punch was often drunk from bowls early on, shifting to ladling of the decoction out of a bowl made of glass, ceramic, pewter, or silver into individual glasses in later years (Harvey 2008:206). Explanations for the popularity of punch range from a “reflection of the pursuit of novelty goods” (Goodwin 1999:131) to a form of convivial ceremony acted out as a response to social anxiety in an unstable frontier world (Smith 2008). Punch was regarded as a mid-range drink, accessible to those of middling means (Harvey 2008:206). It was served in a wide range of venues, though it is most associated with male social events and gatherings in taverns as well as domestic spaces; women did enjoy the drink, however (Harvey 2008:208).

Syllabubs were a spiced drink with a base of wine, cider, or beer, which was mixed with cream or sweetened milk and either poured into the bowl from a height, or whisked vigorously to produce froth on top. The drink was served with this frothy curdled head and clear liquid below (Wilson 2002). The drinker was often meant to spoon out the curd and drink the liqueur. Early syllabub cups and glasses were made with spouts to enable this method, while later years, particularly the mid-18th century, saw the beverage served in tall narrow glasses on well-appointed tables (Charleston 1984; Lanmon 2011). Shrubs involved a mix of orange or lemon citrus, sugar, and rum, brandy or other spirits, and were quite similar to punch but with little or no water (Kimball 1945:354; Wilson 1975:63). Flips lived up to their name; consisting of a concoction of beer or rum with egg or milk and spices, mixed with a hot poker to stir up some good times (Burns 2004:154).

Liquor and Spirits

Liquor, like wines, served a dual purpose as a drink and as a barter currency. The choice of bartering alcohol would depend on individual ties to Atlantic and/or Caribbean trade routes (Hancock 2009:303). Introduced in the early 17th century, rum was a distilled liquor created from the sugar cane grown in the West Indies. It was used as an ingredient of the popular punch drinks of the period. It would become the “most popular and the most reviled” drink in the world (Kimball 1945:349). Along with cider, rum and rum based mixed drinks were the most common drinks sold in the ordinaries of the Chesapeake region (Lucas 2016:96). Rum was a favored liquor to serve the Maryland customers of the Chesapeake merchant-factor John Sheffield, who himself worked as a trading partner in Maryland for the London merchant Thomas Starke (Price 1986:29). Imported rum was cheaper than brandy. Once the New England rum industry

established itself in the late 17th century, New England rum was even cheaper (Standage 2005:116).

Gin is a Dutch-British spirit made with distilled wine and juniper berry that gained prominence in the 18th century. No references to gin, jenever, or “Geneva” are found in the Maryland Archives Online ca. 1660-1700, but that does not mean that it was not around in some form. Gin was first used as a medicinal beverage, but in the late 17th century it began to gain popularity in England as a recreational drinking spirit. It peaked in the early to mid-18th century and became reviled in Britain as a drink of degenerates and drunkards (Barnett 2011).

Aqua vitae, an older but still-common distilled spirit of the period, was made from a distillate of wine (essentially a very strong brandy), and could be argued to be the mother of all distilled liquors, not just brandy. Barnett (2011:23-26) calls it a “proto-gin”, in the same family of “hot waters” as gin (very strong distilled spirits and tonics). It was very popular as a base spirit for medicinal uses. Though not as commonly seen in colonial records as ciders, beers and wines, cordials and flavored liqueurs were present in the 17th century as well. In 1666, the General Assembly of Maryland set prices for “dutch dramms as Anniseed Rosa Solis” at 60 pounds of tobacco per gallon (AOMO2:149). This could refer to a cordial called Rosa Solis that was made from the crushed leaf of sundew plants and colored red with poppy or rose petals (Wilson 1975:62). The “Anniseed” probably refers to some type of distilled spirit flavored with aniseed and sugar, perhaps a drink known commonly as “aniseed water” (Smith 1725:1-3). Cordials were commonly used for medical purposes, but could be drunk on other occasions (Wilson 1975:63).

The Proceedings of the (Maryland) Provincial Council record a suit of Hannah Lee of St. Mary's City against a Vincent Atchison in 1661 to recoup the costs of a series of drinks that had been charged to Atchison's account at the inn run by Hannah's deceased husband Hugh Lee (Table 2.1). Atchison, a former servant who became a middling to lower-class planter (Carr 2009), appears to have placed orders for quite a wide variety of drink for his household. Some of these appear to have been medicinal in nature, particularly metheglyn, a mead with herbs added (Digby 1669).

The varied entries found in Atchison's account indicate that Atchison was regularly buying alcoholic and medicinal beverages throughout the year. No water nor milk was in evidence. Atchison or his servant proxy may have been consuming some beverages with a meal

TABLE 2.1. Vincent Atchison's Account at Hugh Lee's Inn, 1661

<i>Date</i>	<i>Drinks on Acct. Of Vincent Atchison</i>	<i>Cost, in Pounds Tob.</i>
8r 28th	Three Gallons Syder and two Gallons Perry one Pottle Metheglyn one Gallon Beere	110 032 020
9br 11th	Two pottles of Metheglyn five Bottles Brandy 1 dyett Two bottles brandy and two gallons beere & 1 dyett Mrs Packers Servant one dyett 1 pottle of beere	064 110 090 010 010
26th	3 quarts of sack 0 7s 6d 1 dyett one Gall beere	030
Nbr 24th	Nicholls 2 dyetts Nine Quarts of sack one Quart of sack & 2 bottles of dramms	020 1 08 052
Feb. 11th	one bottle of spiritts one dyett	050 010

Excerpted from Archives of Maryland Online (AOMO) 41:538.

in Hugh Lee's inn as well as taking some liquor home, give that one dyett (meal) would be bought at a time, even when 3 quarts of sack and a gallon of beer were purchased the same day. What vessels did Atchison use to consume this diverse group of beverages, either at home or in Hugh Lee's inn? Chapter 4 examines the forms of glassware expected among mid to late 17th-century drinking paraphernalia and other miscellaneous tablewares.

Chapter 4

Placing Lead Tableware on the Colonial Table

This chapter defines the forms, names, and styles found in 17th- to 18th -century glass tableware. The incidence of glassware in early colonial probates is also discussed.

Identifying Glass Tableware

Glass tableware is glassware “used on the table and associated with food and drink as well as some items of decorative glassware, such as vases” (Jones and Sullivan 1989:127). Most of the glass tableware in the assemblages covered by this study can be identified with drinking, dining, and hospitality functions. Museum specimens of English flint glass are often found in the form of drinking paraphernalia such as stemware, tumblers, roemers, ewers, and decanters. With few exceptions, general books on English glass have a heavy focus on drinking glassware (Lanmon 2011:48). Other forms like bowls, salvers, syllabubs, dessert-glasses, candle-sticks, and pharmaceutical vials were also blown from leaded metal, but examples of these forms have been identified to a much lesser extent in the early colonial assemblages. Forms of glass tableware may also be weighted towards a particular beverage; by 1680, wine glasses had become the most common form of drinking paraphernalia in the English-speaking world (Hancock 2009). Aside from container vessels like dark green wine bottles and case bottles, these drink-related forms are among the most commonly identified glass vessels in the colonial American archaeological record.

References to vessels like sack cups and claret glasses appear in period literature and probates, yet it is in reality hard to match early wine glass shapes to specific wines (Palmer 1993:58). While 20th- and 21st-century glass collectors often attempt to link different drinking glasses or stemmed tableware forms to specific beverages, Lanmon (2011:80), cautions that the “beverage meant to be consumed from a particular glass cannot be determined with certainty for any glass made before the late nineteenth century.” Francis (1926:18) agrees, stating that “apart from the special glasses made for... champagne, ale, ciders, and cordials... the great majority were indiscriminately used for the consumption of various liquors...” If matching forms to beverages cannot be done for complete museum quality specimens, how can we do it for fragments? There is probably little point in trying to categorize these sherds of glass by beverage. Even the decorative stems from candlesticks and dessert dishes can be misidentified as drinking vessels (Jones and Sullivan 1989:141). Determining the function of a given featureless glass fragment is often impossible without diagnostic portions of a vessel and documentary evidence from sketches and catalogs, which were rare even in their day, and many of which now no longer exist (Jones and Smith 1985:34, 38; Jones and Sullivan 1989:142).

However, one set of extant drawings, created by London glass seller John Green in the 1660s to explain to his Venetian partners which styles of glasses he wished to have made and imported back to England, do give an indication that perhaps size rather than shape designated the beverages. For example, beer glasses with conical bowls might stand over 6 in., while claret glasses stood under 6 in. (Palmer 1993:59). According to Jones and Sullivan, a glass’ beverage type is certainly dictated by size, but rather than overall size, the bowl size is most important (Jones and Sullivan 1989:142). Small glasses might be for spirits, drams and liqueurs, and very

large glasses used for specific public alcohol-serving occasions such as communal toasting (Palmer 1993:61, plate 3). The number of handles, or the presence of lids or spouts, could also link a vessel to communal or individual uses (Smith 2004:63; Lanmon 2011).

Given the difficulties of identifying even intact specimens, identifying archaeological remnants may seem something of a pipe dream. The bowls of drinking glasses, seemingly the most diagnostic for beverage types, tend to be the “least recovered part” of the vessel (Jones and Sullivan 1989:142). Occasionally, the sherds of glass in the archaeological assemblages in this study may be matched to a specific form previously identified using period sources or stylistic characteristics, but often, they must be assigned as a generic “drinking glass” or tumbler, or in the vast majority of cases, “unidentified glass tableware.” For this study, unless I know that an element corresponds to a specific form of drinking glass, I use the term “drinking glass” to refer to all glasses, whether stemmed, stemless, beakers, and so on that could have been used to consume wine, beer, ale, cider, cordials, or spirits.

Sherds may also suffer crizzling or patination that make identification difficult and leave the remaining glass in a delicate state. Seventeenth-century glasses also tend to have surface residues. A black oxidized coating is characteristic of leaded glasses, while Bohemian-style chalk glass tends to gain a white coating after a time (Henkes 1994:17). However, soda-lime glass often fares better in the archaeological record than the alternative nonleaded chalk glasses containing potash-lime (Frank 1982:13; Henkes 1994). Earlier *façon de Venise* glass tends to preserve better than the later 17th-century versions (Henkes 1994:16). As discussed in Chapter 1,

the earliest lead glasses often suffered from glass disease, or crizzling on their surfaces, which weakened them

Archaeological examples of table glass (both imported and locally-made) in mid-17th century England are relatively rare compared to examples dating to the early 17th and later 17th century (Willmott 2002). Venetian glassware is rarer on post-1650 Spanish sites but by the early 18th century, foreign glass was again being imported to Spain and re-exported (Deagan 1987:128) These facts lead me to wonder if glassware may also not be common in mid-17th century Chesapeake contexts. This study does not cover a wide enough span of time to comment at length on the archaeological incidence of mid-17th century glassware in the Chesapeake, but these observations may mesh with changes happening in the sources and supply of glassware in Europe during the pre-English flint period. It may also be a result of changes in fashion pre- and post-Restoration, perhaps due to Roundhead influence. Or, perhaps the lack of discarded glassware also speaks to the importance of the trade in cullet for glass-blowing (English Heritage 2011). Yet, cullet may not be the most likely cause of a lack of lead glass in the colonial archaeological record due to the lack of domestic factories. It is possible that broken and outdated glass was re-exported back for use as cullet. However, given the dispersed settlement patterns of the colonies, it seems that collecting cullet would not be difficult and not profitable.

Despite such drawbacks, glass scholars have identified some general characteristics of history and overall shape that may be useful for determining the period of manufacture and forms associated with types of drinks, given a whole vessel. For example, beer could have been consumed from Venetian glasses and Waldglas beakers or roemers in the 17th century, while in the 18th century, tumblers, mugs, and tankards held weak beers (Lanmon 2011:51). Strong beers

and ales were generally drunk from smaller glasses with tall bowls of a conical or bucket shape, many with wrythen decoration (Francis 1926:97; Palmer 1993; 60; Lanmon 2011:51).

Stronger beverages such as cordials or “strong waters” like brandy and gin could be drunk from vessels with smaller volumes, and at least in the case of gin, short stems as well (Francis 1926:122). Punch could be drunk out of a variety of stemmed glasses or in ceramic tankards and mugs, cylindrical, flat-bottomed, handled vessels (Lanmon 2011:57; Breen 2012). Individual drinking glasses were not the only form of glassware used with punch; it could also be found served from large glass bowls (Hartshorne 1897:238; Francis 1926:107). Evidence of scratches sometimes found in the bowls of giant glass goblets of a quart or more volume may be evidence for stirring, and therefore their use as a punch bowl (Lanmon 2011:87, 92).

Even with a complete vessel, bowl size may be a tricky attribute to use for identifying glass tableware forms. Vessel capacity is not necessarily constant over time. Low-country made soda-glass beakers for example, increased in volume over time. This increase in vessel size over time may not be due to an increase in volumetric drinking habits, but a result of an increased skill in blowing larger vessels (Henkes 1994:123). Interestingly, one way to identify forgeries of Georgian glass drinking vessels is to compare the bowl diameter to foot-rim diameter— genuine 18th-century drinking glasses will have feet that are wider than the bowls (Ainsley 2016).

Functions and Modifiers

In her linguistic analysis of colonial probate inventories, Mary Beaudry (1988) argues that a general increase in use of eating and drinking vessels individually rather than communally

towards the 18th century also coincided with an increase in modifiers that classify the vessel as having a specific function. Beaudry does not specify the functions for glasses she analyzed, but a common example might be “wine glass,” indicating a glass for consuming wine. Her study of a sample of about 200 inventories for three time periods spanning the mid-17th- to mid-18th centuries mostly relates to ceramics, but also includes some glassware. She shows the percent of glass vessels with a function modifier at the turn of the 18th century is at 69%, and falls slightly to 57.9% by the mid-18th century (Beaudry 1988:49). For the mid-17th century, she has no data, because the number of glass vessels in all her inventories in the mid-17th century is one. Her study either indicates a dramatic rise in counts of glassware, or presents bias as a result of sampling probates. Beaudry also appears to assume that glasses are all for individual use only, which may not have been the case, particularly in the 17th century before the Georgian order took precedence. Probate inventories and historical documents of late 17th -century Scots often show only one glass in a household, if glassware were owned at all (Turnbull 2001:44-46). Based on this author’s study of probates (see last section of this chapter), ownership of glass (if owned at all) was limited to one drinking glass or two for most late 17th century colonists in St. Mary’s County, Maryland. David Hancock’s analysis of 5,965 American probates from 1700 to the first quarter of the 19th century shows a rise in the counts for a wide variety of specific items related to drinking and serving wine, including glasses for specific types of wine, “coasters” and “stands,” decanters, and even tumblers (Hancock 2009:table 11.1). Hancock’s study goes hand in hand with Beaudry’s findings related to the function modifiers, and the increase in objects used for new modern rituals. One point must be made about Beaudry and Hancock’s “modern rituals” thesis in relation to the history of the English glassmaking industry: A rise in glassware cannot

be uncritically attributed to a change in consumer demand during this period, but instead is probably linked in some way to the rise in fortunes of the English glass industry after 1670.

In historical sources, the most commonly seen function modifiers for drinking glasses indicate the type of liquid that a given glass was meant to hold. In 1674 and 1677, the Worshipfull Company of Glass Sellers called upon Ravenscroft to make certain saleable forms of glass vessels from his new flint crystal. Lanmon (2011:37) reprints the agreement from the 1677 list, and it lists a variety of glassware with “function modifiers” related to the liquids they held:

Beer glasses ribbed and plain
Clarett wine glasses of the same
Sacke glasses of the same
Castors of the same
Brandy glasses of the same
Beer glasses nipt diamond waies
Purlee glasses to be priced at the same prices as foregoing
Diamond Crewitts [cruets] of a pint, ribbed and plain with stoppers to them
...
Quart ribbed bottles...

[Ravenscroft’s list of forms, From 29 May 1677.]

The list also includes many more ribbed bottle [decanter] sizes including those with and without handles, all with stoppers, and some with “nipt diamond waies,” a form of exterior decoration created by pattern molded ribs that were crimped by hand into diamond patterns (Jones and Sullivan 1989:52; Lanmon 2011:82). Obviously, from the earliest period of English lead glass, some glass tableware was being sold in terms of its function, rather than as more generic drinking glasses. Scholars commonly refer to a proliferation of drinking vessels and forms in the 18th century leading up to the Consumer Revolution (Neiman 1980a; Hancock

2009), so this list shows that even in the late 17th century, merchants sometimes distinguished vessels by their specifically intended contents, with several possible exceptions. There is, for example, no evidence for the manufacture of special glasses for gin before 1700 (Francis 1926:122). Until 1715, champagne was often served in the same flutes as ciders and strong ale to allow sediment to settle. The flutes began to cede ground to the champagne tazza after the Prince of Wales made broad champagne bowls fashionable (Hughes 1956:47). By 1720, champagne was a "beverage of the well-to-do" and demand for specific champagne glasses that showed off its fizzy properties were in greater demand in the Old World (Francis 1926:93).

Probate inventories may show another side to the story. Hancock's study shows that before 1775, the main glassware distinctions in probates were still between glasses for wine, beer, and cider (Hancock 2009:Table 9.1). Probates from St. Mary's County, Maryland show this to be the case from 1660 to 1690s as well. In comparison, drinking vessels of other materials such as pewter, plate, and earthenware had a wide variety of function modifiers, a point to which I'll return.

In summary, although colonial records, including court documents, prove the existence of many varieties of alcoholic beverages before the late 17th century (AOMO41:568), not until the 18th century did drinking glasses, bottles, and decanters become increasingly more specialized for a specific liquid, whether Madeira wine, cider, ale, beer, punch, or rum (Hancock 2009). For studying early flint glass, it is probably safest to defer the purpose of most drinking glasses to wines, ciders, beers, or spirits in general.

Glassware could hold dual, even contradictory meanings. Van Rensselaer, a merchant in Albany in the colonies ca. 1657, stated that if people had no wine, they might not buy drinking glasses (Palmer 1993:57), implying that people did not see a use for owning drinking glasses without wine. However, wine glasses are occasionally described as having multiple uses, one of the more extreme cases being as a cup for soft boiled eggs at breakfast (Palmer 1993:58). This problem is not limited to glassware. The inventory of Robert Bridgin's 1685 estate from St. Mary's County, Maryland revealed that an "Earthen cup" (earthenware ceramic) need not be used just for drink, but also for holding things like gunpowder (Historic St. Mary's City 1685). Glassware also held meanings about its owners and users; the "shining surfaces... of imported wine glasses... did more than mark status. These goods also served to convey character" (Shammas 1990:6).

Distinction by Source

For most of human history, glass tableware was distinctive according to its source. Stemmed glassware on pre-18th-century Spanish sites show quite different stylistic characteristics in comparison to glass from English colonial sites. However, English flint glass was so successful that glassware created on the continent began to emulate the English products. Provenance solely through stylistic characteristics can be problematic, given that glassware can be, and quite often was, commissioned in a certain style, to be sold elsewhere (Willmott 2002). By the 18th century, Spanish goblets and glassware in the colonies assumed characteristics of contemporary English glass, like inverted baluster stems and air twists (Deagan 1987:127). Dutch glasshouses also altered certain aspects of their *façon de Venise* to emulate Flint glass and Bohemian potash-lime glass. By the 18th century, Dutch consumers began to prefer drinking

from English glass, so the Low Country glasshouses scrambled to imitate what customers wanted (Henkes 1994:245).

The changes in style were probably partly out of necessity; the addition of potash-lead altered the workability of the glass metal, making it necessary to use simpler forms as seen on English flint glasses, rather than the elaborate decorations typical of the previously fashionable *façon de Venise*. Soda-lime *façon de Venise* glass could use as many as 20 or more separate pieces to create one drinking glass (Whitehouse 2004:vi). Furthermore, in the early 18th century, it became a practice for flint glass to be exported out of England to the Low Countries to be engraved by skilled Dutch artisans before being sent back to England or to a final destination (Hartshorne 1897:245).

Early English glass tableware is commonly described in period documents and by glass scholars as being made with less precision and virtuosity than continental wares, even for the “finer” English flint crystal (Lanmon 2011:23). Noël Hume (1968) even speculates that merchants may have sent seconds to the colonies to get rid of less than perfect glass merchandise. However, once England established itself as the one to beat in the glass industry following 1676, the tables reversed and London, not Venice or Antwerp, became a source of manpower, materials, and a “setter of standards” (Turnbull 2001:283) for glasshouses all over the Old World, from Scotland to the Spanish Empire.

There are few early mercantile or factory documents relating glass to the place of production. Glass historians have had to rely on port of entry statistics even for later 18th-century

glassware. One problem with using these documents is that port of entry often meant the port of embarkation, the port from where the glass left, not its ultimate source, whether London, Bristol, Liverpool, Ireland, or any of the smaller production areas in the British Isles (Lanmon 1969:16). The source of glass vessels is therefore up to future researchers to determine through other means.

Styles and Dates

Until chemical methods on the atomic scale become more accessible, stylistic characteristics remain one of the few accessible methods of determining the manufacture date or the source of a glass vessel. In order of decreasing reliability, glasses can be dated by their material, their stem, their foot, and their bowl shape (Francis 1926:18). The major problem of dating glass using stylistic characteristics lies in the holdover of certain characteristics from one era to another (Francis 1926:18; Noël Hume 1969a; Willmott 2002).

The most salient parts of glass tableware for identification are stems and bases, along with any special decorative elements. The stems of glassware have experienced the bulk of experimental design changes over the centuries (Lanmon 2011:102). Stems on the early British vessels made by Mansell tend to have a distinct smooth “cigar” shape or a hollow molded exterior, which were fashionable in the first half of the 17th century (Willmott 2005:107). Venetian and look-alike *façon de Venise* vessels could have fanciful decorations and dragons twisted around them, such as examples found at St. Mary’s City (Grulich 2004). By the mid-18th-century, stems ran the gamut from plain to air twisted and even faceted.

At first, English flint glassblowers adopted *façon de Venise* techniques for blowing and working leaded metal to conform to the currently fashionable Venetian wares, including folded feet, pincer knops, and gadrooning (Bickerton 2009:6). Early English flint vessels tend to be more elaborate than later vessels, but certainly not so elaborate as vessels from Venetian, English, and Continental glasshouses making fine soda glassware. The earlier English vessels were also thinner and less massive than later designs (Lanmon 2011:99). As this study shows, some of these characteristics show up in leaded glassware in Maryland and Virginia.

Venetian Glassware and its Nigh-indistinguishable Continental Kin

The term *façon de Venise* indicates that a vessel is made according to the Venetian manner and designs, but outside of Venice itself. Chemically, if a soda-lime *façon de Venise* vessel is made with similar source materials and by skilled trained glass-blowers, it can be almost indistinguishable from Venetian glassware (de Raedt, Janssens and Veekman 1999). Visually, virtually no differences exist when a vessel is made by a skilled glass blower trained in the same techniques as those used on Murano.

Tiny, intriguing sherds of non-lead glassware elements like comet prunts, “combed” glass, *lattimo* milk glass, and colored filigree *vetro a fili* present in their glass assemblages have been found at some of the sites included in this study. Sites at St. Mary's City, a semi-urban environment just north of the Potomac River (Grulich 2004) have many examples of *façon de Venise* in pre-1670s contexts. However, many Anglo planter households, if they owned glassware, probably owned just one or two vessels before 1700, much like householders in Scotland at that time (Turnbull 2001). Planters owning earlier soda glass vessels and lead crystal

glass tableware may have capitalized on their previous trade connections to *façon de Venise* style wares to obtain the new fashionable English lead glass.

Façon de Venise contributed stylistic forms to lead glass in the early stages, before glassblowers determined that lead glass worked best with the simple knops and balusters that became the hallmark of early English flint glassware. Three of the most common *façon de Venise* influences on English flint glass are pincering, gadrooning, and trailed rims (Lanmon 2011:36). Pincering was a method of grasping a hunk of glass with tongs and pinching it to form “fins,” (Figure 4.3) also called “pinched decoration,” “lobed,” “propeller fins” or “wings” (Francis 1926; Hughes 1956:30; Willmott 2005; Lanmon 2011). Pincered fins are a very common *façon de Venise* embellishment and can be textured with a “waffle” texture or parallel lines (Lanmon 2011:72), or even left smooth. The process of gadrooning required adding another gather of glass to the base of the first gather, then blowing this second gather into a mold with ribs, to form a vertically ribbed pattern-molding on the exterior. Gadrooned glasses were more expensive than those without gadrooning prior to the mid-18th century. This form of decoration was popular from 1680 to 1710 but continued to be produced into the late 18th century on certain vessels like sweetmeats and mugs (Lanmon 2011:88).

The pattern molded ribs on the body could be further manipulated into wrythen spirals or “nupt diamond waies” (Lanmon 2011:82). Appearing in the 1690s, “wrythen” spiral decoration twisted up the bowl and was sometimes pincered into a prominent “flammiiform” fringe (Figure 4.1). Wrythen bowls continued into the 1740s; by 1725 they could cover the entire bowl (Hughes 1956:211). Trailed rims and “rigarees,” involved the application of a thin string of glass (plain,



FIGURE 4.1: Examples of ‘Nipt Diamond waies’ and a wrythened bowl. At far left, a mug with nipt diamond waies, and second from right is an ale glass with flammiform wrythen gadrooning (cat no. C.206-1913) ca. 1690-1700. The wheel-engraved ale glass and beer decanter are mid-18th century forms. © Victoria and Albert Museum, London.

pincered, ruffled, or “milled” with a crimped tool) to the base or feet of vessels (Figure 4.2).

Rigarees were a common sight on the glass designs sent to Venice by John Greene in 1671.

Hartshorne calls some of these rigarees "denticulated strips" and notes they were also called *frilling*, *quilling*, or *purfling* (1987:238). Other characteristics of Low Country wares, like thin mereses (flat knops, also sometimes called collars) and thinly blown bodies, were also found in early lead glass (Lanmon 2011:75).

Folded feet (also called welted feet) are a common characteristic of glassware from the early English flint glass period. The bases of stemmed leaded vessels normally bore folds from

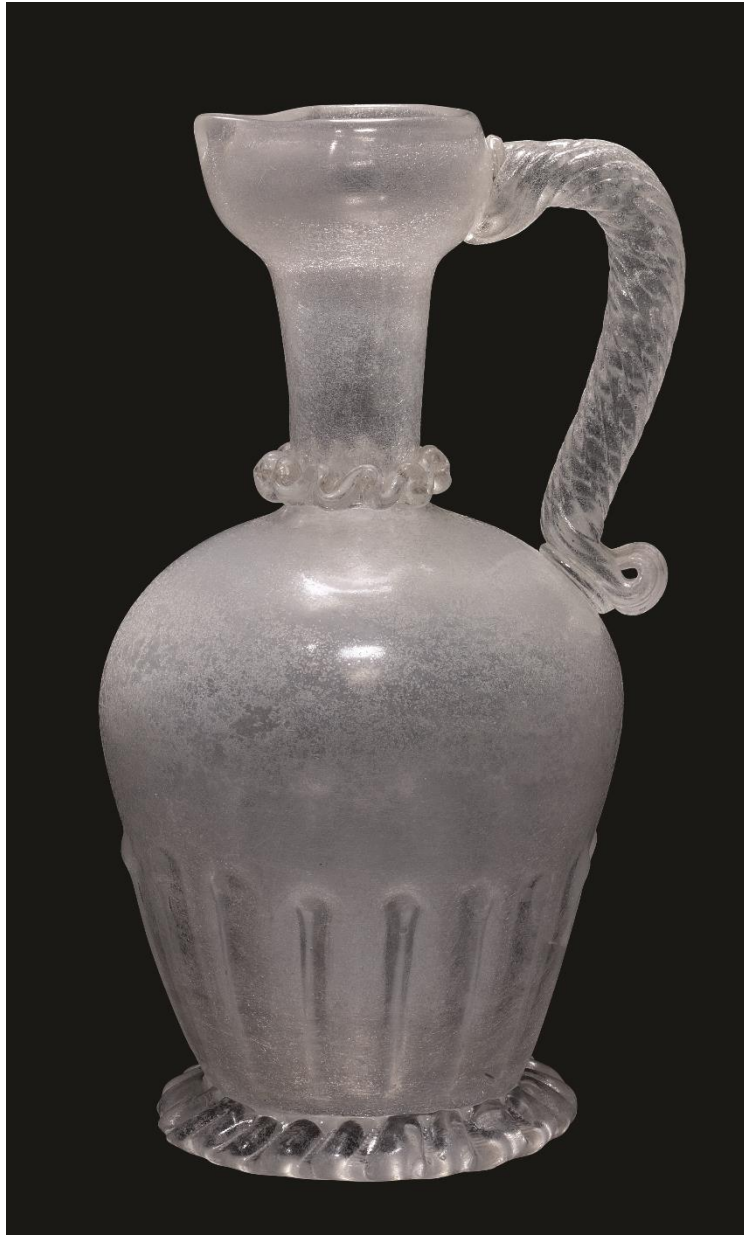


FIGURE 4.2: Rigaree Decoration on a decanter. An early flint glass decanter with rigaree at the neck, ca. 1680-1685, Accession 83.2.39. © Corning Museum of Glass. Image reproduced with permission.

the 1680s to the middle of the 18th century—1730s to 1740s is the most commonly stated time when they fall out of favor (Hughes 1956:124; Bickerton 2009:6; Lanmon 2011:37). The reason for a fold is sometimes attributed to preserving the base of the glass from wear and tear (Lanmon 2011:88) or even a preservation against breakage by a “careless servant” (Penny 1903:63). Later glass-makers would also use folded or welted feet more for fashionable emulation of the past rather than function. Folded feet were used on both imported and domestic flint glasses in later periods; for example, the Sandwich Glass Company in Boston used folds on the bases of mouth blown wine glasses during the 19th century (Kaiser 2009: 108). Most of the literature rejects folded feet as a definite way to tightly date glass, but in general the earliest English flint stemmed wares from 1680 to 1710 had feet folded under (Francis 1926:19). Non-leaded soda glass vessels also displayed folded feet during the same period and before the introduction of lead glass.

The thickness of the fold on the foot is another possible source of information on a given tableware. In terms of provenance, “wide folds” have been suggested to be evidence of a “home [English] product” (Francis 1926:19), but this may be just a general contrast to extremely thin folds generally seen on exported Venetian-style vessels, not the rule. Lanmon states that thin folds are a hallmark of lead glass of the 1680s and thicker folds a characteristic of lead glass post-1700 (Lanmon 2011:75, 79). Hughes is more specific in stating that the folds on glass stemware feet varied in width from very narrow in the earliest period up to 1690, thicker between 1690 and the 1720s, and then thinner again from the 1720s until they disappear in the 1740s (Hughes 1956:124, Hughes 1968:21). Fold width also varied with aesthetics; thick folds were synonymous with heavy baluster styles, common on light balusters, and often combined

with “high insteps,” or domed feet (Francis 1926:19). A plain un-welted foot is not necessarily younger than a folded foot vessel, though such feet begin to gain favor in common use (domestic or tavern use) glasses by 1720 (Hughes 1956:124; Francis 1926:43). Since folded feet made a brief comeback on flint crystal vessels in the 19th century during the Georgian revival, when one looks solely at archaeological evidence of flint glass, the fold probably cannot be taken as a definite indication of early flint glass without a definite context in the 17th or early 18th century, or chemical testing that shows it to be a product of early English flint manufacture. The diameters of the feet on 18th-century English glass were usually greater than that of the bowl (Hughes 1968:34; Lanmon 2011:106). Many later glasswares and modern forgeries of Georgian glassware have the bowl wider than the foot (Ainsley 2016).

Glass quality and coloring can provide more data on source and age. The earlier English flint glass tends to have many air bubbles because the impurities were not burned out of the glass metal by lower furnace temperatures. After improvements to the glassmaking process including a new hand bellows that debuted in 1705, glass-houses could create higher heat and therefore, glass with less bubbles (Hughes 1968:18). Earlier glass made before the late 1690s also tends to have a darker tint due to impurities in the lead oxide used. By 1700, a purer form of lead oxide, called litharge, began to be used by many glass-houses (Hughes 1968:17). A bluish tint is noticeable in some later English flint glass from 1760-1810, also due to the source of the lead oxide. That source was the mines of Derbyshire. Glassblowers noticed that Derbyshire lead in particular had superior properties, but it imparted a slight “Derby blue” tint to the glass (similar to what would later be known as “Waterford blue”). The problem was not resolved until a firm developed a way to process the lead in 1810 to remove the offending impurity (Hughes 1968:27).

Stems

Stems are the most commonly relied upon dating characteristic. English flint glass is best known for simple but massive balustered and knopped stems that made the best use of the flint metal's high viscosity (slower working time), high refraction, and heftiness compared to soda metal. Flint stemmed glassware emulated turned architectural elements, with knops of a variety of forms, like eggs, acorns, balls, and the most ubiquitous balusters (Lanmon 2011:102).

Stemware is popular among collectors, and the various guides made over the years have varying degrees of usability for dating glass in this study. The most useful date guides are those that recognize an earlier period of lead glass, or what can be called the “anglicized Venetian” styles (Hughes 1968: 30). Most glass collector guides split early English flint crystal stemware into several groups chronologically. They universally recognize: a “heavy baluster” period, a balustroid (light baluster) period, a molded “Silesian” stem period, and a “twisted” stem period, culminating in the faceted/cut stem period (Table 4.1). Plain and hollow stems also are common during the 18th century and span several of these periods.

Here, the forms that would be most expected to be found between 1670 and 1730 will be covered. Later 18th-century forms dating after the 1730s are touched upon, but will not be discussed as fully as the anglicized Venetian, Baluster, Balustroid, Pedestal molded, and Plain styles. See the authors identified (Table 4.1) for more on the later forms. Hartshorne (1897:236) notes that there is a period during the late 17th century when many “queer heavily-molded stems” appeared of English make that cannot be readily classified.

TABLE 4.1: *Flint Crystal Stemware Dating Guides*

	<i>Francis (1926)</i>	<i>Hughes (1968)</i>	<i>Noël Hume (1969a)</i>	<i>Bickerton (2009)</i>
<i>Quatrefoil or Pincered fin</i>		Anglicized Venetian 1675-1695	Quatrefoil 1685-1705	
<i>Baluster</i>	Heavy Baluster 1680-1720	Heavy Baluster 1690-1750 “Knopped” 1715-1770s	1690-1740s (for colonial sites)	Early Baluster 1685-1725
<i>Balustroid</i>	Light Baluster 1720-1750	Light Baluster 1715-1780s	Light Baluster 1725-1760	Balustroid 1725-1750
<i>Plain (Drawn)</i>	1700-1740	1690-1850	1725-19th century	1730-1760
<i>Pedestal Stem</i>	Silesian 1714-1724	Silesian 1700-1730	Silesian 1710-1730	
<i>Ribbed</i>	Incised 1700-1740	Twisted Rib 1680-1720 Incised twist 1740-1800		Incised 1745-1765
<i>Air Twist</i>	1730-1760	1735-1760	1730-1760	1745-1770
<i>Opaque Twist</i>	1750-1780	1740s-1780s	1750s-1775	1760-1785
<i>Faceted</i>	1750-1800	1745-1850s	1760s-19 th century	1780-1825

Perhaps the most referenced glass tableware source for archaeologists has been Noël Hume’s (1969a:191) pictorial table of stemware forms. It is useful for dating elements of the stem chronologically, without dealing with the mental work of deciding in which style group a glass best fits (a task made questionable by the fragmentary nature of archaeological glass). This chart is abbreviated, however, and does not cover all the possibilities of early “anglicized Venetian” and baluster forms. If relying solely on Noël Hume’s chart, we could expect to see any of the glasses between figures IV to XVII on colonial Chesapeake sites between 1670 and 1720s. When looked at as a group, it is obvious that most stemmed flint glassware of that period has a distinctive look, thanks to the knops and balusters.

One of the most useful sources for stem decoration may be G. Bernard Hughes' collectors' guide from 1968. His book is quite comprehensive and he is one of the few authors who make an explicit stylistic connection between the pincer fin stems (Figure 4.3) and the quatrefoil stems (Figure 4.4), grouping them as the "quatrefoil, lobed, and winged" stems. *Façon de Venise* derivative quatrefoil knops were shaped into a small inverted baluster or melon shape and in many cases, pinched into four or more lobes. These knops were also common in soda-glass during the mid-17th into the late 17th century. Hughes dates both anglicized Venetian forms made in flint crystal to the period from 1675 to 1695, while Noël Hume focuses on lobed quatrefoils and gives those a range of 1685 to 1705 (Hughes 1969:30; Noël Hume 1969a:189, 191). During the last decades of the 17th century, quatrefoil knopped flint glasses became popular on both sides of the Atlantic (Lanmon 2011:38). Figure 4.5 shows the typical parts of



FIGURE 4.3: Pincer Fin stem. Specimen 25266 from GM187, Suffolk House. © Museum of London. Image reproduced with permission.



FIGURE 4.4: Quatrefoil stem. Specimen 11550. Ravenscroft glass circa 1677-1681. © Museum of London. Image reproduced with permission.

glass stemware in this period. The “pincered wing” vessels previously discussed are generally few and far between in the Georgian glassware collector books. Like the quatrefoils, their knops were tooled, but instead of clover-like lobes, they were pinched into vertical fins. One example was found in a London cesspit with dated contexts in the first quarter of the 18th century (pers. comm., Museum of London 2015), but examples in the Corning Museum of Glass are dated circa 1690 in manufacture (CMOG specimen no. 73.2.17). The dates in collector guides generally center these about 1680 to 1690 (Bickerton 2009:6; Lanmon). It seems safe to assume the range of manufacture for pincered fin stem forms is squarely within the last quarter of the 17th century.

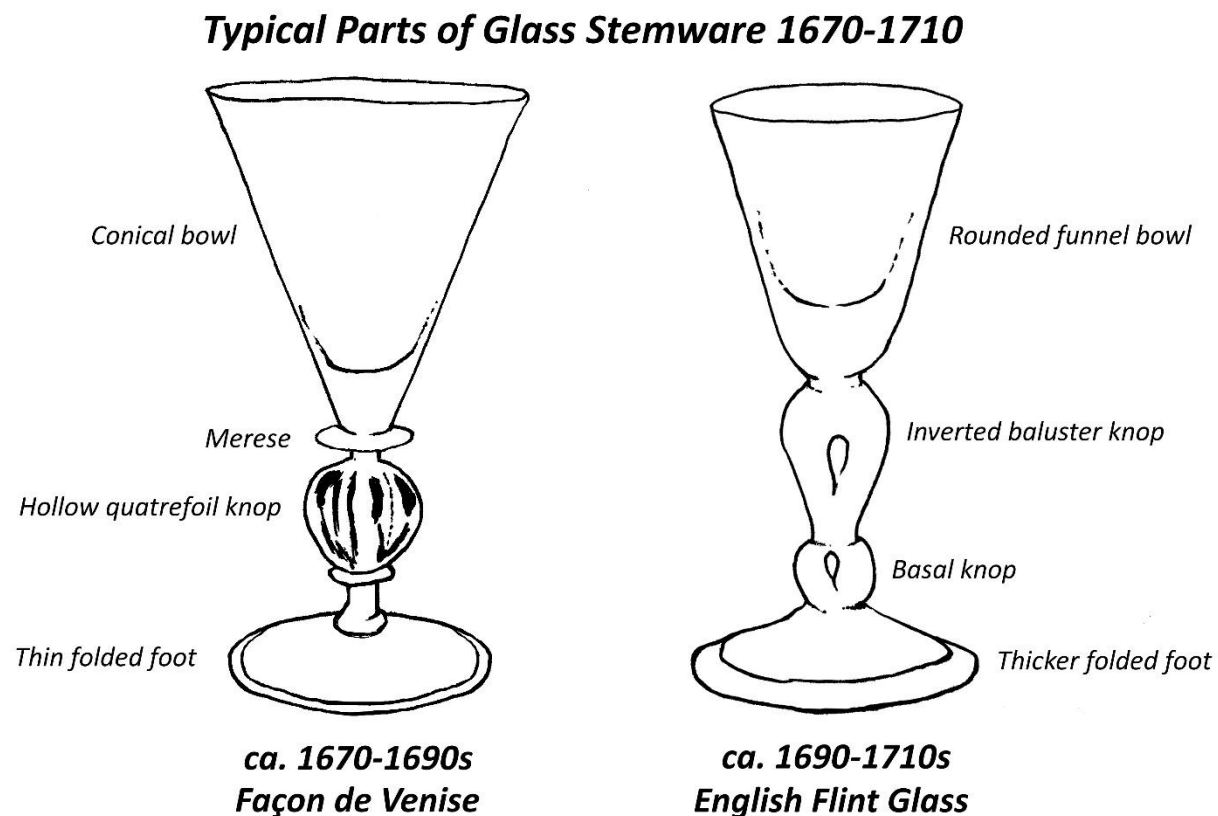


FIGURE 4.5: Typical parts of glass stemware 1670-1710. (Based on Hughes 1968; Willmott 2005; Lanmon 2011). The elongated area from the base of the bowl to the top of the foot is the stem, which was often the most decorative part of the vessel. Illustration by the author (2017).

The hallmark of a classic English flint glass is the inverted baluster knop (Figure 4.5, Figure 4.6), usually classed with the “heavy balusters.” Baluster stems resemble balustrading in architectural design and often have one or more balusters, knops, or tiers. This knopped stem endured for a half-century in one form or another, before it lost ground to lighter stems. Bowls could be straight-sided, conical, or round-funnel shaped (Hughes 1968:31). Dating these glasses can depend on the types of knops present on the glass. For example, ball-shaped knops appear from 1700 to 1725, annulated knops from 1705 to 1715, with mushroom-acorn knops appearing

from about 1710 to 1725 (Bickerton 2009; Noël Hume 1969a:191). See references noted in Table 4.2 for more specific knop information.



FIGURE 4.6: Classic inverted baluster with basal knop. Circa 1690. CMOG # 54.2.9. From Davis, Cecil, Former Collection 1954-09-28. © Corning Museum of Glass. Image reproduced with permission.

The differentiation between heavy and light balusters can be difficult to demarcate, as the styles are a result of evolution, rather than dramatic change. Balustroids tended to be taller glasses with plainer, solid stems adorned with smaller knops (Bickerton 2009:9). The bowls can help refine dating on baluster glasses; bell-shaped bowls (also called thistle bowls) appear about

1715, often associated with balustroid glasses (Hughes 1968:31). Ogee and bucket bowls appear on flint glass in the mid-18th century (Hughes 1968:37). Large bucket bowls with flat bottoms and straight sides are common on archaeological examples of the Venetian soda glasses imported by John Greene (Willmott 2005:115). The most common bowl shapes circa 1670 to 1720 included conical, rounded-funnel, and bell bowls (Hughes 1968:30-32). Unfortunately, as Noël Hume warns and as I found while looking through many small bits of glass, bowl shape is not very diagnostic for most archaeological examples.

“Molded pedestal stem” is the term Dwight Lanmon uses to refer to so-called “Silesian” stems, which have nothing to do with the old German duchy of Silesia (Hughes 1968:34; Noël Hume 1969a:190; Lanmon 2011). Pedestal stems were first molded into an inverted baluster with four panels or sides, circa 1700 to 1710 (Hughes 1968:35; Noël Hume 1969a:190), which then increased to six- and eight-sided forms. Many authors date these forms no later than 1714 to 1715, probably due to the preponderance of this form in glasses marked to commemorate the coronation of George I (Noël Hume 1969a; Bickerton 2009). The molded sides sometimes had diamond-shaped bosses, or crowns on top of each shoulder (Bickerton 2009:29). By the 1720s, pedestal molded stem forms appear with reeded stems that were fluted down the middle of each panel, ostensibly to reduce the visibility of imperfections in the glass (Hughes 1968:35). A ringed collar or triple merese above the base below the pedestal molded portion also appeared in the second and third quarter of the 18th century, mostly seen on sweetmeats and salvers (Noël Hume 1969a:193). By the 1730s, the molded pedestal stem had disappeared from drinking glasses, but continued on other stemmed glassware forms (Hughes 1968; Noël Hume 1969a).

“Plain” stems, also known as “drawn” stems, have an unbroken line from stem to bowl. The bowl and stem are made with only one gather before the foot is applied, like older and less elaborate forms of soda glass (Penny 1903:63). Some plain stemmed glasses of the mid-18th century, particularly those with applied bowls like the bucket and ogee bowl shapes, do involve an additional third gather (Hughes 1968:37). Glasses with drawn, plain stems are often interpreted as the preferred types for tavern use (Penny 1903:63; Francis 1926; Lanmon 2011). They generally appear by the second quarter of the 18th century, though some could be seen as early as 1700 (Bickerton 2009; Hughes 1968; Noël Hume 1969a).

Most of the twisted stem glasses including “worm’d” air twists, incised twists, and opaque twists fall outside of the date range for this project. However, Hughes (1956) makes a distinction between two types of exterior molded twist stems, including one group that could be within the date-range of this study. He does not offer photos of so-called “twisted rib” stems, but it seems that the twisted rib stems he dates from 1680 to 1720 are what would be called “wrythen” stems elsewhere (Bickerton 2009:21), and “incised/ribbed-twisted” by Hartshorne (1897:251). Both versions of textured, twisted stems would be made with the same technique of inserting a glass gather into a ribbed mold, then twisting it, but the ribs of the later “incised” versions would be expected to be more uniform (Hughes 1968:38) while the earlier versions are more widely spaced (Hartshorne 1897:256). Hartshorne considers these ribbed stems to have been an offshoot of a Low Countries style of stem developed in the 17th century (Hartshorne 1897: 256). We could expect to see wrythen bowls and wrythen knopped stems from 1680 to 1720, but a wrythen flint glass bowl (or stem) is not a guarantee of an early date (Bickerton 2009:21).

Glass Vessels sans Stem

To identify, date, and source other non-stemmed forms of glassware, we might consider the decorative elements, the feet (if present), and handles. Stylistic changes in these non-stemmed glass wares are less studied than drinking paraphernalia, however. Other potential forms of flint glass are hinted at by the types of vessels made in the initial runs of flint glassware by Ravenscroft's workers. These include cream bassons, fruit bowls, jugs, and roemers, as well as syllabub pots, cruets, and castors. Some of these forms are mentioned in Ravenscroft's 1677 list of forms, but some like possets are known only by surviving specimens (Charleston 1984:120-121). A rare example of a syllabub made by Ravenscroft's factory was sold on auction at Sotheby's in 2006 (Sotheby's 2006). Other types of alcohol and beverage serving vessels are named in probates from St. Mary's county including forms made of materials that are rare to find in flint glass form, but could well exist. They include caudle cups, syllabubs, glass tankards, and salvers, beakers and stemwares.

Fluted stemware with tall, narrow bowls existed in soda-glass on the English mainland before English flint glass, but was not often seen in flint crystal except in short "dwarf" ale glasses and flutes. Flint glass was too dense to make the tall flutes and *passglas* seen in the earlier century (Hughes 1968:45). The flint ale glasses had short stems compared to the wine glass forms. Early versions of these vessels from the last quarter of the 17th century into the mid-18th century tended to have wrythen or flammiform gadrooned bowls, and wrythen knobs—the earliest might also have pincer fin or lobed stems with mereses—characteristics which disappeared as the 18th century continued (Bickerton 2009: 6). Flutes may have been used for

ciders, champagne, and strong ales. The taller bowls of fluted glasses kept sediments in the base of the glass (Hughes 1968:45-46).

The quart ribbed bottles in Ravenscroft's list earlier in this chapter were probably decanters. Two forms of flint glass decanter were seen in the 17th century: one with a handle, a semi-cylindrical body and a short cylindrical neck with a large mouth pinched into a spout on one side (Figure 4.2, Figure 4.7) (Davis 1972:18). These early decanters always had a hollow blown stopper that probably fitted loosely and was very prone to being lost (Davis 1972:34). The second form more closely followed the shaft-and-globe shape of wine bottles. These decanters may have had stoppers, but they also had a string rim like wine bottles. Early versions could



FIGURE 4.7: Pincer fin stemmed glass and decanter. # C.144-1928, dated 1680-1690.
© Victoria and Albert Museum, London.

have a gadrooned lower body, and would date not much earlier than 1680 to 1700 (Noël Hume 1969a:198). Footed and footless decanters were both seen; the rim footed forms did not outlast the first quarter of the 18th century (Davis 1972:18). Early 18th-century flint glass carafes were found without string rims or handles from colonial contexts of 1720 to 1735, although very little is known about how they were made and sold compared to other types (Noël Hume 1969a:198, 1-5 plate 65). From ca. 1710 to 1720, a decanter with a molded six or more-sided paneled body and a long neck with string rim appeared. It would become known as the mallet-decanter for its similarities to a masonry mallet. It lasted a decade before being replaced by more elaborate “cruciform” bodied types by about 1730 and the rounded, bulbous forms of the later 18th century (Davis 1972:19; Noël Hume 1969a:199-200).

Glass Candlesticks

Early glass candlesticks are rare to find. At least two known examples have been found in colonial settings, one potential candlestick stem at Clay Bank (Noël Hume 1966), and one at the Buck site in Kent County on the Maryland Eastern shore (Palmer 1979; Alexander 1984). Candlestick stem decorations tended to be more complex than those of stemmed glasses and often included molded stem elements (Lanmon 2011:222). The Buck site specimen was noted as being of rather fine quality, with multiple knops and molded gadrooning. Candlesticks of flint glass were known as early as 1685 but were not popular and/or not shown in the lists published by glass-sellers until after the 1740s (Hughes 1956:313). The foot diameter size can indicate age, with very narrow bases circa 1690 and very thick bases becoming common in the early 1700s (Lanmon 2011:224). Glass candlesticks were likely sold singly as novelties and were not especially expensive. Metal candlesticks began to be sold in fours in the 18th century, but glass

may have been sold in pairs until the late 18th century (Lanmon 2011:214). “Save alls” were sometimes used with candlesticks. These save-alls were an additional nozzle of glass or metal fitted over the aperture to hold the candle to prevent the wick flame from bursting the candlestick if the flame burned down (Lanmon 2011:218).

Glass weight

Period sources refer to “single” and “double” flint, but it is still unknown whether this distinction indicated thickness of blowing or the number of gathers (Lanmon 2011:39). Lead glasses made from 1675 to 1685 tended to be thinly blown, perhaps owing to Venetian training (Lanmon 2011:38). These glasses were sometimes termed “single flint” or “thin flint,” in opposition to thick or double flint types which appeared by the 1680s (Willmott 2005:39). Double flint glass was twice the weight of single flint, which may have led it to fall out of favor in the first few decades of the 18th century, especially with increased levies on glass in the mid-18th century. The 1745 excise tax added a levy of 1 penny per pound on glass tableware. A similar tax had been enacted in 1695, but was rescinded after four years (Bickerton 2009:11, 13). The disappearance of folded feet and a rise in plain, hollow, and air twist stems may have been in part a result of taxation (Noël Hume 1969a:192; Bickerton 2009:11, 13). The attribution of change in styles to the excise tax is categorically refuted by Hughes, however. Due to the leer tunnels and Perrot furnaces, he claims, the cost to make and sell glassware increased only slightly and that was due to increased labor to produce a greater number of lighter pieces (Hughes 1968:22).

Use and Storage of Vessel Glass

How did people drink from glassware in the 17th century? Period paintings indicate that users of stemware either grasped the vessel by the foot between thumb and pointer finger (Figure 4.8), or by the stem. As we have seen, beverages could be decanted into wine bottles or flint glass decanters, or even a pitcher of flint crystal, before being poured into tankards and glasses. Individuals could even have brought bottles of liquor or their personal glass tableware to the ordinaries or to their neighbors to share (Lucas 2016:98).

The manner of storage for glassware is less well understood, but probate inventories suggest that glassware was kept in closets, in parlors, and even in counting houses. A fire in 1729



FIGURE 4.8: Mezzotint by Marcellus Laroon II, ca. 1680-1700. The British Museum, Object no. 1873,0712.404. © The Trustees of the British Museum and licensed under CC-BY-NC-SA 4.0.

burned many pounds of leaded glassware and mirror glass at Robert “King” Carter’s recently finished Georgian mansion of Corotoman situated along the Rappahannock River of the Northern Neck. Much of the glass sludge and more intact glass clustered near the West room, conjectured by Carter Hudgins to be the parlor (Hudgins 1981). Likewise, glass at Kings Reach in Calvert County was also clustered around the supposed parlor of Richard Smith’s manor house, which was abandoned ca. 1711 (Pogue 1988; Samford forthcoming). Glassware could also have been tucked away in kitchens; glass tablewares are noted in descriptions and graphic depictions of English mid-18th century kitchens sitting on display upon shelves and mantels among other colorful goods (Pennell 1998:207). By the mid-18th century, glass tableware was assumed to be so mundane in a well-appointed kitchen that some recipes in the first modern cookbook, published by Hannah Glasse in 1747, often called for “a glass” as a unit of measurement (Glasse 1747).

Where is Lead Glass in the Colonies? Prior Research

Ivor Noël Hume wrote that by 1690 lead glass was pretty “well established in the colonies” (1969a:187). Alas, there seems to be little but his word on the subject. In general archaeologists appear to consider “elaborate and costly glassware” to have been introduced into Atlantic markets in the early 1700s (Galle 2011:218). Most treatises specifically referring to lead glass tableware deal with the 18th century, which makes sense since the material reached its peak of form and popularity during that era, and those Georgian style vessels are the best known among collectors. It was not until the last quarter of the 18th century that an American glass-

house could compete with the products of English and Continental glass.⁵ So where is the evidence for pre-1700 lead glass in the Chesapeake?

Drinking cups and glasses in the pre-1676 Chesapeake would likely have been composed of ceramic, silver (e.g. Leonard Calvert's probated silver cup), pewter, wood, or even horn, but there were glasses here and there. The "cellaret of drinking glasses" listed in a pre-1650 inventory from St. Mary's County (Wheeler Stone 1988:75) was no doubt composed of soda glass.

The London Public Record Office colonial Customs House records from 1698-1699 mention glass tablewares several times, but offer little in the way of description (Morriss 1914:139, 146). (Table 4.2). A significant portion of the glass sent to Maryland and Virginia in

TABLE 4.2: English Manufactured Goods Imported to Maryland and Virginia 1698-1699. (Morriss 1914:139, Appendix II). Amount unit unspecified, but assumed to be individual counts.

<i>Article</i>	<i>Amount</i>
Glass bottles pint	308
Glass bottles quart	25800
Glass pottles	956
Glass drinking	10591
<i>1698-1699 Foreign Imports thru England to Maryland and Virginia</i>	
Glassware	"1 parcell"

⁵ An earlier glasshouse, the Wistar factory, made soda glass bottles and tablewares ca. 1730-1780. American flint glass was not successfully made until Henry Stiegel began to manufacture table glass circa 1769- his factory did not last due to the Revolution (Davis 1949:22-24). The Amelung factory in Maryland, which made glass from 1784 until 1795 was the first domestic colonial glasshouse to really be able to compete with imported flint crystal products (Noël Hume 1969a:192).

those years was tableware— 10,591 units, but this number paled in comparison to the 25,800 utilitarian quart bottles imported in that same period. At least one parcel of foreign glass (read, probably continental) also found its way into the two colonies in this year.

Archaeologists recovered early lead glass from contexts dating before 1682 in Jamestown (Noël Hume 1969b:14). At least one example of a Ravens-head sealed stemware vessel likely to be a Ravenscroft vessel made at the Savoy Glasshouse during the period from 1675 to 1780 made its way to Jamestown before becoming a part of the archaeological record (Lanmon 2011:38). No other known Ravenscroft-period glass examples exist in the colonial record as of now. However, examples of glass attributed to the period immediately preceding Ravenscroft (possibly related to the Hawley Bishopp era at the Savoy glass-house) do show up in Port Royal (Noël Hume 1968:23; McClenaghan 1988) and the Jamestown-Williamsburg area (Noël Hume 1968:15). Noël Hume (1966:13-15) also identified an interesting sherd from an elaborate stemmed glass table vessel in Gloucester County, Virginia, that he interpreted as a possible candlestick and the "best example of post-Ravenscroft lead glass found yet." It came from a cellar hole at the Clay Bank site in Gloucester County on Virginia's middle peninsula. He was surprised to see such a fine specimen "on par with the best English glass of its period, London, about 1685-1695" stuck in a mud bank among cheap utilitarian earthenware, and other old worn things that he interpreted as refuse from different sources deposited in the cellar of a kitchen or overseer's house. In addition to the possible candle-stick, the Clay Bank also imparted the "powdered remains of a small quatrefoil stem" dating from 1680 to 1700 (Noël Hume 1966).

English lead glass appears in Port Royal in the West Indies within the last fifteen years of the 17th century, before a devastating earthquake sank part of the city in 1692 (Noël Hume 1968:16). The Port Royal glass assemblage contains stems with several hallmark elements of glasses made in England by the mid-1680s, including heavy balusters and wrythen ribbed stems (Lanmon 2011:103). Port Royal inhabitants “had easy access to not only the best, but also the newest, wares available via seafaring merchants and privateers” (Noël Hume 1968:13). With our increased understanding of the close connections between the West Indies during the late 17th century (Bradburn and Coombs 2006), it is almost certain the colonial merchants and planters that traded foodstuffs, raw materials, and enslaved individuals to and from the West Indies must have also traded many toasts with each other.

In general, archaeological glass in England of the pre-English flint period tends to be found on urban or elite sites, including sites used for ecclesiastical purposes (Willmott 2002). This pattern does not appear to hold in parts of the turn-of-the-century rural upper-Chesapeake region. While most of the sites examined in this paper relate to elite to middling occupations, evidence of table glass has also been found in rural, dispersed households of lower to middle-class colonists including the Buck site (Palmer 1979; Alexander 1984). Stemmed glass was recovered on many Delaware sites of the early 18th century including Augustine Creek North and the John Powell home site, both of which were lower income farm households. The well at the John Powell site contained at least five stemmed glass vessels. This site was occupied ca. 1690 and the well abandoned ca. 1720 (Bedell 2000:225, 242).

Given the wide-ranging Atlantic connections in the 17th century, it may not be far-fetched to imagine that if lead glass came in good quantity to the West Indies before 1692, examples could also come ashore in the Chesapeake at the same time or shortly thereafter. Or was the Chesapeake 15 years behind London in taking up tableware trends, as Boston may have been with imports of Asian porcelain (Wheeler Stone 1988:73)? When did English glass “become pretty well established” in the colonies? Could there be differences in the types of glass vessels available or the consumers who used lead glass? Historical accounts may give an opportunity to fill in the blanks.

Historical accounts

Thomas Notley, one of the early provincial governors of Maryland, owned one of the largest collections of glassware probated in the 1670s in St. Mary’s County, Maryland. Notley was an attorney and occasional merchant with tight connections to the Calverts, particularly the third Lord Baltimore, Charles Calvert (Bauer, King and Strickland 2013). He owned a dwelling along the Wicomico River in St. Mary’s County called Notley Hall, which had been a gift of the second Lord Baltimore Cecil Calvert. Notley Hall is not one of the sites newly analyzed for this thesis, but Notley’s probate gives an interesting view into where glasses might have been used and stored as well as their costs. At his death, there were “4 drincking glasses” in the counting house worth 2 shillings total. In the garret above the Hall were “two boxes with 38 glasses,” worth 1 pound. Assuming these were glasses for drinking, their probated worth was equivalent to a half shilling per glass (Bauer, King and Strickland 2013: Appendix I: 84). In his cellars Notley also stored ffayal wine—a wine from the Azores (Pope 1994:264), rum, and 25 gallons of lime juice (Bauer, King and Strickland 2013:85, Appendix II). The rum and lime juice are major

components of period punch recipes and a giveaway that punch was probably a feature at his dining tables (Jones and Smith 1985:11; Breen 2012). His probate also revealed the presence of a “pewter cistern” in the Great Hall (Bauer, King and Strickland 2013:15). Its purpose remains unclear but a cistern of pewter found in a 1657 New Haven probate was conjectured to be a “probable large flagon or tankard” (Champion 1905:94).

Archaeological investigations at Notley Hall by St. Mary’s College of Maryland in recent years revealed a sherd of glass that likely originated from a colorless, cylindrical decorated glass drinking beaker. This sherd contained a blue colored “comet prunt,” a raised and molded decoration applied to the exterior of the glass that mimics a comet with a tail (Bauer, King, and Strickland 2013:43). Such glasses were made in the Netherlands through the 17th century although they are supposed to be rare in the New World (Grulich 2004:18-19). In addition to the soda-glass comet prunt, one sherd of leaded glass was recovered from plow zone at Notley Hall. This sherd had no other identifying characteristics. Given that Notley died in 1679, only three years after Ravenscroft’s glassware proved successful, the chance is great any flint glass would have been brought in by the Digges family who took over Notley Hall after the Governor’s death.⁶

Notley’s account is interesting for the location in which his glassware was found, as well as the accompanying glass items, including several looking-glasses (mirrors). Notley was a merchant, but it is hard to say for sure if the glassware in the “garrett” would have been in

⁶ If flint table glass had a chance to get to St. Mary’s County in only three years after 1676, Notley would probably have had some examples in his collections. The single unproven sherd, is inconclusive. Most likely Notley’s “drinking glasses” [sic] and the glasses he held in reserve were soda glass, probably all *façon de Venise* from England or the Low Countries.

storage to be pulled out for events or as replacements for when glassware inevitably broke in the course of business with visitors and clients in the counting house. Perhaps he had those glasses available for selling to his neighbors. Both outcomes could be possible. Notley's inventory also had at least four looking-glasses in the house, as well as several silver plate vessels meant for drinking (including tumblers, a tankard, and one sack cup) "in ye back room." As opposed to the silver plate, which marked wealth, the glassware in his counting house may have functioned as a cosmopolitan marker and universal symbol of hospitality which Notley shared with everyone who came for business (Grulich 2004; Hancock 2009).

Garry Wheeler Stone examined 40 probates from St. Mary's City created from 1638 to 1650 to gain a more anthropological understanding of the tableware settings of early Marylanders. Although his probate studies covered a "very heterogeneous group," they revealed a rather homogenous collection of material, with few status distinctions aside from silver and table glass. He elected to outline economic distinctions in the probates through the household composition, comparing inventories from a traditional partnered household to those from a "mateship" or shared household, which tended to be composed of recent immigrants or freed indentured servants. According to Wheeler Stone, this distinction was roughly equivalent to comparing minor gentry to people of modest means. Out of 33 inventories with identifiable household pattern, only 15 listed any dining vessels of wood (3) or pewter (12). Few ceramic vessels were listed in these inventories. Wheeler Stone also included a table of all the pewter forms that were detailed from 10 inventories (Table 4.3). He did not state whether the wood vessels were in inventories with pewter as well, or all separate, nor did he indicate proportions between probates for the pewter forms in any of the 10 inventories. He did indicate that seven of

TABLE 4.3: Pewter in 10 Probates 1637-1650.
Adapted from Garry Wheeler Stone (1988:76, Table 6.3)

<i>Drinking Vessels</i>	<i>Householders</i>	<i>Mates</i>	<i>Total</i>
cup	2	1	3
-little	1		1
-dram	2	3	5
-caudle [spout]	1		1
beer bowl	2		2
pot	1	2	3
-quart	2		2
-pint	1		1
tankard	3		3
flagon	2		2
bottle		1	1
<i>TOTAL</i>	<i>17</i>	<i>7</i>	<i>24</i>
Porringers	19	6	25
<i>Total pewter including eating vessels</i>	<i>102</i>	<i>35</i>	<i>137</i>

these inventories were from traditional households, and three from individuals in mateships, with rough counts being 70% drinking vessels from the households and 30% from the mateships. So, whether many forms were found in a few inventories or evenly distributed cannot be known without examining the probates under discussion. Overall, the ratio of food to drinking vessels was 5:1.

Wheeler Stone determined that there were fewer drinking vessels than household members, meaning the drinking vessels were likely to be either individually owned or shared during this period of southern Maryland colonization. In addition, almost one quarter of the drinking vessels of pewter were of dram-size, too small to be used for water or cider (1988:75). Wheeler Stone found that the collections were relatively homogenous in forms between mates and partnered householders, with the only status distinctions appearing in the ownership of silver

or glass tableware (1988:75). Although the small number of probates from this period is a hindrance to statistical power, Wheeler Stone's study offers a glimpse into how drinking vessels may have been used in colonial Chesapeake households in the period before the Restoration, and before English lead glass.

Probates alone cannot inform us of how many beds and forks a household owned; to most fully understand what people owned and used in the past, probates are best used in concert with archaeology (Pogue 2005). Probates can underestimate the spread of fashionable table equipment like tea wares which are often more abundantly represented in the archaeological record (Bedell 2000:238; Yentsch 1994). Bedell's (2000) studies of 18th-century Delaware probates showed that glass tableware is common archaeologically even when it was not present in the probates. This was true even for sites occupied by lower income households from circa 1740 to 1800. No lower income households dating to the 1750s in Kent County with a worth less than 50 pounds sterling listed glass tableware (Bedell 2000:241). Even the "elite" New Castle and Kent County inventories showed a peak of only 43% of inventories with glassware in the 1790s. Yet sites that Bedell excavated all had archaeological evidence for stemmed tableware, even the sites with poorer and middle-income households. An assumption that more expensive things will tend to be listed with more detail in probates than cheap, common items may be reasonable for objects like mirrors and looms or cider mills, but it may not always be true for glassware, which by the mid-18th century at least was a relatively "inexpensive luxury" (Bedell 2000:242). Therefore, studying probates as I will do later in this chapter for St. Mary's County probates must be taken with careful measure.

Mike Lucas' attempt to link archaeology with historical data in his study of early 18th century ordinaries at Charles Town, MD shows the difficulties and rewards of linking incomplete historical records with archaeological data (Lucas 2016). No glass tableware was noted in the probates of two confirmed ordinary keepers Tracy and Willson, in Charles Town, Maryland. Tracy ran an ordinary known to only vend cider and rum, ostensibly catering to a lower-class clientele; archaeological data confirmed no glass tableware in the remains of Tracy's Ordinary. While the location of Willson's Ordinary remains unknown, glass tableware was found at Terrace C, the conjectured location of Moore's Ordinary, which may have hosted a higher-end customer base (Lucas 2016:100). No indication is given of Moore's probate contents, but Lucas argued that Moore was one of the largest landowners in Mount Calvert Hundred (Lucas 2008: 405). Moore built the ordinary at the turn of the 18th century and probably abandoned the ordinary trade after 1704, so the glass would be either from Moore's brief tenancy, or from a period of use by another innkeeper, James Stoddert, or both. The Terrace C assemblage contains material consistent with occupation from 1700 through the 1720s (Lucas 2008:361, 376, 407).

To examine further how late 17th-century colonial inventories in this region stand up to the work of Beaudry (1988), Hancock (2009), and Wheeler Stone (1988), I sought documentary evidence. Using Lois Green Carr's trove of transcribed probate files stored at Historic St. Mary's City (HSMC 1658 through 1694), I reviewed a group of 384 inventories from St. Mary's County, Maryland in the years of 1658 to 1694. Specifically, I looked for records of forms related to drinking (Table 4.4). Probates were chosen to cover the mid-17th to late 17th century, which had not been fully covered by Wheeler-Stone or Hancock. Sixty-one probates (16%) made mention of vessels likely to be used for consuming beverages of some type (Table 4.4).

TABLE 4.4: St. Mary's County Probates: Beverage vessel forms. From probates ca. 1658-1694.

	<i>Form</i>	<i>Count</i>	<i>%</i>
<i>Serving</i>	Jugs/Ewers/Pitchers*	28	7.63
	Punch bowls	6	1.63
	Bottle (Pewter)	1	0.27
<i>Drinking</i>	Beaker	2	0.54
	Caudle Cup	5	1.36
	"Cup"	29	7.90
	Dram Cup	23	6.27
	Earthen Pot/Cup	19	5.18
	Flagon	24	6.54
	Horn Cup	2	0.54
	"Pot"*	5	1.36
	Porringer	50	13.62
	Sack Cup	8	2.18
	Syllabub Pot	4	1.09
	Tankard	41	11.17
	Tumbler	14	3.81
	Other Cup/Pot	6	1.63
<i>Glass</i>	Beer glass	11	3.00
	Drinking glass	79	21.53
	Wine glass	10	2.72
<i>TOTAL BEVERAGE VESSEL</i>		367	
<i>Medicinal</i>	Cupping glass	2	

TABLE 4.5: St. Mary's County probates:
Beverage vessel materials. 1658-1694.

	<i>Material</i>	<i>Count</i>	<i>%</i>
<i>Serving Liquid</i>	Earthen	22	62.86
	Lignum Vitae	2	5.71
	Pewter	2	5.71
	Stone[ware]	5	14.29
	Unknown	4	11.43
	<i>TOTAL</i>	35	
<i>Drinking Liquid</i>	Earthen	23	7.14
	Glass	100	31.06
	Horn	2	0.62
	Pewter	70	21.74
	Silver/Plate	57	17.70
	Tin/Copper	3	0.93
	Wood	5	1.55
	Unknown	72	22.36
	<i>TOTAL</i>	332	
<i>TOTAL</i>		367	

In general, these probates do indicate material compositions for many drinking vessels, with 22% of the vessels being of unidentified material (Table 4.5). These inventories may provide a means to follow possible transitions in drinking behaviors and to determine how Chesapeake colonists may have described their drinking paraphernalia.

Within the 61 positive probates, 367 vessels were listed and counted (Table 4.3).

Vessels included serving types like jugs,

ewers, pitchers, and punch bowls, as well as many forms of cups and pots.⁷ Technically, porringers would normally be used for soups and stews (Beaudry et al. 1983:29), but since they, like generic “earthen potts,” could potentially have served as drinking vessels, they are included. Vessels not included in these counts are “payles and piggins” for water or milk, any pot likely to be for cooking rather than drinking, glass wine bottles, “syder bags,” casks, pipes, or barrels used for liquid storage. Over half of the 61 positive inventories list just one to two vessels potentially used for beverages, and the median count is two vessels. Only one probate in the period from 1658 to 1670 listed glass tableware; Thomas Mattingly owned two “Beere glasses” at the time of

⁷ Note that bottles were not included in the vessel counts at this time.

his death, with his estate probated in 1664 (Historic St. Mary's City 1664). These vessels may have been something like roemers, or beakers made of soda-glass.

One drawback to these findings is that the probates have not yet been sorted by economic or social class. It has been shown that a relationship between income and ownership is not derivable from probates; however, people with a cash element to their income are more likely to buy a wide variety of goods for the household (Weatherill 1996:105).⁸

The average count of 6.1 vessels per person in the drinking-paraphernalia-positive probates is highly skewed. Two individuals had a tremendous number of vessels, numbering into the 40s or higher. These men were Thomas Notley (d. 1679) and the merchant Robert Slye (d. 1671) who had at least 53 and 49 vessels listed, respectively. With these inventories treated as outliers, the average number owned is still 4.5, owing to the influence of several other households with counts of more than ten vessels. The persons with high vessel counts tended to be among the most influential and wealthy in St. Mary's County, including William Calvert E^{sqr}., Robert Ridgely, and Thomas Gerard (the Younger).

When the inventories are grouped by date, the number of probates with drinking paraphernalia double after 1675, with 19 probates before 1675 having a total of 102 vessels, and

⁸ Probates are also biased to reflect male middling and richer planters and other higher status male individuals (Beaudry 1988; Weatherill 1996). Many of the men reflected in the 60 probates with drinking vessels meet this criterion, and women are quite scarce in the St. Mary's County probates of this period. Just one woman of a few in the examined subset of individuals, Jane Payne, had drinking vessels listed among her possessions. Jane Payne was a free English woman who emigrated to Maryland in 1664 with her husband and children, d.1675 (Carr 2009: MSA SC 4040).

41 probates after 1676 having at least 265 vessels. Together this increase may be due to the general increase in middle-class planters and wealth by the late 17th century (Carr and Menard 1999), rather than a change in drinking habits. Probates in the decade of the 1670s show a rather even drinking vessel count in each half of the decade. Probates after 1676 begin to show an increase in the vessels noted as made of glass. Table 4.6 lists the individuals who had glass drinking wares, including the sole “parcel” of glassware.⁹ An even 100 glass vessels are represented, but 63 of these (63%) were owned by two men, Thomas Notley and William Calvert, who died within three years of one another. These 100 glass vessels represent 28% of the total beverage-related vessel count not including bottles.

Robert Slye, the owner of 12 glasses when his estate was probated in 1671, is surely an outlier. As a merchant with connections all over Maryland and northern Virginia, Slye owned

TABLE 4.6: St. Mary’s County Probates: Probated Owners of Glassware. 1664-1688.

<i>LGC#</i>	<i>Name</i>	<i>Year Proven</i>	<i>Count Glasses</i>
77	<i>Thomas Mattingly</i>	1664	2
195	<i>Robert Slye</i>	1671	12
507	<i>John Deery</i>	1678	2
520	<i>Richard Chilman</i>	1678	4
551	<i>John Garnish</i>	1679	4
552	<i>Thomas Notley</i>	1679	42
611	<i>William Calvert, Esqr.</i>	1682	21
632	<i>John Tennison</i>	1683	5
688	<i>Robert Ridgely</i>	1682	6
692	<i>Dr. James Bourne</i>	1685	"Parcel"
987	<i>John Evans</i>	1688	2

The LGC# noted in this table is the tracking number assigned by Carr to each inventory in her notes. For further notes on each entry, refer to Appendix B of this thesis or the manuscripts stored at Historic St. Mary’s City.

⁹ This is assumed to be drinking glass, but it could also conceivably be medicinal in nature.

more than 49 drinking vessels at death listed in his Hall, Beere Roome, Parlor, and Parlor closet. Many more probable beverage containers (mainly jugs and pots) were listed in his ‘Dayry’ and Store. The latter are not included in the table counts because the count would absolutely skew the results, especially with, for example, 431 porringers in his store. The items stored in his house are assumed to be the most likely to have been used for his own beverage drinking purposes. Slye kept six beere glasses and six wine glasses in a Parlor Closet. These glasses would probably have been *façon de Venise* soda glass from the Low Countries or England, perhaps even something sold or traded to Slye by an English glass-seller like John Greene, who was active in the London glass trade during this period (Willmott 2005:114).

After 1676, it becomes more difficult to say for sure if the glassware is soda or lead. Owners could very well keep glasses for a while before their death, unless broken. It is not likely that flint glass arrived much earlier than a year or two after 1676 due to the lengthy turn-around of tobacco into goods and the shipping times from England (Russo and Russo 2012:57). Soda glass also continued to be sold alongside flint glass, especially in foreign imports, so whether the glasses of Deery, Chilman, Garnish, or some of Notley’s 42 glasses included any of lead metal in 1679 is anyone’s guess until someone digs up more of their backyards.

These probates show that there were a variety of function modifiers for glass vessels being used in St. Mary’s County in the latter half of the 17th century, including material, beverage, age size, and form. Fewer forms are shown in glass compared to other materials, with “wine” versus “beere” being the most common modifiers aside from “drinking”. Seventy-nine of the glasses are listed as “drinking glasses.” Notably, two “cupping glasses” such as might be

used by a doctor or apothecary are listed in one probate. These cupping glasses are the only other glass objects aside from drinking glasses, bottles, and looking-glasses (mirrors) to be listed in the St. Mary's County probates of the last half of the 17th century. However, glassware in this period need not be just for drinking, vanity, nor medicine; there are several "houre glasses" listed in the 1655 probate of John Mottrom who lived just over the river in Virginia (Northumberland County Court Order Book 1652-1658:118b, 119b).

Given the problems of being unable to identify flint glass (lead) from those of soda in probates and the lack of historical records on how much flint glass might be imported to the colonies, the next chapter discusses how the presence of lead was determined and the methods used for analysis of the archaeological samples used in this study.

Chapter 5

Methods and Chemistry

This chapter moves on from the physical characteristics of complete glass vessels to glass at the atomic level. Specific ways to distinguish flint glass, including short-wave UV light are discussed, as well as previous studies of flint glass formulae. Glass chemistry forms the basis for this analysis. The absorption of certain wavelengths of ultra-violet light by lead oxide cations present in flint glass enables its identification, so an understanding of its chemistry and the methods to detect it is central to this thesis. The presence of lead oxide cations lends special characteristics to flint glass. Most conventional glasses are transparent in visible light because the electrons in the glass do not interact with light photons (Fernández-Navarro and Villegas 2013:17). Glass is structurally a “large molecule” allowing visible light to pass through. Impurities in the glass create colors by allowing certain light wavelengths to be absorbed; iron oxide for example causes green or “black” glass in visible light (Frank 1982:12). The lead oxide cations in English lead crystal are the reason for the brightness of leaded glassware remarked upon by contemporaries of the Early Modern era.

Lead glass appears bright because it has a high refractive index. The refractive index is a ratio of the velocity of light in vacuum to that of light within the glass (Fernández-Navarro and Villegas 2013:17). Light bends and passes more slowly through leaded glass due to the heavy oxide cations containing lead, which tend to have more deformed electron orbitals. The bending of light occurs because lead cations raise the polarizability of the glass ions. Polarizability refers to a constant based on the magnitude of deformation of the electron orbitals for a given material.

Polarizability determines light refraction (Fernández-Navarro and Villegas 2013:17). Higher light refraction also means higher light reflectance, or more light hitting the glass and bouncing off rather than passing through. The higher reflectance of lead glass allows less transmitted light to pass straight through compared to soda glasses, which means lead glass is well-suited in rooms with candlelight. A leaded drinking glass on a table will reflect more light and appear brighter than a soda drinking glass of the same shape and style, especially if it has air bubbles added to the stems (Noël Hume 1969b:16), facets, or other decorative features.

Shining a short-wave UV beam (254 nm) on glass enables the differentiation of certain glasses with different chemical compositions, including lead oxide (Charleston 1960; Grant 2000:1; Kunicki-Goldfinger and Kierzek 2006). Leaded glasses tend to fluoresce an icy blue under short-wave UV light (Grant 2000), while glass with another chemical such as arsenic may fluoresce a creamy color under long-wave light, and certain types of soda glasses may even have a yellowish tinge under short-wave light (Lanmon 2011:244).

Why UV light?

To determine whether glass fragments have lead, I turned to a relatively cheap, quick method: A UV lamp with short (and long) wave bulbs. Testing of samples was carried out with two different lamps; first with a mid-20th century lamp of unknown make with both short-and long-wave lengths, then switching to a new 9-watt SW/LW lamp with a Phillips UV bulb, Hoya filters, and a fan to allow keeping the lamp on for an extended time. Some samples from the Maryland Archaeological Conservation Laboratory were cross-tested with a smaller plastic

Raytech Versalume lamp. Little subjective difference was observed in the luminosity of the fluorescence between lamps, though the Raytech lamp had a much smaller beam and was more difficult to angle. For testing of large samples of glassware, it proved faster and more efficient to use a lamp with a larger beam area and capacity, particularly one that could be kept on continuously, since turning UV lamps on and off continuously can shorten the life of the lamp. Short-wave UV light serves as a good way to weed out soda glass from leaded tablewares without access to other means like XRF, EMS and/or time consuming density displacement experiments. This benefit proved particularly important for testing a large sample of assemblages from many sites in different repositories.

Lanmon claims only long-wave light (365 nm) is precise for examining lead content (2011:58); however, he seems to have reversed his wavelengths. Short-wave light was consistent in showing lead content for vessels I knew were most likely leaded from other characteristics such as form and weight. Now, the major caveat of this method is qualitative precision. UV lamps are not capable of offering precise measurements of lead content. Glass with 15% lead oxide might glow, as will glass with 40% lead oxide. Several authors have suggested that different amounts of lead glass fluoresce differently, with earlier English lead glass being a less bright, deeper blue or purple, and the leaded glass of the 18th century and beyond being a bright icy blue (Jones and Sullivan 1985:12). The earliest vessels of probable Ravenscroft-make have a lead content of approximately 12% (Lanmon 2011:68). Later “full” flint glass tends to have a content around 25%, close to modern European Union standards for lead crystal (Brain and Dungworth 2003:252). Occasionally, green glass of the sort from pharmaceutical vials or tableware may glow a faint white or blue that may indicate a small

amount of lead. This small amount of lead is probably a result of contamination from the raw material source for silica, the flux added, the fuel used to melt the glass, or even from stray lead glass included in recycled glass cullet. Dwight Lanmon's opinion is that the use of UV light is imprecise, due to the lack of reliable short-wave UV lamps (Lanmon 2011:58). However, for large scale studies of glass on a graduate student budget, UV is the way to go for initial differentiation of lead from non-lead glass.

In the study process it became clear that thick, grayish sherds of what was sometimes cataloged as "mirror glass" had a dull, darker blue glow under short-wave UV light. This is not surprising because some mirror glass, called "plate glass" in the 17th century, did have some amount of lead oxide added. Early mirror glass generally had half the amount of lead as English lead tableware (Lanmon 2011:255). This color difference is intriguing, given the similar disparity in lead content said to be found in the earliest late 17th-century lead glass tableware as compared to 18th-century tableware (Brain and Dungworth 2003:252). However, Kunicki-Goldfinger and Kierzek (2006:113) note that other elements such as iron or manganese in a glass can confound or enhance the blue fluorescence effect in the event that a given glass has a low lead concentration.

Another potential confounding factor is the source of early lead glass. Some glass may not necessarily be English. As mentioned in Chapter 1, adding lead oxide was a known means of increasing clarity of glass particularly for faux gems and agate glasses, but no one had attempted to manufacture and market clear glass vessels of potash-lead until the last quarter of the 17th

century. Although the clear majority of early lead glass was made in England, scholars of glass suggest that the technology of lead glass may have originated in the Netherlands or Ireland before being brought to England. There were glasshouses in Holland and Ireland possibly experimenting with very early lead glass (Turnbull 2001:139; Willmott 2005:119). However, there is unanimous agreement that lead table glass was a primarily English product until the third quarter of the 18th century (Charleston 1960:3).

Noël Hume (1968:32) indicates that Dutch copies of flint glass could well have appeared in Port Royal at the turn of the 18th century despite the Navigation Acts that, after 1664, banned Dutch trading within the colonies into the 18th century. A possibility therefore also exists that illicit Dutch trade brought Dutch copies of flint glass to the Chesapeake, given that Dutch pipes are still found in contexts post-dating 1664, particularly around the Potomac region. However, most colonists had stopped trading with the Dutch by the 18th century (McMillan 2015a). Only a few glasshouses in the Netherlands are known for sure to have made lead glass (with lead oxide over 24%) in the early 18th century (Henkes 1994:247). However, during the 18th century at the height of the flint glass craze, Dutch glasshouses sometimes added lead oxide to increase the weight of their soda-lime glass (at percentages lower than 24%, which Henkes also indicates is the minimum to be called true “flint crystal”). To determine if a given leaded fragment is truly English lead glass would require further chemical studies. For the purposes of this study, I have assumed that a glass that glows blue has some amount of lead if identifiable as part of a clear glass tableware vessel, and is most likely English in origin. Since my sites span the early period before the mid-18th century, the occurrence of non-English leaded glass may be assumed to be low. Future research will be needed to determine if this assumption is correct.

Chemical analysis

UV lamps are only one of several qualitative ways to determine lead content. Simple tests like density displacement are also capable of indicating glass contains heavy oxides of lead, though samples must be chosen carefully since bubbles in the glass can cause error margins, and barium oxides in glass also have a higher density. For lead crystal, the density is approximately 3.15 grams cm⁻³ compared to 2.46 grams cm⁻³ for generic soda-lime glasses (Frank 1982:45). Noël Hume (1968:19) used a reagent reaction he calls the “hydrofluoric acid-ammonium sulphide test” to test Port Royal stemware for lead content. While he doesn’t specify the method details, it appears to be a form of inorganic qualitative analysis using a reagent reaction to dissolve a lead-containing material in a sulfide solution. These reactions separate lead cations and create an insoluble precipitate (Yoder 2017). The test used by Noël Hume evidently created a black precipitate, which can indicate lead (but could also be precipitate of other heavy metals). For more precise determination of lead content in flint glass, other glass researchers have used X-ray Fluorescence (XRF), Electromagnetic Spectrum (EMS), Inductively Coupled Plasma Spectrography (ICPS), and Scanning Electron Microscopes (SEM) (Frank 1982; Brain and Dungworth 2003; Janssens 2013). These methods can determine the specific chemical composition of glass materials, which is important because quantitative chemical analysis methods are the only way to accurately identify glass compositions (Jones and Sullivan 1989:10). However, every method of analysis has advantages and disadvantages (Frank 1982:48). Glass scholars also use chemical analysis to identify producers or origins, like Kunicki-Goldfinger et al. (2001), who analyzed crystal glasses from central Europe to better understand the range of Bohemian potash-lime glass across Europe. Scholars provenancing *façon de Venise* and Venetian glasses have found that the basic compositions are sometimes essentially

indistinguishable; only trace elements reveal that a glass vessel may or may not be of Continental rather than Venetian origin. Furthermore, the division between “soda” and “potash” glass may be simplistic; soda-based glass can be further distinguished into a low alkali and a high alkali lime glass (de Raedt et al 2001; Willmott 2005:15).

Europeans and British archaeologists are responsible for most of the analytical work done in recent years on archaeological remains of glassware. The main focus by glass scholars regarding the chemistry of flint glass has often been on proving the glass metal formulas that Ravenscroft used. Led by David Dungworth and Colin Brain, these studies emphasize that Ravenscroft (or his master glass-blower John Baptista da Costa) may not have been the sole inventor of flint glass (Dungworth and Brain 2005; Dungworth and Brain 2013). Provenancing glass from specific English glass houses using chemistry is a relatively new analytical path, and as new glass houses are excavated, is fast becoming a normal method in the British and continental archaeologist's analytical arsenal (Kieron and Willmott 2005; Willmott 2005). Only in the last decade has archaeological study of glass increased in the United States, particularly glasses related to alcohol (Silverstein 2012; Peixotto 2013).

Provenancing glass from the colonies often relies on stylistic characteristics, which is how Noël Hume and Patricia McClenaghan determined that drinking glasses lying under the waters of the bay at Port Royal were likely of British origin (Noël Hume 1968; McClenaghan 1988). Winterthur museum curators generally use UV light for determining the place of manufacture in colorless glass. When it comes to colored glass, spectrometers or other

techniques are required to determine potential provenances (Palmer 1993:56). Lauren Silverstein (2012) used impurities revealed by UV light to show that fishermen in 17th century Smuttynose Island, Maine, imported English glass vessels as well as other vessels from countries despite bans by English trade laws. Becca Peixotto (2013) used UV lamps to study glass from the Great Dismal Swamp that borders Virginia and North Carolina and determined that maroons were using glass tableware in new ways (how?). With more time and access to a laboratory, it may be worth examining archaeological glass using XRF to determine the presence of high (30-40%), moderate (10-15%), and low (0-5%) lead content glass vessels (see for example Smith (2004) regarding high-lead vessels from the Pomona glass workshop made in the late 19th century). While not quantitative, this method offers more precision than observing color differences with a hand-held UV lamp.

Quantification and Minimum vessels

In undertaking analysis of glass assemblages, using counts does not account for breakage, or for differences in collection methods. Some sites analyzed in this thesis were merely hand collected, while other sites had contexts that were floated down to the last seed. Since lead glass was sold by weight, it would seem to be useful to determine glass weights as a comparison. However, weights are a problematic way to account for English lead glass because there were different sizes of vessels, as well as two kinds of flint glass- “single” and “double,” with double flint being heavier by weight than single flint glass (and more expensive) (Lanmon 2011).

Because of such drastically different types of recovery at sites, one method I undertook to better compare numbers of lead glass on a given site was a minimum vessel count. Minimum number of vessel counts (MNV) are one way to account for differences in breakage, discard, or personal reporting. By taking the highest count of individual bases, rims, or stems, plus a count of unique characteristics, a minimum vessel count for a site allows for comparisons between sites. Using the numerous sherds of glass vessel stemmed foot rims, I tried to go a little further. I measured the width of the folds and figured rough estimates for the completeness of the foot circumference, and combined these to determine how much of one vessel was represented by a set of foot rims with a given width. I found this may be accurate for some vessels, but might not work with others, given the variable nature of glass-blowing technique and ability. I also asked two experts whether it was possible that folded feet could be consistent on one vessel (therefore I could assume 2 folded rims of 4 mm wide could be the same vessel), and the consensus was that they are not consistent (Pers comm: Lanmon 2012; Pers. comm. Willmott 2012). I mainly relied on bases, stems, or unique rims and feet to estimate MNV.

Chapter 6

Site Backgrounds

Glass tableware assemblages of nine sites in Maryland were examined in the state and federal collections housed at the Jefferson Patterson Museum. Assemblages from five more sites across the Potomac River in Virginia were examined from the Virginia Department of Historic Resources, Coan Hall (currently curated at UTK) and Stratford Hall. All sites are located on several peninsulas jutting out into the upper Chesapeake Bay; the Northern Neck of Virginia, and part of Maryland's Western Shore including the St. Mary's Peninsula and the Calvert Peninsula (Figure 6.1). Many of these sites are within a few miles from the Potomac River including all Virginia sites. Four of the Maryland sites analyzed in this study also have proximity to the mouth of the neighboring Patuxent River One site, Angelica Knoll, sits along the shore of the Chesapeake Bay, less than 20 miles as the crow flies from Virginia.

Maryland

The Maryland assemblages included one courthouse tavern, a magazine, and seven plantation related sites dating from the 1640s to the mid-18th century. Of note is the range of religious persuasions found on the Maryland plantations; the plantation assemblages cover Catholic (including Jesuit), Quaker, and Protestant colonial households. In the course of this project, I found some assemblages had never been cataloged. Even in cases where assemblages were cataloged and appeared to have been checked for lead glass, some items were not actually marked as leaded, so double-checking anything that looked like probable lead table glass became

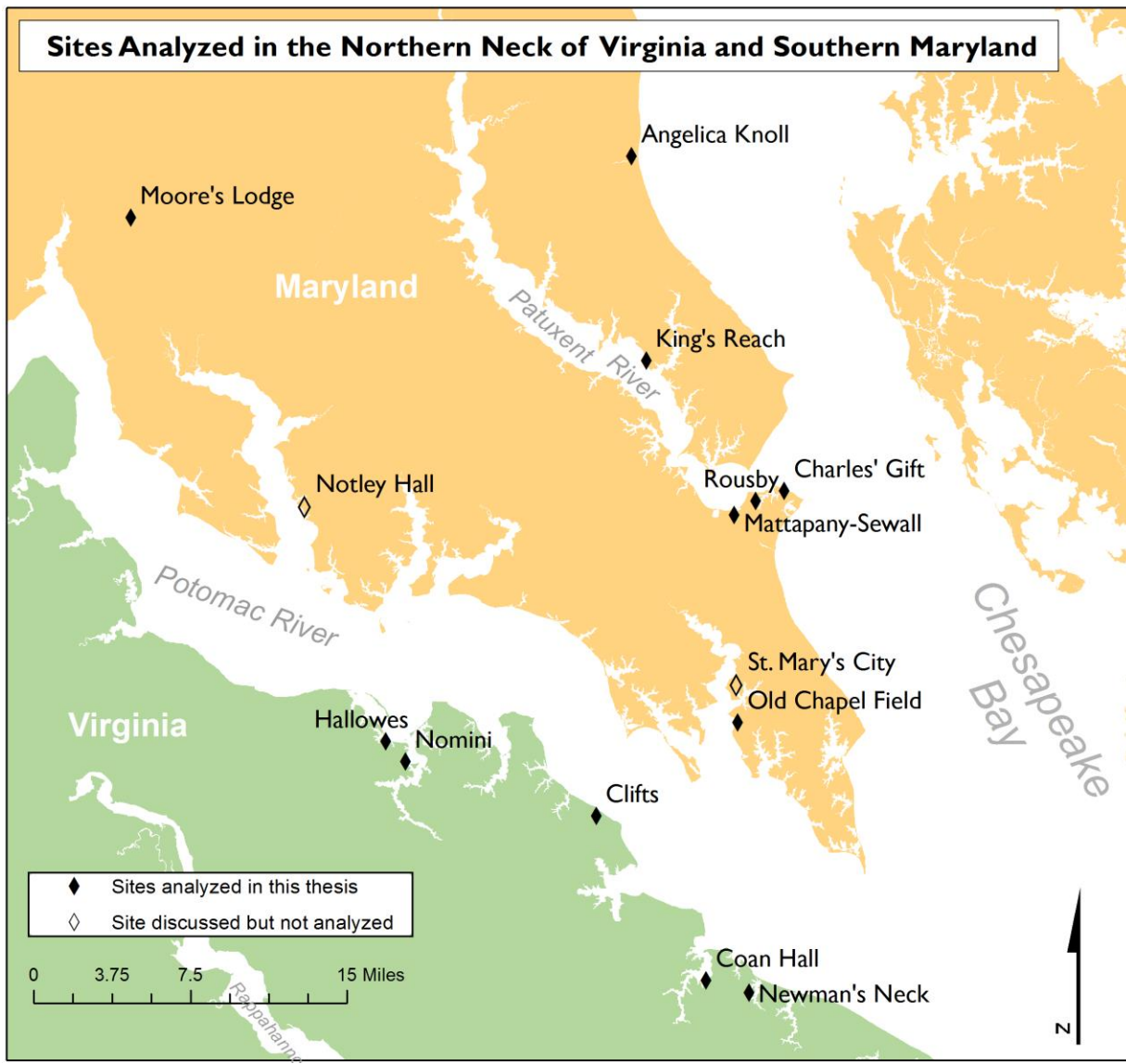


FIGURE 6.1: Map of the Archaeological Sites discussed. Map by author (2017).

a necessity. In this chapter, each site will be listed in alphanumerical order by the site number.

18CV60: Angelica Knoll

Angelica Knoll was a late 17th-to-mid 18th-century plantation that lay in Upper Cliffs Hundred near the famous Calvert Cliffs on the Western Shore of the Chesapeake Bay in Calvert County. It was discovered and excavated in the 1950s by Robert Elder, whose 1991 revised report was the source for most of the following summary.

Many of the people who initially settled in Upper Cliffs Hundred were Puritans. The 200-acre tract was first patented in 1651, but was probably occupied by tenants until 1677, when Richard Johns, a prominent Quaker, gained ownership of the tract. Johns died in 1717 as one of the wealthiest men in Maryland. The land passed to his son Isaac, and Isaac's son Richard Johns probably inherited the Angelica Tract about 1733 or 1734 (Elder 1991:2-3).

The Angelica Knoll site was one of the earliest historical archaeology investigations in southern Maryland. It was discovered through geological reconnaissance and surface survey by William Salter (Elder 1991:4). Materials were surface collected as well as excavated in 5 ft. squares during a more intensive operation over many weekends from 1954 to 1959. Materials were hand-picked from soil without screening, and some were discarded after excavation. The site was not collected in the systematic and comprehensive fashion that most modern archaeology is conducted, but still provides some answers to what folks in the Calvert Cliffs area

used in the late 17th century and first half of the 18th century. The overall collection material indicates an occupation range from 1650 to the 1770s (Elder 1991:4-5). Elder (1991:43) speculates that the variety and quantity of the material indicates the site was the location of a trading post.

The main structural feature found at Angelica Knoll was a brick foundation wall, measuring 26 ft. north-south x by 33 ft. east-west. The brick foundation is conjectured to have been half of a basement since the wall was not tall enough for a full basement. A hearth may have been present in the west wall, and the floor was hard-packed earth. Foundation materials were separated from the other artifacts but later integrated because they were judged to be the same as the rest of the site by the author (Elder 1991:12). Therefore, there is no stratigraphic distinction in the Angelica collection. This site's wide range of glass tableware is analyzed as a comparative collection to the rest of the table glass from sites along the Potomac and Patuxent Rivers.

18CV83: King's Reach

The King's Reach site is a ca. 1690 to 1711 tobacco plantation home lot located on the plantation known as St. Leonard. It sits about 450 ft. from the east bank of the Patuxent River on property that is now part of the Jefferson Patterson Park and Museum (JPPM) and the Maryland Archaeology Conservation Laboratory (Pogue 1988:40; Pogue 1990; Samford forthcoming). This plantation was owned by a wealthy planter; the most likely candidate for owner of this homestead is Richard Smith Jr. He and his household may have abandoned the site about 1711

and moved to a new dwelling on the plantation located farther south on the acreage at what has been identified as site 18CV91 (Samford forthcoming). King's Reach was constructed in the midst of the rebellion against Calvert's proprietary power. Richard Smith was a protestant supporter of the Calverts. During the troubles of 1689, as a militia captain, he brought a company of foot to Mattapany to fight the rebels. When the Calvert forces proved unsuccessful at keeping control of the province, Smith was detained by the anti-Calvert factions multiple times in an effort to prevent him from leaving for England to speak for the Lord Proprietor (Rivers Cofield 2007; ChesapeakeArchaeology 2009).

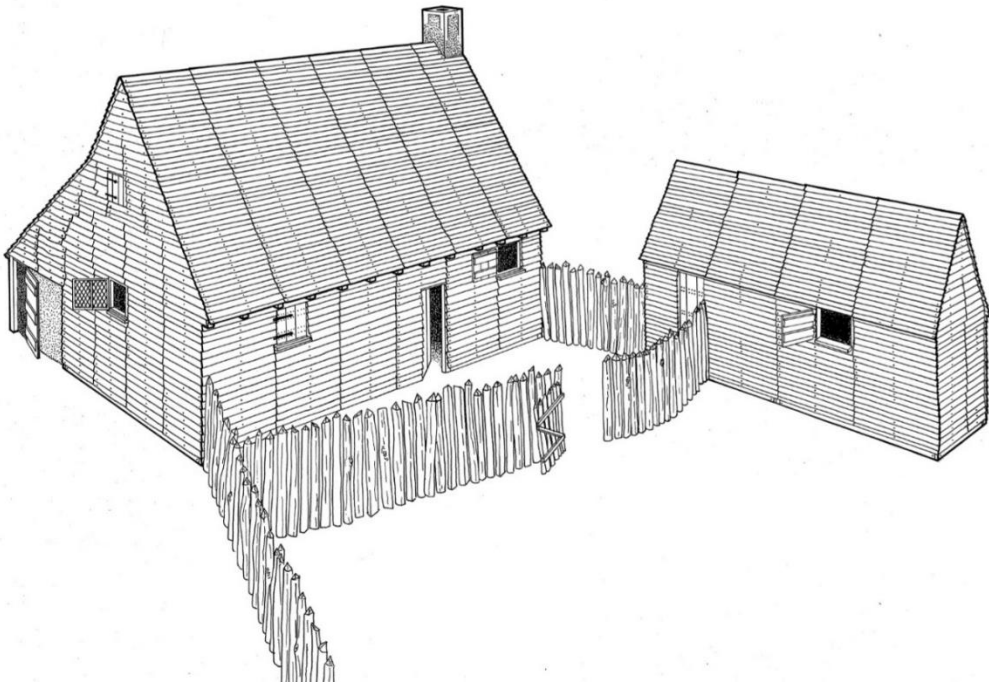


FIGURE 6.2: Conceptual image of the Kings Reach homelot. Map courtesy of the Maryland Archaeological Conservation Laboratory.

King's Reach was excavated from 1984 to 1985 by Jefferson Patterson Park and Museum and the Maryland Historical Trust. Surface collection was followed by excavation of plowzone and underlying subsurface features in 144 2 m x 2 m quadrats. Plowzone soil was screened through 3/8 in. mesh, while feature soil was screened thru 1/4 in. mesh (Pogue 1988; Samford forthcoming). The manor house was a hall-and-parlor structure of 30 x 30 ft. with two sheds (Figure 6.2). Archaeological materials at 18CV83 pointed to a 1680s to 1715 occupation. The variety of materials found at Kings Reach indicates that Smith invested primarily in movable material goods, rather than architecture. The architectural quality is strikingly lower than might be expected for a man of Smith's wealth (Pogue 1988; Rivers Cofield 2007; Samford forthcoming). The King's Reach manor house contained many cellars, with at least six within the footprint of the main structure (Pogue 1988:41). In addition to the manor house, a second structure 20 x 10 ft. nearby served as a quarter or home for bound laborers. The structure also contained a cellar (Pogue 1990:15). This quarter was probably constructed after the manor house had been in existence for some time, owing to domestic refuse found in a single excavated quarter posthole (Samford forthcoming:59).

The six cellars in the manor house were not all in use at the same time. One may have been used as a dairy cooling pit, one for a root cellar in front of the hearth, and at least three others for general storage at various times. The largest cellar was likely the earliest (Pogue 1988:42). The seventh cellar on this site located in the quarters is conjectured to have been used to store alcoholic beverages in wine bottles and English brown stoneware jugs (Pogue 1988:51, 52).

Plowzone artifact distribution analysis showed table glass concentrated around the parlor and the rear and foreyard middens (Figure 6.3). A “slight concentration” of table glass was also present around the quarter, which Pogue conjectures may be a result of hand-me downs (Pogue 1988:53). The 1715 probate inventory of Richard Smith, Jr. shows that at the time of his death he owned “4 drinking glasses and a rumer,” which were kept in the Hall at the time of inventory (Maryland State Archives *Index 1, 36C: f1- 10*). No complete site report exists yet (Samford forthcoming). For more information on spatial analysis and overall site background, see Pogue (1990; 1998).

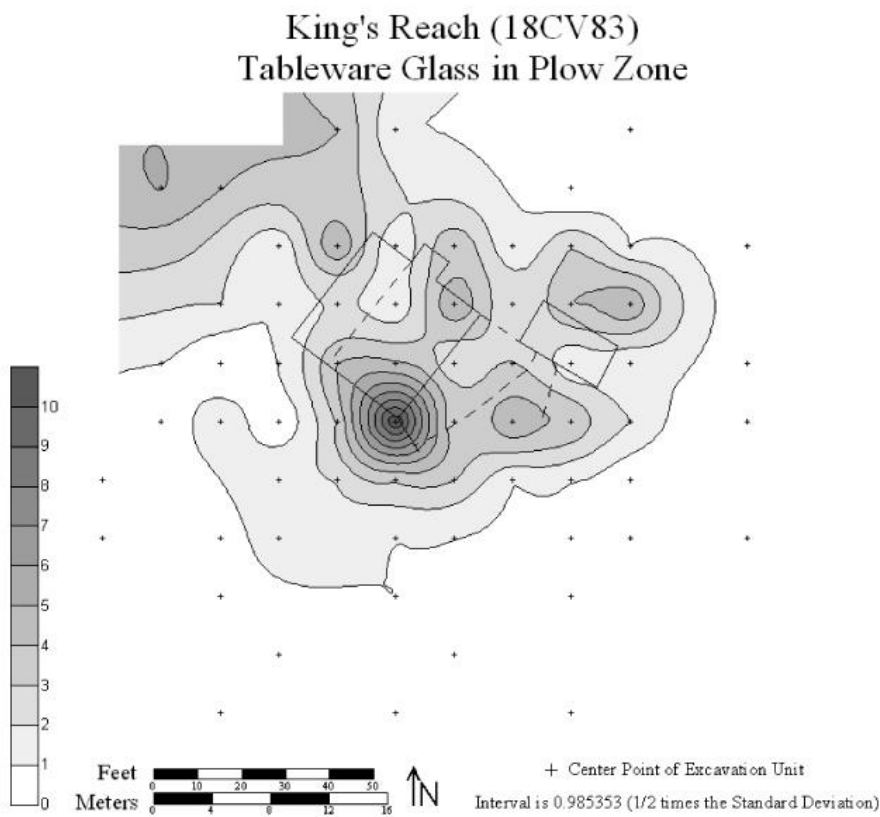


FIGURE 6.3: Distribution map of table glass at King’s Reach. Map courtesy of the Maryland Archaeological Conservation Laboratory.

18ST329 and 18ST233: Old Chapel Field and St. Inigoes Manor

When George Calvert, first Lord Baltimore, made his vision for a Maryland colony a reality, he sought out missionaries from the Jesuit Order to support the spiritual life of English Catholic colonists. The Jesuits promptly sent several priests and lay brothers to the colony in 1633. Immediately after arrival, the missionaries established a presence and a chapel in St. Mary's City. It was not until 1637 that the Jesuits purchased a parcel of land in Lower St. Mary's City (Sperling and Galke 2001:19), which became the location of their working farm and manor, St. Inigoes. This tract became part of a planned landscape supporting Catholic interests in Maryland (Sperling and Galke 2001:108). Even after worshipping publicly as a Catholic became impossible in the late 1690s, St. Inigoes Manor remained a locus for local Catholics (Pogue and Leeper 1984). Early on, the Jesuits probably rented out their manor land to indentured servants who had worked off their terms (Sperling and Galke 2001:21). The cash crop of St. Inigoes was tobacco and the Jesuits probably used a combination of indentured servants, slaves, and free laborers to cultivate it (Sperling and Galke 2001:25).

The original site of the early St. Inigoes Manor is speculated to be in Old Chapel Field. Old Chapel Field is located along the east bank of St. Inigoes Creek on what is now the Webster's Field Annex of the Naval Air Station Patuxent River. In the 1980s, Pogue and Leeper identified at least seven prehistoric and historic archaeological sites through surface surveys and shovel tests on Old Chapel Field, probably so called for an old wooden chapel that was erected there in the last decade of the 17th century (Pogue and Leeper 1984:7). The colonial sites 18CV233 and 18CV329 were identified next to a little pond called Scholar's Pond, just north of 18CV330, the site of the St. Inigoes Manor house, evidenced by a brick foundation adjacent to a

modern roadway. Only three pieces of table glass were recovered by this survey (Pogue and Leeper 1984:33). The brick foundation was initially speculated to be a manor house built by the Jesuits in 1705 (Pogue and Leeper 1984; Sperling and Galke 2001:29). A later 1996 shovel test pit (STP) survey of Webster Field gave indications that 18ST329 contained outbuildings and a center of activity for the early 18th-century Jesuit plantation, while 18ST233 was the location of an unidentified mid to late 17th-century occupation. Intensive excavations in 2001 gave better proof that 18ST233 may be related to the original Jesuit manor occupied by the “relatively well off” Jesuit missionaries (Sperling and Galke 2001:31, 96). Only the glass material from these recent Phase II surface investigations undertaken by investigators at the Southern Maryland Research Center and Jefferson Patterson Park and Museum in 2000 was studied for this analysis. In that phase II excavation, soil was screened through 1/4 in. mesh. Archaeologists recovered a total of 619,049 artifacts from 18ST233 and 95,385 artifacts from 18ST329 (Sperling and Galke 2001:33).

At 18ST233, twenty 5 x 5 ft. units were placed in the area of greatest brick concentration based on 1996 shovel tests and excavated to subsoil, revealing an early to mid-17th century structure, a cemetery, and an unidentified feature filled with processed oyster shells (Sperling and Galke 2001:96). The material from this area matches the early period of St. Inigoes dated from 1637 to 1660, but the function of the structure remains inconclusive. Most likely it relates to the Jesuit’s early manor building, though it seems unlikely that it functioned in a religious capacity. A possibility remains it could instead have been the location of the St. Inigoes Fort, but this too seems unlikely (Sperling and Galke 2001:100).

Thirty-nine 5 x 5 ft. units were excavated on 18ST329. Further investigations determined that 18ST329 is probably part of the same cluster of features as 18ST330. Part of this site had been excavated by Pogue and Leeper in 1984, including a bricked floor (Sperling and Galke 2001:100). Sites 18ST329 and 330 were in use by the mid-17th century, but the majority of activity would have taken place from 1680 to 1720, with the most intensive activity post 1700 and diminishing after 1720 (Sperling and Galke 2001:101-103). This area was likely a locus for the early 18th-century tobacco plantation run by the Jesuits. The brick floor was part of a cellar set building suggested to be related to a dairy or cold storage structure (Sperling and Galke 2001:101). 18ST329 contained no evidence of more fashionable tableware ceramics, although the artifacts suggest that food preparation and consumption took place in this area (Sperling and Galke 2001:102). Glass tableware made up 0.11 percent of the historic assemblage including architectural materials (Sperling and Galke 2001:88). Binford pipe dating indicates a median occupation of 1704 (Sperling and Galke 2001:83) for the brick feature, though a number of large bored pipes may correspond to an earlier occupation, along with lead-backed tin glazed earthenware.

The Calvert Sites

There are three sites in this analysis with close connections to each other through the Calvert family and those who worked with them: Mattapany-Sewall, Charles' Gift and Halfhead/Rousby. Charles Calvert, the future third Lord Baltimore, lived at Mattapany (18ST390) from 1666 until 1682, but his residence was preceded by the household of his wife Jane Sewall's deceased first husband Henry Sewall, who held the land from 1663 only a few years before he died in 1665. Charles' Gift (18ST704) was a land patent granted to Jane Sewall

Calvert on her marriage to Charles Calvert. It went into the hands of Major Nicholas Sewall, Jane's eldest son by Henry Sewall of Mattapany. Major Sewall's neighbor at the Halfhead/Rousby site (18ST751) was Christopher Rousby, a royal revenue collector for the colony who was later murdered at sea in 1684 by a nephew of Charles Calvert, by then the third Lord Baltimore. Only Mattapany-Sewall and its associated magazine, as well as Charles' Gift, have seen intensive phase III investigations. Owing to less intensive phase II work, the available assemblage for comparison may be somewhat slimmer for Rousby. A brief background for each of these sites follows below. All three sites are now restricted to access as they occupy land owned and operated by the Naval Air Station (NAS) Patuxent River (Figure 6.4).

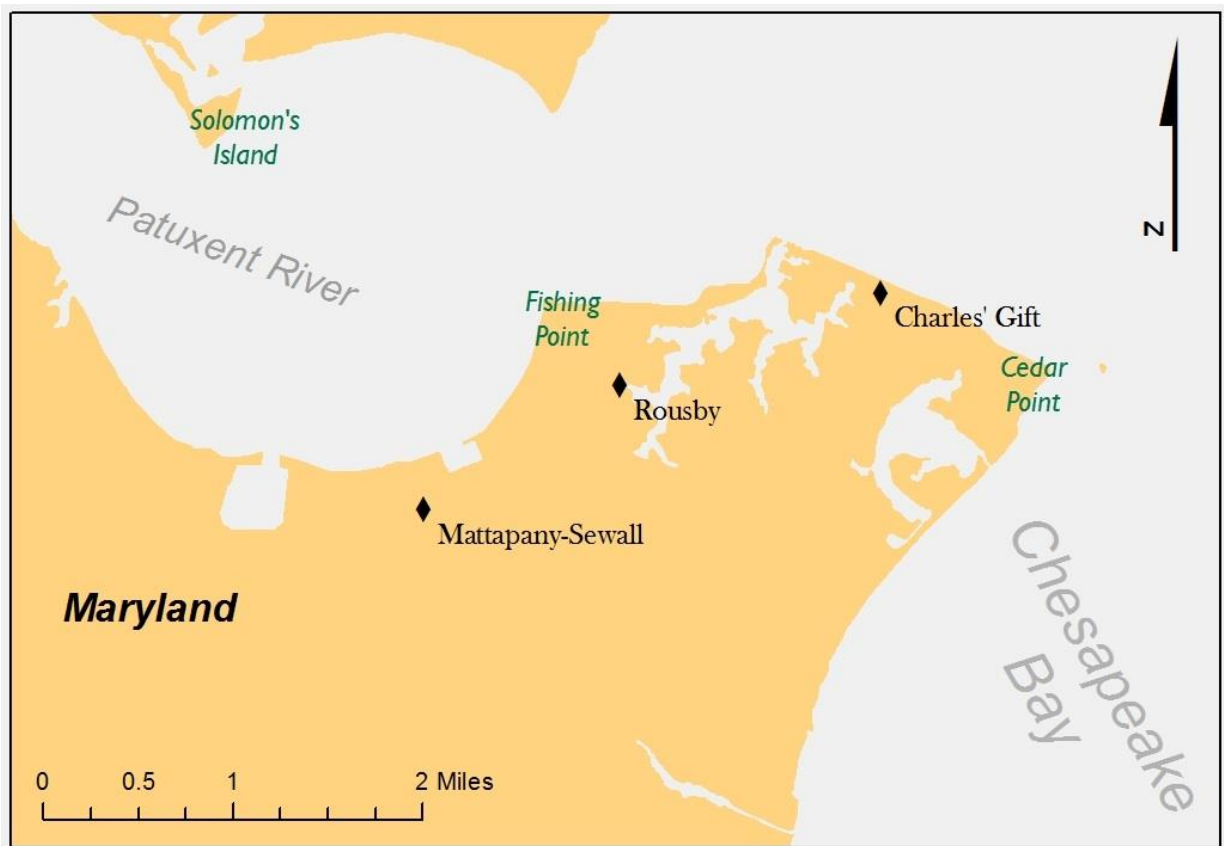


FIGURE 6.4: Map showing the “Calvert Sites” at NAS Patuxent River. Three neighboring sites located at what is now NAS Patuxent River; 18ST390, 18ST751, 18ST704. Map by author (2017).

18ST390: Mattapany and Mattapany Magazine

Mattapany-Sewall was the site of several elite households, as well as a one-time colonial powder-magazine. Removed from the main early colonial Maryland city of St. Mary's several miles to the southwest, Mattapany sat on the same land jutting out into the Patuxent River at the outlet into the Chesapeake Bay as Rousby and Charles' Gift, though farther southwest. The land was initially colonized by Jesuit missionaries before 1638. Rather than the Lord Baltimore, it was Macquomen, werowance of the Patuxent, who granted the land to the Jesuits. The missionaries hoped to establish it as a storehouse. Lord Baltimore was displeased with the potential threat to his proprietary and secular powers to grant land. By 1640, Baltimore had seized Mattapany. The Jesuits moved on and established estates at St. Inigoes and several other sites through proxies (King and Chaney 1999:21-22). However, many of the inhabitants of Conception Hundred (Mattapanient Hundred), retained close ties to the Jesuits (King and Chaney 1999:28).

In 1663, the land containing what would become Mattapany-Sewall was granted as part of a 1000-acre parcel by the second Lord Baltimore to Henry Sewall. Sewall was a scion of a wealthy family in England with close ties to Charles Calvert. He served as secretary for Calvert's government and operated as a planter-merchant (King and Chaney 1999:57). King and Chaney suggest he was not a "very active merchant" owing to the dearth of goods in his probate. The former inhabitants of Mattapany were not overly well off, so Sewall probably built a new dwelling house befitting his wealth, though no confirmed evidence of earlier structures has yet been found. By 1665 he was dead, leaving his wife and five children with one of the largest

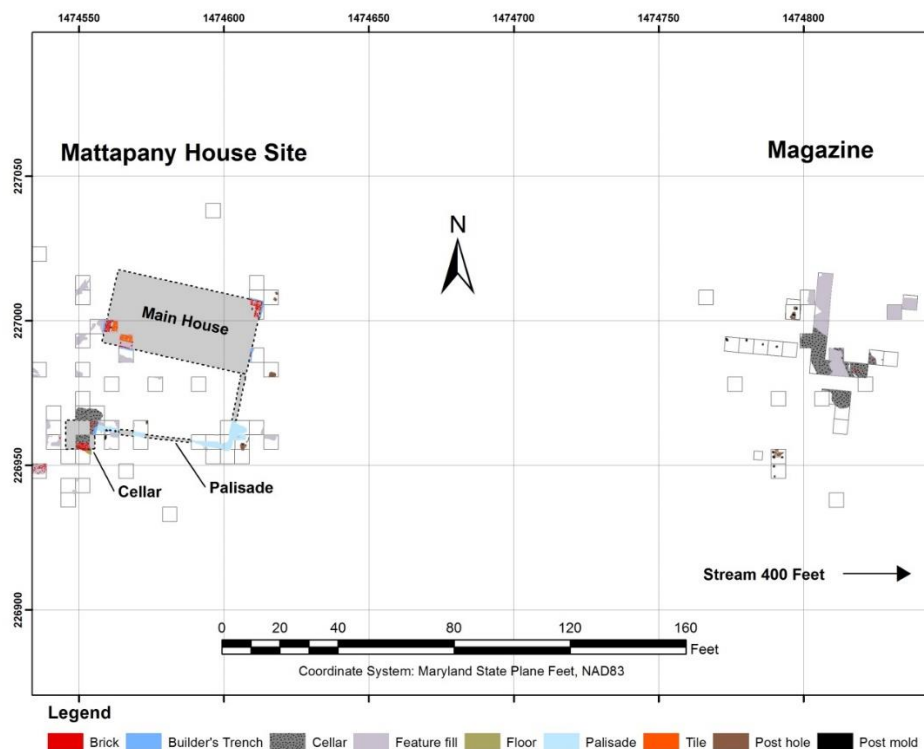


FIGURE 6.5: Feature map of Mattapani-Sewall. Courtesy of ColonialEncounters.org (2017). Note the cellar feature is not associated with the Sewall or Calvert occupation of Mattapani.

estates in the colony. After Henry's death, his widow Jane Lowe Sewall conveyed this parcel back to the second Lord Baltimore (King and Chaney 1999:57).

After Charles Calvert's marriage to Jane Sewall in 1666, the couple moved to Mattapani. Calvert built "a fair house of Brick and Timber" investing more of his wealth into the house, rather than into moveable consumer goods (King and Chaney 2002:270). Mattapani served not just as a home, but as a seat of government and a visible symbol of Calvert power. In 1676, Charles took on the family mantle as third Lord Baltimore. He returned to England in 1684 and never made it back to the colony, though it would be several more years before the Calverts lost Proprietary rights to the colony. Mattapani was deeded to John and Henry Darnall in 1684 as

Baltimore prepared to leave for the mother country (King and Chaney 1999:64). The Darnalls, as well as the Sewalls, were responsible for the care of Mattapany-Sewall during the troubles of 1689 and beyond. By 1722 Mattapany was repatented by the fifth Lord Baltimore, to Major Nicholas Sewall (King and Chaney 1999:85.) Calvert's house was abandoned in the 1740s and a new house built nearby by the descendants of Nicholas Sewall, which remains today.

Mattapany was also the site of the county powder magazine, built by Governor Calvert for the safekeeping of the colony. Public arms and gunpowder were stored here for colonists to use as protection against Susquehannock raids, pirates, and unruly rebels. The magazine was probably not constructed until after 1670 or 1671. There was no permanent garrison held at the magazine, although from 1682 to 1689 there was probably a fairly constant garrison presence (King and Chaney 1999:71, 74).

The first archaeological studies of Mattapany and its magazine were completed by Dennis Pogue, who conducted shovel test surveys at Naval Air Station Patuxent River in the 1980s. The area that Pogue sampled turned out to be the magazine site (King and Chaney 1999:201). More intensive excavation of the manor house was completed in 1999 by King and Chaney from the Maryland Archaeological Laboratory. They excavated 5 x 5 ft. test units with the objective to expose as much subsoil as possible, with limited feature excavation. All plowzone soil was screened thru ¼ in. mesh and all artifacts were retained. Two groups of test units were excavated; one at the conjectured magazine site, and one where the brick house of Charles Calvert was suspected. Calvert's house was the primary focus of this later excavation

(King and Chaney 1999:117). The following summary draws from several reports by King and Chaney (1999; 2002).

Artifacts from the magazine site included a large number of arms material, as expected for a colonial armory. The site also revealed a surprising amount of domestic material, more than the Calvert house site. King and Chaney suggest it could have begun as the house Henry Sewall dwelt in before his death, or as a quarter or guesthouse. Historic records indicate it was certainly being used as a garrison at times for soldiers stationed at Mattapany. The armory had a pantile roof and glass windows, as well as brick chimney and fireplace. It was occupied circa 1660 to 1700 (King and Chaney 1999:201-202). Charles Calvert sought to protect the power of the proprietary government, and his construction of a county powder magazine near his dwelling was a strategic move that served to channel his power and keep control of colonial affairs in Calvert hands (King and Chaney 2002; King, Flick and Bauer 2006:10).

The foundation thought to belong to the Calvert house was 52 x 28 ft., with substantial masonry including unusual brickwork and decorative elements. It rose two stories tall with a pantile roof and masonry chimneys plus fireplaces decorated with tin glaze tiles. The cellar would originally have been dirt, but was later tiled with Dutch tile probably imported circa 1675. The Calvert house artifacts date from the 1660s to the second quarter of the 18th century. The structure was likely abandoned by the 1740s. Signs of a timber framed earth-set outer building with plaster walls and an earthen cellar with a brick floor were found connected to the southeast corner of Calvert's house with a palisade fence likely constructed during the 1689 revolution. Another unusual characteristic of Mattapany-Sewall is the lack of domestic material around the

house. King and Chaney (1999: 204) suggested that perhaps Calvert had been touched by Enlightenment ideas during his sojourns back to England and put in use new practices like disposing of trash away from public and personal spaces.

The assemblage was not so different from that of middling households nearby; while Mattapany-Sewall showed evidence for similar goods also found at nearby Patuxent Point and William Stevens' Land, both plantations of a middling economic level, the difference in artifacts was in number, not so much the type or quality. Mattapany-Sewall contained a greater number of domestic artifacts. The main difference between these assemblages was an incredibly large number of artifacts associated with architectural materials at Mattapany (King and Chaney 2002:275).

18ST704: Charles' Gift

Charles' Gift sits at the mouth of the Patuxent River, near a spur of land called Cedar Point that juts into the Chesapeake Bay from St. Mary's Peninsula. Phase III excavations were done in 1999 to extract archaeological data before scheduled expansion of the NAS Patuxent River Officer's Club parking lot and a golf course Club House. Most of the following background comes from Hornum et al.'s 2001 report on these excavations. The excavations showed the presence of three distinct temporal phases in the site occupation: a pre-brick foundation phase (1660-1695), an initial brick foundation period (1695-1814), and a final brick foundation phase (1814-1943). The 17th-century features included a pit, Feature 12, filled in the late 17th century (Hornum et al. 2001: iii, 2). Although glass from the rest of the phase II excavation was analyzed for lead, items from Feature 12 are the main focus in this analysis.

The earliest colonial activities at Charles' Gift could have been Jesuit missionary activity at Conception Hundred (or Mattapanient Hundred). The Jesuits had been granted land by the Patuxent Tribe at Cedar Point where they traded goods to natives and ran a plantation with the help of indentured servants or tenants. By 1641, this land was reclaimed by the Proprietor. In 1648, 2000 acres of land around Cedar Point including this site was patented by William Eltonhead, a well-educated and well-off planter. By 1648, there was probably a "variety of tenant dwellings and one larger agricultural/domestic complex" present at this site (Hornum et al. 2001:48). Eltonhead was one of the anti-Calvert faction and executed after the Battle of the Severn in 1655. His widow lived on the tract until about 1660. The eventual heir of this tract, Thomas Taylor, sold 600 acres of land to Charles Calvert in 1668 (Hornum et al. 2001:48-49). This land then was granted to Jane Sewall Calvert and her heir Nicholas Sewall. Nicholas Sewall served at various times as Secretary of the Province, part of the Governor's Council, and deputy Governor. His close personal connection to the Calverts and staunch identification as a Roman Catholic put him in hot water by 1689 when the "Association for the Defense of Protestant Religion" forced him to flee to Virginia (Hornum et al. 2001:49-50). Over the course of the next decade he came back to Maryland every so often to check on his affairs. Only after 1694 did the political situation abate to the point that he was able to live the rest of his life at Charles' Gift until his passing in 1737 (Hornum et al. 2001:51).

Feature 12 at Charles' Gift dates to the last quarter of the 17th century and may have been filled in connection with the demolition of an earlier house. Window lead gave a TPQ of 1675 and 1682 for the pit, while the absence of certain early 18th-century ceramics suggested that the pit was filled by, if not before 1700 (Hornum et al. 2001:142). The Binford pipe stem date

was 1669.37 (Hornum et al. 2001:590). There were a very few sherds of Chinese porcelain, which may indicate that this pit was open until sometime after 1690 (Hornum et al. 2001:607).

18ST751: Halfhead/Rousby Site

Rousby is located between Harper's Creek and Fishing Point on the Patuxent River, upstream and west of Cedar Point and Charles' Gift. The 17th-century component of the Rousby site has a somewhat complex ownership history. The area's first non-Native American inhabitants were the Jesuits circa 1637 before lands were ceded back to Lord Baltimore in 1641. Thereafter, this land fell into the hands of the Edloes, who called it the Susquehanna Tract and rented a parcel containing the site along the creek out to the bricklayer John Halfhead in the 1660s. Halfhead and his heir lived on a homestead on this land until the land was probably sold in 1683 by the Edloes. This sale included the former Halfhead parcel and the Susquehanna tract, and the deed went to Christopher Rousby, the Collector of Customs for the Patuxent from 1676 to 1681. Rousby was murdered at sea in 1684 and did not enjoy his land long. His estate executor, his brother John, did not live more than a year longer than Christopher. The land went to John's wife Barbara and her second husband, Captain Richard Smith, who may have lived there until 1710, after which the site remained unoccupied until the later 18th or 19th centuries (Child et al., 2005:12, 29-32, 77). It is unlikely that if there is lead glass at this site, it was part of the Halfhead property. Christopher had no probate recorded, but in his will he left almost everything to his brother John (Child et al. 2005:31). John does have an inventory, a very long, detailed list of things ranging from matchcoats to unusual *physicks* and apothecary medications. Although John's home base was at the Rousby plantation in Calvert County, it is possible that if Christopher Rousby owned glass tableware, John and his family received it, and his wife could

have brought some in if she ever occupied the Susquehanna Point homelot. John's 1685 inventory lists "a parcell of Glass Coffee Cupps" in Mrs. Rousby's Chamber along with a "Chorkolat pott" of unspecified material, probably ceramic (MSA TE1-64 1685:1037). Unfortunately, several pages of materials in the kitchen are missing from the scanned files, so it is presently unknown at this time if other glassware is present. Chocolate pots would have been very unusual for the period. It is clear that John was very well off and interested in having fashionable goods. The Rousbys had merchant brothers in London and York (Childe et al. 2001:29), so they probably had some very good connections to English goods.

The data on the Halfhead/Rousby site comes from Phase II investigations undertaken in 2001 at the Naval Air Station Patuxent River in St. Mary's County. The investigation was brief, and some features were left about 60-70% intact for future work (Child et al. 2005:64), so artifact data are limited. However, artefactual data Enabled the investigators to identify that twelve out of thirteen features were identified with the 17th-century component at the Rousby site, and of these, two refuse pits and three structural features very likely date to the period spanning the Halfhead tenure (early 1660s) to the death of the Rousbys (1685) (Childe et al. 2005:77).

18CH777: Moore's Lodge

Moore's Lodge is the site of the first courthouse in Charles County. Located south of La Plata, not far from a tributary of the Potomac, it served as the county courthouse from roughly 1674 to 1727 before the court moved the county seat to Chandler Town (now Port Tobacco). Moore's Lodge was also an ordinary; the Maryland Assembly required that an ordinary be kept

here while the Court was in session (King et al. 2008). Moore's Lodge was not a town per se, but booze, betting on horses, and government deals all went down at Moore's Lodge, surrounded by a tobacco plantation and the larger Port Tobacco community.

In 2007, archaeological excavations were undertaken by St Mary's College of Maryland to find the original location of the courthouse. One of the few known illustrations of structures in 17th-century Maryland is on a 1697 surveyor's plat of the Moore's Lodge tract, including the courthouse and the ordinary (King et al. 2008:1). The following background summary has been abbreviated from King, Strickland, and Norris' 2008 report.

A series of owner-operators are known by historical records to have been responsible for the construction, care, and feeding of the court and courthouse. The county Commissioners first tried to get a courthouse built in 1672 by contracting with Henry Moore to build it on a three-acre section of his 150-acre tract called Moore's Lodge. Moore's death and the fruitless building attempts of the next contract holder John Allen meant it took at least eight years to get a courthouse, complete with jail, established. By 1676, Governor Notley had transferred the contract and ordinary rights to Thomas Hussey, who finished construction and kept the courthouse and ordinary running for almost a decade until 1687. By 1679, there was also a racetrack that ended at the kitchen door. Hussey had tussles with the Commissioners, who did not renew his contract that year. Instead, the commissioners awarded the license to Philip Lynes. As was common in that period, Hussey had operated the ordinary out of his private home when court was in session. While Hussey remained living at Moore's Lodge, Philip Lynes took over the care of the ordinary, first building a separate building for that purpose. The license switched

between the two men for a decade until 1698, when Samuel Lockett, Hussey's son-in-law, was granted the license and kept it up to his death in 1705.

Hussey lived until 1700 at Moore's Lodge. His son-in-law and daughter in turn lived at Moore's Lodge until Lockett died in 1705. Elizabeth remarried again to John Hanson, who died in 1714. It is unknown who ran the ordinary after 1705, although the Hansons appear to have stayed at Moore's Lodge. The excavations in 2007 recovered little archaeological evidence of occupation after 1715 although the ordinary parcel was auctioned off in 1731. Thomas and Elizabeth Hussey were probably Roman Catholic, while Elizabeth's husbands remain of unknown affiliation (King et al. 2008:7). The Husseys and Locketts invested in servants and enslaved labor. Hussey's probate indicates he had 12 servants at his death, while Lockett's probate shows 8 slaves and the bound labor of 7 servants (King et al. 2008).

Excavations at Moore's Lodge were more exploratory than intensive and involved a combination of surface survey, 712 shovel test pits, and 5 5 x 5 ft. test units. All soil was screened through 1/4 in. mesh. Test units 1, 3, 4, and 5 were in Area B, with TU 2 in Area A. Only a small portion of the courthouse parcel was excavated, enough to determine that activity occurred in the late 17th and early 18th centuries. The STPs and test units showed the presence of two distinct activity areas. Area A had a low concentration of artifacts but a large number of ceramics in proportion. Almost no pipe fragments were recovered. Area B contained more than ten times the domestic material as Area A (King et al. 2008:33). Area A was interpreted by King et al. (2008:36) as the site of the courthouse and/or the jail. Area B represented the domestic

occupation of Moore's Lodge, including the ordinary area. Area B artifacts span the period of roughly 1670 to 1715 (King et al. 2008:38).

VIRGINIA

The Chesapeake Tidewater in Virginia is physically defined by three different peninsulas. All five Virginia sites analyzed for this paper are located on the Potomac River side of the upper peninsula, colloquially called the Northern Neck, and made up of Westmoreland and Northumberland counties on the lower Neck (closest to the Chesapeake Bay) and King George county on the upper Neck. Tiny fragments of finely-blown lead glass with Venetian design elements like nip't diamond waies, gadrooning, and trailed rims are the surviving objects that speak for early versions of lead glass tableware making its way to the Upper Peninsula of the Virginia colony.

44NB11: Coan Hall

Coan Hall is a mid-17th-century to early 18th-century plantation along the Coan River tributary of the Potomac River in Northumberland County, Virginia. It was first explored archaeologically by Stephen Potter in the 1970s and more recently by students and staff from the University of Tennessee, Knoxville, under the direction of Barbara Heath. Excavation is still ongoing, with summer field seasons from 2015 to the present.

Stephen Potter's research initially identified this site as the home of John Mottrom, first settler of the Northern Neck. Mottrom settled in this area circa 1640 and died in 1655 with the distinction of being the wealthiest man on the peninsula (Potter 1976; WMQ 1908: 53).

Mottrom's son John Jr. gained custody of the plantation at the death of his stepfather John Colclough in 1662 (Beale 1897). John Jr.'s son Spencer Mottrom inherited Coan Hall in 1690 and build a warehouse in addition to the other buildings on the property (Beale 1897; WMQ 1908:54). At his death, the property passed to his daughter Mary, who married Joseph Ball. Ball's ownership ended in 1727, and the property was split between his sons (Beale 1897), with Spencer Ball retaining the core of the plantation.

While it remains as yet unproven who exactly lived on the archaeological site currently under excavation, the archaeological features, including a masonry hearth, brick-lined cellar and large structural post holes likely constitute the remains of Colonel Mottrom's original dwelling, which one or more of his descendants continued to live in and improve upon. John Colclough "improved" the plantation in 1658 (Beale 1897). In addition to the features associated with the house, a mid-17th-century pit feature and features associated with two outbuildings dating to the mid-to late 17th century have also been located. No full artifact catalog exists yet for the recent excavations. Reanalysis of the surface finds that Potter collected in the 1970s yielded artifacts dating from roughly 1680 to 1727 (McMillan, Ptacek, and Rimer 2012). Pipe stem analysis of the 2012 shovel test materials showed a Binford date of 1690 and a Heighton and Deagan date of 1703. The proportions of local to imported pipes were also in line with a colonial site occupied from 1650 to 1700 (McMillan, Ptacek, and Rimer 2012). More recent work at Coan Hall has revealed earlier deposits in the cellar that are could correlate with an occupation period by Colonel Mottrom (pers. comm. B. Heath).

44NB180: Newman's Neck

Newman's Neck was a plantation downriver and east of Coan Hall inhabited by several different families from the mid-17th century to the mid-18th century. Steve Potter identified the site in the 1970s and it was excavated by Charles Hodges from 1989 to 1990. However, like the Hallows excavations (see below), the materials were not fully cataloged and analyzed until 2008 to 2009 when University of Tennessee archaeologists borrowed the materials from the VDHR (Heath et al. 2009:12). See Hodges (1990) and McCartney (1990) for discussion of the excavations and historical background, and Heath et al. 2009 for intensive discussion of the artifacts.

Robert Newman was a septuagenarian planter of middling means who received a land grant along the Potomac in 1651 (McCartney 1990:40). After his death in 1656, the property was sold to Daniel Holland. Holland and his family lived on adjacent land, and probably did not relocate to the elder Newman's compound when they bought the land. Holland's daughter Elizabeth and her husband Daniel Neale did move to Newmans Neck after 1672, where they built a new manor house. The land and dwellings eventually passed into the hands of their son, Ebenezer Neale, who inherited Newman's Neck after 1695. While Newman Necks' previous owners had relied on indentured servants, Ebenezer was likely the first landowner on the plantation to use the labor of enslaved individuals (Heath et al. 2009:17-18). Based on the materials in his inventory, including woodworking tools, a canoe and sail boat, and cider presses, and many farming tools, Ebenezer could cover a diverse array of tasks on the manor and had a well-appointed table and wardrobe. His 1710 probate shows a distinct and dramatic increase in his household belongings compared to the Newmans 50 years earlier (Heath et al. 2009:24-26).

The Newmans' Neck site was occupied into the 1740s, probably by the descendants of Neale by his daughter Hannah Haynie and grandson John Haynie. At least 12 people lived on site from 1713 to 1725. Curiously, the 1725 inventory of John Haynie includes "2 drinking glasses" at the very end, among other assorted items interpreted by Heath et al. (2009) as possible belongings of the enslaved individuals of the household. There is plenty of pewter generically listed in the inventory, but no other tablewares of glass (Heath et al. 2009:28, Appendix 4). Glass tableware is not mentioned in any of the earlier probates available for Newman or Neale. William Haynie and his household were the last residents, and the site was abandoned in the later part of the 1740s.

During the excavation by Hodges, the site was stripped of plowzone to reveal features, and features were excavated and screened through 1/4 in hardware cloth. The Feature 4 pit fill in Structure 1 was water screened through 1/16 in. mesh. From the artefactual and subsoil evidence, Heath et al. (2009) outlined two main phases of development; the initial occupation of Structure 1, the manor house, starting in the 1670s and ending in the 1720s, then the demolition of Structure 2 and the construction of an exterior cellar, Structure 6. The Neales were probably responsible for the construction of the manor house (Heath et al. 2009:40).

44WM6: Hallowes

The Hallowes site was a plantation established in Westmoreland County by John Hallowes, a former Marylander who fled the colony for Virginia after Ingle's rebellion of 1644 to 1646. By 1651, he had a grant to the land in the Northern Neck of Virginia that would become the Hallowes site. Over his life, John Hallowes transitioned from an indentured servant to a

trader and landed elite gentleman of Westmoreland County. He had two children by his first wife Restitute Tew. After his death in 1657, his second wife and her husband probably lived in the Hallowes house for some time until his daughter, also named Restitute, came of age to inherit the land. Restitute (II) did not live on the land, instead renting it to tenants who probably occupied the dwelling until they were evicted after 1681. The structure was a post in ground dwelling initially built without fortifications, which were added soon thereafter. These fortifications were generally agreed to date to the 1670s, but reanalysis indicated that they were associated with John Hallowes' occupation of the site and likely date to the 1640s to early 1650s. They may have been removed in the mid-1660s. The dwelling may have had an add-on to the north, as well as ditches associated with fence lines connecting to the structure that both post-date the fortifications (Buchanan and Heite 1971: 39; Hatch, Heath and McMillan 2013: 56; McMillan, Hatch and Heath 2014: 155).

The site was excavated as a salvage project ahead of the Stratford Harbor development. From 1968 to 1969, volunteers dug through the plowzone to reveal features that indicated the presence of a 50 x 20 ft. post in ground "hall and parlor" type structure with off center chimney fortified by bastions (Buchanan and Heite 1971:40; McMillan, Hatch and Heath 2014:152). The sediments were not screened; items were picked out by sight from the plowzone. Features were trowel excavated, but probably also picked out by sight, which biased excavation in favor of larger and more noticeable artifacts (McMillan, Hatch and Heath 2014). Unfortunately for the purposes of glass study, this means that many small pieces of colorless glass may have been overlooked.

The artifacts were not cataloged systematically until 1984; the faunal remains remained uncataloged until 2010 to 2012 when University of Tennessee historical archaeologists revisited the material. The majority of the assemblage contained ceramic and clay tobacco pipes; 34% and 22% respectively (McMillan, Hatch and Heath 2014:152, 155-156). In terms of container glass there were 279 fragments of container glass including many case bottles, a few wine bottles, and 1 phial. These containers comprised a conservative count of five individual container glass vessels based on unique finished or bases (McMillan, Hatch, and Heath 2014:166). Refined Binford dating of the pipes from Hallows indicated a mean date of 1663.27 for the site (Buchanan and Heite 1971:43). A variety of dating methods including ceramic intersections, faunal proportions and mean pipe and ceramics support a time range of 1647 to 1681 for a site occupied less than 40 years (McMillan, Hatch, and Heath 2014:154).

44WM12: Nomini Plantation

Nomini Plantation was a mid-to-late 17th century plantation on the mouth of the Nomini River on the very eastern end of Currioman Neck in Westmoreland County. Archaeological excavations of an early trash dump were completed by a team of amateur archaeologists from the Archeological Society of Virginia and volunteers in the 1970s. The materials were consigned to status as a mere “study collection” due to the mixed labeling systems used by the excavators. Not until the 21st century did archaeologists take a further look at the trash pit contents and discover that the midden deposits were largely intact, especially in lower strata. Three distinct phases were discernible: 1650 to 1675, 1675 to 1700, and 1700 to 1720. (McMillan and Hatch 2013; Hatch 2015:213).

Nomini was occupied by multiple households in the upper echelons of wealth for the early colonial Chesapeake (Mitchell 1983). This land was patented by Thomas Speke in 1649 (McMillan 2015a). Speke had come to Virginia from Maryland around 1644/45 during the unrest of Ingle's Rebellion (McMillan and Hatch 2013). Speke was no poor emigrant; he sponsored first 12, then another 8 people's voyages to the colony, which gave him land-rights to the Nomini grants (Mitchell 1983). Speke was among the first landowners in the area to own enslaved Africans. He would therefore have had wealth enough and connections to "exclusive trade networks" (McMillan 2015a:199) to access luxurious glassware. Speke's second marriage was to Frances Gerard, daughter of the well-known anti-Calvert reactionary Dr. Thomas Gerard of Maryland. After Speke's death in 1659, Frances married four more times. Whether Frances lived at Nomini with husbands two through four is uncertain, but she did occupy Nomini with her fifth and last spouse, William Hardidge, whom she married ca. 1679 (Mitchell 1983; McMillan and Hatch 2013; McMillan 2015a). Their daughter Elizabeth married Henry Ashton in 1700, and the Ashton descendants lived at Nomini until the late 18th century (Mitchell and Mitchell 1982:3708).

Thomas Speke was a planter-merchant and likely had a store on the land during his lifetime; this business may have been continued by Frances. Nomini was once chosen as a location for the official local tobacco warehouse, but this warehouse system was never really implemented (Mitchell 1983:5). The choice of Nomini does speak to the regional trade influence of the Spekes and Hardidges, as well as their choice trading location as a trade warehouse along the river.

During excavations by the Mitchells, a cross-shaped manor house with a brick-lined cellar was uncovered. To the west of this dwelling, an early trash pit was found on the side of a ravine, 25 ft. from the remains of a brick chimney, possibly the remains of Speke's 17th-century home (McMillan and Hatch 2013). This trash pit was excavated in two perpendicular trenches. The context labeling system used at Nomini by the Mitchells was complicated by the participation of Bill Kelso as well as the landowners, the Curtises, in the excavation of the trash pit trenches.

MacMillan and Hatch's recent reanalysis of the midden strata determined that the layers are mostly intact and altogether have a depositional date range of circa 1650 to 1720. McMillan and Hatch divided the layers into three strata based on the incidences of buckley, white salt glazed stoneware, and English brown stonewares and refined the dates of the layers to rough ranges using pipe stem dates and mean ceramic dates. Their work shows that the pipe and ceramic artifacts in the lower two strata correlate well with certain historical events at Nominy plantation that could have influenced depositional changes. The upper strata are more mixed, including a plowzone. Strata I may relate to a period from ca.1700 to 1720, strata II to a period from ca. 1675 to 1700, and strata III to the earliest period at Nomini, from ca. 1650 to 1675 (McMillan and Hatch 2013; Hatch 2015).

44WM31: Clifts Plantation

The site of Clifts Plantation lies not more than several hundred yards from the Potomac River within the same large plantation as Stratford Hall, home base of the Lees of Virginia. Clifts Plantation has the distinction of having four groups of well-dated features that Fraser Neiman

argued corresponds to three distinct stages of occupation by tenant households until it was abandoned in the second quarter of the 18th century: Clifts I, 1664 to 1685; Clifts II, 1685 to 1705; Clifts III, 1705 to 1715; and Clifts IV, 1715 to 1730. This characteristic makes it a valuable testing ground for hypotheses about the arrival and proliferation of lead glass. This earliest colonial occupation at the Stratford Hall plantation was extensively excavated in the 1970s by Fraser Neiman.

Before the Lees, this land had been patented by Nathaniel Pope, a planter-merchant who fled the colony of Maryland during the turmoil of Ingle's Rebellion (Riordan 2003). Pope later became the wealthiest landowner in Westmoreland County. Pope's son Thomas, a planter-merchant with connections to Bristol, established Clifts behind a cliff along the Potomac as a tenant farm circa 1664, distinct from his own seat on the opposite, western edge of the property. Due to a gap in the county records, the identity of these first occupants remains unknown (Neiman 1980a:4, 6; Neiman 1980b:2-3). A bastioned palisade surrounding and protecting the Clifts dates to this early, politically and culturally tumultuous period (Neiman 1980a:31).

Thomas Pope died in 1685 (end of phase I) and left the Clifts to his middle sons Richard and John, who stayed hands-off, with their mother Joanna managing the land from her home in Bristol (Neiman 1980a:8). Around the time of Clifts conjectured second phase, Joanna made her youngest son, Nathaniel, manager of the Clifts in 1708, though a question remains whether Nathaniel managed the land before it was made official in writing. It is possible Nathaniel also lived there at times, but historical documentation is unclear. Two years later Joanna appointed

Thomas Wills of Bristol and her son to sell the land and its negroes. There are mentions of negroes living at the Clifts in the historical record since at least 1706 (Neiman 1980a:9-10).

The phase IV shift in Clifts' occupation was initiated by the purchase of Clifts by Thomas Lee in 1716. The material records indicate that life on the plantation continued uninterrupted through the period of sale; yet the identities of these tenants remains unknown (Neiman 1980a:11). Thomas Lee built his manor house at Stratford Hall a quarter mile from the Clifts site around the 1730s (Neiman 1980a:13). Soon thereafter, Lee demolished the "old manner house" along with all its dependencies to gain better access to the riverfront. Occupation activity at the Clifts finally ceased (Neiman 1980b:4). This last period of life corresponds to Phase IV.

Archaeology of the manor house at Clifts reveals that though the inhabitants were not owners, neither were they living a hardscrabble life. The house was large by Chesapeake standards and contained three rooms. The separate quartering house also implies a large population of indentured and/or enslaved laborers. The inhabitants of the manor house at Clifts may have been renters but they were better off than most of their neighbors (Neiman 1980a:14-16).

In 1976, Neiman began digging the Clifts. The site was gridded into 10 ft. squares and plowzone was removed and screened through 1/4 in. mesh to reveal underlying features and subsoil. The entire manor house and surrounding dependencies were gradually revealed in this manner (Neiman 1980b:5, 7). Many earthfast postholes, a bastioned palisade, servant /slave

quarters, garden fences, a dairy, barns and other farm dependencies, trash pits, and a cluster of 18 gravesites remained archaeologically intact to date into four distinct periods.

With several exceptions, most of the sites outlined in this chapter were owned and occupied by planter households of some wealth and stature. If there was to be English flint glass found early on in this area, one might assume the first glimmers of flint glass might be seen on some of these sites. The variety of excavation techniques used between these sites and the differences in contextual data requires careful consideration while comparing the assemblages. Fortunately, several sites with well-defined dated contexts like Clifts Plantation, Nomini Plantation, Mattapany-Sewall, and Charles' Gift provide a useful companion to other sites with more unstratified and plowzone proveniences. The next chapter will now turn to the archaeological evidence of glass tableware including flint glass at each of these sites.

Chapter 7

Site Results

As the results in this chapter will show, most sites have leaded glass in their assemblage. Where possible, non-lead tableware is also given consideration. Though not the focus of this investigation, the soda-glass, particularly the *façon de Venise*, adds to understanding of the use and presence of glass tableware at these colonial sites. With most glass, the UV lamps worked sufficiently well to distinguish bluish lead fluorescence. Those that did not work with UV analysis were colored or opaque glasses and severely patinated sherds. The white color of *lattimo* reflected UV light, and thick patination on severely oxidized glass obscured the UV light. Identifying lead in opaque white or colored glasses would require another means such as portable X-ray fluorescence.

Maryland

18CV60: Angelica Knoll

Due to its manner of excavation, the Angelica assemblage cannot be divided into stratified contexts, which limits its analytical use. However, the wide range of glass forms and styles provides some information into what was available in this area of Calvert County by the Chesapeake Bay area from 1660 to 1770.

The assemblage includes over 500 pieces of colorless glass comprising roughly 88% lead and 12% non-lead (Table 7.1). The stemware runs the gamut from lobed quatrefoils to pincered fins through heavy balusters up to drawn stems and air twists. The glass count should be taken

TABLE 7.1 Angelica Colorless & Table Glass. Count does not include opaque white glass.

<i>Type</i>	<i>Count</i>	<i>Leaded</i>	<i>Nonlead</i>	<i>Indeterminate</i>
<i>Container</i>	43	43	0	0
<i>Tumbler</i>	13	0	13	0
<i>Stemware</i>	140	140	0	0
<i>UID Tableware</i>	337	295	39	3
<i>UID Glass</i>	15	5	10	0
<i>Total</i>	548	483	62	3

with a grain of colonial salt, as at least two leaded fragments appear to be later 19th or 20th century mold-made containers or table-glass; however, most identifiable features are consistent with a colonial table glass assemblage. Over 25% of the assemblage can be identified as stemware, and all of them contain lead. The assemblage remains largely uncataloged, which means no wine bottle glass or similar object comparative counts can be given at this time. A bare minimum count of least 23 vessels including 4 tumblers, 1 ale glass, 1 unidentified footed vessel, 1 decanter, 1 large handled vessel, and 17 stemware vessels (based on stems, not feet) are represented.

The early flint glass stem assemblage at Angelica includes a pincer fin stem with four vertical fins, a basal knob, and a merese at the top (Figure 7.1). Unlike Virginian examples included in the study, this stem had smooth fins. No meshed texture on the finned lobes is present. Lanmon (2011:81) suggests that it may be possible to identify the glassblower or glass-house by the patterns on the lobes. It is probably safe to say that the source of this stem is not the same source as the stems in Virginia. The second anglicized Venetian period stem fragment at Angelica is a quatrefoil inverted knob with a very matte, weathered exterior. A small pinched, extruded lobe or prunt-like fragment from an unidentified flint glass vessel appears to be from a *façon de Venise* style drinking vessel with some form of spiked gadrooning (Figure 7.2).



FIGURE 7.1: Angelica Pincer fin stem. Image by author (2013).



FIGURE 7.2: Angelica bowl fragment with spiked gadrooning. Image by author (2013).

The more typical knopped stems include several eight-sided "reeded" pedestal stems with bosses, six-sided pedestal stems, bobbin stems, annulated knops, inverted knops and inverted balusters, and an acorn (or mushroom) knop (Figure 7.3, Figure 7.4). The Angelica report mentions a stem with compound knops that was interpreted as a candlestick. This item was not available for analysis, but the site report image shows the stem elements contained an acorn knop (Elder 1991:13, Figure 9) that appears unrelated to the acorn knopped glass with a conical bowl in Figure 7.3.

Later flint glass examples include stems with air twists and drawn stems with conical and thistle bowls (Figure 7.3, Figure 7.5). Notably, no faceted or cut glass vessels were found. This indicates that the colonial glass assemblage does not postdate the last quarter of the 18th century.



FIGURE 7.3: More Angelica stems. From Left to right- Mushroom knob, pincer fin, quatrefoil, reeded pedestal stem with bosses, air twist. Image by author (2013).



FIGURE 7.4: Even more Angelica stems. Left to right- bobbin stem, classic inverted baluster, baluster, compound baluster with merese, and inverted knob. Image by author (2013).



FIGURE 7.5: Angelica 18th century stems-- Two drawn flint glass stems and one knopped stem with possible funnel bowl. Image by author (2013).

This site contains one of the few identifiable fragments of a possible lid found during this project. The lid has a heavy rim with a raised interior step and would have ended with a finial. There was no interior lip, so it may have rested inside a vessel. Fragments of a round, hollow finial were also found that may relate to the lid. This finial is like two finial specimens seen at Clifts Plantation. Elder (1991:12) identified the Angelica lids as Continental or German “*pokal*” covered vessel lid fragments. However, these fragments showed lead content. Could they be English copies of *pokals*, or created by the middle of the 18th century when flint glass technology had spread continent-ward?

Angelica also has a wide range of tableware bases; dome footed fragments, plain footed stemware, and folded foot-rims were all seen. Multiple handles, some with molded ribs were present (Figure 7.6), as well as necks of decanters or flint-glass bottles (Figure 7.7).



FIGURE 7.6: Flint glass handle fragments from Angelica. Image by author (2013).



FIGURE 7.7: Flint glass handle fragments from Angelica. Image by author (2013).

One roughly 2 in. wide body fragment was initially cataloged as a tumbler with molded leaf decoration in Elder's report. However, unlike the other tumblers, it contained lead. It may be an example of a flint "dwarf ale glass" with a flammiform gadrooned bowl (Figure 7.10). This fragment has particularly long and drawn out gadrooned flammiform lobes. It could date anywhere from 1700 to 1800. An earlier 18th-century example would be expected to have a more delicate stem with a knop, unlike the later ca. 1800 example shown in Figure 7.11 (from the National Gallery of Melbourne.)

The Angelica assemblage contains what may be a rare example of a hollow flint glass stopper for a decanter (Figure 7.8). This fragment is deeply gadrooned and could once have had a finial and a funnel-shaped base, similar to examples from the Museum of London and the British Museum (Figure 7.9) dated ca. 1680.



FIGURE 7.8: Angelica Mold-Blown vessels. left to right: ribbed hollow vessel, UID molded hollow vessel, hollow decanter stopper fragment with gadrooning. Image by author (2013).

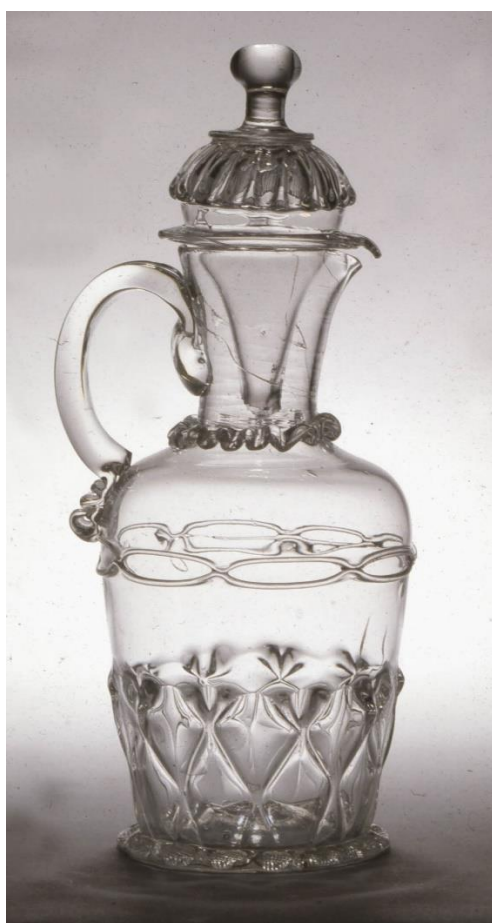


FIGURE 7.9: Decanter jug with hollow gadrooned finial ca. 1680-1685. Museum number 1946,1011.1 © The Trustees of the British Museum and licensed under CC-BY-NC-SA 4.0.



FIGURE 7.10: (Top) Flammiform gadrooned dwarf ale glass bowl fragment. From Angelica. Image by author (2013).

FIGURE 7.11: (Left) Vessel with similar flammiform gadrooning dated ca. 1800. National Gallery of Victoria, Melbourne. Accession 1828-D5. © National Gallery of Victoria. Image reproduced with permission.



Only 62 pieces of glass did not show fluorescence of lead. Many of the nonleaded vessels appear to be likely mid-18th century or later, in contrast to other sites elsewhere in the Chesapeake with soda glass pre-dating the 18th century. These forms include at least four soda glass tumblers with various molded decorations and wheel engravings (Figure 7.12). Given the lack of lead, the wheel-engraved examples could be examples of Bohemian glass of the early 18th century, which was known for its engraved décor, particularly since wheel-engraving would not have been seen on many English flint glasses until the mid-18th century (Lanmon 2011). Since these are tumblers made of soda-glass and wheel engraved, I suspect they date to the



FIGURE 7.12: Angelica 18th century Tumblers. Mold- blown and wheel-engraved soda-glass. Image by author (2013).

middle of the 18th century or later in vintage, because tumblers are less common in the 17th and early 18th-centuries (Jones and Smith 1985).

The Angelica glass included about 100 pieces of an opaque white glass with spotted blue enamel decoration on the exterior. Elder identified several cup and bowl bases of this material. Elder and E.B. Haynes (1991:15) believed this was an 18th-century German and/or Bohemian non-lead glass with tin, rather than Bristol opaque white glass made with lead.



FIGURE 7.13: Angelica purpled possible stem element. Image by author (2013).

One non-lead sherd was a dark purplish, weathered fragment that appeared to include a thin, sharp merese-like element. It was 30 mm wide, and could possibly be from the stem of an unidentified vessel. (Figure 7.13). It may possibly be the sole specimen of soda-glass at Angelica that could predate the 18th century.

Angelica Knoll contains a wide variety of leaded glass forms common to the 18th century, as well as a few stemware forms derivative of the turn of the 18th century. The relative lack of *façon de Venise* and early soda glass supports that glass tableware began to be used at this site with the tenure of Richard Johns in 1677. The large number of vessels and variety of styles appears consistent for planters of the Johns' wealth. Much of the assemblage is unquestionably 18th century, and was probably used by the households of Isaac and Richard Johns (the younger) from 1717 into the 1770s.

18CV83: King's Reach

Much of the King's Reach glass had been previously cataloged and even tested for lead, so most of the glass personally examined for this analysis focused on pieces cataloged with more diagnostic characteristics. At least 91% of the entire table glass assemblage from the 1984 to 1985 excavations was leaded (Table 7.2).

Most of the table glass originated from plowzone (105 sherds), with the rest coming from features or strata (23 sherds). Ninety-four percent of the plowzone glass appears to contain lead. The makeup of lead glass from known strata comprises 78% lead and 4% non-lead. My analysis showed that just because a catalog record did not include a note about lead content in the artifact record, that did not mean it was truly soda-glass, probably due to cataloging errors. Unfortunately, not all the glass could be double checked for this analysis. Less than 3% of plowzone glass, and 17% of the glass from strata remain of unknown lead content.

Similar problems with the catalog popped up regarding attributes. At least five fragments are decorated with gadrooning on the exterior.¹⁰ Similarly, there appear to be at least two fragments of ribbed handles or rim fragments in the plowzone originally cataloged as press-molded. They were certainly mold-blown, but not pressed.

At least 17 fragments are stemware forms. All the stemmed foot rim fragments were folded. The most numerous identifiable vessel parts are also stems, with a minimum of at least five vessels. At least one colorless decanter or bottle rim was also present, as well as part of a

mold-blown glass bottle with a corner (possibly pharmaceutical, almost certainly later 18th or 19th-century). These constitute only one vessel for this analysis. A purple glass fragment and fragments of

TABLE 7.2: King's Reach Tableware Counts

	<i>Count</i>	<i>%</i>
<i>Lead</i>	117	91.41
<i>Nonlead</i>	4	3.13
<i>Unidentified</i>	7	5.47
<i>TOTAL</i>	128	

¹⁰ These were incorrectly cataloged as “possible press-molded”. Press-molding would date them far later than the occupation period of the site.

colorless soda-glass tableware also count as two vessels for a minimum total of eight vessels on site, with six leaded and two unleaded.

Two glass tableware fragments came from the wood-lined storage cellar located along the western wall of the parlor (Subfloor pit C in Samford (forthcoming)). The glass in 197E (lot 295) was a purple glass of unidentified form and function. This fragment had no fluorescence. A colorless glass sherd from 197F contained lead, but could not be ascribed a form or function. Stratum 197F (lot 296) is associated with a period of rapid filling following the abandonment of the pit, and is the uppermost layer of that fill. Stratum 197E was created as a fill episode following slumping of the pit after the initial filling and caps F. Ceramics in 197F included Höhr stoneware and English brown stoneware (Samford forthcoming). Both are appropriate for the period of 1700-1710.

One rim and two body sherds of unidentified glass tableware were found in a shallow subfloor pit (L) (Samford forthcoming) that lay in the northwest corner of the shed addition (stratums 227N, P, and Q, lots 565-567). All the sherds were leaded. There were very few other artifacts in this pit (Samford forthcoming).

A single stemmed vessel fragment with inverted knop was found in the wood-lined cellar in the quarter adjacent to the manor house (Figure 7.14, stratum 212HH). There was no TPQ for the cellar posts, but the fill contained a William III silver crown marked 1696. The majority of artifacts were faunal bone. Most of the few (approximately 25) ceramics were food preparation,

storage or “non-gentry beverage consumption” forms with the exception of one tin glazed earthenware teacup (Samford forthcoming:51, 54).

At least 5 identifiable stem elements were recovered at Kings Reach. Two were leaded colorless glass with an inverted knop (non-quatrefoil). The absence of a merese between bowl and stem indicates at least one is probably a later version of this anglicized Venetian form. The stem would have been quite short, perhaps 1.5 in. tall (Figure 7.14). A similar stem was found in the plowzone elsewhere on the King’s Reach site (228D, lot 576). Heavy balusters were in evidence as well, with a single inverted baluster fragment (168A, lot 174) (Figure 7.15) and what appears to be a bowl-base of a stemmed vessel that is probably a heavy baluster form (183A, lot 248).



FIGURE 7.14: King’s Reach Inverted knop. stratum 212HH, Lot 477. Image by author (2013).



FIGURE 7.15: King’s Reach inverted baluster with no tear. Stratum 168A, Lot 174. Image by author (2013).

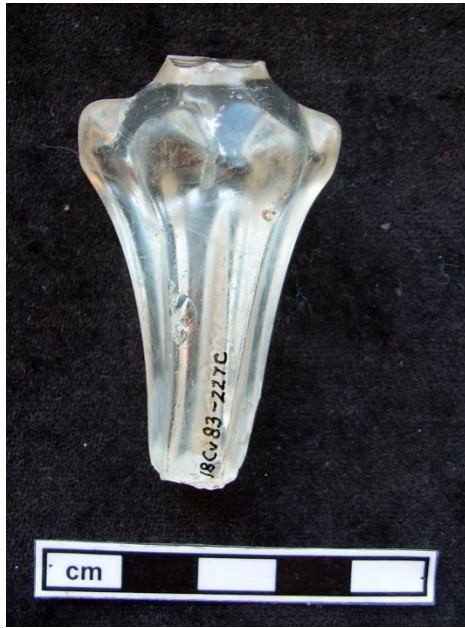


FIGURE 7.16: King's Reach pedestal stem with bosses. From 227C, Lot 555. Image by author (2013).



FIGURE 7.17: King's Reach pedestal stem. From 214C, Lot 519. Image by author (2013).

Two pedestal stems were recovered in the plowzone), including an eight-sided stem, with no bosses (Figure 7.17), and another stem with 6 sides and diamond-bosses on the shoulders (Figure 7.16). Given the conjectured abandonment of the site in 1711, then these stems either predate the 1714-1715 date given by many collectors for their appearance, or they were discarded at King's Reach after 1711. Noël Hume dates "Silesian" stems starting from 1710, but Kings Reach may give credence to Bernard Hughes's assertion that they post-date 1700. If so, this would still be an early appearance indeed, especially as these are six-to-eight-sided forms which are normally said to be slightly later than the first four-sided molded pedestal forms.

The presence of lead glass at Kings Reach is consistent with an occupation by a planter household with wealth to invest in moveable goods. Most lead glass was concentrated around the

parlor or in the sheet midden between the main house and quarter, with several fragments in the quarter cellar which is conjectured to be a storage site for beverages (Pogue 1990; Samford forthcoming). Pedestal stems appear unexpectedly early given most collector literature dates, though a possibility remains they could have been dumped in the vicinity of the house after the site was abandoned.

18ST329 and 18ST233: Old Chapel Field and St. Inigoes Manor

The majority of leaded glass in the Old Chapel Field Site assemblages is from 18ST329 (Table 7.3). Compared to the total 2,064 non-architectural historical artifacts from the phase II work at Old Chapel Field (Sperling and Galke 2001:82), tableware makes up a very small portion. Excavations yielded 39 sherds of leaded tableware, plus 2 sherds of possible lead content for 18ST329. In comparison, the older site, 18ST233, yielded only two sherds of leaded glass. All but two of these glass sherds from either site came from plowzone, so it is difficult to determine a reliable context for tableware.

The only tableware with a feature context at 18ST329 was a crizzled sherd of colorless lead glass found in Stratum F of unit 25324 (lot 175). This stratum corresponds to an *in-situ* destruction layer of the cellar abandonment at 18ST329 (Sperling and Galke 2001:82). While the plowzone over the brick cellar contained over 90% bottle glass, the cellar seems to have had a

TABLE 7.3: 18ST329, Old Chapel Field Tableware Counts

	<i>Count</i>	<i>Percent</i>
Leaded	36	92.3
Nonlead	3	7.7
Unidentified glass with lead content	2	-
<i>Total</i>	39	-

large portion of non-bottle glass: 46 sherds of table/lamp glass, versus 45 sherds of bottle glass, or 36% for each category, with flat glass making up the remainder (Sperling and Galke 2001:8). Much of this non-bottle glass was apparently cataloged as “lamp” glass and was not examined for this project aside from the previously mentioned sherd.

A large lot of table glass originated from a 5 x 5 ft. plowzone unit (29686) 60 ft. N and 120 ft. west of the cellar that included a leaded pruntlet or dimple, seven sherds of folded rims, one bowl fragment with gadrooning, six fragments of a contact molded glass with curvilinear embossed lines on the exterior (possibly applied and nipped trails from a decanter or hollow vessel- Figure 7.18), and one stem remnant made of at least two gathers of glass metal. This lot contains 35 sherds of likely tableware, with only 2 non-lead. The seven folded rims present were all leaded, and all were approximately 6.4 cm (2.5 in.) in diameter, with fold widths ranging from 5 mm wide (15% of base), 6-7 mm wide (25%), to an 8-mm wide raised pedestal foot (12.5%).

A tiny fragment of a ruffled or rigareed, non-lead *façon de Venise* decoration was found in plowzone over the cellar excavation block (lot 144) (Figure 7.19). It appears to have been part of the collar of an unidentified vessel neck or hollow stem, perhaps from a decanter (Lanmon 2011:73 Figs. 45-46). Several glass fragments in plowzone lots 167, 175, and 176 may have had lead content, rather than being “leaded” by intent (one had a kick and partial base, so was likely a pharmaceutical container, the other sherd had a faint green tinge, so is not a “white flint glass”). These items fluoresced more faintly and/or white, so any lead may have been a byproduct of the ingredients used in manufacture. There are probably at least four to five minimum tableware



FIGURE 7.18: glass from lot 156 at 18ST329. Image by author (2013).



FIGURE 7.19: Rigaree soda-glass fragment from 18ST329. Image by author (2013).

vessels represented in this group including each set of folded rims and the blue glass and non-lead soda glass.

Much of the lead glass at 18ST329 was concentrated in Unit 29686, with only two non-lead sherds present. This unit is northwest of a brick floored outbuilding that may reflect domestic food preparation activities (Sperling and Galke 2001:104). There were no common mid-18th century ceramics, which together with a lower incidence of early 18th-century ceramics may reflect less intensive use after the 1720s and no domestic occupations after 1750 (104). Thirty-three out of thirty-six leaded sherds originated from plowzone in this unit, including all foot rims. Three of the non-leaded tableware sherds were from the brick floor unit.

Only four lead/lead content sherds originated from plowzone above the southern portion of the bricks. The rigareed non-lead sherd also came from this southern area. Two leaded sherds originated from destruction debris used to fill in a cellar that underlay the brick floor and may have been filled before the early 18th century (Sperling and Galke 2001:102). The area west of the bricks seems to have very little lead glass. Only two sherds with the potential for lead content were found here in plowzone and one was a probable pharmaceutical bottle base pickup.

18ST233 had almost no evidence of leaded glass (Table 7.4), and very little glass tableware aside from two sherds identified in the site report. Occupation debris from stratum Y of a borrow pit revealed one sherd of a blue decorative free blown glass nipple-like element (Sperling and Galke 2001:55). This fragment could be potential *façon de Venise*. While it was

TABLE 7.4: 18ST233, Old Chapel Field Tableware Counts

	<i>Count</i>	<i>Note</i>
<i>Table glass</i>	2	<i>Neither was available for study</i>
<i>Bottle glass</i>	106	<i>At least 1 of these had lead content (in PZ)</i>
<i>Container glass</i>	9	<i>Possible case bottles</i>
<i>UID curved glass</i>	27	<i>Aqua, colorless, gray</i>
<i>Total vessel glass</i>	144	

not available for examination, it could be an example of nipple like prunts seen on colorful mid-17th-century European *knobbelbekers* and “wart glass” vessels. These beaker-like vessels could have been for consuming drinks, or used as reliquaries with the addition of a lid (Hess and Husband 1997:69-70). Another sherd from the base of a colorless stemware vessel was unearthed and cataloged as part of lot 96, but this was also not available for observation, and the context is noted as unknown. Analysis of some of the other glass not immediately identified as tableware in the original report showed only one unidentified leaded sherd from the plowzone in the south of the excavation unit block. It was originally cataloged as colorless bottle glass, but showed lead content. Although they could not be analyzed for this paper, the two fragments of tableware indicate that glass tableware was not unknown to the Jesuit occupants of St. Inigoes Manor in the mid-17th century. Of note is the presence of a very thick leaded sherd from the 1996 Webster field survey, found in field 5, of unknown form with varying thickness from 8 mm to 3 mm. This could perhaps have been part of a flint glass decanter or bottle.

18ST390: Mattapany Magazine and Mattapany Manor

Architectural artifacts indicate that the Mattapany-Sewall plantation was inhabited by fairly high status individuals and its 17th century manor house was a substantial structure (King and Chaney 1999:112). Contrary to expectations of a site occupied by a household of power and

prestige, the Mattapany-Sewall glass assemblage was curiously lacking in breadth of early table glass characteristics. The excavators commented on the paucity of glass around Charles Calvert's house. However, there were some interesting specimens, mainly from the magazine site.

Mattapany Magazine

Out of the Pogue excavations, 507 pieces of glass were previously cataloged (Table 7.5). Pogue (1987:25) states that 20 tableware sherds were recovered but the database archived at the comparative Chesapeake archaeology website, ColonialEncounters.org, indicated only 11 cataloged sherds from the Pogue units. After looking at the glass, another sherd can be added to that number, with one sherd identified as containing lead that was originally cataloged as UID glass. Over 26 sherds of colorless or near-colorless glass from the Pogue excavations at the magazine were examined, including some of the cataloged tableware. Only one sherd examined was leaded, and it was not initially cataloged as tableware. That single lead sherd is from “old plowzone.” Most of the other sherds are from plowzone as well, with a few from stratum contexts 154G, 153G, and 154E. There were other colorless glass and table glass fragments assigned to the area of the magazine by King and Chaney, mainly from STPs. Two of these sherds contained lead. Altogether, the confirmed tableware at the Magazine comprises 19 fragments, 3 leaded and 16 soda-glass (Table 7.6).

At Mattapany Magazine, there were two notable non-leaded table glass sherds, both from plowzone. One slightly purpled free-blown colorless glass is decorated with white applied enamel *vetro a fili* threads that may have been the base of a large beaker, bowl, or tazza (Figure

TABLE 7.5: Mattapany Magazine- Pogue Assemblage

	<i>Count</i>
Nonlead Table glass	11
Leaded Table Glass	1
Bottle glass	325
UID glass	147
Window Glass **	23
<i>Total</i>	507

**some of “UID” is likely more window glass cataloged as flat green glass

TABLE 7.6: Magazine Glass- Total from Pogue, King and Chaney

	<i>Total</i>	<i>Percent</i>
Flint	3	15.8%
Colorless soda	16	84.2%
Lattimo	0	0.0%
<i>Total table glass</i>	19	

7.20). Although the colorless portion of the *vetro a fili* glass is solarized, the presence of white threads confirms it is a *façon de Venise* form that could date from the 16th to the third quarter of the 17th century, rather than a later piece of tableware (Willmott 2004:274). The use of manganese as a decolorizer was known to the Venetians early on (Lockhart 2006), so the purpled color can still be attributable to glass during the 17th or 18th centuries. While the complete beaker with *vetro a fili* in Figure 7.21 is fancier than most, with applied molded masks and gilt, it resembles the basic form of the Magazine’s filigreed beaker fragment, with straight, rather than swirled, *vetro a fili* threads up the sides. The white *filigrana* (filigree) glass was one of the most common forms of imported decorated *façon de Venise* table glass found in England during the 16th to early 17th centuries; it was likely imported from Antwerp, but could possibly be from Venice. Beakers with *filigrana* were an early form of high quality tableware preferred by middle-class customers in England (Willmott 2004:274-5).

Two fragments of a colorless non-lead mold-blown vessel, perhaps a beaker, with small round exterior bumps mend together (153G). The bumps could be rudimentary prunts (Figure 7.22). Pogue interpreted it as a “tumbler” form (1987:25), but the textured decoration is similar to what might be seen on beakers and roemers made on the continent. “Beaker” is probably a more appropriate term for this form than tumbler. There is a beaker type (Figure 7.23) made in the Lowcountries called a *knobbelbeker* that could be a good match (Henkes 1994). It is also possible this was from the body of a larger goblet-type vessel, perhaps even something imported into England by Greene & Measey (Willmott 2005:115,116, figures 70 and 71).

A colorless fragment of a pincer glass element, possibly from a dragon-stem or



FIGURE 7.20: *Vetro a fili* Filigree glass fragment from Mattapany Magazine. Image by author (2013).



FIGURE 7.21: Filigree beaker. White *vetro a fili* with applied molded masks and gilt, made in Netherlands, 1600-1625. No. 5241-1901. © Victoria and Albert Museum, London



FIGURE 7.22: Possible knobbed beaker fragments at the Magazine. (Lot 153G). Image by author (2013).



FIGURE 7.23: *Façon de Venise* Mold-blown knobbelbeker. ca. 1501-1635, # 2446. © Museum of London. Image reproduced with permission.

similar vessel, was also recovered from one of the King and Chaney test pits. Just 3 colorless glass fragments among the Magazine assemblage showed lead content, and all were featureless, curved sections of free-blown glass, possibly from stemware. There were three folded foot rim fragments in the Magazine assemblage; all had finer, thinner folds 3 to 4 mm wide and none showed signs of lead content. Two of those fragments mend and contain what appears to be a silvery material within the fold on the foot (Pogue 1987:Figure 12). At least five minimum vessels are likely represented, counting the two possible beaker forms, the leaded sherds, and two sets of stemware foot rims.

Mattapany Manor

For all the fancy soda-glass at the Magazine, it would make sense to have some pretty fabulous glass at the Manor House, but that is not the case. King and Chaney's catalog has approximately 42 sherds cataloged as table glass (Table 7.7). Many of these were green glass. On re-analysis, it is my opinion that most of these colored table glass sherds were not table glass, but more likely window or thin vial glass. I identified 23 fragments of table glass (Table 7.8), with only one possible green table glass body fragment and one unidentified green glass with lead-content (possibly a vial).¹¹

TABLE 7.7: Mattapany Manor Cataloged Glass, King and Chaney

	<i>Count</i>
Table glass	42
Bottle glass	878
Container glass	22
Lamp glass	6
UID glass	457
Total	1405

Not including glass catalogued as window glass

TABLE 7.8: Mattapany Manor Identified Table Glass, Rimer 2017

	<i>Total</i>	<i>%</i>
Flint	17	73.91%
Colorless soda	4	17.39%
Lattimo	2	8.70%
Total table glass	23	

¹¹ Aside from those 42 cataloged "table glass" fragments, I found at least 9 other fragments of leaded table glass that had not been previously cataloged as table glass. Two had likely been cataloged as bottle glass, and the rest as UID, thereby illustrating the difficulties of identifying glass!

Most of the flint glass fragments were small and feature-less, aside from one thin body fragment with possible gadrooning and another body sherd with unidentified ribbed pattern-molding (Figure 7.24). Most of this glass originated from plowzone. All three tableware fragments from the cellar fill contained lead, including a melted stem and foot element, one folded foot rim, and an unidentified rim with molded ribbing parallel to the rim, possibly from a tumbler (Figure 7.24). That potential tumbler fragment originated from fill that contained late 18th and early 19th-century material (King & Chaney 1999:148), so it is not likely to be early flint glassware.

In terms of non-lead tableware, the Manor site excavations revealed two fragments of *lattimo* with gadrooning in the Manor house site, along with a smoky gray non-lead glassware fragment that may be the shallow bowl of a 17th-century stemmed tazza or some other vessel

with a hollow stem element.

Lattimo vessels would have been consumed by persons of some wealth, so it makes sense here given the high-ranking nature of the inhabitants. The low incidence of leaded glass at the Magazine further supports the interpretation that the Magazine was abandoned

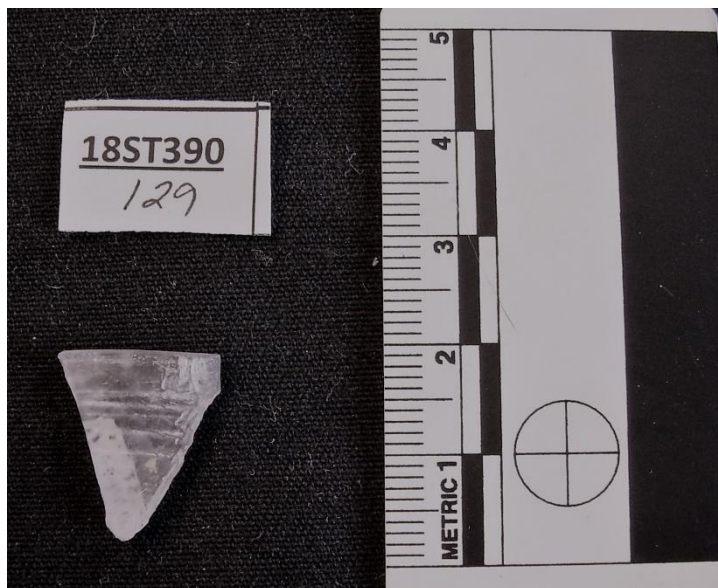


FIGURE 7.24: Flint glass rim from Mattapan Manor House cellar. Image by author (2017).

by the 1690s (Pogue 1987), while occupation of the Manor house continued into the 18th century.

18ST704: Charles' Gift

Most of the Charles' Gift glass originates from mixed contexts, with Feature 12 being the sole stratified context dating to the late 17th century. At least 24 sherds were previously identified from Feature 12 (Hornum et al. 2001:88). Analysis indicates a minimum of seven glassware vessels: Two folded foot rim sherds of varying heaviness and thickness and one plain foot rim, plus a white *lattimo* beaker of Venetian or German manufacture with a raspberry prunt on the base, one unidentified mold-blown container, and three stems— a mid-18th century drawn stem, a soda glass quatrefoil stem, and an inverted knop glass stem fragment. Out of 14 analyzed fragments (not including most of the *lattimo*), 3 are of unknown lead content, with very faint or white fluorescence. The anglicized Venetian stem fragments could not be analyzed as they were out on loan or in conservation. The rest of the glass sherds are indubitably leaded, including all of three foot rims. Thus, at least 11 out of 16 colorless glass fragments are lead glass, and at least one example of *façon de Venise* *lattimo* is present in this feature.

After examining a total of 101 sherds of colorless or white table glass, 82% of the overall glass at Charles' Gift is leaded (Table 7.9). Only one definite soda glass fragment is present on the entire site, and it originates from feature 12. Considering that lead glass makes up about 40% of the tableware assemblage in Feature 12 (Table 7.10), Hornum et al.'s conclusion that this feature does not postdate 1700 seems sound. The one puzzler is a drawn stem (Figure 7.25) that supposedly dates ca. 1730 to 1760 (Noël Hume 1969a:191, figure XVIII). This glass may be

Table 7.9 Overall Charles' Gift Colorless or Lattimo Glass

<i>Glassware</i>	<i>Count</i>	<i>Percent</i>
Total leaded Glass	83	82.2
Possible Lead content	4	4.0
Unknown (not analyzed)	4	4.0
Soda Glass	1	1.0
Lattimo (Opaque white)	9	8.9
<i>Total Glass Tableware</i>	<i>101</i>	

Table 7.10 Charles' Gift Feature 12 Table Glass

<i>Glassware</i>	<i>Count</i>	<i>Percent</i>
Total leaded Glass	11	40.7
Possible Lead content	3	11.1
Unknown (not analyzed)	1	3.7
Soda Glass	1	3.7
*Lattimo (Opaque white)	11	40.7
<i>Total Glass Tableware</i>	<i>27</i>	

*count of 11 comes from Hornum et al. 2001; Only 9 sherds were observed by the author

from the upper strata in Feature 12 (lot 869), which showed evidence of disturbance and admixture with lower strata through pedestrian traffic and gardening (Hornum et al. 2001:64). The same drawn stem fragment (Figure 7.25) shows evidence of less than ideal manufacturing, with a visible area where the glass paraison was incompletely smoothed by the glass-blower. Hornum et al. (2000) remark that the inverted knop stem example at Charles' Gift also appear of poor quality, unusually heavy glass, and looks akin to those vessels ordered from Venice by the London Glass Sellers about 1680. They do not specify if it contained lead, but their remark on its "unusually heavy" weight leads me to think that it does. The singular soda glass quatrefoil knop is similar to late 17th-century stemmed ware. This stem may be English or Dutch in manufacture (Hornum et al. 2001:539).

Another intriguing artifact from Charles' Gift is the base and partial body of a tiny vessel of unidentified function from lot 545, which is rather thick and clumsily blown (Figure 7.26). Could it be possibly a dram glass or an early and clumsy attempt to make fluted beakers from lead metal? This vessel did not come from Feature 12. Being lead glass, it cannot predate 1675. The rest of the assemblage includes 72 sherds of lead or lead-content glass, with 5 additional minimum vessels including a mold-blown tumbler base (Figure 7.27), a decanter or pharmaceutical container, and 3 more distinct plain and folded foot rims. The tumbler (lot 795)—if it is a tumbler and not another type of small tableware container—is likely mid-18th century, possibly a type “intended for a cheap market,” given the lower molded decoration of slender fluting mimicking the more expensive fashion for cut flutes in the mid-18th century, and the rather rudimentary contact-molding (Hughes 1956:334-335). It does have a rough pontil



FIGURE 7.25: Drawn stem ca. 1730-1760, Charles' Gift. Image by author (2013).



FIGURE 7.26: Small leaded footed vessel, Charles' Gift. Image by author (2013).

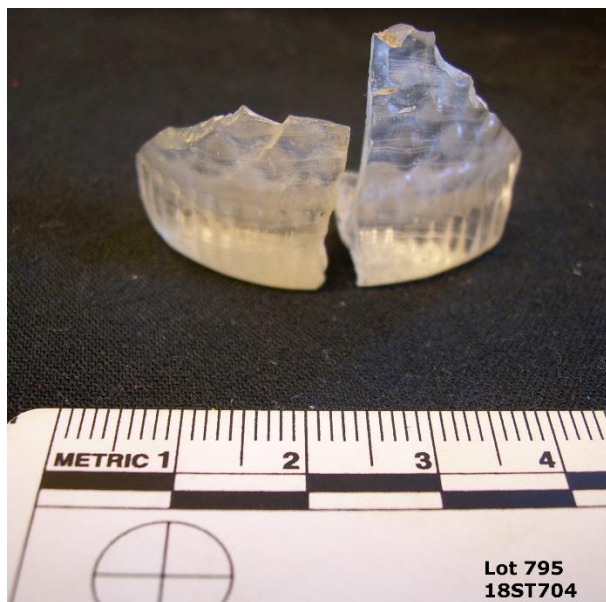


FIGURE 7.27: Later 18th-century tumbler or dram glass, Charles' Gift. Image by author (2013).

mark, so it is not an example of more expensive “cut bottom” ground tumblers. With the small circumference—1.5 in., this may have been meant as a dram or shot glass.

18ST751: Halfhead/Rousby

Roughly 42 fragments of colorless glass from the Halfhead/Rousby site assemblage were examined (Table 7.11). One fragment from lot 201 was not available to examine. Of these, 14 fragments or 33% of the group, showed lead content under the short-wave UV lamp. At least three fragments of these appear to be probable modern or 19th century pressed glass tableware. At least five fragments had fluorescence of a slightly different blue tint, ranging from white-blue to green-blue and a faint blue. I identified these as potential lead content. Over half the assemblage did not show signs of lead content. Most of these fragments are from plowzone or B horizons, but at least four were excavated from feature fill.

The overall Rousby artifact assemblage spans the last half of the 17th century to the 19th century. Given the recognized presence of 19th -century material like pressed lead crystal, the most useful contextual evidence for the presence of early lead glass should come from the refuse Features 1-01, one of the few features known to pre-date 1700, plus temporally associated Features 3-01 and 6-02.

Feature 1-01 dates through the last quarter of the 17th century and was likely filled in before 1700 in multiple episodes from a single source over a short period of time (Child et al. 2005:53, 59-60). At least three fragments of leaded glass were found in the fill of Feature 1-01. According to Child et al. (2005:59-60), Feature 1-01 contained 39 bottles including 1 case bottle and 2 sherds of table glass. The calculated MCD was 1708 and the Binford pipe date 1643.37. The associated trench and foundation features are likely also associated with 1-01. This time probably corresponds to the era of John Halfhead's lease and the ownership by the Edloes until Christopher Rousby's death, circa 1660s to 1685. Little evidence is present for the residence of Barbara Rousby, who remarried to Richard Smith Jr. and could have stayed in residence features with a wide temporal range of the mid-17th to the early 20th-centuries (Child et al. 2006:38). At least 26 sherds came from those units, of which 6 contained lead and 4 had possible lead content. This group includes press-molded lead crystal and most of the glass

TABLE 7.11: Halfhead/Rousby Colorless Glass

	<i>Count</i>	<i>Percent</i>
Leaded Glass	14	33.3
Potential lead	5	11.9
Non-lead	22	52.4
Not analyzed	1	2.4
<i>Total</i>	42	

identified with a multitude of fluorescing blue “potential lead” tints. At least seven additional sherds come from the vicinity of a mid-19th-century feature to the north of Feature 1-01, of which four showed lead content. Of the nine remaining sherds, all the leaded and potential leaded fragments (N=5) originated from the area of Feature 1-01 or within the feature; none of the colorless glass near the tile and brick foundation of feature 6-01 showed lead. One caveat is that neither Feature 1-01, 3-01, nor 6-02 were excavated in their entirety.

There were very few defining characteristics of the Halfhead/Rousby colorless glass assemblage. Most fragments were less than 20 mm in length. Except for a 19th- or 20th-century pie-crust pressed glass rim, the only other identifiable decorative elements include a contact-molded body sherd with a vaguely “y” shaped exterior decoration (lot 163) and a free-blown colorless flint glass fragment (Figure 7.28) with an unidentified applied decoration (lot 141). The decoration looks like a thick rigaree-like ruffle (see below), similar to those found on decorative 17th-century *façon de Venise* vessels. It could be a collar element for a stemmed vessel or other unidentified glassware. Unlike the Old Chapel Field example, this sherd does not seem to have been part of a hollow neck element. Both sherds were from Feature 1-01 and both fluoresce blue under the UV lamp. The glass from lot 163 had a fainter demi-lead-like glow, a characteristic shared with two other sherds in the assemblage that is possibly indicative of earlier lead glass dating from circa 1675 to 1685 with a lower percentage of lead content. None of the colorless glass from the foundation feature or within its vicinity (4 fragments) contained lead.



FIGURE 7.28: Rigaree fragment from unidentified glassware, Rousby. Ventral and lateral views shown. Image by author (2013).

Based on Feature 1-01, lead glass could have arrived at the site before 1685. Given that Rousby likely did not live here long, unlikely that the early colonial glass assemblage is a result of his tenure. It could have been the Halfhead family or the Edloes who used the leaded tableware found in Feature 1-01. However, it too seems unlikely the leaded glass was property of the Halfheads given that they were a lower to middling income planter family with just one servant, and John Sr. died in 1675 while his son died not long after in 1678 after being flattened by a falling tree (AOMO51:252) . The Edloes appear to have occupied a plantation neighboring the area, so it also seems unlikely to have been from their household; perhaps there were additional undocumented tenants living at the property until its sale to Rousby. However, the well-appointed coffers of Christopher's brother indicate that Christopher and his widow likely could gain access, if they desired, to some fabulous goods.

18CH777: Moore's Lodge

The Moore's Lodge assemblage is the result of a shovel test pit (STP) survey to find the location of the first courthouse in Charles County. The following results are based on plowzone Test Unit (TU) assemblages, not STPs. Five total sherds of tableware are listed in the database from two different STPs, compared to a total of ten identified by King and Strickland from all the test units (Table 7.12). The glass was not recorded by lead content at the time the assemblage was cataloged. The site includes a later 18th-century component related to a quarter in the southern portion of the shovel test survey (King, Strickland and Norris 2008:32), but the temporally diagnostic materials found in the test units indicate a later 17th- to early 18th-century occupation. Test Units 1, 3, 4, and 5 were adjacent to each other area (Area B).

All colorless non-bottle glass in the assemblage was isolated and tested with the lamps. Only TUs 1A, 3A, and 4/5A contained glass of this category. The analysis shows there is likely

TABLE 7.12 Moore's Lodge Cataloged Test Unit Glass

	1A	2A	3A	4/5A
Colonial Bottle	7	1	8	2
Colonial Wine	28		40	50
Colonial case			1	1
Colonial Table				10
<i>Total</i>	35	1	49	63

Based on Appendix VII, King, Strickland, and Norris (2008).

TABLE 7.13 Moore's Lodge Test Units: Tableware

	1A	2A	3A	4/5A**	<i>Total</i>
Leaded glass	8	0	4	6	18
UID- not found	0	0	10	4	14
<i>Total</i>	8	0	14	10	32

**not all table glass found; likely contains additional lead glass

more tableware among the colorless glass than initially identified (Table 7.13). Test unit 1A contains some glass that had not been previously identified as tableware, including a partial stemware juncture and a free-blown plain foot rim. So far 14 fragments remain unaccounted for from TUs 3A and 4/5A. Unfortunately, four out of ten tableware sherds that were supposed to be from TU 4/5A were not found. The lead content of those four pieces, including a folded foot rim are unknown at this time. Based on an image in King, Strickland, and Norris (2008, Figure 37), the foot rim is of the thicker, heavier type commonly seen between 1690 and 1720, so chances are it would likely contain lead as well. Of the Moore's Lodge glass available for examination, all 18 of the colorless glass and tableware fragments tested with UV lamps contained lead. At least 56% of the colorless glass assemblage from the Test Units is therefore leaded glass. No characteristic evidence for *façon de Venise* or early non-lead soda tableware vessels was seen in the assemblage.

Overall, lead glass appears to be present in good quantity in area B (TUs 1, 3, 4/5) at Moore's Lodge in Charles County, and there appears to be more table glass present than initially identified. At least two minimum vessels can be counted, including the plain and folded foot rim stemware. The assemblage in its whole was rich in early colonial materials of the last quarter of the 17th century including terra cotta pipes and at least one Llewellyn Evans pipe, plus one piece of Chinese export porcelain and several English brown stonewares, both of which came into the colonies in the last decade of the 17th century (Noël Hume 1969a; Miller et al. 2000). King, Strickland, and Norris suggest the site was occupied from the 1670s through 1715 and may have been the location of the ordinary operated by the Hussey and Luckett households while the county court was in session (King, Strickland, and Norris 2008:37-38, 44). The presence of lead

glass and a folded stemware foot rim is consistent with this date range. While Samuel Lockett's 1705 probate notes "4 short glasses" in his goods (King, Strickland, and Norris 2008: Appendix II), more evidence would be needed to determine which household(s) might have owned the flint glass and whether it was related to personal or public use in the ordinaries operated by the households.

Virginia

44NB11: Coan Hall

The table glass and colorless glass assemblage at Coan Hall so far comprises 194 sherds. Of these, 159 have some lead content. The identifiable container assemblage count is incomplete thus far but currently includes hundreds of wine bottle fragments, pharmaceutical vials, a flask, and one small colorless leaded square (or rectangular) bottle. There are two sherds of a thick, flat, grayish glass with lead content, which is likely mirror glass. Some of the container glass showed potential signs of lead content, so all the container glass with exception of the wine bottles was tested with for lead.

At least 24 sherds relate to drinking glasses of some form; one rim sherd is thicker and may be another type of open vessel with a 3-in. diameter rim. Roughly 75% of the table and container glass originated from the plowzone. Although most of the identifiable glass characteristics tend to span the late 17th century through the mid-18th century, there is some evidence of earlier *façon de Venise* glass tablewares, or tableware with characteristics influenced by *façon de Venise*. Like Nomini, the Coan Hall assemblage is especially interesting because of

the *façon de Venise* characteristics present. Given the likelihood of Dutch trade at Coan Hall, it is not surprising to find that some Low Country glasswares are represented.

One leaded fragment found in plowzone (600A) west of the cellar is a thick, wiggly ribbon or rigaree of glass applied around a small hollow circumference; my suspicion is that it may be related to a small carafe or a narrow-necked or even hollow-stemmed item (Henkes 2004:223, Figure 145).

Three opaque curved glass fragments also found in plowzone appear to be definite *façon de Venise*, if not actual Venetian glass (Figure 7.29). They are composed of a very dark colored, “black” glass that has a combed, or feathered design of opaque white enamel on the exterior, not unlike the feathery marbled designs on some Staffordshire slipware. The combed glass design was made by trailing threads of white glass in a spiral around a vessel, then combing it. Similar decorated glasses were made in Venice, Germany, and England during the 17th and 18th centuries (Lanmon 1993:112). The loops on the Coan Hall fragments are particularly fine. This design is identified by Anne Dowling Grulich (2004:19, Figure 50) as *vetro a penna* “made in England, the Netherlands, or Venice.” That term appears to be modern. Based on a 1714 inventory of a glass workshop made by the widow of a Muranese glassblower named Ettore Bagaglia, the period term for this decoration may have been “*sgraffado*,” or combed glass. Quite a few of the glass items in Bagaglia’s workshop had the description of *sgraffado* attached to them; most of the objects listed with this modifier are candlesticks and vases, with a *tazzette* (small cup) or two (Zecchin 2015: 53-54). In the case of Bagaglia’s glass inventory, the *sgraffado* vessels include colorless “cristallo,” aquamarine, or blue glass, but no “black” combed

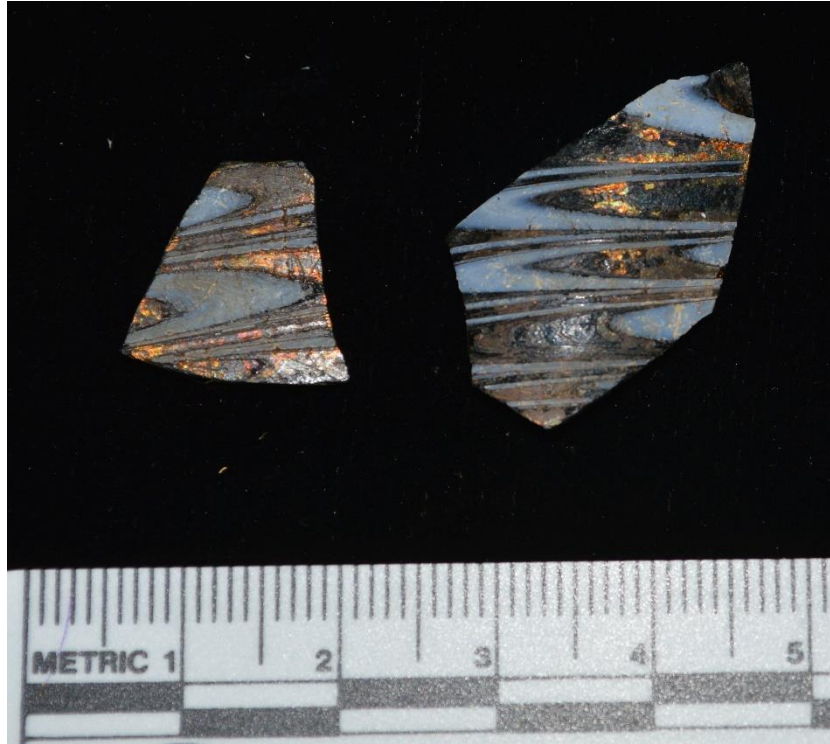


FIGURE 7.29: Two of three sgraffado fragments from Coan Hall. Image by author (2016).

vessels are identified. A special combed tool called a “*sgraffon*” or alternatively *manereta* was used to create the feathered designs (Fondazione Musei Civici di Venezia 2017; Zecchin 2015). The combed glass paraison was then blown into shape. In the later 19th century the combed or feathered technique was alternately called *graffito* and/or *fenicio*, for its similarity to ancient Phoenician glass decoration. Only two other sites in the Potomac region are known by the author to contain similar types of glass. Smith’s Ordinary in St. Mary’s City, and Garrett Van Sweringen’s town home and inn both have at least two examples of this glass each (Grulich 2004). The ordinary was owned by Van Sweringen from 1669 until a fire in 1678, while the Van Sweringen home site was inhabited from 1664 into the 1740s. At one point, the Van Sweringen site was also the site of a coffeehouse in the 1690s (King and Miller 1987). The author has not

personally examined the black glass from these particular St. Mary's City sites, but based on photographs, the glass at Coan Hall is most similar to the glass from the Van Sweringen site (Grulich 2004:Figure 50), and what Grulich (2004: 22) calls a "particularly high quality" glass with "gold" in the pattern. The Coan Hall glass also has a metallic coppery sheen on the black portions of its exterior design, somewhat reminiscent of patination. Grulich identifies one sherd from each site a part of a "bowl," but does not specify the form of the other two sherds. The sherds at Coan Hall are curved on one major dimension, so they may be from a cylindrical beaker, drinking glass or other hollow container. These combed vessels would have been fancy glass, whether an English, German, or Low Countries copy of Venetian glass, or the ultimate in luxe, an actual vessel made on Murano.

Note that there were glasses made in the late 18th century into the 19th century with combed decorations not too unlike *sgraffado*. Nailsea flasks were made in Bristol and the west country of England by workers in a bottle factory that normally made cylindrical bottles. These flasks, toilet bottles, and many other fanciful forms were made with applied enamels in loops, splatters, and swags in both ordinary and flint glass (Hughes 1968:182-186). Given the fineness of the *sgraffado* at Coan Hall and its similarity to the examples at St. Mary's City, it seems safe to say the Coan examples are not later forms of Nailsea glass.

Two small sherds of white opaque colored glass with red and blue applied enamel on the exterior were found in plowzone as well (Figure 7.30). Both appear to be from a hollow mold-blown vessel with an angled or paneled exterior surface. The enamel décor is similar to examples at Compton (18CV279) in Maryland (pers. comm Heath 2016). It looks curiously similar to



FIGURE 7.30: Enameled white glass from Coan Hall. Image from B. Heath.

examples of “splashed” French glass made in Nevers in the 17th and early 18th century, but that seems unlikely given the embargoes on French trade goods at the end of the 17th century. It may be a type of 18th-century Bristol opaque glass or, if earlier, something from Bohemia, Germany, or elsewhere on the European continent.

Another decorative element visible in the Coan Hall assemblage is gadrooning. First appearing in the 17th-century, this mold-blown decoration continued into use into the mid-18th century on the bowls of drinking glasses and sweetmeats as well as jugs, so dating this decorative characteristic is not as precise. However, gadrooned vessels were more expensive than plainer vessels until the mid-18th century, so we can infer that along with the *sgraffado* glass, this supports a trend of expensive glassware in the Coan Hall assemblage. There were seven leaded gadrooned body sherds, and four of these came out of Coan Hall plowzone. The largest fragment (Figure 7.31), part of the lower bowl of an unidentified tableware vessel, appears to have had a minimum diameter of at least 3 in. Two other fragments from plowzone had an unidentified mold blown rib or panel on them, one of which was a colorless non-lead glass that may be later mold-blown glass.

Six wheel-engraved colorless sherds were recovered, four of them from plowzone and two from 271J and 605J (layers of fill in a cellar under the west room of the house). At least three are from one or more mold-blown vessels with a similar paneled or ribbed bowl lined with a wheel-engraved dot decoration (Figure 7.32). One rim sherd is approximately 2 in. diameter, which indicates it is most likely a drinking glass, tumbler, or perhaps a sweetmeat glass. The paneled sides seem unusual. The other sherds had indeterminate designs of crosshatching and scalloped lines and do not appear molded. They may be tumbler sherds, like those at Angelica Knoll. These wheel-engraved sherds were without exception, unleaded. As of now its identity as continental or English glass is unknown. If continental, this glass could date anywhere from the mid-1600s to the 1800s, since wheel-engraving was known on the Continent quite early. If English glass, it likely dates from the middle of the 18th century since wheel engraving was rarely seen on English glass before that time (Lanmon 2011:122, 136).



FIGURE 7.31: Gadrooned vessel bowl fragment from Coan Hall. Image by author (2016).



FIGURE 7.32: Wheel-engraved rim fragment from Coan Hall. Image by author (2016).



FIGURE 7.33: Base of unidentified hollow flint glass vessel, Coan Hall. Image by author (2016).

Only one handle sherd was found, in 605J. This was a colorless, leaded handle terminal with a curled end. It could relate to nearly any sort of handled cup, bowl, or jug. Given the presence of at least two, and probably three footed vessel bases with lead content (two from plowzone and one also from 605J (Figure 7.33), there are certainly tablewares present that are not drinking glasses.

Five fragments of foot rims from stemmed vessels are present (all leaded and from plowzone), and all have folds varying from 4mm to 8mm wide. The only stem fragment identified so far is a definite 18th-century element, a leaded pedestal-molded stem. The stem element is partial, but may have been part of a molded six-sided stem. This stem was found in the plowzone and likely dates to the first decade of the 18th century.

In all there are at least ten tableware vessels present; at least two leaded stemware, one decanter or bottle and two other footed vessels, two opaque colored decorative vessels, two

wheel-engraved soda vessels, and one leaded mold-blown container, probably later 19th-century glass due to its solarization. Colonel Mottrom's inventories, taken after his death in 1655, indicate that he was a wealthy man. No glassware is listed aside from four or five "houre glasses" and one "prospective glasse" (presumably an early telescope), but he owned three silver tankards, two silver Bowles, two silver wine Cupps, two or three silver dram Cupps, and a silver fruit dish, as well as three "Drinking Potts," perhaps also of silver plate (Northumberland County Order Book 1652-1658:118a, 120a). All other vessels are presumably included with the parcels of pewter and plate; the only other drinking vessel explicitly listed is a quarter pint pewter Pott. There are several references to Chyrugion equipment and books, which may be a source of some pharmaceutical container glass at this site.

44NB180: Newman's Neck

Archaeologists recovered 12 sherds of unidentified tableware or unidentified colorless glass found at Newman's Neck. There is a minimum of three tableware vessels based on two wine glass foot rims and one handle (Heath et al. 2009:95). This MNV does not include one lead sherd that originated from surface contexts. The leaded sherd could have been used by any of the Neales or Haynies. Two other unleaded sherds in the surface finds included the aforementioned hollow handle and a blown stemmed glass ball knob. There is one piece of table glass from a rectangular pit called Feature 4 in Structure 1, the manor house, that could perhaps contain lead; it glowed a very faint purple under UV light. With just a UV lamp it is difficult to determine if it is one of the early lower-lead vessels or just glass that happened to contain lead. The layer of pit fill it originated from (4B) was determined to have a TPQ of 1675 and Binford pipe date of 1720 (Heath et al. 2009:119).

Two pieces of a 70-mm wide, folded, unleaded foot rim came out of the root cellar north of Structure 1 (Feature 61A). No data are available on the width of the foot rim fold. The root cellar may date to the Neale era, given the pipe date ranges, and a TPQ of 1680 (Heath et al. 2009:40). This root cellar contains typical marker ceramics like manganese mottled and North Devon gravel tempered that date it to the last quarter of the 17th century. A fine opaque wineglass foot with enameling was found in a cellar under structure 6 (247A). It is likely that the material in this cellar was deposited after 1720 and would relate to the later Haynie occupation (Heath et al. 2009:122). Compared to the meager table glass count, there were 178 container glass sherds, of which five minimum vessels were identified. All were wine bottles with various bases including ovoid, octagonal, and the usual domed types (Heath et al. 2009:92). The surface assemblage also contained one piece of solarized late 19th- or 20th-century glass unrelated to the colonial period occupation.

The Newmans apparently did not consume as much glass tableware as their neighbors at Coan Hall. What they did use tended to be soda-glass, and later on, a fine piece of glassware with enameling was discarded. It is possible this glassware was obtained earlier and curated in the family as an heirloom. The pattern seems consistent with some use of glass tableware before 1700, followed by little investment in table glass after 1700.

44WM6: Hallowes

The Hallowes assemblage revealed only five pieces of colorless glass, all but one unleaded. The leaded fragment was a mold-blown, ridged sherd that originated from context 21C, which corresponds to surface collections located above a post mold related to the main

dwelling structure. The posts were never replaced during the use of the structure (Hatch, Heath, and McMillan 2014:54, table 3.) All other unleaded, colorless fragments also came from surface contexts at the site. One fragment was identified in the database as a portion of a slightly grayish tinted stemmed vessel with a hand-applied step like some from the collection of the Museum of London dating to the early 17th century (Hatch, Heath, Mcmillan 2013). The other fragments are too indeterminate to identify, but included one base and two body sherds.

No ceramics contemporary to the later 17th century like English brown and Nottingham stonewares, Buckley, nor manganese mottled were recovered at Hallowes, supporting the conclusion that by the 1680s the site was unoccupied (McMillan, Hatch, and Heath 2014:163). It seems unusual there is less glass at Hallowes, given that the ceramic assemblage MNV more closely matches high status sites reported by Yentsch (McMillan, Hatch, and Heath 2014:159). Furthermore, Hallowes was evidently in the same social and trading network with Robert Slye, a trader who frequented St. Mary's City. This social connection likely enabled Hallowes to obtain other goods such as Morgan Jones pottery (McMillan, Hatch, and Heath 2014:159). As Slye's probate includes 12 pieces of glass tableware (Table 4.6), it would be surprising for Hallowes as an elite landowner and trader to not also have access to similar tableware in his household. Slye died in 1671, however, so the source from which later occupants of Hallowes obtained an early example of lead glass tableware could not have been Slye (since flint glass postdates Slyes' and Hallowes' deaths). The low incidence of glass makes it difficult to say just how much lead glass featured at Hallowes, but table glass was either 1) discarded elsewhere or 2) did not play as much of a role in that household as at other sites in the area that were occupied later in the century. Since this sherd was from surface collections, it cannot be definitively said at this time whether it

is from a later deposition or a result of a flint glass vessel being used at Hallowes before the site's abandonment in the 1680s.

44WM12: Nomini Plantation

There are a total of 63 glass table and container glass sherds from the midden feature at Nomini Plantation. Of these, five showed little or no evidence of lead content. Nomini is unique in that its non-leaded tableware is in some ways more interesting for this analysis than the lead glass, which comprises 92% of the glass assemblage. There are 24 minimum identifiable vessels, including two from the manor house foundations which have less precise provenance. Five vessels are soda-glass, and nineteen are leaded. This discussion will focus on the material from the midden.

Two out of five soda glass sherds originate from Stratum III, one from Stratum II, and one from Stratum I, with one stem/base juncture being unprovenanced from test pit 10. The unleaded examples in Stratum III include one unidentified aqua glass container base and a colorless soda glass drinking vessel with a milled rim around a flat base (Figure 7.34a). Both originated from Unit 4 in layer D. The milled design could be from a beaker or a stemmed glass with bucket bowl, related to one of the John Greene London Glass-seller styles popular in the 1660s and 1670s.

One sherd from Stratum II of Vivienne Mitchell's test trench 1 is the base of a grayish tinted soda-glass *façon de Venise* vessel with alternating blue and white *vetro a fili* threads



FIGURE 7.34: Soda-glass tableware from Nomini. Clockwise from top left: a) milled base of a probable beaker, b) hollow quatrefoil stemware knob, c) white and blue vetro a fili beaker base, and d) a stemware foot with a merese at the base of the stem. Image by author (2013).

(Figure 7.34c). This could possibly be the base of a large, cylindrical beaker, such as shown by Jeffries et al. (2014:275, fig. 8), from the cellar of a drinking establishment in 16th-mid-17th-century London. The kickup at the base is not as deep as some illustrations show of beakers made in Amsterdam (Henkes 1994:figs 4.1-4.9) in the first quarter of the 17th century. The Town Center site at St. Mary's City also has some examples of similar vessels, though with different banded coloration (Grulich 2004:20). Given that sherds of Merida micaceous earthenwares and Northern Italian slipware are found at Nomini (McMillan and Hatch 2013), the presence of this possible earlier *façon de Venise* still makes temporal sense at this site even though Stratum II material generally dates to the late 17th century. The fourth example of non-lead tableware is a quatrefoil stemmed drinking glass stem, found in layer A of the midden (Figure 7.34b). These

glasses tend to date from 1670 to 1700, based on examples in the Museum of London. The last unleaded sherd was an unprovenienced partial stem and foot from a soda-glass vessel with a thin merese at the base of the stem (figure 7.34d), from unit 10. Mereses tend to be used less after the 17th century, so this vessel most likely predates 1700.

The leaded glassware will be described according to strata. Stratum III, dated by McMillan and Hatch from 1646 to 1679, had no leaded vessels. This is significant for supporting their claim that the layers of this pit are relatively intact stratified deposits. The lack of lead glass in Stratum III means that the deposits in this level almost certainly predate the arrival of lead glass to the colonies.

Stratum II, dating from 1679 to 1700, had nine leaded vessels, with 90% of the assemblage being lead. These include a stem from a glass with five wings made by pinching out and flattening sections of the glass using latticed tongs (Figure 7.35). This vessel possibly had an additional element between its stem and body, separated by a merese. The stem seems crudely blown, with a seam where the surface was not fully smoothed out. These leaded “pincered fin”

TABLE 7.14: Nomini Tableware Counts by Context

<i>Provenience</i>	<i>Count</i>	<i>Tableware</i>	<i>Leaded</i>	<i>Nonleaded</i>	<i>Percent Lead in stratum</i>
Stratum I	44	44	43	1	97.7
Stratum II	10	10	9	1	90.0
Stratum III	2	1	0	2	0
Unknown Midden	7	7	6	1	85.7
Manor Foundation	17	17	15	2	88.2
<i>Total</i>	80	79	73	7	92.4



FIGURE 7.35: Pincerred Fin stem from Nomini, Stratum II. Image by author (2013).

(also called “propeller stem”) vessels are decorated in a style popularized by *façon de Venise* forms, but likely adapted for working with heavier glass, and are generally overlooked in the 18th-century Georgian glassware collector books. A fragment of a similar stem was found in a London cesspit related to the Merchant Taylors' School with dated contexts spanning the first quarter of the 18th century (pers. comm., Museum of London 2015) (Figure 4.3), but several whole examples in the Corning Museum of Glass are dated to circa 1690 in manufacture (CMOG specimens no. 73.2.17 and 79.2.39). Therefore, such glass is unsurprising to find in a date range of 1679 to 1700.

Another drinking glass stem from this stratum bears an eight-sided molded element, though whether it is a knop or broken full pedestal stem is uncertain. Molded pedestal stems are generally dated past 1714 into the mid-18th century (CMOG specimen no. 75.2.17; Noël Hume 1969a.) That would make this stem out of temporal sync. McMillan and Hatch (2013) indicated that there appears to be slight mixing of artifacts between layers above and below, so perhaps this stem is a fluke that migrated by natural or anthropogenic processes to stratum II. A fragment of a classic inverted baluster stem is present, similar to another stem in stratum I above. The handle of an unidentified hollow leaded vessel is also present. This handle has three ribs on the exterior of the curve. It could potentially be a jug or pitcher. Several balustroid knop elements, a stem fragment with a merese, and a foot rim round out the collection in this stratum.

Stratum I, which McMillan and Hatch (2013) date to 1700 to 1720, had 43 leaded vessels, comprising 97.7% of the table ware assemblage. One leaded quatrefoil is present, which could potentially date from 1676 to 1700. Also present is another pincer wing stem fragment (Figure 7.36), with the addition of a drawn, flammiform decoration on the base of the bowl (TP7A). One stemware base juncture has a basal knop with pincer grooves that looks like a reversed quatrefoil element (Figure 7.37). Most of the remaining assemblage is amorphous lead glass, with 15 stem fragments, two thirds of which are knops of various types. There are fragments from at least one decanter with an oval base (Figure 7.38), two pedestal foot bases, a probable tumbler base sherd, and four identifiable rounded funnel bowl stemware fragments. With one possible exception, these fragments all date to the years delineated by McMillan and Hatch. The exception is a possible incised stem that has a drawn and twisted exterior surface (Figure 7.39); if it is truly an “incised” stem it would date to the third quarter of the 18th century.



FIGURE 7.36: Heavy flint glass stems at Nomini. Image by author (2013).



FIGURE 7.37: Stemware elements from Nomini. Clockwise from left: a) Hollow ball knop, b) Inverted baluster stem, and c) a basal quatrefoil stem element. Image by author (2013).



FIGURE 7.38: Oval flint glass decanter fragments from Nomini. Image by author (2013).

However, a similar form, termed “twisted stems” can date potentially from 1680 to 1720 (Hughes 1956; Lanmon 2011:78-79). It is difficult to say without a full stem, but this stem may be related to the manor house, as a similar stem fragment was recovered from that area. The material near the manor house appears to date later than the trash pit feature, somewhere around the second and third quarters of the 18th century, based on wine bottles recovered from the cellar of the manor house (Mitchell 1983:7), so this stem may indeed be an 18th century form.

The remaining six leaded vessels from the midden were unprovenienced, and consist of several knops and a folded foot. An eight-sided mold-blown stem is also present (Figure 7.40). It is of a less uniform, more crudely molded shape than most pedestal-molded stems seen in this project.



FIGURE 7.39: Twisted rib stem fragment from Nomini. Image by author (2013).



FIGURE 7.40: Unusual pedestal-molded stem fragment, showing rudimentary(?) molding. Image by author (2013).

One drinking glass bowl fragment presents with a trailed decoration up the bowl and is another decoration reminiscent of the earlier soda-glass spiny/notched goblets found at the Van Sweringen site (Grulich 2004:23). There were wheel-engraved sherds of non-lead table glass from collections at the manor house area. As at Angelica Knoll and Coan Hall, this glass likely dates to the mid-18th century, but could potentially be earlier if they are not English in origin.

Overall, the number and array of vessels at Nomini Hall is quite dazzling and comparable to Angelica Knoll and the Clifts for variety and multiples of several stemware forms. Curiously there is less recognizably mid-18th-century tableware found in the midden and elsewhere than expected, given the length of occupation. The possible second- to third- quarter 18th-century material like the wheel engraved soda glass, the crudely blown pedestal stem, and the “twisted rib” stems remain “whatifs” for further research. The majority of the decorated tableware in the Nomini midden matches forms most common to the last decade of the 17th century and the first decade of the 18th century.

44WM31: Clifts Plantation

I analyzed glass from the first three phases of occupation at the Clifts from contexts dating from ca. 1664 to 1715 (Neiman 1980a). Data were collected for a basic MNV for all glass present in all phases, using bases and unique glass. Not unsurprisingly, given the long occupation span, the Clifts assemblage rivals Angelica Knoll for the range and number of glass tableware vessels present.

The Clifts assemblage does not include any evidence of air twists, incised stems, nor wheel-engraving. The lack of these characteristics in the fine table glass assemblage agrees with the projected abandonment of the site prior to the 1730s. Just one drawn stemmed glass stem was identified, compared to at least half a dozen at Angelica Knoll. Drawn stems are usually dated closer to the middle of the 18th century so perhaps this should be no surprise. There were several finely blown examples of amber colored non-leaded tableware, including a stemmed vessel base foot rim and at least two different mold-blown bowl decorations. One nearly whole leaded drinking glass with a classic inverted baluster stem had a folded foot with a round funnel bowl and could date to the last decade of the 17th century. It originated from a phase 3 deposit, and was one of the most complete examples of a vessel examined in this project. The rest of the glass was much more fragmentary in nature, but luckily, Clifts was one of the few sites where more than one or two forms other than basic stemmed drinking glasses could be identified, including decanter bottle forms (at least one may have been an oval shape), possible lidded cup or decanter finials, and evidence for a potential “trick glass.”

No table glass is present from the earliest features of Clifts occupational Phase I, dating from 1664-1685 (Table 7.15). The Phase II features, including one trash pit and several postholes

TABLE 7.15: Clifts Tableware Counts

<i>Phase</i>	<i>Count Tableglass</i>	<i>Count Leaded</i>	<i>Percent lead</i>
Phase 1 1664-1685	0	0	0.00
Phase 2 1685-1705	10	8	80.00
Phase 3 1705-1715	158	151	95.57
Phase 3-4	18	18	100.00
<i>Total</i>	186	177	

** Count does not include Bristol opaque white glass

which Neiman dated to 1685 to 1705, contained 10 pieces of glass. Eight sherds comprise leaded colorless glass including several with an unidentified mold-blown decoration that may be part of a decanter neck or hollow stem. The remaining two sherds are amber-tinted soda glass with wrythen and mold-blown diamond exterior decoration (Figure 7.41). Both sherds could be from stemware or beakers; footed stemware bases with delicate folded rims were found in later contexts at Clifts so at least one is likely a stemware drinking glass.

Curiously, evidence for at least one early flint glass hollow quatrefoil knop was found in the plowzone (Figure 7.42). This is one of the early anglicized Venetian forms (Hughes 1956:29). The flattened, hollow, lobed knop was a hallmark of Netherlandish *façon de Venise*, translated into flint glass (Lanmon 2011:75). This form is confusingly also termed a quatrefoil knop by Lanmon, but it is not extruded into an inverted knop like the other quatrefoil examples seen in this analysis. Similar examples of hollow quatrefoil knops were found at Port Royal



FIGURE 7.41: Amber glassware fragments from Phase II at Clifts. Wrythen (left) and pattern-molded (right). Image by author (2016).

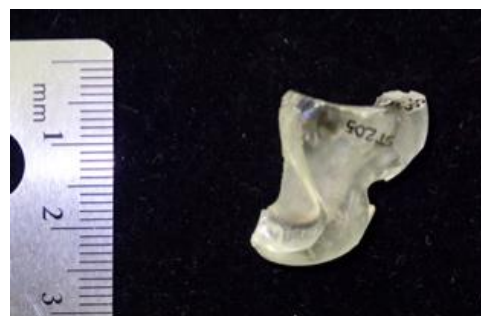


FIGURE 7.42: Sole example of flattened hollow quatrefoil knop from Clifts. Image by author (2014).



FIGURE 7.43: Body fragments at Clifts with small pincer marks. Image by Julia King from ColonialEncounters.org.

(Noël Hume 1968: 13). It could date circa 1680 to 1695. Phase III features, including trash pits and some post holes for fencing, contained at least 158 fragments of glass vessels, 95% (151) of which were leaded, and the rest from more amber stemware.^{12 13}

One colorless glass sherd originated from a grave previously attributed to an enslaved man who likely died during phase 3 or phase 4; the presence of lead in that glass corroborated the grave is likely no earlier than phase 2. Phase 3 contexts also included two bowl

fragments of delicate flint glass from a trash pit, probably from one or more early dwarf ale glasses, with small pincer marks on the bowl (Figure 7.43).

The phase III contexts, which Neiman dated from 1705 to 1715, have eight sherds of identifiable molded pedestal “Silesian” stems. These include at least three six-sided stems, two of which have diamond bosses (Figure 7.44), and at least one, perhaps two, four-sided stems with more basic shape. Literature often dates the more complex forms of pedestal molded stems to post-1715, so these could be among the earliest examples, though Noël Hume dates them as early as 1710. Notably, the molded pedestal stems comprise more than half the identifiable stem fragment assemblage in phase III (14 fragments).

¹² Most of the glass listed in the artifact catalog was located, but a few small pieces remained elusive in the drawers due to the small sizes of many fragments and the sheer amount of glass.

¹³ Excavators evidently recovered nine fragments of Bristol opaque white tableware in phase 3 deposits, however, this glass was in off-site storage and not available to view, so it is not included in the counts above.



FIGURE 7.44: Pedestal molded six-sided stem with bosses. Image by Julia King from ColonialEncounters.org.



FIGURE 7.45: Pincer fin dwarf ale glass stem. Image by Julia King from ColonialEncounters.org.

Most of the more complete stem fragments are from plowzone or phase IV contexts, including stems expected to date earlier, such as an unusual example of a small raspberry pruned stem (Figure 7.44). as well as a pincer fin stem quite similar to one example found at Nomini Plantation (Figure 7.45). Other stem forms in the assemblage included an angular knop, one drawn stem, several heavy baluster knop forms including a mushroom knop (Figure 7.46), and many partial stems with basal knops including one wrythen basal knop (Figure 7.47). Aside from the “Silesian” stems which supposedly date from circa 1710 to 1750, the angular balustroid shown by Noël Hume (1969a:191) is dated circa 1745 to 1770. Hughes dates angular knops as early as 1690 (1956:30), which may be more in keeping with this assemblage. The hard part of



FIGURE 7.46: A mushroom knop.
Image by Julia King from
ColonialEncounters.org



FIGURE 7.47: A stem fragment with a
wrythen or twisted-rib basal knop. Image by
Julia King from ColonialEncounters.org.

using stems to date glass is that dating partial stems is less precise; elements like mereses or additional knops can change the estimated date attributed to a given example. For example, the classic inverted baluster example at bottom center in Figure 7.48, with a merese on top, is more likely to be an earlier example than the baluster at top right in the same photo.

One of the more surprising finds at Clifts is an unusual rounded vessel with a pontil mark inside its bowl (Figure 7.49). At first, a cupping glass seemed to be the most likely function, but the lip of what appeared to be the remains of a second wall of glass extending from the exterior does not match. A google search for “double walled 18th century glass” garnered hits from several antiques websites with examples of double-walled, globe-shaped glasses with blown inner bowls of very similar in shape and form to the Clifts example (Figure 7.50). They were alternatively interpreted as a trick glass or as a salt (for holding salt on the dinner table)



FIGURE 7.48: A variety of stems at Clifts. Left to right from top: 1 angular knop, 3 inverted balusters; At bottom- 4-sided molded pedestal, small inverted baluster, inverted baluster with merese, knopped stem with raspberry prunts, drawn stem. Image by author (2016).



FIGURE 7.49: Possible “trick” glass or salt bowl fragments at Clifts. Image by Julia King from ColonialEncounters.org.

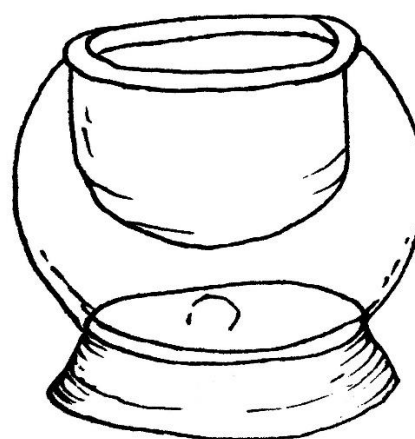


FIGURE 7.50: Example of Complete Double-walled Glass Vessel. Sketch of a complete “Trick glass” (or salt) ca. 1740s- Based on example from ScottishAntiques.com (2016).

(ScottishAntiques 2016; Delomosne and Son Ltd. 2017; 18thCenturyGlass.co.uk 2017). This group of hollow glasses were placed in a date range of 1730-1750 by the antiques sites, which is at the tail end of the Clifts occupation, or perhaps a bit later. More research is needed to determine the most likely function of this glass.

As a whole, the Clifts assemblage indicates that glass tableware was likely not in common use on this plantation before 1685. After that time, at the beginning of phase II occupation, stemmed soda glasses of very delicate amber metal were used, as well as some leaded glassware. However, the pincered fin specimens and the hollow quatrefoil knopped stem element from plowzone or later contexts may date to phase II. During phase III, after circa 1705, flint glass bloomed at the Clifts, particularly stemmed glasses with pedestal molding. By phase IV, after circa 1715, flint glass was probably in regular use at the table and regularly discarded. Many different forms including lidded vessels, trick glasses, decanters, and balustered glasses were being used at the table by the tenants of this plantation. The sole example of a pincered fin stem may indicate that at least one vessel at Clifts could have shared an origin with one very similar vessel at Nomini Plantation.

Overall, only one site or context in this entire study was found to not contain any table glass whatsoever: Clifts I, dating before 1685. Nomini (III) was the only other site or context with no lead glass, but this stratum contained several fragments of soda table glass. Other sites with occupation ending before 1690 like the Magazine at Mattapany and Hallowes tended to have their (few) examples of flint glass in the plowzone or unstratified context, which is suggestive for a post-1690 date for the arrival of flint glass in this region. As expected of elite

planter households, the glassware assemblages at Nomini, Coan Hall, Charles' Gift, and Mattapany Manor contained examples of *lattimo* and unusual or expensive forms not seen at more ordinary locales like Courthouse taverns. Moore's Lodge did not evidence as large an amount of glassware as expected for a courthouse being operated into the 18th century. Table 7.16 shows the counts, minimum vessels, and percent of lead in glass for all sites, and Table 7.17 contains basic site information for quick reference. The following chapter will combine the data to synthesize some of the overall patterns in flint glass.

TABLE 7.16: Data Arranged in order by Site number

<i>Site</i>	<i>Dates</i>	<i>% Lead</i>	<i>MNV Table Glass</i>	<i>Total Count Lead</i>	<i>Total tableware</i>	<i>Note</i>
Moore's Lodge	1670-1715	100.0	2	18	32	Only 18 glass sherds examined
Angelica Knoll	1650-1770	88.1	24	483	548	
King's Reach	1690-1711	91.4	8	117	128	
Old Chapel (233)	Mid 17th c.	5.9	2	1	3	
Old Chapel (329)	1680-1720	92.3	5	36	39	
Mattapany Magazine	1660-1700	15.8	5	3	19	
Mattapany-Sewall	1666-1740	73.9	3	17	23	including <i>Lattimo</i>
Charles' Gift	1675-1700	40.7	11	11	27	Fea. 12 glass only
Halfhead/Rousby	1660-1685	33.3	3	14	42	
Coan Hall	1680-1727	92.4	7	159	194	
Newmans Neck	1651-1740s	8.0	4	1	12	
Hallowes	1647-1681	20.0	2	1	5	
Nomini (III)	1649-1679	0.0	1	0	1	
Nomini (II)	1679-1700	90.0	9	9	10	
Nomini (I)	1700-1720	97.7	7	43	44	
Clifts Plantation I	1664-1685	0.0	0	0	0	
Clifts Plantation II	1685-1705	80.0	2	8	10	
Clifts Plantation III	1705-1715	96.0	7	151	158	Not including 'Bristol' glass

TABLE 7.17: Basic Site Background Information

<i>Site</i>	<i>Site Number</i>	<i>Date Range</i>	<i>Type</i>	<i>Location</i>	<i>Excavation</i>
Moore's Lodge	18CH777	1670-1715	Government/Inn	Charles County	Surface survey/Focused Test Unit
Angelica Knoll	18CV60	1650-1770	Elite plantation	Calvert County	Extensively excavated; unstratified, hand-picked
King's Reach	18CV83	1690-1711	Middling/Elite plantation	Calvert County	Extensively excavated
Old Chapel Field 1	18ST233	Mid 17th c.	Jesuit/Elite plantation	St. Mary's County	Phase II
Old Chapel Field 2	18ST329	1680-1720	Jesuit/Tenant	St. Mary's County	Phase II
Mattapany Magazine	18ST390	1660-1700	Military/Magazine	St. Mary's County	Extensively excavated
Mattapany-Sewall	18ST390	1666-1740	Elite plantation	St. Mary's County	Extensively excavated
Charles' Gift	18ST704	1675-1700	Elite plantation	St. Mary's County	Phase III
Halfhead/Rousby	18ST751	1660-1685	Middling/Elite plantation	St. Mary's County	Phase II
Coan Hall	44NB11	1680-1727	Elite plantation	Northumberland County	STP Survey & Test Unit
Newmans Neck	44NB180	1651-1740s	Middling plantation	Northumberland County	Extensive
Nomini Plantation	44WM12	1649-1773	Elite plantation	Westmoreland County	Midden- Trowel collected
Clifts Plantation	44WM31	1664-1730s	Elite/Tenant plantation	Westmoreland County	Extensively excavated
Hallowes	44WM6	1647-1681	Middling plantation	Westmoreland County	Extensive; Trowel collected

Chapter 8

Discussion

Now comes time to roll the cider casks in and take inventory of our data. The previous chapters have shown that the collections used for this paper involve a varied *mélange* of excavation strategies and glassware. How can one adequately compare such sites when the standards of excavation, cataloging, and contextualizing are so different across the board, not to mention the disparities of households such as between the Calverts and the Hallowes, or between the provincial powder magazine and the courthouse ordinary?

Dennis Pogue (2005) used presence-absence tables in a comparative analysis of Chesapeake material culture to better discern changes in amenities such as beds, finer ceramics, and knives being used across a range of Chesapeake sites. This approach works for comparing sites occupied by people of disparate household incomes. The only real difference between a wealthy household and one less able to invest heavily in domestic goods should be the number of things, not the quality or types, at least until ca. 1715 when more differentiation in types of goods begins to appear (Carr and Walsh 1988; Pogue 2005). To assess a wide range of sites in the comparative Colonial Encounters database, Julia King and Scott Strickland used the individual interpretations of each site, rather than detailed artifact counts, to bolster comparison of Lower Potomac assemblages (King 2016). These techniques may be useful here as well, though the latter technique requires interpretive summaries for each site. For sites like Coan Hall which are still under investigation, or Angelica Knoll, where a single interpretation may never be accepted, we make do.

One of the biggest problems in this comparative analysis of sites is the lack of a consistent means of dating the assemblages. Not every site had its assemblage analyzed or reported in the same ways. Most analyses use Binford pipe stem dates to estimate a mean occupation date. However, this dating technique is subject to problems, particularly with low sampling counts or highly divergent measurements caused by abrupt abandonment (McMillan 2011). For ease of use, (and because some sites either do not have calculated Binford dates, or have not been fully cataloged), I have elected to use two ways to display information: by latest estimated date of occupation, and the mid-point of occupation range to display the chronological data (Table 8.1, Figure 8.1). This presents some problems with sites like Angelica Knoll, which span a long occupation period.

Looking at Table 8.1, it is evident that flint glass was beginning to filter into the area by 1680 to 1690. However, it does not reach a majority of the table glass assemblage on sites that end occupation before 1700. But almost any site whose occupation ended after 1700 has at least three-quarters of the table glass containing lead. This is dramatically visualized in Figure 8.1.

Lead Rises

As Figure 8.1 shows, the percent of tablewares with lead glass begins to rise quite precipitously on sites with occupations ending after ca. 1700. This finding meshes with observations of the glass assemblages at each repository I visited. I studied glass at quite a few more sites than are covered here, and began to suspect that if occupation went past 1700, I better be prepared to be buried in lead glass. This chart is not made to calendar scale, but helps visualize the data in Table 8.1. The sites are organized by the midpoint of occupation range, and

TABLE 8.1: Data by Midpoint of Occupation

<i>Site</i>	<i>Number</i>	<i>Dates</i>	<i>Midpoint</i>	<i>Occup. End</i>	<i>% Lead</i>	<i>MNV inc nonlead</i>	<i>Total # Lead</i>	<i>Total tableware</i>
Hallowes	44WM6	1647-1681	1664	1681	20.0	2	1	5
Nomini Plantation	44WM12 (III)	1649-1679	1664	1679	0.0	1	0	1
Old Chapel Field	18ST233	Mid 17th c.	1670	1680	5.9	2	1	3
Halfhead/Rousby	18ST751	1660-1685	1672.5	1685	33.3	3	14	42
Clifts Plantation	44WM31 (I)	1664-1685	1674.5	1685	0.0	0	0	0
Mattapany Magazine	18ST390	1660-1700	1680	1700	15.8	5	3	19
Charles' Gift	18ST704	1675-1700	1687.5	1700	40.7	11	11	27
Nomini Plantation	44WM12 (II)	1679-1700	1689.5	1700	90.0	9	9	10
Moores Lodge	18CH777	1670-1715	1692.5	1715	100.0	2	18	32
Clifts Plantation	44WM31 (II)	1685-1705	1695	1705	80.0	2	8	10
Newmans Neck	44NB180	1651-1740s	1695.5	1740	8.0	4	1	12
Mattapany-Sewall	18ST390	1666-1740	1703	1740	73.9	3	17	23
Old Chapel Field	18ST329	1680-1720	1700	1720	92.3	5	36	39
King's Reach	18CV83	1690-1711	1700.5	1711	91.4	8	117	128
Coan Hall	44NB11	1680-1727	1703.5	1727	92.4	7	159	194
Clifts Plantation	44WM31 (III)	1705-1715	1710	1715	96.0	7	151	158
Nomini Plantation	44WM12 (I)	1700-1720	1710	1720	97.7	7	43	44
Angelica Knoll	18CV60	1650-1770	1710	1770	88.1	24	483	548

the red line denotes the boundary between sites with occupation ending by 1700 and those after. The red line sits just after Charles' Gift (18ST704) and Nomini II (44WM12), sites with contexts interpreted to have been filled in or unoccupied by ca. 1700.

Comparison of the minimum vessel counts (Figure 8.2) to Table 8.1 supports the interpretation that change is likely happening to the glass being used at these sites. Instead of rising abruptly, the MNV slowly rises over time, and does not vary much over 10 vessels for most sites aside from the outlier site ending c. 1770, Angelica, which contained up to 2 dozen vessels. The slight peaks in the center of the MNV graph correspond to Mattapan Magazine, Charles' Gift, home of Lord Baltimore's step-son, and Nomini II, associated with the occupation

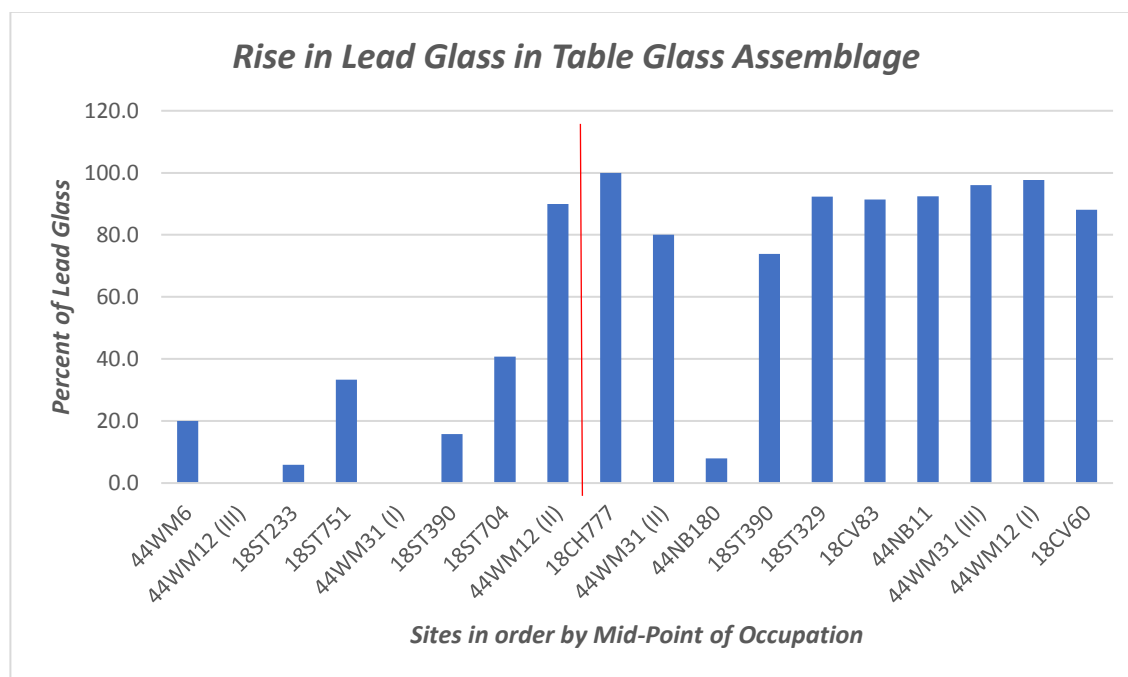


FIGURE 8.1: Rise in leaded glass over time arranged in order by mid-point of occupation range. Sites and contexts to the left of the red line end before 1700, and occupation on sites or contexts to the right end after 1700

of Frances Gerard (the daughter of Thomas Gerard) and William Hardidge. The two planter sites were among the most elite plantation households in the late 17th century, and could be expected to have the means to invest in more glass vessels. The Magazine contains a higher number of vessels than the Manor House associated with the third Lord Baltimore. Its high count of vessels lend credence to the use of the Magazine as an occasional meeting place and/or boarding house (King and Chaney 1999), as well as a garrison for the provincial militia. Moore's Lodge, despite being the site of an ordinary, did not deviate much from the other primarily domestic sites in total sherd counts or MNV. Additional fine grained analysis of table glass from more ordinaries is probably needed to make better sense of this observation.

The table of total table glass versus lead glass (Figure 8.3) shows how the count of fragments rises steeply for sites with occupations leading well into the first quarter of the

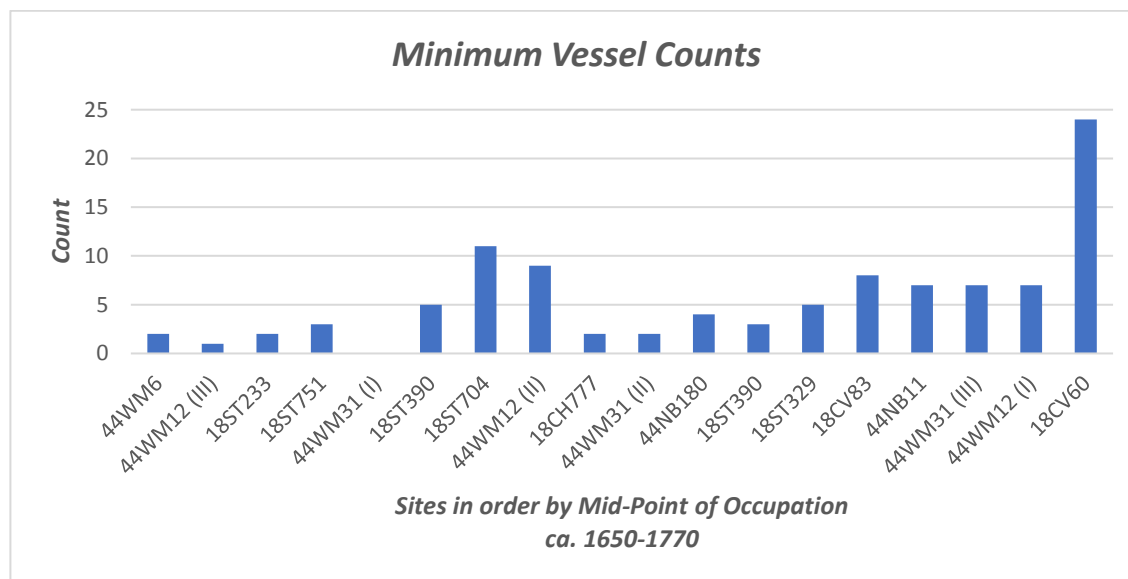


FIGURE 8.2: Minimum vessel counts. Minimum number of vessels for each site in chronological order by mid-point of occupation.

18th century. It appears that following the turn of the 18th century, the use of glass tableware may have risen, perhaps as a result of lowered costs for glassware and increased access. More data would be needed to determine that this perceived steep rise is not associated with mercantile activities, given that all three of the sites with the highest total sherd counts are known to have been run by planter-merchants and/or were the location of store-houses.

The chart of lead percentage also meshes well with the presence-absence tables of Decorative styles in Appendix A (Table A.1, A.2). As Chapter 2 outlined, there was a distinct change in the types of decorative characteristics between the period of pre-Ravenscroft English

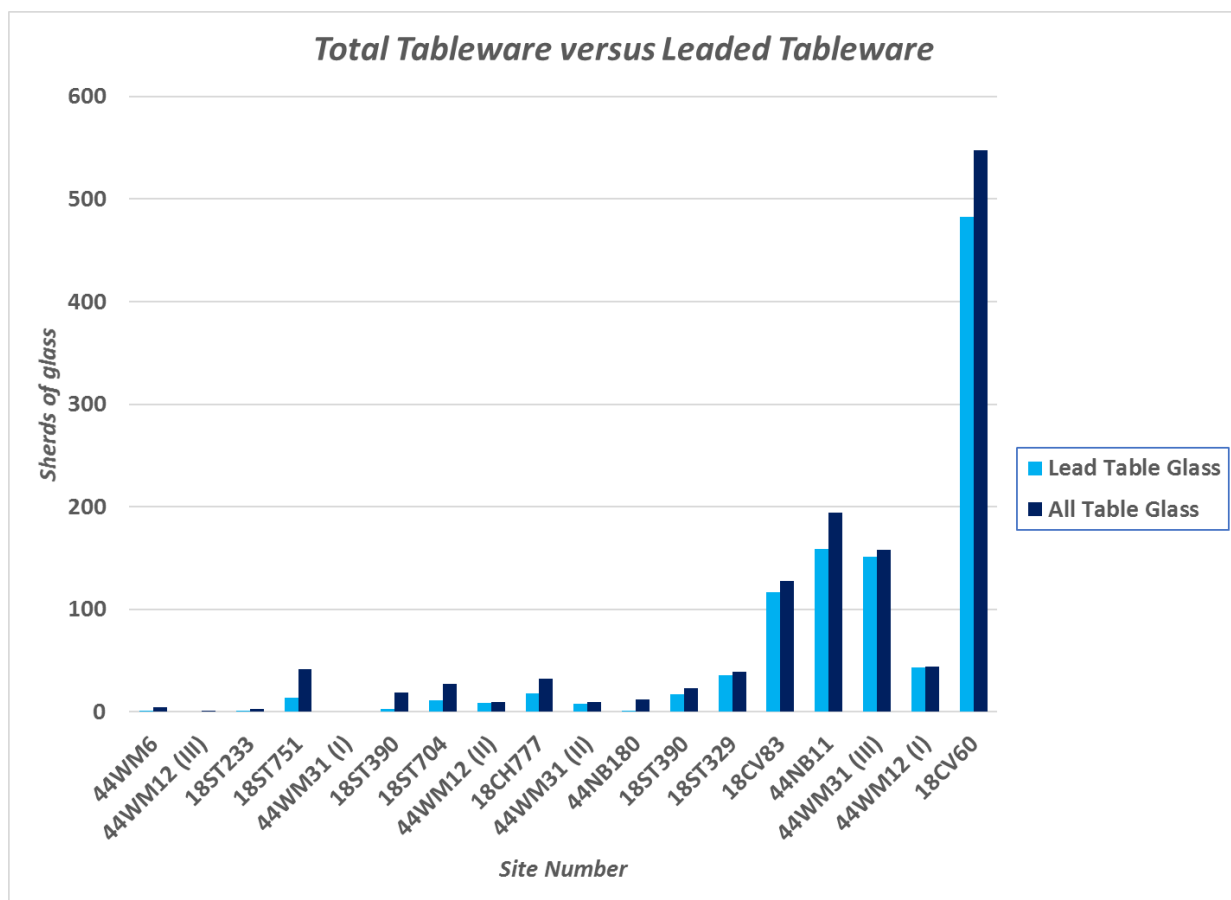


FIGURE 8.3: Total counts of tableware versus Lead and Non-flint glass. Arranged in chronological order by mid-point of occupation range

glass and the so-called Georgian period. When looking at the table, note how few Anglicized Venetian and Georgian forms are present at sites with occupation ending before ca. 1700. The only sites ending before 1700 with any of these forms are Charles' Gift, and Nomini (II). Charles' Gift contains two types of Anglicized Venetian forms; one soda-glass quatrefoil knop and one flint crystal inverted knop. Nomini (II) contained a pincer fin stem, a classic inverted baluster and a pedestal stem. It is the only site to display those forms in contexts that early. Interestingly, a small number of *façon de Venise* decorative features such as prunts, rigarees, and filigreed enamel do appear on several of the sites in this study before 1700, but not many. It is possible that the lower counts of vessels in earlier contexts and the relatively low numbers of diagnostic *façon de Venise* before 1700 indicates that English lead glass happens to be coming in just as demand for glass tableware (of any kind) in the provinces of Maryland and Virginia was rising. More data from pre-1700 sites would be needed to make a good determination for this argument.

Overall, there are no other discernible regional patterns. Sorting the data by Maryland versus Virginia sites does not reveal any obvious differences, which is not too surprising since many inhabitants in this region had close cross-colony and/or personal connections with others nearby. Instead, the best patterns are seen by comparing individual vessels across individual sites. By doing this, Newman's Neck stands out as an exception. Newman's Neck has an unexpectedly low number of flint glass vessels, compared to its Virginia neighbors and its conjectured occupation dates. Neale was quite well off given the rest of his household materials (Heath et al. 2009:25), so it seems reasonable to expect he would also be similar to his neighbors at Coan Hall. Instead, he seems to have invested more in soda-glass than in English flint glass,

and the lack of flint glass tableware also indicates that the Haynies either did not invest much in those goods during the 18th century either, or they were not captured in the archaeological investigation (perhaps being discarded elsewhere). The fact that Haynie has two drinking glasses noted in his 1725 probate may be evidence to indicate the latter. Several other plantation sites did not evidence the larger numbers and variety of glassware expected for the socioeconomic bracket of their owners: Mattapany Manor, Hallowes, and Newman's Neck. It is possible these disparities in number are due to differences in discard.

Further Understanding of Tablewares

Beyond looking at the timing of the adoption of lead glass across the region, in this study I also make two additional contributions to our understanding of colonial tablewares. First, through pairs or sets, similar odd diagnostic decorative attributes (pincerred fins, Anglicized Venetian characteristics), as well as similar serving forms between sites, opaque white glass, and even possible Dutch glass. I used glass tablewares to infer connections between sites that point to common sources or similar patterns of consumption. Second, I used the data to problematize established chronologies of specific decorative attributes (drawn out stems, pedestal-molded forms, and wheel engraving).

Pairs

The question of paired vessels— similar vessels that might have been purchased to match or as part of a set—may indicate differences in procurement avenues and buying habits of colonial consumers (Grulich 2004). Although there could be minute differences in size, the presence of multiple vessels of the same type at a household may indicate differences in

acquisition or use between the Chesapeake colonies and urban sites in England (Willmott 2005). Multiple pairs of similar vessels are present at Kings Reach, Nomini plantation, Clifts Plantation (phase 3), and at Angelica. I evaluate “similarity” by stem elements, with the assumption being that the bowl will be similar if the stem is (note this could conceivably be an incorrect assumption in some cases). In two cases, Angelica and Nomini, pairs may be associated with the site’s use for trade or store-keeping. In the case of Angelica, this could well explain the multitude of similar 18th-century stemwares seen, though the earlier Anglicized Venetian stem forms tend to be found in singular counts. In the cases of Kings Reach and Clifts, it is not yet clear whether the inhabitants kept store houses, valued matching tableware, or happened to buy similar glass vessels that arrived in a group off the ship.

Pincerred fins

Pincerred fins are seen at Angelica Knoll, Nomini Plantation, and Clifts Plantation (phase 3 and 4/Plowzone). Given the similarities, it may be that the Clifts and Nomini vessels came from the same or similar sources; McMillan noted that these sites also shared similarities in imported tobacco pipes, and perhaps similarities in trade networks (McMillan 2015a:338). The pincerred fin stem examples on the Virginian side all give the impression of being crudely blown with misshapen fins, while the Maryland example is rather crisper in its execution and symmetry.

Anglicized Venetian types

Quatrefoil knops of soda, rather than flint, glass were only found at Charles’ Gift and Nomini. Given the wealth of Thomas Speke and the connections of Nicholas Sewall, it seems logical for similar early pre-flint glass vessels to appear on these sites, though whether these

vessels were from similar sources (or traded from Speke himself) seems questionable given Speke's known Anti-Calvert sympathies. The leaded basal wrythen knops in the Clifts and Nomini assemblages may be further confirmation of trade similarities between these sites. Leaded quatrefoil knops and inverted knops were present on Maryland sites like Charles' Gift and Kings Reach, as well as Angelica. Nomini and Clifts are the only Virginian sites in this study to show any evidence of these stems, but lacking similarities, it is harder to draw connections between these sites using quatrefoils than the pincer fin stems.

Drawn Out

Were drawn stems used earlier than the mid-18th century? Except for one puzzlingly late-dated stem at Charles' Gift, all identifiable drawn stems were from Angelica, Clifts IV or Clifts plowzone. This suggests that drawn stems were not likely being used much in the late 17th- to early 18th centuries in this region. However, this project mainly covered elite planter sites. More sites of lower and middling status as well as taverns are needed to rule out differences based on cost, especially given that drawn stems were supposedly the cheap tavern glasses of the 18th century and found in quantity at Maryland taverns like Rumney's (Luckenbach and Dance 1998).

On a Pedestal

Molded pedestal stems occur in contexts earlier than most literature would dictate. The two pedestal stems at King's Reach indicate pedestal stems were present in Maryland slightly earlier than given the literature's projected second-decade of the 18th century appearance. Nomini Plantation also has one panel molded stem element in an early stratum. This example

may be more likely to be intrusive, but it is also one of the more unusual examples of molded pedestal stems seen in this project. The stem appears to have molding only up half the length of the stem, and it is very crude-looking in its form. Only Angelica has a pedestal stem fragment with obvious “reeding” that dates it after the 1720s.

Serving Forms

Serving vessels are mainly represented in the form of thick free-blown bases and molded handles, as well as a few lips. Attributing a form to unidentifiable footed hollow vessels is more problematic as they could also have conceivably been mugs, possets, bowls, or jugs. The presence absence chart in the appendix (Table A.2) indicates that handled vessels do not appear on any sites with occupations earlier than 1715. This observation must be taken with a grain of salt, as the potential lidded decanter at Angelica would very likely have been handled. No possible serving forms of soda glass were seen, aside from one handle fragment at Newman’s Neck.

Engraved glass

Wheel-engraved soda glasses, likely mostly tumbler forms, were found at Coan Hall, Clifts, and Angelica. These vessels seem likely to be middle to later 18th century vessels, but more research is needed to fully delineate the source and time period of this glass.

White glass

Opaque white enameled vessels occur on at least four sites in the Northern Neck and the Western Shore. Some interpretations of this white glass suggest that it is some form of Bristol

glass and mid to later 18th-century vintage (Neiman 1980a; Elder 1991). The incidence of examples of this glass in phase III deposits at Clifts, Angelica, Coan Hall, and the presence of similar glass at Compton in Maryland, which was abandoned by 1685 (Louis Berger and Associates 1989), indicates an earlier appearance than should be expected if it were an English product. White enameled glassware was being made as early as the mid-17th century in France to emulate Chinese trade porcelains, with similar imitation attempts elsewhere on the Continent, particularly Germany. In contrast, in England, the manufacture of similar vessels did not predate hard-paste porcelain (Knothe 2010). The white English “Bristol” glass so famous from the 18th century did not exist until after the mid-18th century (Hughes 1956:172-173). Knothe suggests that white opaque enameled glassware was used in tandem with porcelain-- that is it appeared and grew as interest in Chinese Porcelains grew (Knothe 2010). More research is needed to determine whether this glass is the same opaque white German glass that Hughes says was being sent to England in the early 18th century, yet was “too fragile for lasting use” (Hughes 1956:172).

Dutch Influence

Unfortunately, evidence for Dutch trade post-1660 cannot be fully determined at this time. More research would be needed to understand what stylistic or chemical differences (if any) would exist between early Dutch copies of flint glass and genuine English flint. Probable Dutch glass is found at Nomini and Coan Hall, both of which were occupied before 1660 by merchants who would no doubt have had access to Dutch goods. Since the contexts in question are either plowzone or date later than 1660, attributing that glass to post-1660 illegal Dutch trade is difficult, as it could potentially have been curated from the mid-17th century—with one possible exception— Mattapany Magazine.

Tavern and Magazine

The Moore's Lodge glass assemblage appears less cosmopolitan and less like the glass at ordinaries and Inns in St. Mary's City than the glass found at Mattapany Magazine. Moore's Lodge suffers a bit from low artifact recovery (being a STP survey), so later excavation could change interpretations if more glass is recovered. The provincial Magazine surprisingly contained more vessels, but far less flint glass than the manor house area. Only early contexts at Nomini Plantation and Old Chapel Field (18ST233) have fragments of glass with similarities to the *façon de Venise* vessels at the Magazine. Given the likelihood the Mattapany vessels are Continental imports, probably Dutch, and given that the Magazine was supposedly built circa 1670 (King and Chaney 1999), those vessels could be illegal imports, or vessels brought in by people who may have been garrisoned there, or both.

Political consumption

Unfortunately, political consumption does not appear to be the best way to consider this assemblage. Instead, the best connections in similar glasswares were to be found between neighbors like Clifts and Nomini Plantation, and between Mattapany Manor and Charles' Gift. The best similarities in overall assemblages such as pairs, unusual Dutch glass, and overall quantity were seen on sites with households of similar statuses especially the merchant-planters, like Thomas Speke, John Mottrom, and Richard Johns. With more historical analysis of the mercantile connections between each site perhaps it would be easier to argue that consumption of flint glass followed specific political or ideological boundaries.

Conclusion

English flint glass was likely present on select sites on the Northern Neck and Western Shore after 1680, but does not appear in larger quantities until after 1690. After 1700, use and discard of this glass became commonplace. Given that most of the sites analyzed in this thesis represent more affluent customers, it is impossible to state conclusively whether glass tableware was ubiquitous in the region after 1700, but it seems that if a household owned a piece of glass tableware after 1700, it would have been flint crystal. Despite the challenges of working with disparate collections, by using a combination of presence-absence approaches and minimum vessel counts, it is possible to discern a general shift in the chemistry and decorative attributes of the glass tablewares in the region.

To resolve some of the as-yet-pending identification issues surrounding some specimens of glass tableware, the white opaque enameled glasses and wheel engraved soda glasses should be tested for more exact chemical compositions using XRF or other quantitative methods. Were the wheel-engraved wares to be Bohemian chalk glass, they could then be contemporaneous with English flint glass, rather than a later 18th-century product. Some of the unusual flint glass could also use further study to see if they are potentially non-English flint glasses.

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Appendixes

Appendix A

Presence-Absence Tables of Decorative Characteristics

Key to Appendix A tables

X	example(s) may be leaded or soda or both (these are mainly colored glasses)
Xs	denotes soda glass
Xl	denotes lead glass
Xs, Xl	soda and lead examples coexist

NOTE: No color twists, cut, or faceted stems are included as they post-date 1740

Appendix A.1: Presence/Absence of *façon de Venise* and Anglicized Venetian Glass

			<i>Façon de Venise</i>						<i>Anglicized Venetian</i>			
Site	Number	Range	Color Deco (filigree, enamel, sgraffado)	Lattimo	Prunts, Nipples, spiked gadroon	Gadrooned/ wrythen bowl	Merese	Rigaree / Milled rim	Quatrefoil	Inverted knop	Pincered Fin	Wrythen / twisted rib stem
Hallowes	44WM6	1647-1681										
Nomini (III)	44WM12	1649-1679						Xs				
Old Chapel Field (233)	18ST233	Mid 17th ca.- 1680			Xs							
Halfhead/Rousby	18ST751	1660-1685						Xl				
Clifts Plantation (I)	44WM31	1664-1685										
Mattapany Magazine	18ST390	1660-1700	X		Xs						Xs	
Charles' Gift	18ST704	1675-1700		X	Xl				Xs	Xl		
Nomini (II)	44WM12	1679-1700	X				Xl				Xl	
Moores Lodge	18CH777	1670-1715										
Clifts Plantation (II)	44WM31	1685-1705	X									
Newmans Neck	44NB180	1651-1740s										
Mattapany-Sewall	18ST390	1666-1740		X		Xl						
Old Chapel Field (329)	18ST329	1680-1720			Xl	Xl		Xs				
King's Reach	18CV83	1690-1711				Xl				Xl		
Clifts Plantation (III)	44WM31	1705-1715	X			Xl					Xl	
Coan Hall	44NB11	1680-1727	X			Xl		Xl				
Clifts Plantation (IV)/Plowzone	44WM31	1715-1735	X			Xl			Xl		Xl	Xl
Nomini (I)	44WM12	1700-1773			Xl	Xl		Xs	Xs, Xl		Xl	Xl
Angelica Knoll	18CV60	1650-1770	X		Xl	Xl	Xl		Xl	Xl	Xl	

Appendix A.2: Presence/Absence of “Georgian” styles and other characteristics.

				"Georgian" Glass					Stemware Foot Form		Other Décor				
Site	Number	Range	Classic baluster	Heavy Baluster	Light Baluster	Molded Pedestal	Drawn	Air Twist	Folded Footrim	Plain Footrim	Enamel	Wheel Engraving	mono colored glass	Ribbed / UID mold-blown décor	Handled vessels
Hallowes	44WM6	1647-1681												Xl	
Nomini (III)	44WM12	1649-1679													
Old Chapel Field (233)	18ST233	Mid 17 th -ca. 1680											blue		
Halfhead/Rousby	18ST751	1660-1685													
Clifts Plantation (I)	44WM31	1664-1685													
Mattapany Magazine	18ST390	1660-1700							Xs						
Charles' Gift	18ST704	1675-1700					Xl		X, Xl	Xl					
Nomini (II)	44WM12	1679-1700	Xl			Xl			Xl						Xl
Moores Lodge	18CH777	1670-1715							Xl	Xl					
Clifts Plantation (II)	44WM31	1685-1705											amber		
Newmans Neck	44NB180	1651-1740s							Xs		Xs				Xs
Mattapany-Sewall	18ST390	1666-1740							Xl				smoky	Xl	
Old Chapel Field (329)	18ST329	1680-1720							Xl					Xl	
King's Reach	18CV83	1690-1711	Xl	Xl		Xl			Xl				purple	Xl	
Clifts Plantation (III)	44WM31	1705-1715	Xl			Xl			Xs, Xl				amber		Xl
Coan Hall	44NB11	1680-1727				Xl			Xl			Xs		Xs	Xl
Clifts Plantation (IV)/Plowzone	44WM31	1715-1735	Xl	Xl	Xl	Xl	Xl		Xl				amber		Xl
Nomini (I)	44WM12	1700-1773	Xl	Xl					Xs, Xl			Xs			Xl
Angelica Knoll	18CV60	1650-1770	Xl	Xl	Xl	Xl	Xl	Xl	Xl	Xl		Xs	purple	Xl	Xl

Appendix B

Drinking Paraphernalia and Glassware in St. Mary's County Probates 1658-1694

TABLE B.1: Table of 384 Inventories of citizens of St. Mary's County, 1658-1694. Notes relating to drinking paraphernalia and glassware.

Based on Lois Green Carr's transcribed Probates, on file at Historic St. Mary's City (1658-1694). Count of all drinking paraphernalia is under "Drinking Item #". If glass is involved, it is noted again by itself in the next column, "Drinking glass #". The table counts do not include bottles, beverage storage, or generic pewter, though I have noted those where seen in the "Other Inventory Notes." Spelling is transcribed as is.

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
41	William Wright	1662	1		drinking pott	
77	Mattingly	1664	3	2	2 bear glasses all old & one of y ^e glasses broken an old silver dram cup	
169	William Cole		1		funnel beaker [pewter]	
195	Robert Slye	1671	49	12	1 wt Earthn Sillibub Pott 7 small Earthen Juggs 2 Earthen drinking Cups 1 silver flaggon 1 silver caudle Cupp 1 large silver Tumbler 1 silver porringer 1 silver sack Cup 2 silver Dramm Cups 1 pewter flaggon 1 pewter Cup 1 pewter Quart Pott 1 pewter wine Pott 2 Great stone Juggs 2 small Ditto 4 small Earthen Juggs 6 beere Glasses 6 wine ditto 2 horne Cupps 6 Earthen Potts	2 great Glasse botles; 4 quart glass botles; 1 iron bound case with Botles
242	Dr. Luke Barber	1673	1		silver tankard	
257	John Morecroft	1673	2		drinking potts of earth	

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
258	Roger Sheehee	1674	1		silver dram cup	
271	Luke Gardiner	1674	12		2 silver wine Cupps 2 silver dram Cupps 2 new pewter Tankards 2 old pewter Tankards 1 pewter Pinte Pott 1 old pewter Ewer 1 white earth sillybub Pott 1 painted earth Pott	
273	Thomas Wright	1674	1		flagon	
277	Henry Bannister	1674	5		1 small pewter flagon four cups	1 old syder caske
281	Benjamin Solly	1674	1		punch bowl	
284	Jane Paine	1675	3		1 spotted earthen drinking cup with tinne lid 1 spotted jug with tinne lid 1 pewter flagon	
288	John Jarboe	1675	5		1 silver dram cup 1 silver sack cup 1 old flagon without lid 1 old tankard 1 very small porringer	
305	William Baker	1675	1		1 old tankard	11 indian wooden Bowles
345	Marmaduke Snowe	1676	5		1 punch bowle 2 old quart potts 1 porringer 1 earthen pott	

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
359	John Pile	1676	4		1 fflagon 1 quart pott 2 tankards	
370	Richard & Sara Foster	1676ish?	2		silver dram Cupp little Cupp [silver?]	30 lb pewter
371	Henry Hull	1676	1		dram cupp	
405	Richard and Elizabeth Moy	1676	5		a tankard 3 silver Cups a stone Jugg	3 gallon pots, 2 quart pots, 1 pinte pot and 1/2 pinte pot; 1 case with bottles, 41 glass bottles, 6 empty caske; 6 glasse bottles; a parcell of tinn ware
487	John Halfhead	1677	3		silver Jack cup [sack?] dram cup	1 pewter bottle
490	Constant Daniell	1677?	2		a small pewter cup old pewter porringer	
491	Richard O'Keefe	1677	2		silver cupps	
506	John Waughop	1678	3		2 sack cups 1 dram cupp	pcel of syder casque; 1 iron boundcase with serw bottles [decanters? Or typo for basic wine bottles?]
507	John Deery	1678	2	2	wine glasses	one caske qt gallon of beere; 5 gall wine in a caske; 11 gall beer the rem-; 5 balls of chocolatts

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
520	Richard Chilman	1678	4	4	drinking glasses	150 gall beere; 30 gall ffyal wine; 35 gall Rumm; 14 balls Chocolate
523	Walter Hall	1678?	4		1 flagon 3 tankards	
551	John Garnish	1679	4	4	dram cupps of glasse	
552	Thomas Notley	1679	53	42	4 wooden cupps 2 boxes qre 38 glasses 4 drincking glasses 1 New Silver Porringer 1 large Tumbler, 1 Ditto larger, 2 small Ones [plate] 1 Tankard & Little Sack Cup [plate]	1 small case of Bottles; 1 Case of bottles; 3 bottle wth: syrups; 7 1/2 pipes Fayal wine; 1 cask Rumm, 2 pipes Brandy; 1 pipe wine; 1 pipe wyne; 1 pewter Cistern
557	Pope Allvey	1679	2		old pewter tankards	case with 6 bottles
573	Henry Elliott	1680	1		sack cupp [silver]	
611	William Calvert	1682	24	21	1 silver tankard 2 smll silver Cupps 21 drinking glasses	
628	Derby Donnovan	1683	1		silver dram cup	
632	John Tennison	1683	8	5	3 beer glasses 2 small wine glasses wooden cup 2 dram cups	300 gall Cyder; 117 lb pewter; 1 small spiritt case with empty bottles; 1 old iron bound case and empty bottles; corks

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
639	Anthony Lamb	1683	8		4 porringers 3 drinking Cups 1 dram cup	
654	George Mackall		1		silver tankard	a pcell of plate, 177 lb pewter
688	Robert Ridgely	1682	19	6	2 white sillibub Potts 1 Great Earthn Pitcher 4 Earthen Juggs 2 Earthn Guggs 1 Punch Bowle one glass case & 6 glasses 3 silver tankards	2 pails & 1 piggin; 2 cruets; 1 mustard Pott; 2 gross corks; one Case Cask & box; one tith cask; 10 bottles; box of Medicines potts & bottle; 3 Empty casks & 1 doz bottles [glasses in parlor, tankards in chamber, meds in Nursery/closet, empty casks in cellar]
728	George Powell	1685	3		2 coper drinking potts 1 small silver cup	2 dozen trenchers
734	Pierce Walb	1685	2		dram cups [pewter]	
735	John Wynne		2		a flagin & Tankard	1 case of bottles; 4 round bottles

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
743	Robert Bridgin	1685	14		1 pewter flaggin 1 little pewter tankard 4 new pewter Porrengers & 1 old one Pewter Cupp 1 Tinn Tankard 1 Little bastard Theiny cup 2 Little Earthen Juggs 1 Little Earthen Pitcher & an Earthen Cupp	1 little earthen Cupp & 1 lb. powder in it
754	James Peagrass	1685	2		pewter flagin & tankard	1 case bottles
757	Symon Reeder	1685	5		4 pewter porringers & a pewter cup	1 case & 9 pinche bottles
760	Obedya Down	1685	2		1 pewter flagin 1 tankard	6 pewter plates; 6 dozen qt. bottles
781	Edward Ward		1		old pewter tankard	
796	Mark Cordea		1		old pewter tankard	160 lb plate; [apparently has bottles in the hall, with the looking glass]
859	Gerard		24		1 silver tumbler 1 pewter tumbler 1 old gallon pewter flaggon 1 old 3 quart pewter flaggon 4 earthen muggs 2 old broken Lignum Vitae punch bowles 1 dozen porringers 1 pewter flagon, 1 pewter tankard	34 gross empty glass bottles; 1 payle & 1 piggon, 2 payles, 1 piggon
863	Robert Lee	1687	1		small silver cup	19 glass bottles
867	Vincent Mansell	1687	1		pewter tankard	18 lb pewter

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
895	Leonard Greene	1688	31		1 gallon flaggon, 1 poth ditto 1 old flaggon 1 quart tankard, 1 dto old 12 porringers [pewter] 4 caddell cupes 2 pewter beere Bowles 1 silver tankard 4 silver tumblers 1 silver dram cup 1 silver sack cup 1 silver porringer & spoon	pcll fyne earthenware; old case with 8 bottles
901	William Vinefinger	1688	3		1 pt flaggin 2 pw tankard [pewter?]	
903	John Persons	1688	2		1 pewter tankard flagon	dram bottle [bottle & flagon pewter as well?]
909	Christopher Goodson		1		1 pewter tankard	
937	Peter Watts	1692	10		1 small cups 3 flagons 6 new porrangers [sp]	2 5 galon runlets, 2 1 galon runlets, 4 old syder caske
955	Justinian Gerard	1689	6		1 lg. flagon 2 tumblers 1 beaker 1 porringer 1 small dram cup [all of plate]	pcell of glass bottles; 2 old sperritt caskes; 1 sider mill
968	John Goldsmith	1683	2		a silver dram cup 1 [plate] tankard	

<i>Lois Green Carr #</i>	<i>Name</i>	<i>Probated</i>	<i>Count Drinking Item</i>	<i>Count Drinking Glass</i>	<i>Relevant Entry</i>	<i>Other Inventory Notes</i>
977	Joseph Pile	1692	0			2 cupping glasses; 28 old glass bottles fowle
982	Richard Gardiner (?)	1689	2		1 old [laller?] punchbowl 1 pewter flagon	1 10 gallon Runlett
987	John Evans	1688	2	2	drinking glasses	66 lb pewter
1023	William Bevin	1693	1		old pewter tankard	
1038	William Longworth	1694	1		small silver drame cup	
1043	Edward Barbier	1694	4		2 pewter tankards 2 pewter Cupps	

Vita

Esther Rimer grew up in the Dark Corner of upstate South Carolina, north of Greenville. Esther was a history and biography buff, but always planned to be a scientist of some kind. She chose to matriculate at Wellesley College in Massachusetts. During one summer as an undergraduate, she completed her first summer field school in Historical Archaeology taught by Barbara Heath at Thomas Jefferson's Poplar Forest near Lynchburg, VA. This led her to consider going into Historical Archaeology with a focus on the Southeastern and Mid-Atlantic USA. She graduated in 2007 with a Bachelor of Arts in Liberal Arts and a major in Anthropology. In 2010, Esther began the Master of Arts program in Anthropology at the University of Tennessee, Knoxville. She worked on a series of field projects over the summers including Coan Hall in Northumberland County, VA and Indian Camp in Powhatan County, VA. After her first trip to Coan Hall, she became interested in studying the early colonial Chesapeake region. In 2013 Esther visited the UK for the first time to present at the Society for Historical Archaeology Conference in Leicester. While on this trip she hiked up Cadair Idris in the Snowdonia mountains of Wales and interviewed for (and landed) a new job as Assistant Archaeologist for the Colonial Encounters Project in St. Mary's City, MD. When the Colonial Encounters Database grant project ended, Esther returned to Thomas Jefferson's Poplar Forest, where she worked as an Archaeology Lab Technician for over a year. In the spring of 2015, she joined the Smithsonian Institution's National Museum of Natural History as a collections technician for the Anthropology Department at the Museum Support Center. In the summer of 2017 she completed her thesis on glass tableware and graduated from the University of Tennessee. Esther currently resides in Southern Maryland.