Propagating Status: Gentlemen Planters and their Greenhouses in the Eighteenth-Century Chesapeake

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Propagating Status: Gentlemen Planters and their Greenhouses in the Eighteenth-Century Chesapeake

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A Thesis presented to the Graduate Faculty of the College of William and Mary in Candidacy for the Degree of Master of Arts

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Historical archaeologists have argued that the elaborately landscaped grounds of many eighteenth-century Chesapeake estates were conscious attempts by the elite governing class to reassert their control over a society that was quickly slipping away from them in the years leading up to the American Revolution. Some scholars have extended this interpretation to include the greenhouses that sometimes accompany these formal gardens, but such studies tend to be particularistic, with no real attempt to move beyond seeing these structures as simply another ostentatious display of power. This thesis goes beyond these usual interpretations of greenhouses as one-dimensional representations of social control by systematically investigating five archaeologically-documented eighteenth-century greenhouses and placing them within the full social, political, and economic context of the colonial Chesapeake. In so doing, the symbolic meaning of these structures on the eighteenth-century Chesapeake landscape is found to be much more nuanced and intriguing than has been thought.
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Dedication

In memory of my grandmother, Ruth Edgar Malone, the original matriarch
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More than the usual amount of blood, sweat, and tears have been shed in order to get this thesis and its author to their current positions, and not all the shedding has been mine. Without the unfailing support and guidance of my thesis committee, I might still be searching for a suitable topic. The encouragement and patience of my advisor, Dr. Frederick H. Smith, never once wavered throughout this entire process, no matter how often I tested him. Dr. Marley R. Brown III’s advice and suggestions were instrumental in shaping the final appearance of this thesis, and I could not ask for a more constructive critic of my earlier drafts and ideas. Dr. William H. Fisher brought a vital anthropological voice to the table, and his knowledge of the botanical world was much appreciated.

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Prepping the Soil: Background and Theoretical Perspectives

Greenhouses were some of the most intriguing and enigmatic buildings to grace the landscape of the colonial Chesapeake in the eighteenth century, and the surviving remnants are perhaps even more enigmatic today because archaeologists have never adequately explained the impact of these structures on the social landscape. Despite a considerable amount of historical archaeological research into eighteenth-century life in the Chesapeake there has been little systematic investigation of these structures, and researchers have often overlooked their symbolic meaning. The few examples of greenhouses that have been investigated archaeologically tend to be descriptive and particularistic studies that often focus on the rarity of these structures in the region (see for instance Yentsch 1990). But there were in fact close to a dozen known examples of greenhouses scattered across the region on plantations, in towns, built by elite planters and upwardly mobile members of the middle class throughout the eighteenth-century, and another eight that were built before 1825 (Brinkley 2004; Pogue 2003). Why, then were they built? Why would a Chesapeake planter go to such lengths and expense to build an entirely unnecessary building unrelated to the growth of tobacco or other cash crops? Answering this question requires going beyond the particularistic interpretations of these greenhouses as individual anomalies and evaluating them as examples of a larger regional trend in Chesapeake society that takes into account the social, political, and economic contexts of their construction. Almost one half (five) of the dozen Chesapeake greenhouses built in the eighteenth century have been investigated archaeologically, which means that a comparative analysis of all these structures can provide new insights into why they were built and what they meant for those who built and enjoyed them. The five greenhouses examined here include the Mount Vernon greenhouse built in
1784-1787 by George Washington in Fairfax County, Virginia; the Mount Clare orangery built by Charles Carroll around 1760 outside of Baltimore, Maryland; the greenhouse at Green Spring, built between 1730-1740 by Philip Ludwell III near Jamestown, Virginia; the Calvert orangery (1720-1730), built by the Calvert family on their townhouse lot in Annapolis, Maryland; and the Wye House orangery (1740), built by Edward Lloyd III in Talbot County, Maryland on the Eastern Shore. While these structures all have unique histories, they share many important characteristics that shed light on their meaning for eighteenth-century Chesapeake residents.

Figure 1: Map of the Chesapeake Bay, showing the locations of the five greenhouses discussed.
In order to explore the motivations for building greenhouses on eighteenth-century Chesapeake landscapes it is first necessary to investigate their history and development. According to some British greenhouse studies people have been preserving and propagating exotic plants for as long as we have written records (see for example Britz 1996; Hix 1981; Woods and Warren 1988). There are references to early attempts at shielding plants from harsh weather or inordinate climates as far back as the ancient Romans, and since then there seems to have been at least one or two individuals in every century in Western civilization who have attempted to preserve plants outside of their natural environments (Vleeschouwer 2001; Woods and Warren 1988; Yentsch 1990). However, it was not until the late sixteenth and early seventeenth centuries in Europe that we begin to see a concerted effort by a small but determined set of individuals to preserve and cultivate exotic plants outside of their native climates (Brockway 1979; Schiebinger 2004; Woods and Warren 1988). One of the first plants to pique the interest of Europeans was the orange. As a delicacy the orange was known in Northern European cooking among the elite classes from the medieval period onward. However, oranges and other exotic fruits were hard to procure because they had to be imported from the tropical climate of the Mediterranean to the more temperate climate of Northern Europe. Some individuals propagated orange trees and attempted to preserve them at great expense and effort through the harsh European winters (Harbury 1994; Malone 1998; Scora 1975; Yentsch 1990). Louis XIV, for example, had a grove of orange trees in his Palace at Versailles, and each winter the gardeners would remove the plants from the garden to a protected, closed-in area of the grounds to prevent them from freezing (Woods and Warren 1988). Each orange tree was planted in its own wooden container so that they could be easily moved around the grounds, and the place where these trees were stored became
known as the orangerie, or “orangery,” which specifically referred to the place where the orange trees were located during the warm summer months when they could be arranged outside in formal patterns (Brinkley 2004; Vleeschouwer 2001; Woods and Warren 1988). Of course the expense involved in this process excluded all but the wealthiest from growing oranges, and it was not until European monarchs began competing with each other to explore the rest of the world that individuals other than royalty could get their hands on exotic plants (Brockway 1979; Schiebinger 2004).

It has been argued that this increasing interest in exotic plants follows naturally from the Age of Exploration that opened up the rest of the world to European curiosity and new economic possibilities (Brockway 1979; Schiebinger 2004; Woods and Warren 1988). Explorers set out from their homelands with specific instructions from their financial backers to procure items of both scientific and potential economic value, and the foliage found in other climates was a natural draw for someone familiar only with the plants in his own and his neighbor’s garden. Of course, one of the biggest problems with importing such unusual plant material was how to preserve it outside of its natural climate so that the botanists and other enthusiasts could study it before it died. Before the enthusiasm generated by the European expansion into the rest of the world the problem of preserving plants from freezing winters was only a minor concern. The native crops growing in these European countries had adapted to the climate and were readily available, so even if they did freeze over the winter it was relatively easy to procure more seeds and replant the following spring. Such was not the case with these exotic imports from other continents. Not only were they unaccustomed to the European climates – particularly the winters – but typically only a small number of specimens would survive the long trip back to Europe. Upon arrival, plant specimens would
have no doubt been divided among the numerous experts and other sponsors of the trip as returns on their investments, thereby further reducing the actual number of live specimens or seeds that could be studied in any systematic way (Brockway 1979; Leighton 1976; Schiebinger 2004; Vleeschouwer 2001).

The European botanical enthusiasts who received these plant specimens had to find a way of preserving them (and with any luck, encouraging them to propagate and produce new generations). The first attempts by European botanists and exotic plant enthusiasts to preserve and protect these exotic floras consisted of erecting temporary shelters over their plants to shield them from the worst of the weather (Woods and Warren 1988). These simple shelters took a variety of forms: some were semi-permanent structures with timber posts that were covered with a thatch roof during the winter months, while others were temporary shelters made of canvas or glass that were designed to be dismantled with the arrival of spring (Hix 1981; Lemmon 1963; Woods and Warren 1988). The primary purpose was, in the beginning, to simply keep plants from freezing, to shelter them from the worst of the snow and ice, rather than reproduce the climates of their origin, which became the aim later in the eighteenth and nineteenth centuries (Brinkley 2004; Hix 1981; Woods and Warren 1988). It seemed that every botanist, professional or amateur, had an opinion – and a different design – for the most effective way of preserving exotic plants during the winter months, and many published their designs independently for fellow enthusiasts. These amateur enthusiasts also acquired published volumes by such renowned botanists as Philip Miller, the head of the Chelsea Physic Gardens (Sarudy 1998; Woods and Warren 1988). Botanists soon began experimenting with heating methods during the winter months so that the plants would not just survive, but also propagate and continue to grow during their
confinement. Experts such as Philip Miller (1721), Richard Bradley (1724), and Batty Langley (1729), debated the benefits of smearing the walls with dung to insulate them setting up coal braziers alongside the plants, and installing updated versions of Roman hypocausts that warmed the room by passing hot air from a fire through ceramic pipes in the walls and floors (Brinkley 2004; Hix 1981; Pogue, White and Leeson 2002; Pogue 2003; Woods and Warren 1988; Yentsch 1990).

But what about the greenhouses found across the Atlantic in the Chesapeake region in the eighteenth century? How did they differ from those being built in Europe, or other parts of North America? The five greenhouses excavated archaeologically in the Chesapeake shed light on the nature of British colonial greenhouses and their role in the larger social and economic context of the eighteenth-century Chesapeake. In this thesis I offer an archaeological framework for interpreting the physical requirements and material culture of eighteenth-century greenhouses, their placement on the landscape, and their symbolic role as agents of communication between members of the Chesapeake gentry. These greenhouses were unique because they stood as physical symbols of the elite Chesapeake planter class’ investment in and dependence on the specific mercantile economy of the eighteenth century and the way of life it supported, as well as the close relationship such a system created between the colonial elite and their counterparts in England.

To understand the archaeological evidence from these greenhouses, however, it is first necessary to understand the theoretical models archaeologists have used to interpret them. The best starting place for a theoretical discussion of eighteenth-century Chesapeake greenhouses is with Mark Leone’s (1984) famous treatise on the formal garden of William Paca in Annapolis, Maryland. Leone’s analysis of the Paca garden set the tone for all
subsequent work on formal landscapes in the eighteenth-century Chesapeake (Pogue 2003). Leone argued that William Paca designed his formal garden to be a physical manifestation of his social prominence and ability to control both nature and those close to nature: his social inferiors. According to Leone, Paca used his elaborately landscaped grounds to reinforce his social standing and to reassert the powerful position of the elite planter class on the eve of the American Revolution. As an example of elite control over the natural world Paca’s garden epitomized the ability and right of the elite planter class to control the social and political world of the Chesapeake (Leone 1984: 32-34). It was quite literally an attempt to naturalize the dominant ideology of the elite ruling class whose control over the social, political, and economic worlds seemed increasingly threatened in the third quarter of the eighteenth century (33-34).

Leone’s interpretation of the meaning of the William Paca Garden in Annapolis broke new ground at the time it was written, and it became such a common interpretive framework for conscious manipulation of Chesapeake landscapes that it is still used as the basis for many landscape interpretations today. Even those who do not agree with Leone’s interpretation of Chesapeake gardens acknowledge the impact his work has had on the understanding of the built environment in the eighteenth-century Chesapeake (Brinkley 2004; Hall 2000; Hodder 2003; Pogue 2003; Yentsch 1990). Leone’s (1984) work on Paca’s garden has even been referred to as a “classic study” by archaeologists working outside the Chesapeake (Orser 1996: 143; 166), which only underscores its influence on the discipline. But this wide readership has also opened it up to a fair amount of scrutiny by other archaeologists who feel that Leone’s focus on the ideological manipulation by elite Chesapeake residents is only part of the story (Beaudry, Cook, and Mrozowski 1991; Hall
Ian Hodder (2003; see also the reiteration of his critique in Beaudry, Cook, and Mrozowski 1991) and Martin Hall (1992; 2000), for example, have criticized Leone’s (1984) interpretation of Paca’s garden for its reliance on what is known as the “dominant ideology thesis” (1980) (Beaudry et al. 1991; Hall 1992; Hodder 2003; Orser 1996). According to Nicholas Abercrombie, Stephen Hill, and Bryan S. Turner (1980) (cited in Hall 1992; Orser 1996) the dominant ideology thesis is drawn from a particular interpretation of Karl Marx and Friedrich Engles’ *The German Ideology* (1970), in which they argue that the elite control over the economic, political and social institutions allows elites to disseminate their own particular brand of ideology that legitimizes their power to the exclusion of any other ideology or active resistance from other groups (Hall 1992: 382-383; Orser 1996: 165-167). Hodder and Hall argue that Leone’s interpretation of Paca’s garden embraces the dominant ideology thesis. Yet, they also point out that Leone’s interpretation fails to account for the voices of individuals or groups outside Paca’s immediate social circle (Hall 1992; 2000; Hodder 2003). Just because Paca intended his garden to be seen a certain way does not necessarily mean that every viewer was so obliging as to comply. In fact, given the numbers of enslaved individuals, tradesmen, and other non-elites in eighteenth-century Annapolis, it is highly unlikely that anyone outside Paca’s own social group saw his garden the way he intended or understood the message of power, control, and natural order he hoped to convey.

This is certainly one of Ian Hodder’s main criticisms of Leone’s work. Hodder (2003: 83) argues, for example, that Leone’s interpretation provides “no indication anywhere that the same material culture may have different meanings and different ideological effects for different social groups”. As a result, according to Hodder, Leone interpretation denies agency
and alternative interpretations of the Chesapeake’s non-elites (Hodder 2003: 83; see also Hodder’s remarks quoted in Beaudry, Cook, and Mrozowski 1991: 156-159, and in Orser 1996: 166). While it is unlikely that Paca would have invited many people outside his particular social set to view his garden, Leone has argued that its message was intended for an audience beyond his social circle. Thus, in Leone’s view, some non-elites must have had access to Paca’s garden, especially the enslaved individuals who would have been responsible for the daily upkeep of such an elaborate outdoor space.

Martin Hall (1992; 2000) voices a similar criticism of Leone’s work in his comparative studies of elite life in eighteenth-century and South Africa and the Chesapeake. Hall suggests that Leone’s use of the dominant ideology thesis comes close to a deterministic model of complete control by an elite class over a compliant class of non-elite automatons (1992: 384). This oversimplification of eighteenth-century social relations in the Chesapeake limits the usefulness of Leone’s critical materialism because it mutes the voices of non-elites and denies them interpretive agency in the meaning of formal gardens and landscapes (Hall 1992: 383-384; 2000: 97-98).

Another important theoretical perspective on the archaeology of Chesapeake greenhouses comes from Anne Yentsch’s investigation of one of the earliest known greenhouses to be built in the eighteenth-century Chesapeake. In the early 1980s Yentsch led an excavation of Lot 83 in downtown Annapolis, the site of the former home of the Calvert family, which governed Maryland throughout much of the eighteenth century (Yentsch 1990: 170-71; 1994: 12-14; 53-94). While investigating the Calvert house site Yentsch and her team came across the remains of a hypocaust system used to heat the floor of an early greenhouse, or “orangery”, as she calls it. Yentsch unquestionably adopts and then expands Leone’s idea of
dominant ideology in her interpretation of the site. For Yentsch, the Calvert orangery symbolized the power of the Calvert family; it was a physical representation of their dominant position at the head of the colonial Maryland hierarchy. Not only did the Calverts have beautifully landscaped gardens like other colonial elites, but they also had a climate-controlled orangery that allowed them to produce out-of-season – and even out of climate – fruits, nuts and flowers (1990: 182-183; 1994: 113). Up to this point, Yentsch’s interpretation of the Calvert orangery echoes Leone’s interpretation of Paca’s garden. Yentsch, however, expands on Leone’s model and claims that the symbolic meaning of the Calvert orangery reflects the cosmopolitan outlook of the Calverts and their outward focus on Europe as opposed to the more-inward looking focus on the colonies that she attributes to other Chesapeake elites without orangeries (Orser 1996: 183-184; Yentsch 1990: 169).

While Yentsch’s interpretation of the Calvert family orangery in Annapolis is less sweeping than Leone’s interpretation of Paca’s garden, Yentsch’s interpretation, as with Leone’s, has also come under academic scrutiny. Although Martin Hall does not go into great detail about Yentsch’s work on the Calvert site, he does include her study as an example in his longer critique of critical materialism, of which Leone’s study of Paca’s garden is a major part (Hall 2000: 86-87). By using Yentsch as another example of critical materialist approaches to archaeology, Hall implies that her analysis, along with Leone’s, is also limited because it privileges the elite residents of the Calvert house over all others (Hall 2000: 95-98). Hall’s critique is accurate. Yentsch only discusses the symbolism of the Calvert orangery from the point of view of the Calverts and their social equals on both sides of the Atlantic. She does not, on the other hand, discuss the role of the enslaved laborers who would have actually constructed and maintained the orangery under the direction of a head gardener.
Charles Orser (1996) also challenges Yentsch's emphasis on the "mystical" influences in her interpretive framework of succeeding "hermeneutic circles" she uses to build from the specific analysis of the material remains of the Calvert house site to the general world view of the Calverts and their fellow elites (Orser 1996: 183-184). While supporting Yentsch's general framework that allows her to move from the specific site of the Calvert house outward to the global level of interpretation, Orser argues that her emphasis on mindset and cognitive patterns of the Calverts is only useful if it is interpreted in the broader context of the merchant capitalist system that existed at the time (Orser 1996: 184). Given the importance of the tobacco economy in the eighteenth-century Chesapeake, particularly its symbolic importance to the elite, it must at least be acknowledged in any discussion of the lives of these Chesapeake elite and their motivations for constructing superfluous buildings that had no practical advantage to a working tobacco plantation.

Despite the criticisms of Leone (1984) and Yentsch (1990; 1994) both authors provide valuable insights into the symbolic meaning of eighteenth-century Chesapeake greenhouses, including the five examined in this thesis. While my interpretation of these structures deviates from the models proposed by Leone and Yentsch their work informs many interpretations of the Chesapeake landscape and offers a starting point for any study dealing with aspects of the Chesapeake landscape, including greenhouse construction. Both authors offer interpretive models that are especially useful for investigating the symbolic meaning of such structures. It is on the base of the established interpretations proposed by Leone and
Yentsch that I will build my own case for a new archaeological framework for exploring eighteenth-century Chesapeake greenhouses.
A Strong Foundation: Economy, Society, and Politics in the Eighteenth-Century

Chesapeake

Perhaps the most important thing to emphasize in any study of the colonial Chesapeake is the economic system operating at the time and its connection to social status and political power of the region’s residents. It was the existence of economic inequality that led to the distinction between various social groups and the ability – and desire – of those at the very top to erect superfluous buildings such as greenhouses. Contrary to popular belief inequality between various individuals in the Chesapeake did not begin with the tobacco boom, but instead existed from the very first settlement at Jamestown, in which the Old World distinction between gentlemen, craftsmen, and laborers was carried over by the first settlers (Clemens 1980; McCusker and Menard 1985). In fact, there was little economic inequality in the first years of the tobacco boom than during the initial years of settlement (McCusker and Menard 1985). However, once the tobacco industry took off in the Chesapeake those with better crops, more land, or more capital began to distinguish themselves economically. They also began to assert their dominance socially and politically.

The economic system in place in colonial Maryland and Virginia was based on the production and export of tobacco, the primary crop upon which much of the Chesapeake depended for profit as well as a commodity with which to trade for everyday necessities and luxury items. In the first decades of the Chesapeake tobacco industry in the mid-seventeenth century almost all tobacco was sold on a consignment basis, in which a planter would sign over their crop to an agent or factor of a London firm for a certain amount of credit based on the expected price of tobacco on the London market. The planter could then use this credit to order goods from London through the same firm. This system tended to encourage close
relationships between planters and their London agents, particularly for the larger planters who would often put in orders for specialized goods or luxury items and depend on the agent to acquire the highest quality good at a reasonable price (Breen 1980; Morgan 2003; Clemens 1980; Papenfuse 1975). Once the price had been settled, the agent then arranged for the planter’s tobacco to be shipped to London and sold on the market (Breen 1985; Clemens 1980; Land 1965; 1967; McCusker and Menard 1985; Morgan 2003; Middleton 1953; Papenfuse 1975; Price 1964). Unfortunately, though, the price of tobacco was not guaranteed, and often it sold for a lower price than expected. This in turn would cause the London firms to reduce the amount of credit allowed to the Chesapeake planters for their tobacco. However, by the time the planter became aware of their reduced credit, he had often already ordered goods on the strength of the projected sale, which would leave him in debt to the London firm for the difference (Breen 1980; McCusker and Menard 1985; Middleton 1953; Morgan 2003; Papenfuse 1975; Soltow 1959).

This consignment system was the major way of selling tobacco in the early years of the industry, but by the end of the seventeenth century there was an alternative system in place. In this new system independent merchants would buy a planter’s tobacco outright for cash or credit which could be used immediately to purchase goods imported by the merchant in their local stores rather than going through the lengthy process of contacting a London agent. The new system had quite a number of advantages over consignment, the most important one being that these merchants would often buy tobacco at higher prices than the London agents (Clemens 1980; McCusker and Menard 1985; Middleton 1953; Morgan 2003; Papenfuse 1975; Soltow 1959). In Virginia, this direct-buy option became synonymous with the Scottish merchants who controlled a majority of this trade (Land 1965; 1967; Soltow 1959;
Walsh 1999). The system also took hold in Maryland especially after the emergence of new tobacco merchants in France led to an increase in tobacco prices (Carr and Menard 1999; Land 1965; 1967; McCusker and Menard 1985; Price 1964).

The Scottish merchants were not the only ones to take advantage of this system, however. Many local Chesapeake residents – some agents for English firms, some not – also opened up stores in rural areas and trade tobacco for cash or imported goods (Clemens 1980; Land 1965; McCusker and Menard 1985; 1967; Papenfuse 1975; Price 1964; Walsh 1999). James McCarty, for instance, put an ad in the Virginia Gazette announcing a whole range of items for sale at the Petersburg shop of Alexander D. Strachan and Company, which included such things as honey, cordials, toothbrushes, syringes, glass funnels, brown paper, wine, among others (McCarty, cited in the Virginia Gazette 14 July 1774: p.3, col. 2 [Purdie and Dixon]).

The direct-buy system offered new opportunities for Chesapeake residents with capital to invest, and by the middle of the eighteenth century these merchants, especially those in towns like Annapolis, were making significant profits (Clemens 1980; Matthews 1998; Papenfuse 1975).

This new system of internal buying and trading did not replace the older consignment system, however. Rather, the two systems operated jointly. The direct-buy system was aimed primarily at smaller planters who typically never had enough tobacco to establish formal relationships with London merchant firms and their agents (Clemens 1980; Papenfuse 1975). The larger Chesapeake planters, however, for the most part continued to sell their tobacco on the London market through British agents and established firms in part because many of these larger planters had long-established relationships with their London agents and were more likely to order specialized goods and luxuries that they could only get from London.
Smaller planters, on the other hand, were more likely to make do with standard imports for sale in local stores (Clemens 1980; Morgan 2003; Papenfuse 1975).

Some large planters took advantage of both systems by using their credit with London merchants to import larger quantities of goods, opening a store on their own plantations and purchasing the tobacco crops of their smaller neighbors in exchange for imported goods. These planter-merchants then combined the purchased crop with their own yield to create an even larger crop for consignment to their London agents (Clemens 1980; Land 1965; 1967; Middleton 1953; Papenfuse 1975; Price 1964; Walsh 1999). A few planters, such as Edward Lloyd and Richard Bennett, went even farther along the entrepreneurial path by not only opening stores, but also purchasing one or more ships and crews in order to cut down on the shipping costs, which allowed these individuals not only to ship their tobacco directly to London with no delays, but also allowed them to enter the intercoastal trade between the Chesapeake and other British colonies in North America and the Caribbean (Alevizatos 1999; Clemens 1980; Papenfuse 1975).

At the same time as these merchant-planters were reaping the profits from multiple mercantile activities, by the late seventeenth and early eighteenth century many had also begun to diversify their agricultural activities by adding wheat and corn to their commercial output (Clemens 1980; Land 1965; 1967; McCusker and Menard 1985; Middleton 1953; Walsh 1999). Small planters also began to diversify their agricultural output, particularly in areas unsuited to tobacco cultivation, although such changes were more difficult for those with less capital (Carr and Menard 1999; Clemens 1980; Walsh 1999). While the shift to wheat and other grains never replaced tobacco as the primary crop of the region, it did create opportunities for planters of all levels to increase their profits at a time when tobacco prices...
were falling in the last decades of the seventeenth century (Clemens 1980; Land 1965; 1967; Price 1964; Walsh 1999). While the majority of small planters were never able to make large enough profits to equalize the margin of wealth in the Chesapeake region, their fortunes did improve at a slow but steady rate throughout the eighteenth century (Carr and Menard 1999; Clemens 1980; Land 1965; 1967; McCusker and Menard 1985; Price 1964; Walsh 1999).

Such practices not only increased the profits for the largest planters by creating more opportunities for them to increase their wealth; it also helped to solidify the largest planters as a distinct social group, one whose access to the finest imports was directly related to their close ties with London merchants, and through these merchants, to the fashions and society of the English gentry. Once distinct in dress, deportment, education, and other aspects from small planters, tenants, and enslaved Africans these gentry began to consolidate their wealth by marrying each other and forging social and political ties that would carry through multiple generations (Norkus 1982; Smith 1980; Trostel 1981; Walsh 1988). These social and political distinctions would then be jealously guarded and maintained through visual display of the ever-increasing extravagance in clothing, accessories, and architecture (Carr, Morgan, and Russo 1988; Isaac 1999; Leone 1984; 1988; Mathews 1998; Norkus 1982; Smith 1980).

The preoccupation of the colonists with acquiring luxury goods and competing with their neighbors tied the Chesapeake colonists more closely to Britain, it also meant that those with the most land and labor at their disposal would be the most socially and economically successful. These large planters had enough capital and credit with London merchants to invest in other agricultural areas, increase their profitable activities, and acquire the latest goods and fashions through their personal relationships with their contacts in London. In the
flexible social world of the eighteenth-century Chesapeake, such individuals had to continue to be economically successful to hold on to their social position, or risk being outstripped by their neighbors and losing some of their social prominence (Carr, Morgan, and Russo 1988; Isaac 1999; Walsh 1988). Thus, the great planters of the eighteenth-century Chesapeake benefited the most from the existing economic system and their close ties with Britain only helped to reinforce their political and social status – at least until the advent of the American Revolution. They were committed to preserving and encouraging this particular economy as much as possible because they were deeply invested in the lifestyle it created and dependent on its continuation – a dependence that is reflected in the greenhouses built on their rural estates.

The social elite of the colonial Chesapeake aspired to the glittering world of eighteenth-century London society; those in the highest social and political circles of colonial Maryland and Virginia wanted to shine as brightly, dress as gaily, and entertain as richly as their British metropolitan counterparts (Alevizatos 1999; Carr, Morgan, and Russo 1988). However, living as far as they did from the center of British social life meant that certain long-established rules of social interaction had to bend to the harsh demands of the New World. There were far fewer elite residents of the colonial Chesapeake than in London or any other British social center, and they were spread much farther apart across the rural Chesapeake landscape. Therefore, the strict rules governing conduct between a member of the elite and those considered their social inferiors were relaxed on this colonial frontier (Carr, Morgan, and Russo 1988; Isaac 1999; Morgan 2003). Without such changes the few members of the elite planter class would be left to interact with only one or two other families in their local
area, and such a monotonous social existence would force even the snobbiest of the elite families to invite even the most marginal Chesapeake gentry into their midst (Walsh 1988).

There were other social conventions as well that came to define eighteenth-century Chesapeake society that developed out of these rural conditions, including the often-ridiculed hospitality of elite Virginians (Isaac 1999; Upton 1997). According to both contemporary and later authors, the social pressure on Virginia planters to be generous to a fault in their hospitality could be taken to an extreme. Some planters, for example, were known to send their servants out to the main roads to beg, cajole, and practically force travelers to come and dine with their masters to maintain the appearance of elite hospitality so respected by their neighbors (Isaac 1999). While colonial Virginians have been held up as extreme examples of this kind of aggressive hospitality it was not uncommon in other parts of the colonial British world where the elite population was small and separated by long distances. In Barbados for example, planters frequently sought alcohol-based sociability with friends and strangers (Smith 2006). Such stories were not simply exaggerations. The desire of the elite to show the world that they met the demands of their social network and exemplified the behavioral ideals of their social equals was real.

In the second half of the eighteenth century these elite Chesapeake planters had new places to show off, as more and more members of the gentry began to follow their representatives to the colonial capitals for the meetings of the Assemblies and the General Courts. This situation was more pronounced in the Maryland capital of Annapolis, where the regular meetings of the Assembly and other government bodies led to the establishment of a winter social season that brought well-to-do colonists to the town in droves (Clemens 1980; Matthews 1998; Papenfuse 1975). These elite colonists were followed to town by the
craftsmen, merchants, and other entrepreneurs looking to capitalize on the desire of the gentry to show off for all their friends (Matthews 1998; Papenfuse 1975). While many of these elite planters had townhouses in Annapolis by the third quarter of the eighteenth century, the majority of them were only used during the months when the court and governing bodies were in session (Matthews 1998). For the rest of the year, Annapolis, as with Williamsburg, the colonial capital of Virginia, was home only to government officials and a handful of merchants, tradesmen, and other laborers who lived there on a year-round basis (Matthews 1998; Papenfuse 1975; Trostel 1981). Many of the government officials living in Annapolis, from the royal governor down, were elites in their own right, though they spent most of their time in town in political and administrative pursuits rather than supervising the yields of rural plantations (Matthews 1998; Papenfuse 1975). As the rural planter elites from the countryside converged on Annapolis and Williamsburg and interacted with the towns’ residents. Distinct patterns of behavior and visual displays emerged that were used to communicate status and ambition between the different social groups as well as among the gentry themselves (Matthews 1998).

Eighteenth-century colonists in the Chesapeake were connected through the economic, social, and political ties. The elite planters who managed their estates also shaped local politics, and many times their influence gave the wealthiest of the elite planters the most clout in any social or political situation. For example, in 1747 planter Landon Carter and Reverend William Kay had a falling-out over the specifics of Church doctrine, and the rector made it clear in a sermon that he would not cave to the political and social pressure of important men by preaching against his personal inclinations. Carter used all of his social
connections to pressure the other vestry members to oust the offending rector (Isaac 1999: 143-144; Upton 1997: 172-173). In this case Carter's wealth and social position were enough to force a political coup even before he was officially an elected member of Virginia's House of Burgesses (Isaac 2004: 124). As there was no separation between Church and State in early colonial Virginia (unlike in Maryland) political power and ecclesiastical power amounted to the same thing in terms of social standing. While Carter may have avoided the opportunity to mold and enforce the laws by which he and his fellow colonists were bound, he found a similar place of power through his involvement in the Anglican churches in his home church in Lunenburg Parish and in the affairs of the College of William and Mary (Isaac 1999; Upton 1997).

The connections between social and political positions in the eighteenth-century Chesapeake were perhaps more visible in and around the colonial capitals and port towns such as Williamsburg, Annapolis, Newport News, and the rising port cities of Norfolk and Baltimore. Certainly the records from the York County courts and records from the Virginia General Court held at Williamsburg mention the same dozen or so men who held the positions of power on the Governor's Council of Virginia and within the county court system (York County Project, Colonial Williamsburg Foundation). These men were not just political animals who knew no other life than the public one; on the contrary, John Randolph II and many others were planters as well as representatives to Virginia's court system, and those that were not planters themselves came from families with enough wealth and social standing to send their sons or those chosen to represent their interests to participate in colonial politics (Clemens 1980; Kulikoff 1986; Land 1965; 1967; Norkus 1982). Everyone in the Chesapeake was a planter of some kind, or came from a family whose wealth was based at
least partially on commercial agricultural activities, even if the present generation focused on other pursuits such as law or business (Clemens 1980; Land 1965; Papenfuse 1975; Price 1964).

The association between economic, social, and political status in the eighteenth-century Chesapeake is not an accidental one. All of these aspects of life in the Chesapeake worked together to define the various degrees of inequality present in eighteenth-century Chesapeake society, or at least came together at this level of society to enhance an already high social standing and increase a family’s or individual’s social capital (Bourdieu 1991). This close association stems from the fact that as the individuals with the most resources at their command, these members of the elite planter class could throw their proverbial weight around in any arena they chose — all because they had a stranglehold on the cornerstone of the Chesapeake economy: tobacco.
No Stone Unturned: A Systematic Investigation of Five Eighteenth-Century Chesapeake Greenhouses

Architectural historians and archaeologists have investigated five of the dozen or so eighteenth-century greenhouses that are known to have existed on the Chesapeake landscape. These five buildings provide the basis for a broader interpretation of the symbolic meaning of greenhouses on the eighteenth-century Chesapeake landscape. Four of these structures have been investigated archaeologically, including the reconstructed greenhouse at Mount Vernon (Mount Vernon, VA), the orangery and associated buildings at Mount Clare (Baltimore, MD), the greenhouse at Green Springs (near Jamestown, Virginia), and the Calvert orangery (Annapolis, MD). The fifth example is the Wye House orangery, in Talbot County, Maryland, which, as the only extant example of an eighteenth-century greenhouse in the Chesapeake, was studied architecturally rather than archaeologically.

What did Chesapeake greenhouses look like in the eighteenth century? While some allowances must be made for individual expression, both physical and financial limitations meant that the appearance of greenhouses in the eighteenth-century Chesapeake was more or less uniform across the region, and certainly made them immediately recognizable on the landscape. According to the most popular gardening treatises of the time, greenhouses required, at the minimum, a well-built structure with large windows along the southern façade in order to capture the greatest amount of sunlight during the winter months, and by the eighteenth century, some kind of heating system that would keep the interior warm enough for plants unused to non-tropical climates (Brinkley 2004; Hix 1981; Lemmon 1963; Miller 1752; Pogue, White, and Leeson 2002; Pogue 2003; Sarudy 1998; Vleeschouwer 2001; Woods and Warren 1988; Yentsch 1990; 1994). These structures could be made from a variety of materials, but most likely the construction materials would be whatever was

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readily available in the Chesapeake, meaning brick, stone, or wood, or a combination of these materials. Greenhouse ruins and documentary information indicate that the greenhouses at Mount Airy, Mount Vernon, and Wye House were built of brick, though the Wye House Orangery’s southern façade was treated to look like stone (Forman 1967; 1968; Woods and Warren 1988). Some greenhouses or orangeries had tile or stone floors, which helped retain the heat inside the building (Forman 1967; Hix 1981; Oehrlein and Black 1992; Woods and Warren 1988). Tile and stone floors were not always standard features of Chesapeake greenhouses however, and the use of these materials may have had more to do with the type of heating system used than aesthetic preference.

Many eighteenth-century greenhouses in the Americas and in Britain were heated by a system of flues that ran inside the walls and/or floor of the structures and distributed hot air or water from a furnace room to the main room that housed the plants (Brinkley 2004; Britz 1996; Forman 1967; Hix 1981; Lemmon 1963; Oehrlein and Black 1992; Woods and Warren 1988). A heating system of this kind required a smaller room on the back or to one side of the main room with a hearth or stove of some kind built into the wall or floor and connected to ceramic pipes that would distribute this heat throughout the structure (Brinkley 2004; Forman 1967; 1968; Oehrlein and Black 1992; Pogue, White, and Leeson 2002; Woods and Warren 1988). A room for this purpose would not have to be very large, but it would most likely be structurally reinforced in order to take the weight of the stove or hearth used to generate the necessary heat. Such auxiliary furnace rooms were present at Wye House and Green Spring (Brinkley 2004; Forman 1967). This heating system would also require hollow areas in the back wall in order for the pipes to pass through, which might show up archaeologically as hollow areas in a standing wall, or simply thicker foundations on the northern end of the building (Forman 1967; Pogue, White, and Leeson 2002). There may also have been other rooms to either side of the greenhouse, some of which were used as smaller hothouses for plants (as
in the Wye House Orangery), or a second story that was used for storage of gardener’s tools and other supplies (Alevizatos 1999; Forman 1967; Oehrlein and Black 1992).

A variation on this type of heating system was one that employed an underground structure similar to the ancient Roman hypocausts used to heat bathhouses (Pogue, White, and Leeson 2002; Yentsch 1990; 1994). In this system, the main heating structures are built under the floor of the building in vaulted-brick chambers that would channel hot air from a stove into the building above. The Calvert orangery in Annapolis employed such a hypocaust system (Pogue, White, and Leeson 2002; Yentsch 1990; 1994). In some cases, greenhouse designers may have used a system of thick masonry and pipes to distribute heat to the greenhouse walls as well (Hix 1981; Woods and Warren 1988; Yentsch 1990; 1994).

Most eighteenth-century garden experts recommended that greenhouses face south in order to take advantage of the winter sunlight through large glass windows expressly designed to capture it, and it seems that the majority of the known Chesapeake examples took this advice to heart (Brinkley 2004; Britz 1996; Forman 1967; Hix 1981; Langley 1739; Lemmon 1963; Miller 1752; Pogue, White, and Leeson 2002; Vleeschouwer 2001; Woods and Warren 1988 Yentsch 1990; 1994). Some of the earlier eighteenth-century Chesapeake greenhouses, while containing more windows than most domestic rooms, were still relatively dark, and may not have had the same recognizable façade seen in later examples, when the price of glass, while still high, was low enough that Chesapeake residents looking to construct greenhouses could do so with windows extended almost the entire height of the building. (“Extract of a Letter from London, May 11,” Virginia Gazette 30 July 1767: p.3, col. 1 [Purdie and Dixon]; Yentsch 1990).
The Greenhouse at Mount Vernon

The greenhouse on the Mount Vernon estate of George Washington in Fairfax County, Virginia, is a classic example of the greenhouse form as it appeared on the eighteenth-century Chesapeake landscape (John Milner Associates 2004). Construction on the Mount Vernon greenhouse was underway by 1784, although the idea for such a structure seems to have been in Washington’s mind long before the actual construction began (Dalzell and Dalzell 1998; de Forest 1983; Griswold 1999; Martin 1991; John Milner Associates 2004; Pogue, White, and Leeson 2002;). The structure was not completed until 1787, after Washington revised his original plans for the building based on advice he received from Margaret Tilghman Carroll of Mount Clare through her brother-in-law and Washington’s aide-de-camp Tench Tilghman, including plans for a heating system (Dalzell and Dalzell 1998; Martin 1991; John Milner Associates 2004; Pogue, White, and Leeson 2002; Weber 1996). The structure was built of brick with a flagstone floor, and most likely had plastered walls, as that was Mrs. Carroll’s recommendation for insulating the building (Macomber n.d.; Messick, Cohen, and Waite 1993; Trostel 1981). The completed greenhouse stood two stories tall, towering over the Upper, or Flower Garden of which it was a part. It had seven large windows facing south into the Upper Garden on the north side of the estate, and a decorative oval window in the southern pediment. On the south façade there were three full-size rectangular windows on either side of a central arched window flanked by wooden pilasters that support a brick pediment with an elliptical window into the second floor storage area (John Milner Associates 2004; Oehrlein and Black 1992). The southern aspect of these windows allowed for the maximum amount of light to reach the plants during the winter months, as most of the eighteenth-century botanical writers recommended (Leighton 1976; Pogue, White, and Leeson 2002; Sarudy 1998; Woods and Warren 1988). The hipped roof of the Greenhouse was covered with red-painted tiles that made the entire structure
clearly visible over the hedge bordering the western lawn and the main path (Oehrlein and Black 1992).

Figure 2: Washington's original sketch of his plans for the Mount Vernon greenhouse, 1784. Image courtesy of the Mount Vernon Ladies' Association.

In keeping with the advice of friends and eighteenth-century experts on horticulture, Washington also installed a heating system to protect his plants from the worst of the Virginia winters. During the archaeological investigations of the Mount Vernon greenhouse in the early 1950s, the original foundations were exposed. They revealed a system of flues that ran under the floor of the structure from a furnace set in a separate room to the east (John Miner Associates 2004; Pogue 2003). These flues, or ceramic pipes, carried hot air from the furnace under the floor of the greenhouse to increase the ambient temperature inside the main room (Pogue 2003; Woods and Warren 1988).

In addition to the greenhouse itself, there were two single-story brick slave quarters attached to the east and west ends of the building, and the entire complex is referred to jointly as the Greenhouse/Slave Quarter (Oehrlein and Black 1992; Pogue 1988). These slave quarters were added after the completion of the Greenhouse and finished in 1793 (Oehrlein and Black 1992; Pogue 1988). The addition of these two structures made the entire complex approximately 170 feet in
length and about 18 feet wide (Mount Vernon Ladies' Association n. d.). The greenhouse building itself was approximately 42 feet long and 26-28 feet wide\(^1\), so that it projected a full eight feet into the garden beyond the edges of the two slave quarters on the southern façade and was flush with them on the northern façade (Macomber n. d.; Mount Vernon Ladies’ Association n. d.). Access to the greenhouse was through two doors, one on either end of the Greenhouse in the part of the building extending beyond the slave quarters. There were also other doors and windows on the back (north) side of the Greenhouse that allowed access to more storage space and the furnace for heating the greenhouse.

\[\text{Figure 3: South façade of Mount Vernon Greenhouse/Slave Quarter Complex and the Upper Garden.}\]

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\(^1\) There is some confusion about the actual dimensions of the Greenhouse/ Slave Quarter complex. According to one of the early architectural historians hired by the Mount Vernon Ladies’ Association (MVLA) the dimensions of the entire complex reaches 180 feet in length (Macomber n. d.). However, there are other materials in the MVLA archives that claim the entire complex is only 170 feet long and 18 feet wide. For the Greenhouse itself, dimensions are given either as 42x28 feet (according to an insurance plan drawn up in 1803) or 43x28 (according to MVLA archived materials). According to archaeological and documentary studies the Greenhouse was originally designed to project four feet beyond the southern façade of the slave quarters, but this was then changed to eight feet during construction (Oehrlein and Black 1992). Unfortunately neither of the widths provided by these sources adds up to an eight feet projection past the southern façade of the slave quarters – these readings suggest either a ten or twelve foot projection.
The details of the construction and appearance of the George Washington's greenhouse come from the original archaeological investigations in 1950-1951, as well as the original floor plans from the insurance maps in the early nineteenth century, and Washington's own hand-drawn plans (Figure 2) from the time of construction (John Milner Associates 2004; Pogue 2003). Unfortunately, the original structure burned to the ground in 1835, but it has since been reconstructed to Washington's time based on the original plans and archaeological information (John Milner Associates 2004; Pogue 2003; Oehrlein and Black 1992).

*The Mount Clare Orangery*

Another eighteenth-century Chesapeake greenhouse that has seen extensive archaeological work is the one built by Charles Carroll, at Mount Clare, located in modern-day Baltimore, Maryland. Charles Carroll, known as "Charles Carroll, barrister" to distinguish him from the other Charles Carrolls living in eighteenth-century Maryland, was the son of Dr. Carroll of Annapolis, of the Protestant, rather than the Catholic branch of the Carroll family (Clemens 1980; Trostel 1981). Charles Carroll of Mount Clare, a barrister by trade, also served as one of Maryland's delegates to the colonial assembly, as well as a member of the Committee of Safety and of the Provincial Committee of Correspondence for Anne Arundel County. He was connected through his own family and his wife, Margaret Tilghman, to the older generation of Maryland gentry including the other Carrolls, as well as the Bennett and Lloyd families (Trostel 1981; Weber 1986). Mount Clare, originally called Georgia plantation, was built by Dr. Carroll and improved by Charles beginning in 1756 as a summer residence (Comer and Peters 1987; Pogue, White, and Leeson 2002; Trostel 1981). Originally to the west of the city of Baltimore, Mount Clare now sits within the city limits and is open as a house museum (Trostel 1981).
The Mount Clare greenhouse actually went through a number of construction phases in the eighteenth century, but the original building phase had most likely started by 1760, the year in which Charles Carroll ordered a thermometer for the greenhouse to regulate the internal temperature (Brinkley 2004; Comer and Peters 1987; Pogue, White, and Leeson 2002; Pogue 2003; Sarudy 1998; Trostel 1981; Weber 1996). The greenhouse was a mostly rectangular four-bay building of brick with a stone foundation, a hipped roof, and a southern façade with large windows in keeping with the recommended specifications of Philip Miller, Batty Langley, and other botanical experts (Langley 1739; Miller 1752; Pogue, White, and Leeson 2002; Pogue 2003). The dimensions of the original structure measure 24 ft 8in by 26 ft 8in, built into the side of a hill up from which the foundations of the building and the heating system were constructed.

Unlike Mount Vernon, there are no detailed plans that describe the above-ground appearance of the Mount Clare greenhouse, and the closest we can get to its original appearance is by reading the contemporary descriptions of the building from travelers such as Mary Ambler who visited the estate.
in 1770, and from a landscape painting of Mount Clare by Charles Wilson Peale in 1775 (Pogue, White, and Leeson 2002; Trostel 1981; Weber 1996). Peale’s landscape painting is the first depiction of the greenhouse, and it shows a square building, with a hipped or pyramid-shaped roof, and a southern façade with four large windows (Pogue, White, and Leeson 2002). The painting also shows the greenhouse connected to the main house and another outbuilding through walls and hyphens in order to create a symmetrical Georgian landscape popular at the time (Pogue, White, and Leeson 2002). Of course, there is some question of the amount of artistic license that Peale may have taken in his rendering of the Mount Clare landscape, although his depiction seems to generally match the physical remains discovered by archaeologists in the mid-1980s (Pogue, White, and Leeson 2002; Trostel 1981).2

The most detailed information on the Mount Clare greenhouse concerns the heating system used in the structure and the sequence of construction and modification that occurred on the site in the eighteenth and early nineteenth centuries (Comer and Peters 1987; Pogue, White, and Leeson 2002; Trostel 1981). Unfortunately, much of the original stratigraphy was destroyed by construction and landscape modification at the site in the nineteenth and twentieth centuries, but enough remained for the archaeologists to determine the relative dates of construction and match these with the more specific documentary information where it existed (Pogue, White, and Leeson 2002). As with the greenhouse at Mount Vernon, the Mount Clare greenhouse contained a heating system that consisted of flues or pipes laid beneath the floor that carried heat to the main part of the greenhouse from a brick-lined firebox (Pogue, White, and Leeson 2002; Pogue 2003). In fact, there seems to be evidence of two heating systems using this flue system, one in each room of the structure. The firebox in the south room is thought to be original to the first, unmodified greenhouse, while the

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2 This painting, one of two created by Peale for the Carrolls in 1775, now hangs in a private collection (Trostel 1981).
firebox and flue system in the north room of the greenhouse seems to have been added later (Pogue, White, and Leeson 2002; Pogue 2003).

Figure 5: Plan of Mount Clare Orangery based on plan in Weber 1996. Drawn by author.

After the original Mount Clare greenhouse was constructed about 1760, it saw a series of renovations and additions. Again, the stratigraphy is such that any calendar dates for these additions are limited to the information gleaned from the documentary records, but it seems clear from the multiple archaeological investigations that the firebox and flue system in the north room was added later, after 1784, when Tench Tilghman wrote to George Washington describing the Mount Clare greenhouse and its heating system (Leighton 1976; Martin 1991; Pogue, White, and Leeson 2002;
Trostel 1981; Weber 1996). There was an addition to the greenhouse building added in the later eighteenth or early nineteenth century (after 1798, a date based on the 1798 tax listing for Mount Clare) that was built against the south wall of the original feature and extended the original width of the building by another eight feet on the south end – an unusual choice given that any such addition would block most of the natural sunlight coming from the south from reaching the original greenhouse (Pogue, White, and Leeson 2002; Pogue 2003). The addition of a firebox in the northern room also raises the question of later use of the structure, since the northern room was already blocked from exposure to the southern sunlight, so any plants being propagated in that room would miss out on the all-important natural light while in the greenhouse (Pogue, White, and Leeson 2002; Pogue 2003). According to the documentary evidence, a "pinery" for growing pineapples, was added to the original structure in the late eighteenth century, but these tropical fruits would still have needed access to natural sunlight, so it is unclear if that was the intent of this addition, or if there was another area of the structure used for this purpose. As the various names for these structures in general, and especially at Mount Clare, including “greenhouse,” “orangery,” “hot-house,” “fernery” and “pinery” were used interchangeably to describe these buildings, it is also possible that the documents could be referring to an entirely separate structure, or to a new function for the original one (Pogue, White, and Leeson 2002; Pogue 2003).

*The Greenhouse at Green Spring*

The greenhouse at Green Spring has a complicated history of misinterpretation associated with it, perhaps due to the fact that while it has been investigated archaeologically, it still remains something of a mystery (Brinkley 2004). The Green Spring plantation, located only a few miles from Jamestown, Virginia, was first the home of Governor Berkeley in the mid-to-late-seventeenth
century, and then became home to successive generations of Ludwells and Lees from 1680 through the early nineteenth century (Brinkley 2004). The first Ludwell to live at Green Spring was Philip Ludwell II (1672-1727), who inherited along with the house, the wealth and position of one of the more important men in the Virginia colony, which placed Ludwell II and his heirs (including Ludwell III, the likely builder of the greenhouse) among the first generation of colonial Virginia gentry (Brinkley 2003; Norkus 1982).

Such a social, political, and economic position as one of the first families in Virginia makes the Ludwells excellent candidates for potential greenhouse builders on their country estate at Green Spring. However, while there was early archaeological evidence of a possible greenhouse structure discovered by Louis Caywood in the 1950s, it was originally thought that this structure must relate to Berkeley’s seventeenth-century occupation of the site, given his well-known love of gardens and familiarity with the latest trends in English garden design (Brinkley 2004: viii; 40). More recent excavations and documentary study suggest, however, that this building is actually an eighteenth-century structure, mostly likely built by Philip Ludwell III sometime between 1725 and 1740, making it one of the earlier examples of an eighteenth-century greenhouse in the Chesapeake (Brinkley 2004: 40; 170). Certainly the documentary evidence supports the likelihood of the Ludwells having a greenhouse on their property, as there are numerous mentions of Philip Ludwell importing exotic seeds from overseas and gifting oranges and other rare fruit to friends and acquaintances on various occasions (Brinkley 2004).

The original excavation undertaken in 1954-1955 revealed a rectangular structure 15 feet wide and 45 feet long, made of brick with plastered walls situated in the corner of the Ludwell-period formal garden that contained a square, cast-iron plate in one corner that most likely would have served as a platform for a warming stove used to regulate the internal temperature of the structure
rather than a firebox and flue system as seen in the greenhouses at Mount Clare and Mount Vernon (Brinkley 2004: viii; 40; 143). There was also the remains of an internal division, a brick wall built off-center that separated out a smaller room in the western end of the structure, that may actually be a later addition, serving as a storage space for greenhouse and garden paraphernalia, or possibly the location of a later heating system added to replace the stove in the main room (Brinkley 2004: viii). The greenhouse at Green Spring originally had a brick floor, which would have been in keeping with the recommendations by leading experts at the time, but this floor was covered over with sandstone paving stones at a later date for unknown reasons (Brinkley 2004: 143).

Figure 6: Green Spring Plantation, James City County, VA. Conjectural elevation sketch of the Philip Ludwell III-era greenhouse/orangery (circa 1730), based largely on archaeological excavations conducted at Green Spring Plantation, James City County, VA; drawn by historical landscape architect and author, M. Kent Brinkley, RLA, FASLA; and taken from his research report, The Green Spring Plantation Greenhouse/Orangery And the Probable Evolution of the Domestic Area Landscape. Yorktown, VA: The Colonial National Historical Park, National Park Service, United States.
Unfortunately, less is known about the aboveground appearance of the building, as it now exists only in ruins, but a late-nineteenth century (1897) photograph of the (less) ruined building, along with the documentary information, is enough to suggest that this structure was most likely a greenhouse built and used by the Ludwells in the first half of the eighteenth century. The photograph and the archaeological material indicate at the very least that this building was heated and had significant windows, most likely “glazed triple sashes in the masonry openings to the south” (Brinkley 2004: viii). The photo also provides some information about the structure’s roof, which appeared to be a hipped or A-frame made of either slate or wood, which would be in keeping with the style of the later greenhouses at Mount Clare and Mount Vernon (Brinkley 2004: viii). While this similarity in roof design and the other details are not enough to state for certain that this structure was the Ludwell-period greenhouse, all the evidence together suggests that this building was most likely used for this purpose throughout Philip Ludwell’s tenure at Green Spring (Brinkley 2004).

The Calvert House Orangery

The earliest known eighteenth-century Chesapeake greenhouse, that of the Calverts, is somewhat of an anomaly, as it was built not as part of a formal plantation landscape, but as an adjacent structure connected to a townhouse in the heart of Annapolis, Maryland colonial capital, with which it shared a wall (Yentsch 1990; 1994). There are a number of plausible explanations for this deviation from the usual pattern of eighteenth-century Chesapeake greenhouses, beginning with the fact that any structure of this type built in town would be restricted by the amount of space of a town

Department of the Interior, 2004, p. 144, Fig. 8-14A. Sketch is used here with express permission granted by the artist & author.
(Research report can be found posted online at <http://www.nps.gov/history/history/online_books/brinkley/colo.pdf>).
lot, and even if that lot was generous in size, it was nowhere near as spacious as a typical eighteenth-century plantation owned by the first circle of Chesapeake gentry – and the Calverts were certainly of the first circle.

The Calvert family was in fact, the first family of Maryland, as Calvert was the family name of the Lords Baltimore, the Proprietors of Maryland for a significant amount of its colonial history, and the Calvert house site in Annapolis was the home away from home for the Calvert men while in Maryland, including two royal governors in the first half of the eighteenth century (Yentsch 1994). While in Maryland, these governors, and other Calvert family members would have been extremely conscious of the necessity of keeping up appearances appropriate to their rank and social position in England, and the construction of a greenhouse or orangery on a town lot in the midst of formal gardens would certainly have achieved such an effect (Yentsch 1990; 1994).

The Calvert greenhouse was most likely constructed under the watchful eye of Benedict Leonard Calvert, a known garden enthusiast, who also seems to have been responsible for the major renovations to the Calvert house grounds during his time in the house (Yentsch 1994: 99). Based on the archaeological investigation of the orangery and the surrounding landscape, including holes left by the removal of fence posts in order to make room for the orangery, the construction of the building has been dated to 1720-1730 (Yentsch 1994: 116). This date range places the construction of this building possibly during Charles Calvert’s term as governor (from 1719/20-1726-7), but most likely during the time when Benedict Leonard Calvert was the resident governor of Maryland (1726/7- 1731) (Yentsch 1994:13).

Once constructed, the Calvert orangery did not last very long, as it was demolished in 1765 to make room for an addition to the house, and subsequent construction and destruction on the site erased most of the remaining evidence (Yentsch 1990: 172; 1994: 118). While this destruction left
no traces of the aboveground appearance of the orangery, it did not penetrate the belowground structures, so the archaeologists investigating the Calvert site in the mid-1980s found, under the floor of the later addition, a mostly intact hypocaust heating system originally designed to heat the since-destroyed orangery (Yentsch 1990: 170-172). The hypocaust heating system is unique in the Chesapeake region, as it is based on Roman hypocausts, but unlike the ancient examples, the Calvert orangery is a closed system of circulating hot air (Yentsch 1990; 1994). This unique construction does follow the same general principles as the system of flues used in later Chesapeake greenhouses, however, in which hot air and ash from a nearby firebox was forced down and through a vaulted brick tunnel built that winded its way under the floor of the orangery to distribute heat to the plants resting on the wood above (Yentsch 1990: 172-175; 1994: 116). This vaulted chamber was 2.5 feet wide and 1.5 feet high, and connected to an apse-shaped firebox that was located in the southeast corner of the foundation that had an upward-sloping, narrowed brick path leading outside to the north to allow for access to the firebox from outside the structure (Yentsch 1994: 116, 120). The foundation of the hypocaust, also of brick, was 10 feet square, 1.5 feet deep, and walls of usual thickness (between 8 and 14 inches) except for the southern wall, which was a full 1.5 feet thick, indicating that it supported a substantial structure (namely, the orangery) (Yentsch 1994:116).

While there is not enough evidence, archaeologically or otherwise, to indicate the aboveground appearance of the Calvert orangery, or even the overall dimensions of the finished building due to its destruction in the later eighteenth century, there were some important architectural and construction details that the archaeologists were able to unearth, including the fact that the greenhouse had a wooden floor, and connected to the main house via an inner door rather than an exterior one (Yentsch 1994: 118). This inner access to the greenhouse indicated that the designers of this structure, whether Charles or Benedict, were familiar with the latest expert gardening advice from
England, which recommended that the doors to an orangery lead to an interior space so as to prevent any cold air from entering the inner space where the plants were kept (Bradley 1724; Yentsch 1994: 120). Other archaeological evidence indicates that there was another door in the wall of the main house that probably led to a terraced side yard filled with planting beds and where the orange trees and other orangery residents would be displayed during the summer months (Yentsch 1994: 118-119). Based on documentary evidence of other greenhouses from this period in England and non-excavated examples in the Chesapeake, Yentsch believes that the aboveground appearance of the Calvert orangery would not have resembled the more ornate later Chesapeake greenhouses, such as the ones at Mount Vernon or Wye House, but would most likely have been about 12 feet high constructed of a combination of brick and wood, with windows that measured 3 feet in height and 5 feet in width (Yentsch 1994: 120). She argues that this orangery would have had fewer windows than the later versions, owing partly to the high price for glass and partly to imperfect understanding of the need for natural sunlight (Yentsch 1994:120).

Figure 7: Plan of hypocaust foundation of Calvert orangery and original walls of main building (ca. 1727). Plan based on published drawing from Yentsch 1990: 174, figure 11.4. Drawn by author.
The Wye House Orangery

The greenhouse at Wye House plantation, located in Talbot County, Maryland, on the Eastern Shore, is the only extant example of an eighteenth-century greenhouse in the Chesapeake region and has therefore garnered a fair amount of attention from garden enthusiasts and architectural historians over the years (Britz 1996; Forman 1967; 1968; Pogue 2003; Sarudy 1998; Woods and Warren 1988). Originally built in 1740, the building still stands today as a testament to the majestic appearance of these structures on the eighteenth-century landscape, and was still used to house orange trees at least through the 1960s (Forman 1967:70). The fact that the Wye House orangery still stands is both a blessing and a curse, as it means that certain details, such as the aboveground appearance – which has not been modified since its original construction – can be recorded in intimate detail, but other details, such as the heating system, require more work to understand.

The Wye House orangery, as it is called, like the Mount Vernon greenhouse, is actually a complex rather than a single building that was built and modified in two distinct phases by two successive generations of Edward Lloyds (III and IV) (Alevizatos 1999; Forman 1967). Of all of the planter gentry of the colonial Chesapeake, the Lloyd family of Wye House are one of the best known, due to their involvement in the highest ranks of Maryland social, political, and economic life from the late seventeenth-century onward, and if any family had the means to construct a greenhouse, it would be them (Alevizatos 1999; Clemens 1980).

The central portion of the orangery is the oldest section of the building, originally built in 1740 by Edward Lloyd III. It stands two stories tall, and was built of brick and stucco that was then treated to look like stone, though Henry Forman thinks that the original appearance of this two-story central section may have been left as brick, and that stucco was added and the window sashes were widened later during the other modifications when the second story was converted to a billiards room.
This original section is roughly square, measuring 32 feet long by 30 feet wide. There are four large, square-headed picture windows on the ground floor of the southern façade that stand 12 ft 8 in high by 6 feet wide, and open up completely for easy access to the plants inside (Formán 1967: 70; Woods and Warren 1988: 82-83). Above these windows are wedge-shaped wooden boards that were carved and painted to resemble ashlar stone blocks, which “have been applied and actually cover up, the actual stone beams of the windows” (Forman 1967: 71). There are four windows directly above these large first-floor ones that look into the second floor, which seems to have had multiple functions in the eighteenth century (Forman 1967: 70-71). The floor of the central section was made of brick 8 inches square and 2 inches thick and laid on sand, though not much of the original was left at the time that Henry Forman undertook the detailed survey of the building for the Historic American Building Survey in the 1960s (Forman 1967:70). The walls were plastered first with hard clay and then scratched to hold the white plaster on both floors, indicating that these rooms were meant to be seen (Forman 1967: 75). Behind this main room was another room with a dirt floor and a fireplace that was most likely the heat source for the original orangery, and may also have been used for storage, along with the second floor that was later converted to a billiards room (Alevizatos 1999; Forman 1967: 70).

In the 1780s, two single-story hothouses were added to the east and west ends of the existing central section. These wings were also built of brick and stucco that was treated to look like stone to match the original building, and each wing had three floor-to-ceiling windows on the south side to match the ones on the ground floor of the original structure (Alevizatos 1999; Forman 1967; Woods and Warren 1988). With the completion of these two wings the final orangery became “the most perfect example [of its kind] of the [Georgian] period” (Forman 1967; Henry 1947; Harrington 1980). The final dimensions of the structure reached over 85 feet in length and 30 feet wide (Forman
1967; Pogue, White, and Leeson 2002; Woods and Warren 1988). Access to the orangery was through the picture windows on the south façade as well as through a back entrance on the ground floor and a staircase (now gone) from the outside that was constructed later in the eighteenth century (Forman 1967; 1968).

![South façade of Wye House Orangery](Image)

While the still standing Wye House orangery allows for a number of architectural elements to be recorded in minute detail, it does pose something of a problem for accessing the underground heating system used to warm the plants in the orangery in the eighteenth century. However, Forman and his team prevailed, and they were able to record a number of details about the heating system without aiding the deterioration of the orangery (Forman 1967: 71-75). Like other eighteenth-
century Chesapeake greenhouses, the Wye House orangery employed a flue system with a furnace that sent hot air circulating around the inside of the main rooms where the plants were kept. Forman believes that this heating system predates the remodeling of the estate, as it runs through the central portion of the orangery and was then expanded to heat the additional rooms once they were built (Forman 1967: 73), and if that was the case, then the existing furnace was not the original heat source, since it was discovered in the shed room off the eastern wing. The furnace was discovered in the dirt floor of the east shed room sunk into floor. It was built of unmortared brick, 7 feet 6 inches long by 16 inches wide, with an inner height of 3 feet (Forman 1967: 71). This furnace appears to have been the only heat source for the entire structure, as it is connected to one continuous series of ducts that run the entire perimeter of the building (Forman 1967: 71-72). These ducts were found by accident, as the architects caught a glimpse of them in the northern wall, and then chased out the pattern in which air was sucked through a series of pipes and ceramic ramps that elevated it along the northern wall and around the floor on the other three sides of the building (Forman 1967: 72). Forman remarks on a large, regular hole, 3 feet high and 29 inches wide, in the back wall of the eastern "wing" of the original central section of the orangery that he believes may have been the access point for adding kindling to the original furnace, as yet undiscovered, that warmed the earlier phase of the orangery (Forman 1967: 73-75).
Figure 9: Sketch of the Wye House Orangery's heating system by H. C. Forman, 1963. Library of Congress, Prints and Photographs Division, Historic American Buildings Survey, HABS MD,21-EATO.V,2A.
The Meaning in the Mortar: The Symbolic Role of Greenhouses on Eighteenth-Century Chesapeake Estates

As the successful Chesapeake planters became more so throughout the eighteenth-century they found new outlets for expressing their prominence. Often this took the form of elaborately landscaped grounds meant to show the world – or at least those visitors and neighbors who stopped by – their success. As Mark Leone (1984; 1988) has argued, these gardens were symbols of power and social prestige as well as a physical manifestation of a family’s position in the colony, and greenhouses were extensions of that prestige. If formal gardens were not enough of a statement about the landowner’s wealth and status then a greenhouse constructed of imported materials, filled with exotic imported plants and staffed by imported labor from Europe and Africa epitomized this physical representation (Leone 1984; 1988; Yentsch 1990; 1994). Yet, even more than a badge of social distinction, these greenhouses and the gardens that surrounded them were badges of economic success. They were physical representations of their owners’ ties the prevailing economic system in which their relationships with London and with each other allowed them to import all the luxuries they desired, and to use these luxuries as visual markers of their economic, social, and political distinction as the ruling colonial elite. Greenhouses, then, were one example of this visual distinction, as these structures not only implied that their owners could afford to import the latest luxuries, but also that they could in fact afford to import an entirely different climate by importing and then cultivating exotic plants that had no place in the Chesapeake ecosystem. The success of this cultivation, however, depended as much on these and other imports as it did on the visibility of these structures to others, and their ability to communicate their meaning to those who would understand it: i.e. their fellow elites. With
this recognition of the building’s purpose came recognition of the building’s owner’s 
dependence on the established economic, social, and political system that brought them, as 
members of the established gentry, the greatest rewards from both agricultural and 
entrepreneurial activities. These five greenhouses examined in the previous chapter then, 
stood as symbols of past and present status for the colonial Chesapeake elite, in which great 
wealth tied these families to the land in an imitation of the English gentry, and therefore 
made greenhouse owners the “most” elite and communicated to other members of their class 
their assumption of gentry status on the English model.

The five greenhouses built and used in the Chesapeake region during the eighteenth 
century that are examined here stand as physical representations of the prevailing economic 

system and of those families and individuals who derived the greatest benefits from its 
organization. Their close ties to London tobacco firms allowed them to acquire the finest 
luxuries, and the restructuring of the system in the late seventeenth and early eighteenth 
century gave them new opportunities to expand through entrepreneurial activities (Clemens 
1980; Land 1965; 1967; Papenfuse 1975; Price 1964; Walsh 1999). Almost everything 
necessary for constructing and maintaining a functioning greenhouse on an eighteenth-
century Chesapeake plantation had to be imported, beginning with the original ideas and 
plans (Hix 1981; Sarudy 1998; Woods and Warren 1988). Many Chesapeake elites learned of 
the latest trends in London from their friends and business associates in the tobacco firms, 
including the fascination with exotic plants and the prestige that came from producing such 
specimens in a climate entirely unsuited for that purpose (Brinkley 2004). The Lloyds of 
Wye House, in fact, were related to a partner in one of the most successful London tobacco 
firms, while others, like Charles Carroll, may have brought such ideas back from their
extended stays abroad (Clemens 1980; Papenfuse 1975; Trostel 1981). By the mid-eighteenth century many of the same British authors whose works on husbandry, flora, and architecture were so revered by Chesapeake planters, such as those of Philip Miller and Batty Langley had also offered their opinions, designs, and recommendations on the best way of constructing and heating greenhouses – advice that those Chesapeake colonists could only get through access to these publications and their experience of their friends (Alevizatos 1999; Brinkley 2004; Leighton 1976; Martin 1991; Pogue, White, and Leeson 2002; Pogue 2003; Sarudy 1998; Stetson 1946; Woods and Warren 1988). Philip Miller’s *Gardener’s Dictionary* (first published in 1721) was a popular volume in both Britain and the colonies, as were other volumes, including John Abercrombie’s *The Hot-House Gardener, or the General Culture of the Pine-Apple* (1789), and works by Richard Bradley, William Marshall, and Charles Marshall (Alevizatos 1999; Stetson 1946).

Importing the ideas and plans for a greenhouse into the eighteenth-century Chesapeake was just the beginning, however. While some of the basic construction materials could be found locally, the most important and distinctive part of a greenhouse – the windows – meant that large quantities of window glass had to be imported as well, as there was no local manufacturer of window glass.4 Even the Calvert orangery, which, according to the excavators would not have had full-length windows like those at Mount Vernon or Wye

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4 Window glass shows up in numerous ads in the *Virginia Gazette* from the eighteenth century as an item recently imported from London and being sold at various shops throughout the colonies, but there does not seem to have been any local competition. American manufacturing was very tightly regulated by Britain, particularly in the second half of the eighteenth century, and window glass remains an imported item throughout this period (Trostel 1981; *Virginia Gazette*, p. 2, col.1, 19 April 1770 [Rind]). There was a bottle-glass factory in Pennsylvania in the later eighteenth century, and a proposed one mentioned in the *Virginia Gazette* from 18 April 1766, but as this is the only mention of this factory, it is hard to judge its impact on the colony’s glass consumption (*Virginia Gazette* p. 3, col. 1, 18 April 1766 [Purdie and Dixon]).

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House (Figures 3; 8), would still have been recognizable as having more windows than normal eighteenth-century rooms, and the expense duly noted by witnesses (Yentsch 1994: 120, 122).

Not only was the necessary window glass fragile and expensive, it was also heavily taxed, particularly after mid-century when the Stamp Act and other restrictive measures were passed (see Virginia Gazette ads, also Hix 1981; Vleeschouwer 2001; Woods and Warren 1988). Glass, after all, was a luxury like any silk or piece of fine jewelry that the colonists desired for the message that it sent about their wealth and status in the community, both within and between the various social groups. Glass actually functioned as a kind of “necessary luxury” in smaller quantities, as most houses and even some slave quarters had glass windows by the eighteenth century (Kelly 4/2/2008). But, like Chesapeake society itself, it was the distinction between the amount and quality of glass that separated the elite from their fellow planters. There was considerable difference, after all, between acquiring glass for one’s house or shop and the importation of large amounts of glass to face an entire façade of a wholly unnecessary building. Such an action was a statement that could not be ignored by any casual observer, and one that perhaps echoed even more forcefully in the ears of other elites who were familiar with all the more subtle implications of the expense and message of such a display.

Even the professionals hired to care for the contents of these greenhouses — not to mention the contents themselves — were usually imported. Many of the gardeners in charge of greenhouses on Chesapeake estates were skilled men trained in Britain and brought over as indentured servants specifically to care for the gardens and the exotic plants housed in these structures (Brockway 1979; Hood 1991; Yentsch 1994: 122). These men would be
charged with overseeing a number of enslaved individuals — whose presence again reinforced the connection between tobacco, elite Chesapeake planters, and international trade under the prevailing economic system — who did much of the daily work involved in cultivating the exotic plants kept in these structures (Brockway 1979; Hood 1991; Malone 1998). Charles Carroll of Mount Clare, for instance, wrote to his British agents to find him a suitable gardener to look after his orange and lemon trees in 1760 and again in 1768, and many Chesapeake planters — including George Washington at Mount Vernon and Edward Lloyd IV at Wye House — used a combination of indentured servants and slave labor in their greenhouses (Sarudy 1998; Trostel 1981). The presence of slave quarters attached to the Mount Vernon greenhouse attests to the relationship between labor and greenhouse specialists.

Added to all of this was the expense of acquiring the plants to outfit one’s greenhouse that could cost more than the construction materials or the necessary labor (Yentsch 1994: 122). The most popular specimens seem to have been citrus plants such as orange, lemon, and lime trees that were often shipped as young trees from the Mediterranean and Caribbean regions where they grew naturally or were raised for export (Leighton 1976; Sarudy 1998; Scora 1975; Vleeschouwer 2001). As exotics, these plants had to be shipped from warmer climates at great expense, often taking circuitous routes due to the necessity of using British ports (Leighton 1976; Letter to the Virginia Gazette editor Alexander Purdie from “An American,” March 15, 1776). Even those owners who received gifts of orange and lemon trees from their fellow colonists had to arrange — and sometimes pay — for their transportation, which only added to the prestige of these items and their connection to the Chesapeake tobacco economy in the minds of the region’s residents (Leighton 1976; Sarudy
In 1789 George Washington describes in a letter his anxiety about the transportation of some citrus trees that Margaret Carroll sent him, outlining the explicit instructions to be given to the captain of the vessel charged with bringing the plants from Baltimore to Mount Vernon (Leighton 1976; Martin 1991; Trostel 1981; Weber 1996). These greenhouses stood as physical reminders of the elites' investment in and dependence on the prevailing social and economic system. The ability to design and control the climate within a greenhouse and grow what others cannot mimics this economic situation in which the elite planter-merchants derive the greatest benefit from a system in which the entire region is involved, and communicate the success of their owners through the display of imported luxuries, the epitome of which is an entirely imported climate with tropical fruit.

One of the most important functions of these greenhouses was the symbolic function that these buildings played and the messages they sent to other Chesapeake residents. While anyone viewing a greenhouse would be immediately aware of the obvious wealth and economic success claimed by its owner, there are other, more subtle messages being sent by these buildings in terms of who is building them, where they are being built, and the relative timing if the construction. These other messages seem to be part of an internal dialogue within the gentry in which certain individuals – those building greenhouses on their estates – are claiming to be not just elite, but "English" elite, with their ties to England through commercial interests balanced by their wealth in land – like the established English gentry – and their construction of an English symbol of elitism: the greenhouse.

The idea of an internal dialogue comes from Chris Matthews' (1998) analysis of the Georgian architecture of eighteenth-century Annapolis, which he interprets as specifically designed to communicate and reinforce the ideology of the elite (Matthews 1998). Matthews
hints that this communication was focused inward, between members of the Maryland planter gentry, as much as it also communicated with the larger Annapolis population about the social, political, and economic positions of the elite, an argument that draws on the body of work by Leone and his associates (Matthews 1998: 254-55). Matthews does not expand on this idea of internal communication in his subsequent analysis, focusing instead on the ideological interpretation of two eighteenth-century Georgian townhouses, but his idea is intriguing and in fact makes a better explanation for the construction of Chesapeake greenhouses than Leone’s (1984) model in its original form.

As discussed in an earlier chapter, Leone’s interpretation of the Paca garden raises a number of issues for other archaeologists, and one of the chief objections is that Leone makes no room for other, non-gentry actors even though he implies that the garden’s message is aimed at more than one social group (Beaudry, Cook, and Mrozowski 1991; Hall 1992; 2000; Hodder 2003; Leone 1984). The same objection would also apply if one were to use Leone’s model and apply it without modification to Chesapeake greenhouses, but Matthews has provided — perhaps unintentionally — a new slant on this idea: if these messages were being constructed by the elite using methods and symbols of expression understood by them then it is possible, especially in the construction of greenhouses, that the elite of the Chesapeake are in fact addressing each other in an internal dialogue about power and status, rather than the general populace. Certainly those most familiar with the symbolic language used to communicate ideas of power and status through visual display would be the members of the elite who employed such symbols themselves, and some of the more subtle forms of such distinction would be most likely directed from one elite to his or her social group in an effort to draw internal distinctions between members of the planter gentry. This is not to say that
such messages were not understood by those outside the gentry group; only that such messages were not necessarily aimed at the larger public, as the more ostentatious displays of architecture and dress were enough for the elite to feel that they were distinct from the rest of the populace. While greenhouses in one sense fall into this category of ostentatious displays— they are, after all, hard to miss— the message that these buildings send goes beyond one of general wealth and distinction to claim to an internal audience of other elites that the owners are distinct from their fellows because they are akin to the “real” English landed gentry, who also had the time, money, and inclination to indulge in constructing greenhouses to raise exotic fruit.

*The Orangery at Mount Clare*

The greenhouse at Mount Clare, built around 1760 by Charles Carroll, Barrister on his summer estate outside of Baltimore connected Carroll back to the landed gentry of England even though neither he nor his father was a full-time planter in the tradition of some Chesapeake gentry families (Trostel 1981). Charles Carroll of Mount Clare actually made his name as a barrister in Annapolis in the middle decades of the eighteenth century, while his father, Dr. Carroll, made his reputation and wealth from a number of different business ventures (Papenfuse 1975; Trostel 1981). Carroll senior had enough capital and social standing from his family connections and earlier business ventures that he was able to invest in large amounts of land, including a tract near the modern city of Baltimore originally called Georgia Plantation (Trostel 1981). With these landholdings, Dr. Carroll made money from the commercial production of tobacco as well as other entrepreneurial activities, including investing in one of the earlier ironworks industries in Maryland, and was able to leave his son
significant holdings in land and other enterprises at the time of his death (Papenfuse 1975; Trostel 1981). Charles the barrister was then able to reap all of the benefits of being wealthy in the "English" way with a landed estate to his name, a pattern with which he would have been familiar having received his law education in London among the sons and relatives of the English elite (Trostel 1981). While in England, Carroll would have come into contact with the landed English gentry, and through them been exposed to the fashion of greenhouses as they existed on English country estates. Such structures were the epitome of wealth and privilege in England, as they were associated with royalty (both Louis XIV of France and Queen Henrietta Maria of England had extensive private greenhouses) as well as with the most elevated and successful English gentry (Hix 1981; Lemmon 1963; Pogue 2003; Sarudy 1998; Vleeschouwer 2001; Weber 1996; Woods and Warren 1988; Yentsch 1994).

No doubt such structures and their symbolic representation of wealth and privilege of the most important families in England impressed Carroll, for on the death of his father and his inheritance of Georgia Plantation in 1756 he immediately began work on a mansion house and surrounding grounds, including a greenhouse (Trostel 1981; Weber 1996). Carroll’s time in England and his years as an attorney in Annapolis and representative to the Assembly would also have brought him into contact with the Calverts, as the resident relatives of the Proprietor of Maryland, and with the Lloyds of Wye House, one of the most prominent families in the region, to whom he was related through both his father and his wife (Trostel 1981; Weber 1986; 1996). Both of these families had important connections to England, moved in the highest ranks of Maryland society and politics – and both of them had greenhouses. Carroll, having land but working primarily as a lawyer rather than as a planter-merchant and familiar with the importance of connections to high society, may have decided
to erect a greenhouse to reinforce his familial and business connections to the most prominent families in Maryland and prove that he, too, belonged in the first circle of Maryland gentlemen. Carroll’s plantation of Mount Clare, his wealth from inheritance and trade, and his marriage to Margaret Tilghman, daughter of an old, established Maryland planter family (Alevizatos 1999; Miller 1993) may have been enough to qualify him as one of the gentry, but it was only his construction of a greenhouse along the lines of ones seen in England and on the properties of the Lloyds and the Calverts that could have suggested to his colleagues that he truly moved in the upper echelons of Chesapeake elite and aspired to the status of real, English landed gentry.

The Greenhouse at Green Spring

Philip Ludwell III’s greenhouse at Green Spring sends a similar message to his fellow Virginia gentry as Carroll’s does to his Maryland colleagues. The Green Spring greenhouse is one of the earlier examples of eighteenth-century Chesapeake greenhouses, built between 1730 and 1740 when the only other known greenhouse in the Chesapeake was the one at the Calvert house in Annapolis, MD (Brinkley 2004; Yentsch 1990; 1994). While it is entirely possible that Ludwell was familiar with the Calvert orangery – the self-proclaimed Chesapeake elites, after all, had a much wider social network than other groups (Lee 1988; Walsh 1988) – it is also likely that his decision to build a similar structure at Green Spring was influenced by Governor Berkeley’s legacy at his former residence and the link to the English elite implied by that connection. There is some suggestion from documentary sources and an older plan of the Green Spring mansion that Berkeley may have had an earlier, seventeenth-century greenhouse attached to the original mansion (Brinkley 2004).
Berkeley was known for implementing the latest English gardening trends at Green Spring while he was in residence, and a greenhouse, or “nursery” as it is marked on the plan, would not have been out of place (Brinkley 2004).

By the time Philip Ludwell III was master at Green Spring, the time may have been ripe to remind his fellow elites about his connection to Berkeley and all that that connection implied. Ludwell III was connected to the Berkeley family by marriage, as the first Ludwell married Berkeley’s widow, and enough time had passed since Bacon’s Rebellion (1676) that Berkeley’s tarnished prestige, at least in the eyes of the colonists, had faded from memory. By constructing his own greenhouse at Green Spring Ludwell resurrected Berkeley’s reputation as a foremost authority on English taste and fashion, and while an exact replica of Berkeley’s gardens and outbuildings would be unfashionably out-of-date, an updated version that drew on the latest trends would reinforce the Ludwell family connection to Berkeley, and by extension, to the English landed gentry of which Berkeley was a part (Brinkley 2004).

As the Green Spring greenhouse was the only known greenhouse in Virginia at the time, Ludwell truly set himself apart from the rest of the Virginia gentry by constructing a structure that emphasized his family connection to Berkeley as well as his social connection through his wealth, land, and his adoption of the latest trends. Such accoutrements did not just signal to the rest of the Virginia elite that the Ludwells were among the first families in the colony; it also said specifically that they were connected to the epitome of elite status, the English landed gentry.
The Calvert House Orangery

Even though the Calvert orangery does not seem, at first glance, to fit the pattern of an imposing structure sending a specific message by its placement in a prominent place on a rural plantation its anomalies of form and location actually underscore the transmission of the same message. The Calvert orangery is, so far, the earliest known example of a greenhouse in the Chesapeake region, having been built by one of the two Calvert royal governors between 1720 and 1730 (Yentsch 1990; 1994). Unlike the other eighteenth-century elite residents of the Chesapeake, the Calvert men who came to govern the colony on behalf of Lord Baltimore, the Proprietor (and a Calvert as well) never intended to stay permanently, and so had no real interest in constructing large plantation homes as symbols of their wealth and power (Yentsch 1994: PAGE). Therefore, the only place for them to construct a greenhouse would be on the town lot of their temporary residence in the capital city of Annapolis. But why, if neither of the possible builders of the orangery intended to stay, why build a greenhouse at all? This greenhouse was a symbol of the wealth and statue of the Calverts and their physical connection to the landed English gentry.

In the Calverts’ case at least, this connection was very real. Benedict Leonard Calvert, the most likely builder of the Calvert orangery, was actually the younger brother of the fifth Lord Baltimore, so anything that Calvert did that was out of the ordinary for other colonists could be taken as a symbol of that connection (Yentsch 1990; 1994). Benedict Leonard Calvert’s experience of growing up in the home of an English Peer, being educated at the highest level, and having spent extensive time in Europe already placed him beyond the reaches of his fellow Maryland residents, but very few of these attributes lent themselves to visual display, which was the preferred medium in which to claim superior wealth and status. An orangery,
on the other hand, was a visible symbol of superior status, and one that proclaimed loud and clear that the Calverts were no mere Chesapeake planters, but connected to the highest level of English landed gentry because they were the only family in the Chesapeake with an orangery at this time.

The appearance of the Calvert orangery also attests to this real – as opposed to the more imagined – connection to the English landed gentry because it is not ostentatious or imposing like the later Chesapeake examples. Rather, the Calvert orangery was small and dark, with more windows than a typical house, but nothing on the scale of the Wye House orangery built only ten to twenty years later (Yentsch 1994:122). Yentsch suggests that this is due primarily to the imperfect understanding of the need for adequate sunlight (1990: 177; 1994: 120), but it is also possible that Benedict Leonard Calvert did not feel the need to embellish his orangery in order to stress his connection to the English landed gentry because his connection was real; he was certain of it, it could be proved, and it was unnecessary to construct elaborate structures at a temporary residence just to prove to the colonists something they should already know. The simple fact of having an orangery, even if it was small and dark, was enough to set the Calverts apart from the rest of the Chesapeake gentry, and to proclaim loud and clear their close connection to the English elite and their knowledge of the latest trends. As the Calverts were the first to build an orangery in the Chesapeake it may have been through them that these buildings became synonymous with the English landed gentry, and that the other four greenhouses explored in this study took their cue from this first one as the one visual cue that could link a family to the ideal of elite status: the English gentry.
The Wye House Orangery

The Wye House orangery built in 1740 by Edward Lloyd III and modified in the 1780s by his son Edward Lloyd IV, is perhaps the most telling example of this internal communication symbolized by these five eighteenth-century greenhouses, and can be seen in the timing of the constriction and modification as well as the placement of this structure on the Wye House estate. In 1740 when the original, two-story central portion of the Orangery was built it was exactly in line with the main house, and it dominated the formal gardens and landscape areas that led from the back of the main house to the river landing (Alevizatos 1999; Forman 1967). While the Orangery could not be seen from the main road the gardens and structure could be seen from the river landing, which was the most efficient means of travel in the late-seventeenth- and early-eighteenth-centuries in the Chesapeake region (Middleton 1953; Walsh 1988). Therefore, the majority of travelers and visitors would have recognized the prominence of the Lloyd family by sighting the greenhouse, even if those visitors were only workers stopping to load and unload tobacco and other goods. But if those visitors were members of the elite, they would also recognize in the existence of an orangery, the Lloyds' claim to move in the same circles as the Calverts – and by extension claim a similar connection to the English landed gentry. No doubt the Lloyds felt they had every right to this claim as Edward Lloyd III and IV were heavily involved in the Maryland colonial government, serving on the Governor's Council, which already set them apart from the other elite who were elected representatives of the colonists to the Assembly. The Lloyds' connection to England was also more intimate than many other Chesapeake elites could claim, as they were related to an important London tobacco merchant, one of the most
important and successful tobacco firms in London at the time (Alevizatos 1999; Clemens 1980; Forman 1967; Papenfuse 1975).

However, the social and cultural shifts leading up to the and following the American Revolution affected the Lloyd family's standing, and can be clearly seen in the changes made in the physical appearance of the Wye House estate. Edward Lloyd IV, son of the builder of the original, two-story Orangery that now forms the central portion of the existing structure, added a single-story hothouse wing to the east and west ends of original building around 1780 – the same time as he rebuilt much of the main house and grounds and reoriented their geometric alignment toward the main road (Alevizatos 1999; Forman 1967; Lambert 1987; Henry 1947). The roof of the main house was also raised another story, with the overall effect of these changes being that the Orangery was now hidden from view of the main road, and could only be partially glimpsed from around the side of one of the dependencies flanking the main house (Alevizatos 1999; Chesney, unpublished paper 2007; Forman 1967). The focus of this new design of the house and grounds was now on the land approach to the house, which reflected the increase in land travel in the later eighteenth-century (Walsh 1988), and the Orangery, while still prominent, was only prominent in relation to the backyard of the Wye House plantation, as it could only be viewed in its entirety from the back porch of the main house – and even that view was cock-eyed, as the main house and the Orangery were no longer in line with one another in the accepted geometric patterns employed on most Chesapeake estates at this time (Alevizatos 1999; Forman 1967; Leone 1984; 1988). This shift in emphasis might at first seem to indicate that the Wye House Orangery no longer stood as a physical symbol of the Lloyds' investment in the prevailing regional economy or their prominence in elite social circles, but in fact this shift actually
reinforces their dependence on the status quo and the use of these buildings to communicate
with other elite because one can see the message change slightly once the original structure is
modified in the 1780s. Much of the Lloyd family’s wealth came from trade as well as from
agricultural products: Edward Lloyd III was one of the few Chesapeake residents with
enough capital to go further than opening a store to sell imported goods to his smaller
neighbors, as he actually owned multiple ships and took advantage of his relatives in London
who worked the British end of the sale to ensure the greatest profit for Lloyd tobacco without
any middle men taking cuts (Alevizatos 1999; Clemens 1980). The family then spent their
profits on goods and luxury items — including exotic plants for the greenhouse — imported
directly through their British agents and relatives (Alevizatos 1999). This kind of system
greatly benefited the Lloyd family as long as it lasted, but the increasing dissatisfaction of the
colonists in the late eighteenth century with Parliament threatened much of these profits, and
even the entire system (Land 1965; 1967; McCusker and Menard 1985; Papenfuse 1975;
Price 1964). Edward Lloyd III, as one of the wealthiest men in Maryland at the time, was
extremely disturbed by the increasing tension, and his business interests led him to side with
the Loyalists rather than his neighbors — a decision that he made no attempt to hide
(Alevizatos 1999).

However, Edward Lloyd III died in 1770, on the eve of the Revolution, and his son,
Edward Lloyd IV took over the Wye House estate. Lloyd IV put a lot of effort into repairing
the damage his father’s political loyalties had caused, including resigning from the
Governor’s Council and running as a representative to the Assembly in 1771, and modifying
the messages sent by his estate at Wye House (Alevizatos 1999; Clemens 1980). The
Orangery was a building that clearly symbolized the close relationship of the family to
Britain and communicated their desire to be as close as possible to those connections, but rather than tear this building down, or ignore it, Lloyd IV added eastern and western wings — but he hid the building from view so as to avoid raising the suspicions of casual observers. Lloyd IV did not want to emphasize his connection to Britain in the turmoil leading up to the Revolutionary War, but neither was he ready to give up the luxuries that such connections supported. His wealth and power, inherited from his father, was still tied to the tobacco industry and the British mercantile economy of the time, but that was a way of life that was fast becoming unpopular. He clung to the last vestiges of this life by improving his father’s Orangery — but he clung to it in secret, and modified both it and the surrounding estate in part to send a new message to his fellow elites — particularly those government officials still loyal to the Proprietor — of his new loyalty.

The Mount Vernon Greenhouse

In many ways George Washington’s greenhouse at his Mount Vernon estate is the exception that proves the rule in the pattern of greenhouse construction, even though his greenhouse exemplifies the form with its large windows, and imposing placement as the focal point of a formal garden. But Washington’s greenhouse was not built until the 1780s — long after the examples at Green Spring, Wye House, Mount Clare, and the Calvert site, and his decision to build one and the message it sent marks a shift in the meaning of these buildings, as they became more popular among the less glorified Chesapeake elite (Hix 1981; Lemmon 1963; Sarudy 1998; Woods and Warren 1988). Washington, in fact, was not really a member of the first circle of Chesapeake elite, but rather from a middling planter background who rose to prominence through his connection to the Fairfax family, his
marriage to wealthy and socially prominent widow Martha Dandridge Custis, and his own military exploits (Ragsdale 1998). Washington, then, had to wait until he had the resources and the leisure time to construct his greenhouse, unlike the other owners explored in this analysis, who had access to such resources from the start. By the time he had acquired the time and resources to construct a greenhouse, twenty years had elapsed since the construction of the Mount Clare greenhouse, and Edward Lloyd was in the process of modifying his to declare his new political loyalties.

Washington’s construction of his greenhouse in the mid-1780s then, sends a similar message to his fellow elite, but one with a slightly different tone. Rather than claiming to be a member of the first circle of Chesapeake elite with ties to the English gentry, the message of Washington’s greenhouse is more tentative, and somewhat wistful, as it tells other Chesapeake elites that Washington aspires to be a member of the great Chesapeake elite with ties to England as they existed in the mid-eighteenth century at the height of their power – decades before Washington could even aspire to join them. Many of his biographers claim that Washington always saw himself more as a private gentry farmer rather than a public figure, and this image is carried through in his greenhouse, which evokes the designs of greenhouses built twenty years earlier, when such structures sent clear messages about their owners’ connections to England when it was still a positive association in the Chesapeake colonies (Dalzell and Dalzell 1998; DeForest 1982; Greenberg 1999; Griswold 1999; Leighton 1976; Martin 1991). By the time that the Mount Vernon greenhouse is completed, these connections are less important; the focus in the Chesapeake is internal, toward the new nation, but Washington’s greenhouse recalls a bygone era, in both intention and style, as it is built to resemble the orangery of Mount Clare and others, complete with a heating system
that depends on hot air from a fire rather than on the newer steam systems in vogue in England at this time (Hix 1981; Lemmon 1963; Sarudy 1998; Woods and Warren 1988).

Essentially, Washington’s greenhouse at Mount Vernon still sends the same message that the four earlier greenhouses sent: the desire of their owners to be thought of as real English gentry though a physical connection to the land and the construction of an orangery, but in Washington’s case the message is out-of-date, and its real impact is its revelation about Washington’s desire to return to a pre-Revolutionary society and economy, and his intention to do his best to invoke this earlier era by erecting a greenhouse in the same style that sends the same messages as the earlier ones built by the first circle of Chesapeake gentry.

Greenhouses were an elite prerogative in the eighteenth-century Chesapeake intimately connected to the tobacco industry and the resulting economic system, because the most successful planters succeeded by diversifying their interests and maintaining their ties to London. They, for better or worse, controlled an economy based primarily on one particular export that was credited and exchanged for every other necessity imported from overseas, which created a system in which economic success translated directly into social and political success. In a society in which rank and prestige were still fluid, this meant that those elite who aspired to be in the first circle of gentry had to solidify their status by drawing closer ties to Britain. One of the ways this was done was through the construction of greenhouses on Chesapeake estates. These structures epitomized the elite connection to Britain not only through their dependence on imports, but also through the internal communication within the gentry class in which these buildings were recognized as claims to the status of the English landed gentry. The timing, location, and responsibility for the construction of these five
greenhouses certainly seems to fit well within this model of internal communication in general, and indicates more specifically that these elites who constructed these greenhouses are communicating to the rest of their social set that they view themselves as “real” gentry in the English style, in which their wealth is displayed in land, their connections to London, and their erection of unnecessary structures that connect them with the social and intellectual elite of England.
Monuments to Faded Glory: Conclusions

The economic system upon which the Chesapeake planter elite depended in the eighteenth century was beginning to disintegrate on the eve of the American Revolution. The coming of the nineteenth century and the newly formed United States of America brought changes to the economy and subsequent changes to the symbolic meaning of greenhouses on Chesapeake plantations. While there has been less written about this shift in the Chesapeake than in Britain the changes occurred on both continents, gardening as a pastime became much more popular in the sense that the study and propagation of exotic plants was no longer the domain of the gentry, but began to be overshadowed by the increased interest in gardening in the "lower" classes (Sarudy 1998; Woods and Warren 1988). In nineteenth century Britain there is a veritable explosion of interest in gardens as more non-elite members of society are exposed to botany through free lectures, exhibits, and public gardens that seem to open up everywhere, and the nineteenth-century greenhouses built for the World’s Fair, and Queen Victoria’s Jubilee only added to the excitement (Brockway 1979; Hix 1981; Sarudy 1998; Vleeschouwer 2001; Woods and Warren 1988).

Of course, the trends in Britain do not necessarily reflect the trends in the new United States of America, and while there are some similarities in the explosion of interest in gardening in both places, there are some clear changes in the Chesapeake that indicate that greenhouses no longer have the same meaning that they did in the eighteenth century. To begin with, there is the increasing trend toward professionalization of the gardening industry in nineteenth-century America, and although there were a few well-known professional nurserymen selling plants and advice to eighteenth-century plant enthusiasts, the nineteenth century is full of them – and a significant number of them made their way into the
Chesapeake (Sarudy 1998). Barbara Sarudy (1998) discusses these professionals at length in her treatise on Chesapeake gardens; these men come in, set up shop, and cater to all social classes and levels of interest. One individual even offers to store exotic plants over the winter in his own greenhouse so that his clients will not feel the need to build their own; as the professional he can of course take better care of the plants and remove the need and expense of hiring a full-time gardener to care for them as would have been expected by those eighteenth-century Chesapeake elites who had to build their own greenhouses (Sarudy 1998).

Even the name of these buildings changed, signaling a change in their function and meaning on great estates. Greenhouses became “conservatories” in the nineteenth century and were no longer discreet elements of the formal gardens but became dependencies of or even rooms in the main house. Many conservatories were built adjacent to the actual mansion house as simply another room, which indicates a shift in their function and meaning (Vleeschouwer 2001). As part of the actual mansion they become more than ever a setting for social events, and the original meaning of these structures as a place to protect plants from the winter becomes all but obsolete. Even the older greenhouses that remained separate buildings become less about controlling nature and more about controlling various social events. The conversion of the second floor of the Wye House Orangery from a storage place for greenhouse materials into a billiards room complete with new decoration and the only surviving late-eighteenth-century example of a billiards table in the country is a prime example of this switch in function and meaning in the nineteenth century (Alevizatos 1999; Forman 1967). As these greenhouses or conservatories become attached to and dependants of the main house, so does their original function of propagation become subordinate to the social needs of the residents.
Such shifts in meaning did not occur overnight, nor were many of them without precedent in the eighteenth century. On the contrary, the practice of holding “garden parties” and banquets in the greenhouse in the spring when the plants were put back in the garden was not uncommon on English estates, and it is not unlikely that certain individuals in the Chesapeake would have used their greenhouses in similar ways (Sarudy 1998; Woods and Warren 1988). George Washington, liked to show off both his gardens and his greenhouse to visitors, many of who wandered around at their leisure (Leighton 1976; Sarudy 1998). There were even some eighteenth-century greenhouses that were attached wings of the main house as was more common in the nineteenth century, rather than separate structures, such as the greenhouse at Belair in Prince George’s county, Maryland (Brinkley 2004). Gardens had always been a place to conduct sensitive business away from the ears of those in the main house (Leighton 1976; Sarudy 1998). But there is a significant difference in the importance of these structures as social spaces in the nineteenth century as compared to their eighteenth-century importance as places for protecting exotic flora. Once these buildings become attached to the house or converted to rooms devoted solely to the entertainment and amusement of residents and visitors that social function seems to take precedence in the design and use of the room while the original function of these structures plays a secondary role (Ellis 2006; Vleeschouwer 2001). When the storage space for the odds and ends of greenhouse equipment is removed and there is no evidence of another facility being built, it stands to reason that the propagation of plants is no longer the main concern. This shifting emphasis did not mean that these conservatories were not still functional; they still provided a place to care for and exhibit exotic plants, but these plants became the backdrop for the
social activities in the room in the nineteenth century rather than the focus of the room as they had been in the eighteenth century.

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