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National Register of Historic Places Multiple Property Documentation Form

This form is used for documenting multiple property groups relating to one or several historic contexts. See instructions in *How to Complete the Multiple Property Documentation Form* (National Register Bulletin 16B). Complete each item by entering the requested information. For additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items.

_X_ New Submission ____ Amended Submission

A. Name of Multiple Property Listing

Tobacco Barns of Southern Maryland
Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's Counties

B. Associated Historic Contexts

(Name each associated historic context, identifying theme, geographical area, and chronological period for each.)

Tobacco Production in Southern Maryland, 1630s–2005
Southern Maryland Tobacco Barns, 1790s–1960
Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's Counties

C. Form Prepared by

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D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. (___ See continuation sheet for additional comments.)

Signature and title of certifying official — Date: 11-3-11

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I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Signature of the Keeper: Patrick Andrus — Date of Action: 12/27/2011

Table of Contents for Written Narrative

Provide the following information on continuation sheets. Cite the letter and the title before each section of the narrative. Assign page numbers according to the instructions for continuation sheets *in How to Complete the Multiple Property Documentation Form* (National Register Bulletin 16B). Fill in page numbers for each section in the space below.

this burden estimate or any aspect of this form to the National Register of Historic Places, National Park Service, 1849 C St., NW, Washington, DC 20240.

E. Statement of Historic Contexts

TOBACCO PRODUCTION IN SOUTHERN MARYLAND, 1630s–2005

INTRODUCTION

This Multiple Property Documentation concerns tobacco barns located in the five Southern Maryland counties of Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's. Together, these five counties define a unique tobacco-growing region in the United States. Tobacco was the mainstay economic pursuit in Southern Maryland for 350 years and was of singular importance to the state's economy during most of this time. The cultivation of tobacco in Southern Maryland profoundly shaped its history and landscape. The defining feature of tobacco culture in Southern Maryland is the tobacco barn, an essential part of the process of air-curing tobacco.

Tobacco was planted by the first colonists to Maryland in the 1630s. Large-scale cultivation was almost immediate, and the "money crop" dominated nearly every aspect of life in Maryland up until the Civil War; this period was in many ways the pinnacle of the tobacco industry in Southern Maryland. Despite suffering a devastating blow after the Civil War, the tobacco industry persisted for another 150 years and even experienced a brief resurgence in the third quarter of the twentieth century, until the impacts of lower demand, lower prices, labor shortages, and development pressures were too great for many tobacco farmers to overcome in the latter part of the twentieth century. The decisive blow to the continuance of tobacco culture in Southern Maryland was in 1998, when more than three-quarters of the state's tobacco farmers decided to participate in the Maryland tobacco buyout program.

Since tobacco cultivation has largely disappeared from the region's landscape, tobacco barns are the most prominent vestiges of the heritage of tobacco culture in Southern Maryland. Perhaps like no other agricultural outbuilding, the architecture of the tobacco barn is a direct manifestation of the tobacco cultivation process. Maryland tobacco is air-cured, so the barn had to be built to store thousands of tobacco plants in a properly ventilated interior.

This Multiple Property Documentation explains the agricultural, economic, and physiographical factors that led to the establishment and long-term sustainability and success of tobacco production in Southern Maryland and describes the architecture of its tobacco barns. The architectural context traces the physical evolution of the state's tobacco barns from the colonial period to the mid-twentieth century, as changes in building technologies, the tobacco economy, and the cultivation process impacted the size, materials, and overall form of the barns from one era to the next.

GEOGRAPHIC DEFINITION OF THE CONTEXT

The geographic area covered in this Multiple Property Documentation is Southern Maryland, which is defined as the five counties of Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's (Figure 1). These counties form a peninsula, bounded by the Chesapeake Bay on the east and the Potomac River on the west and south. They have similar physiographic features and share a distinctive history rooted in tobacco culture.

Farmers in Southern Maryland have produced tobacco continuously from the early days of settlement through present day. Tobacco was grown in other areas in Maryland, but it was not the mainstay of the economy of the regions, like it was in Southern Maryland. For instance, tobacco was grown on the Eastern Shore in the first decades of the Maryland colony, but by the end of the eighteenth century farmers on the east side of the Chesapeake Bay began to switch to grain as a staple crop (Ranzetta 2005, 83; Wagner 2001, 41). Tobacco also has been produced in measurable quantities in Carroll, Frederick, Harford, Howard, and Montgomery Counties. However, the combined production of tobacco in these counties was inconsequential compared to the quantities cultivated in Southern Maryland (Wasch 1990, 73–74). Furthermore, these areas grew a different type of tobacco than the type produced in Southern Maryland (Hurley and DeVault 1935, 188).

Maryland Tobacco

Together, the five Southern Maryland counties of Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's define a unique tobacco-growing region in the United States. The most common type of tobacco (*Nicotiana tabacum*) grown in this region was called Orinoco (also spelled Oronoco, Aronoko, and Oronoko), a light-colored, air-cured type of tobacco that possesses good burning qualities. When the U.S. Department of Agriculture (USDA) developed a standard system of classification for all varieties of tobacco grown in the United States in 1929, the modern strain of Orinoco became known as Type 32, Southern Maryland tobacco. Alternative names included Maryland Leaf or Maryland Export (Hurley and DeVault 1935, 188; Sundermann 2005, 12, 13).

Throughout the history of the tobacco industry in Southern Maryland, Maryland leaf was primarily exported to European markets and used in the manufacture of cigarettes and smoking tobaccos. Since the 1630s and into the nineteenth century, Maryland tobacco was in great demand by England, France, and a few northern European nations, which prized its slow and even burning quality (Sundermann 2005, 13; Tobacco Institute 1971, 12, 28). Beginning in the late nineteenth century, Germany, Belgium, and the Netherlands exported Maryland tobacco to augment pipe mixtures. Switzerland became a significant buyer of Maryland tobacco after World War I for use in its cigarettes (Tobacco Institute 1971, 12–13). A domestic market for Type 32 began in the early nineteenth century with the introduction of the first tobacco manufacturing plants in the United States, and expanded greatly in the twentieth century with the popularity of American-blend

cigarettes. Whereas Maryland tobacco was the major component in foreign-blend cigarettes, it was an additive in American-blend cigarettes, which were introduced after World War I and primarily consist of Burley and Bright Leaf tobaccos (Sundermann 2005, 15; Van Willigen and Eastwood 1998, 13).

Physical Factors: Topography, Soils, and Climate

A number of factors are associated with the establishment and successful long-term production of tobacco in Southern Maryland. Among these is a combination of several physical factors shared by the five Southern Maryland counties: physiography, soils, and climate. Southern Maryland lies within the Western Shore Uplands region of the Coastal Plain physiographic province. This region generally has level to undulating topography, with small areas of rolling and hilly topography. Elevations range from sea level to approximately 250 feet (Maryland Geological Survey 2001). The region's nearly level to gently rolling land provides abundant area for fields of tobacco. The nearly level areas border the Chesapeake Bay and the Western Shore's major rivers, the Potomac and Patuxent. Since the settlement period and into the twentieth century, these rivers and innumerable tributaries were used to convey tobacco to market.

Numerous varieties of *Nicotiana tabacum* are grown commercially in several different parts of the United States, from the shade-grown Sumatra in the Connecticut River Valley, the modern strain of Orinoco in Southern Maryland, Bright Leaf in the Piedmont regions of Virginia and North Carolina, New Belt in the eastern Carolinas, southern Georgia, and northern Florida, and Burley in Kentucky and Tennessee. The type of tobacco cultivated in each region is directly related to its climatic conditions: the mean temperature, the length of growing season (number of frost-free days), and the amount and distribution of precipitation during the growing season are all factors (Weinrich 1949, 22–23). Climate, of course, also affects the quality of the leaf.

The climatic conditions in Southern Maryland are favorable for the requirements of the Maryland tobacco seed. Maryland's growing season is approximately 185 days, from mid-April to mid-October, which provides an ample amount of frost-free days after transplanting the tobacco plants (Weinrich 1949, 23, Table 5). With an overall mild and fairly humid climate, Maryland summers are long and warm and its winters are short and relatively moderate, with light snowfall. Sustained periods of excessive heat or cold, which would negatively impact the quality of the tobacco, are generally infrequent (Weinrich 1949, 23).

Precipitation is more directly attributable to the quality of tobacco than temperature. Better quality is obtained if rainfall is well-distributed throughout the growing season. Too much or too little rain, or an unbalanced distribution over the growing season affects one or more qualities of the tobacco plant, including size, color, combustibility, and nicotine content (Weinrich 1949, 24–25). Historically, the average seasonal rainfall amounts in Maryland have been relatively uniform (Weinrich 1949, 25).

The type of soils is perhaps the most important factor affecting the appearance and taste of tobacco. Each variety of tobacco requires different soil qualities. The soils underlying the Coastal Plain province are composed of unconsolidated deposits of gravel, sand, silt, and clay, which were left by the sea as it retreated (Maryland Geological Survey 2001). A variety of alluvial soils resulted, including loam soils, which are composed of relatively even concentrations of sand, silt, and clay. Loam soils are ideal for agricultural uses because they drain well and retain nutrients. Other qualities of loam soils are particularly suited for growing tobacco: excellent permeability so water does not pond and resistance to becoming hard and baked in hot, dry weather (Weinrich 1949, 16).

Of the numerous soil types found in Southern Maryland, the ones most suitable for growing the light, even-burning Maryland tobacco are called Sassafras and Collington soils. Sassafras and Collington soils are fine, sandy, loamy soils found on level to sloping and rolling to steep land, and are deep and well drained with a frost-free period of 160 to 215 days (U.S. Department of Agriculture, Natural Resources Conservation Service 2007). Forty-five percent of the total land area of Southern Maryland contains Sassafras and Collington soils (Weinrich 1949, 16). Specifically, there is a close correlation between the distribution of Sassafras and Collington series soils and the distribution of tobacco production in Southern Maryland. In fact, truck crops, corn, wheat, hay, and other crops produced in Southern Maryland tend to be concentrated in areas that are underlain with soil types other than Sassafras and Collington[1] (Weinrich 1949, 17, 20, 21; Hurley and DeVault 1935, 200).

Soil survey maps indicate concentrations of Sassafras series soils throughout Calvert County and into the northwestern two-thirds of St. Mary's County (U.S. Department of Agriculture, Soil Conservation Service [USDA, SCS] 1970; 1976). The soils in the southern two-thirds of Anne Arundel County are predominantly from the Collington and Sassafras series (the former is concentrated in the middle third of the county, roughly up to the Severn River, and the latter is in the southern third) [USDA, SCS 1971]. In Prince George's, Sassafras series soils are throughout the southern half of the county, and Collington soils extend into the northeastern quarter (USDA, SCS 1968). The northeastern portion of Charles County is underlain with Sassafras series soils (USDA, SCS 1972).

ESTABLISHMENT OF TOBACCO IN SOUTHERN MARYLAND, 1630S–EARLY 1700S

The history of tobacco cultivation in Southern Maryland extends back to the colonial period, when the first settlers planted *Nicotiana tabacum*, a plant native to the Americas. English immigrants first grew tobacco in the Chesapeake Bay's tobacco-growing district, which spanned the southern boundary of Pennsylvania, through Maryland and Virginia, and eventually reached southward into North Carolina's Albemarle Sound

1 One notable exception existed in Charles County, where a dark-type of tobacco could be grown in the heavier soils of the Leonardtown and Elkton series, which are mainly in the southern part and along the western and northern edges of the county (Weinrich 1949, 21; USDA, SCS 1972).

by the end of the seventeenth century (Robert 1949, 19). England had founded the Virginia and Maryland colonies as outposts of the English economy. After English merchants helped finance the region's initial settlement, they looked to find a quick return in their investment through natural resources or a cash crop. Maryland's colonization was also in the interest of the English crown, which benefitted from the taxes and duties levied on any product that may arise from the colonies. Its answer was the emerging tobacco market, and the plant's cultivation quickly became the economic focus of the entire region (Kulikoff 1986, 23).

Native Americans shared many agricultural skills with the English colonists, including how to plant and farm tobacco. Maryland's Native Americans had grown tobacco long before the English arrived and they showed Maryland's first settlers how to farm the plant. An Englishman during the early 1600s observed that the Native Americans grew the tobacco plant and cured the leaves by drying them over a fire, but also sometimes in the sun. Then they would crush the leaves and stem into a powder that they could smoke in a pipe (Wasch 1990, 1). Tobacco soon became the economic mainstay of the Virginia colony, and Maryland shortly thereafter. The tobacco industry is what founded Maryland (Valentine 2003, 70).

By the time Maryland had begun producing the tobacco leaf in the 1630s, tobacco was already well-established as a desirable and potentially lucrative crop on the English market. The tobacco plant was first introduced to England in 1570 and within a few decades, its popularity established a new tobacco market in England and Continental Europe. The newfound demand for tobacco gave England an incentive to find land suitable for growing tobacco rather than importing it from foreign countries. This approach of reducing foreign imports characterized the prevailing economic philosophy of the time. The increasing demand for the "blessed weed" gave settlers looking to the New World a reason to come to the Chesapeake area, and to stay (Valentine 2003, 70). The vast majority of the early settlers to the Chesapeake were white and male, and they arrived to earn a living from tobacco. The region was the most hospitable to single young men from Britain through indentured service. The tobacco trade paid the way for more than one-third of all immigrants from the British Isles before 1640. Over the next 100 years, the tobacco industry influenced the pace of population growth in the Chesapeake colonies (Main 1982, 10, 16).

The Virginia Colony languished during its first five years until Jamestown discovered tobacco's potential in Virginia. In addition to tobacco, England initially hoped that the Virginia Colony would produce lumber, wine, skins, fish, and medicinal roots and herbs. After some experimentation, the other products could not be produced to a viable degree to make them profitable. However, a settler without much land could make a profit growing tobacco because it paid the most money per acre. In 1612, Jamestown resident John Rolfe successfully cultivated tobacco. Almost overnight, the settlement pursued tobacco cultivation on any clearing they could make available, nearly to the exclusion of any other commodity (Middleton 1984, 105; Valentine 2003, 70).

Despite the plant's success and its popularity among young English aristocrats, the Virginia Company and King James shared the opinion that tobacco was a loathsome, unhealthy habit, and from an economic standpoint, the colony's reliance on only one staple risked failure if fickle English tastes for tobacco were to falter. In 1618, the Virginia Company aggressively tried to diversify their industries through fishing, iron, glass-making, lumber, and shipbuilding. All of these ventures proved inadequate, and by the early 1620s, Virginia came to rely solely on tobacco as the colony's staple (Middleton 1984, 106).

The advantages of tobacco cultivation over those of other crops were many. The plant required less land per acre than grain, and thus required less forest-clearing labor. Packed tobacco leaves also produced smaller shipments to England, reducing the cost of freight. Once colonists learned how to effectively grow the crop, tobacco proved to be a well-adjusted plant to the Virginia soils. Finally, the extensive shoreline and navigable rivers in the Chesapeake Bay region allowed for easy trade with English merchants (Middleton 1984, 109, 110).

After early experimentation using indigenous tobacco species in Jamestown, Virginia tobacco farmers switched to growing South American seeds. The change resulted in two different new types of tobacco called Orinoco and Sweet-scented. Orinoco tobacco was stronger and likewise had a more robust leaf than the mild Sweet-scented tobacco leaf. While Virginians pursued cultivation of Sweet-scented, Maryland farmers began growing the Orinoco leaf throughout the Maryland Chesapeake region. Although Sweet-scented enjoyed a higher market value, particularly in England where it was favored over Orinoco, the latter garnered greater demand from Eastern and Northern European markets. This popularity allowed Orinoco to be more profitable than Sweet-scented, with the exception of periods of war when trade with Continental Europe was blocked (Middleton 1984, 109, 110).

Within the Maryland colony, the English found thirteen navigable rivers and tributaries along the Chesapeake Bay's shoreline. Carving the southwestern border of Maryland, the Potomac was the largest and most accessible among them and stretched 110 miles from its mouth at the Bay to Georgetown. Moving north, the English found the Patuxent, West, Rhode, South, Severn, Magothy, and Patapsco Rivers, followed by a series of four short rivers too shallow to receive large ships, and finally the broad but nearly unnavigable Susquehanna River at the north end of the Bay. Individual plantations were established along the tidewater shorelines of this network of tributaries (Middleton 1984, 40–48).

Existing historical records do not provide a precise date of the introduction of tobacco into Maryland. In 1880, historian J. B. Killebrew hypothesized that tobacco was first introduced to Maryland by a Virginia tobacco planter who had relocated from Virginia to Kent Island in 1631 (Wasch 1990, 1). Others speculate that tobacco was first planted in Southern Maryland in the colonial city of St. Mary's. The colonists initially settled up and down the Bay's shores and along the banks of the Potomac and Patuxent Rivers (King 1990). The Severn River was inhabited in the 1650s; settlement in Anne Arundel County spread rapidly along the

shorelines of its other major rivers over the next twenty years (Middleton 1984, 40–48; Ware 1990, 7). In Charles County, scattered plantations occupied the shores of major creeks and rivers such as the Potomac, Wicomico, and Port Tobacco (Gettings 1998, 15; Hardy 2004). By the 1690s, St. Mary's County had the largest population, followed by Anne Arundel County (McWilliams 1977, 1).

Most of the plantations in Southern Maryland dedicated some acreage to tobacco. These plantations include Thomas Stone's Habre de Venture (CH-5, NR 1972) in Port Tobacco, Charles County, and Thomas Smallwood's plantation in Marbury, Charles County (Colbert 2001, 40). For most of the 1600s, tobacco farms were scattered outposts surrounded by numerous Indian villages. As the farms grew, farmers seized the surrounding land for further development. By 1700, however, only a few of the Chesapeake's tributaries were fully developed by plantations. That the land remained largely rural did not prevent the perception that the land was becoming crowded, however. In the late 1600s, some planters in Calvert County expressed concern that plantations were becoming too close and that the population was too great, even though the county averaged only about two or three families per square mile. Nonetheless, the residents grew concerned that an influx of people to the region would leave it crowded in a matter of a few decades (Kulikoff 1986, 23, 30).

The exclusive cultivation of tobacco shaped the physical development of the five Southern Maryland counties from their founding in the 1630s through the early nineteenth century. The region was sparsely developed, initially characterized by isolated, self-sustaining plantations consisting of the main dwelling and ancillary domestic and agricultural dependencies (Hardy 2004). Dwellings were typically small, just two or three rooms, with dirt floors, unglazed windows covered in shutters, and chimneys of wattle and daub (Browne 2004, 19; Virta 1998, 42; Ware 1990, 9). They were frame structures built on the ground or in the ground on posts, with no foundation; this earthfast type of construction was employed throughout the Chesapeake region (Ware 1990, 7–8). Most plantations were between 100 and 400 acres, although sixteen in Southern Maryland were more than 1,000 acres (Compton 1977, 61).

An abundance of land was necessary to grow tobacco since it readily exhausted the soil. Planters searched for ideal locations along waterways for properties with meadows, trees for timber, and virgin acreage for planting (Kulikoff 1986, 30). Plantations existed in relative isolation from one another, which prohibited social organization or cultural institutions. The community of planters was instead created by frequent visits to and from homesteads (Main 1982, 46, 47). Since the plantations were accessible to ocean-bearing sea vessels, tobacco could be shipped directly from the docks or landings of each individual plantation to England. With only a few exceptions of port cities established within the Tidewater region, this access discouraged the growth of major port towns during the 1600s (Middleton 1984, 40–48). By 1700, the only two towns of stature were Annapolis and Williamsburg, Maryland and Virginia's respective colonial capitals, each housing less than 1,000 residents (Kulikoff 1986, 30).

In the establishment of a new tobacco plantation, the land was cleared of forests and converted to tobacco fields. Tobacco fields that became exhausted of nutrients were abandoned and the farmers moved on to new land. Farmlands were moved so frequently that it made more sense to leave buildings behind and allow them to decay, rather than move them (Main 1982, 46, 47). The effects of these practices on the landscape could be unsightly, as evidenced by one visitor's description of colonial tobacco farms in central Anne Arundel County: "[the farms included] rude dwelling houses with dirt floors and without chimneys, unpainted tobacco houses, some dilapidated…a disproportionate share of buildings 'old and not worth repair'; [and] abandoned old fields" (Browne 2004, 19). Nonetheless, earthfast construction was cheap and fast and thus, permitted the planter to establish his tobacco crop until he earned economic stability (Ware 1990, 7).

Maryland planters and their families lived simply. This could partly be due to the isolated nature of the farms, the distance between them, and the limited resources available on the homestead. A high death rate and an imbalance between men and women, favoring the former, resulted in slow population growth during the 1600s. A fluctuating tobacco economy exacerbated the conditions. By contrast, the New England colonies established themselves faster and more steadily (Main 1982, 258). On the other hand, without a strict hierarchical society, small planters enjoyed an egalitarian social structure that was made possible by the dispersed nature of the farms and the absence of city centers (Kulikoff 1986, 31).

Tobacco became a standard of currency in the colonial period. Coins and paper money were in short supply and their value varied from one jurisdiction to another. Tobacco also provided a monetary common denominator when currency between different foreign countries was traded (Colbert 2001, 41). Marylanders used tobacco to pay their taxes, buy their food, clothes, and supplies, and build their churches. Even Maryland's General Assembly assessed fines, fees, and officials' salaries in pounds of tobacco (Mumford 2002, 7, 9).

Early tobacco growers relied heavily on indentured labor from England. Poor wages and high unemployment in England during the late 1600s encouraged many to immigrate to America. In his 1666 writing "Character of the Province of Maryland," indentured servant George Alsop described the great need of farm hands in the labor-intensive work of tobacco cultivation (Wasch 1990, 3). Between 1660 and 1680, approximately 75,000 English immigrated to the Chesapeake region. About 50 to 75 percent of these immigrants arrived into indentured servitude. Indentured servants were typically poor, unskilled young adults and were men by a ratio of three to one. The low rate of women immigrants hampered the establishment of families and new generations of workers. To make matters worse, few men and women survived through adulthood long enough to bear many children, if any. Thus, the flow of immigrants from England fulfilled a great need for farm workers due to the constant expiration of indentured terms, but also due to the high mortality rate among immigrants who fell victim to diseases in the new world (Kulikoff 1986, 32, 33).

The value of tobacco slowly declined between 1620 and 1680, but the impact to the tobacco farmers was mitigated by improved tobacco farming practices that kept the farms productive enough to remain profitable. When tobacco brought a high return in 1620, the price encouraged planters to grow more and enticed men to establish new tobacco farms as well. The proliferation of tobacco farms came from immigrant tobacco growers and from former indentured servants who eventually established farms and competed with their former owners. When production began to swell, the tobacco's value diminished. By 1680, the leaf's market value had dipped to the point where the cost of production outweighed its market value. When the potential for prosperity in the Chesapeake disappeared, immigrants began to look elsewhere to settle (Kulikoff 1986, 5).

During the last quarter of the seventeenth century, a reduction in workers arriving from England left the Chesapeake colony with a shortage of labor. Between 1680 and 1699, the rate of emigration to the Chesapeake dropped to four-fifths the rate from the previous thirty years. In England, wages increased along with employment and better working conditions resulted in fewer people looking to leave for the British colonies. By the 1690s, the lack of work and opportunity in Maryland left more people emigrating from the area than were arriving to it (Kulikoff 1986, 39, 40).

The English probably also saw the trend of large farms overtaking small farms, making indentured servitude and the possibility of eventually competing with a farm of their own less likely. Many also knew of the increasing population of enslaved African labor that was being brought to British colonies such as Barbados and the Chesapeake. White men considering servitude feared that working alongside African workers would pose a risk to their own status. The decline in new immigrants resulted in a reduction in manpower and thus, tobacco production in the Chesapeake (Main 1982, 25).

As a result of the shortage of white, high-quality labor at the turn of the eighteenth century, the Chesapeake region experienced a transition from servant labor to slavery. According to probate records, Virginia pursued slavery more than Maryland early on due to its relative wealth. Virginia planters tended to be more affluent than Maryland planters, and could afford to buy slaves. In both states, the wealthiest landowners simply swapped their servants for slaves, with Virginians doing so in greater numbers. The transition occurred rapidly during the late 1600s and first decades of the 1700s. Before 1684, less than half of the wealthy tobacco growers owned slaves, but by 1712, nearly all of the gentry class did (Main 1982, 103).

For tobacco growers of the middling classes, the reduction in indentured servant labor was only partly the reason for the decline in tobacco cultivation during the early 1700s in the colonies. By 1720, Maryland tobacco planters no longer centered their farming practices solely on tobacco. The region continued to be based on agriculture, but some farmers even gave up growing tobacco entirely (Main 1982, 91). Plantation owners of lesser means constituted roughly between 63 and 67 percent of the estates in Southern Maryland. They also stopped acquiring servants by the early 1700s, but they could not afford to replace them with

slaves either. An additional reason for the reduction in servant labor in tobacco growing was because by that time, there were residents who had established themselves in the region long enough to have children, who then became a source of farm labor (Main 1982, 91, 104).

The reduction of the small-scale tobacco farmers and the persistence of the large-scale, wealthy growers gave rise to a new class structure of tobacco planters after 1700. The majority of the planters were still white landowners who owned neither slaves nor servants. However, the small minority of the wealthy, large-scale tobacco farmers who owned slaves was growing: about 1 percent of the large farms owned twenty or more laborers before 1700, but 3 percent of them did after 1700. In between these two groups was a small, middle stratum of growers who only owned a few laborers of either indentured servants or African slaves (Main 1982, 104, 105).

THE MONEY CROP: EXPANSION OF TOBACCO PRODUCTION AND MARKETS, EARLY 1700S–1865

A switch in tobacco tastes gave rise to more production in Maryland than ever before. By the early 1700s, English taste began to accept the more robust Orinoco tobacco from Maryland over the delicate Sweet-scented tobacco from Virginia. The English seemed receptive to the switch and thus began the decline of Virginia's Sweet-scented tobacco. By the end of the 1700s, Sweet-scented had all but disappeared from the market (Middleton 1984, 111).

Increases in the slave population on Maryland's tobacco farms during the eighteenth century were not only due to the slave trade from Africa, but from the children born from the slaves on the plantations themselves. By the mid-eighteenth century, the largest plantations had as many as 100 or more slaves, most of whom worked together in the tobacco fields. Before long, a vast network of kin became established within plantations and with neighboring plantations (Kulikoff 1986, 11).

Maryland was the second largest slaveholding colony in North America in the eighteenth century (Calderhead 1977, 11). The growth of the slave population in Southern Maryland in the eighteenth and nineteenth centuries was extraordinary, signifying the reliance on slave labor for increased tobacco production. For example, in Charles County, slaves made up 18 percent of the county's total population in 1712. Seventy years later, the slave population had nearly tripled, reaching 48 percent of the total population. By 1850, nearly 65 percent of Charles County's population was slaves (Gettings 1998, 17). Anne Arundel and Prince George's Counties had similar population ratios (McWilliams 1977, 1; Virta 1998, 38).

By the mid-eighteenth century, with waterfront land largely bought up and the population continuing to increase, inland routes were improved and plantations established in interior parts of Southern Maryland. "Rolling roads" were created to haul hogsheads of tobacco to landings and port towns. Each hogshead was rolled by two men or by a hitched horse or ox (see Figure 2) from the farm to a port town, where they were

stored in a wharf building to await shipment by sailboat, and later by steamboat or barge, to Baltimore and beyond (Browne 2004, 24; Sundermann 2005, 44). In Calvert County, Rolling Roads, Tobacco Roads, and Tobacco Ridge Roads were once well-traveled rolling roads (Sundermann 2005, 44). In Anne Arundel County, Rolling Road runs along the ridge leading into Catonsville (Compton 1977, 62). Wagons and carts were later used to transport hogsheads to local wharfs (Figure 2).

The mid-eighteenth century included the transition from tobacco monoculture to diversified farming in the Chesapeake. Although tobacco could be grown on previously cultivated fields, the size and quality of the plant was substandard to that which was needed to be profitable enough to pay for the labor it required. The 1775 journal American Husbandry noted "There is no plant in the world that requires richer land, or more manure than tobacco" (Kulikoff 1986, 47). Growers constantly stretched the boundaries of their farmland into cleared forests, whose rich soil was considered more effective than fertilizing used fields. In this fashion, tobacco farmers came to use crop rotation as an alternative to fertilization whereby the farmer did not rotate crops on the same field, but instead used new fields until the old fields became naturally fertile again. This involved a lengthy rotation. If a field could only support tobacco for three successive years, then it took another twenty years for it to regain its nutrients suitable for planting tobacco again. This unsustainable system continued the pattern of exploiting vast acres of land in the tobacco-growing regions. According to American Husbandry, taking into account needs for additional land for timber, livestock, and corn planting, at least fifty acres of land per farm worker was required for a farm to function (Kulikoff 1986, 47).

The result of the need for vast acreage left Maryland planters running out of farmland by the 1750s. Population growth in Maryland began to soar, exacerbating the problem of maintaining a viable acreage of land. In Southern Maryland, there was an average of forth-nine acres per work hand, which was below the rate of viability. The loss of productive soil led to poor quality of the tobacco produced. As a result, tobacco yields declined precipitously over the course of the eighteenth century (Kulikoff 1986, 48).

Rapid growth and the extensive over-cultivation of land in Southern Maryland eventually drove many white families to leave the region for new frontiers to the west. For instance, St. Mary's County lost 18 percent of its residents between 1790 and 1810, as planters moved their families and slaves to West Virginia, Kentucky, and Tennessee (Ranzetta 2005, 84). The scarcity of land drove up land values in Maryland. Those who stayed sought to inherit their father's land and others looked elsewhere where land was cheap. By the decades before the Revolution, during the 1760s and 1770s, a new pattern of emigration took hold as about one quarter of the young, white workers moved out of the region (Kulikoff 1986, 77).

World Market for Tobacco, 1780s–1865

Less than ten years after the American Revolution, exportation of tobacco reached its pre-war levels. At that time, about 75 percent of the tobacco was taken directly to Europe and, with America's newfound

independence, no longer had to pass through England first. As a result, England lost a portion of its trade profits. Glasgow, Liverpool, and Bristol, each of which had become leading tobacco trading ports by the mid-eighteenth century, suffered from the tobacco trade's new direct route to the Continent (Middleton 1984, 123). Virginia and Maryland contributed about 80 percent of all the tobacco exported from America. The rest was attributed to Georgia, North Carolina, South Carolina, New York, and Massachusetts, in descending order of each state's contribution. Tobacco export statistics indicate that exports reached their pinnacle in the 1820s, when the amount exported exceeded that of the eighteenth century, before or after (Herndon 1969, 400).

One of the largest changes following the Revolutionary War was the expansion of tobacco growing areas. Cultivation began to spread westward into Tennessee and Kentucky and southward into South Carolina and Northern Georgia. By 1791, Georgia ranked third in tobacco production in the South while South Carolina and Georgia soon found cotton to be the more profitable cash crop for the time being. At the same time, tobacco growing in Tidewater Virginia within the Chesapeake region declined and eventually ended as it instead became established in the Piedmont area of the state (Herndon 1969, 410).

After the end of the War of 1812, the European market began to show a preference for the stronger flavored fire-cured tobacco that was primarily grown in Kentucky, Tennessee, and southwest Virginia at that time. The demand encouraged tobacco growing in these regions (Herndon 1969, 410). Maryland grew three types of tobacco during the first half of the nineteenth century. Besides the Orinoco grown in Southern Maryland, planters in the lowlands grew Burley, a narrow leaf variety, and a broad leaf variety that grew more quickly than Burley but possessed a silkier leaf. All three types were primarily exported to The Netherlands (Wasch 1990, 20).

Virginia and Maryland had established themselves as leading tobacco-producing states from the earliest period in the American colonies and into the nineteenth century. In 1830, out of the 105,000 hogsheads produced in America, 45,000 were from Virginia, 30,000 came from Maryland, and the remaining 30,000 hogsheads were grown in the western regions of Kentucky and Tennessee. While the Chesapeake region's tobacco was considered higher in quality than tobacco from west of the Appalachians, by the mid-1800s, tobacco grown in and surrounding Kentucky had vastly improved in quality and competed better with Maryland and Virginia (Robert 1949, 55).

A new type of tobacco and curing method emerged during the antebellum period. By about 1800, the central Piedmont region of Virginia and North Carolina took up dark tobacco cultivation using fire-curing methods. The fire-curing method involved lighting one or several fires on the barn floor to heat the interior. The smoky flavor imparted by the fires of hardwood smothered in damp sawdust during the curing process gained popularity on the European export market by the outbreak of the War of 1812 (Hart and Mather 1961, 276, 279).

Central Piedmont Virginia and North Carolina tobacco growers primarily produced the fire-cured dark tobacco because of the region's weak soil, which gives bright tobacco its distinctive flavor. By about 1810, small areas in southwestern Kentucky and northwestern Tennessee also had taken up its production (Herndon 1969, 410). The wide use of fire curing was short-lived, however, because of the threat to barns and the decreasing demand for the smoky-flavored tobacco during the 1830s. Fire-cured tobacco was still produced, but in smaller quantities (Herndon 1969, 426, 428).

Although fire was no longer used as part of the curing process, planters in Southern Maryland used fires to remove moisture from the curing tobacco, which could cause "house burn," a mild rotting of the leaves, during periods of prolonged humidity and to keep the barn warm and dry during periods of extreme cold (McKee et al. 1963, 7). Fire curing is known to have been practiced in Charles, Prince George's, and St. Mary's Counties. A historical account from 1821 recounts how one Prince George's County planter lit a row of wood fires placed in a shallow trench that was dug into the barn floor (CH-742, Maryland Inventory of Historic Properties). Real estate valuations from 1826 to 1841 list a "tobacco firing house" on four estates (unnamed) in St. Mary's County. During a survey of several tobacco barns in St. Mary's County, architectural historian Kirk Ranzetta found unlined excavated squares, six to eight inches deep, in the mid-nineteenth century Bond Property Tobacco Barn #2 (SM-245A) at Greenwell State Park and in the tobacco barn at Old Patuxent Farm (SM-527) (Wilson 2008). The early-nineteenth century Johnsontown Tobacco Barn No. 2 (CH-742) in Bel Alton, displays charred timbers as evidence of the use of fires.

During the early 1800s, tobacco farmers, including those in Maryland, were criticized by public officials including Thomas Jefferson for tobacco farming's notorious malnourishment of the soils. In defense of tobacco farming, others suggested that the earth might be replenished with manure or fertilizer made from clover and plaster of Paris. Farmers in Anne Arundel and Prince George's Counties were already using these methods along with crop rotation by planting corn and wheat. The national publication *The Farmers Register*, which was based in Baltimore, agreed with Jefferson's statements, and further asserted that grain harvesting was incompatible with crop rotation with tobacco since the two crops shared the same growing and harvesting seasons. The publication instead suggested that farmers attempt to reclaim swamp land and continue to experiment with crop rotation (Wasch 1990, 22).

Tobacco growing had become so widespread nationwide during the first decades of the 1800s and particularly in Maryland that the federal government estimated that nearly 10 percent of the country's population grew the crop during the 1840s. Two-thirds of these growers resided in Maryland, Virginia, Kentucky, and Missouri. Prince George's County was the largest producer of tobacco during that time (Wasch 1990, 20–21, 23). Census data indicate that between 1840 and 1870, the largest tobacco producing counties in Maryland were Prince George's, Anne Arundel, and Calvert in terms of pounds of tobacco produced. Charles and St. Mary's Counties followed closely behind (Wasch 1990, 49).

Three factors influenced a county's tobacco production: weather, acreage, and availability of farm laborers. Like any crop, tobacco cultivation was largely dependent on weather fluctuations from year to year. While the farmer could mitigate climatic conditions to a degree during the curing process, the necessary rainfall during the tobacco growing season was out of his control. Records show that production of 24.8 million pounds of tobacco in 1840 had fallen to 21.4 million pounds in 1850, with a drought blamed for the decline. The poor growing weather impacted Calvert and Prince George's Counties especially hard, where tobacco was considered to be roughly two-thirds of the normal size and thus, inferior (Wasch 1990, 51).

During the 1840s, farmers who were concerned that the oversupply of tobacco on the market lowered prices called for a reduction in acreage devoted to tobacco. In 1846, the *American Farmer* reported that farmers were indeed reducing their tobacco production in this regard (Wasch 1990, 52). This seemed to coincide with a reduction in laborers, since tobacco cultivation was a more labor-intensive undertaking than other crops.

The introduction of commercial fertilizers in the 1840s helped replenish the tobacco fields better than plaster of Paris, which was the only method used previously. Fertilizers made in Baltimore included phosphates, ammoniated super-phosphates, and special manures. These fertilizers became widely available and lessened the need for farms to expand in order to gain virgin farmland for tobacco cultivation. Although fertilizers could not take the place of using fertile land, used sparingly, fertilizers could improve the quality of tobacco than would otherwise be accomplished using stripped soil (Herndon 1969, 432; Wasch 1990, 57).

At the same time the use of fire-curing declined, the flue-curing process gained popularity. The introduction of flues into the barn allowed heat to be evenly distributed throughout the barn during the heated curing process. Flue-curing was first attempted in the 1820s, but the method was abandoned until the system could be perfected in the decades following the Civil War. Flue-curing would ultimately change the nature of the tobacco market in six states: Virginia, North Carolina, South Carolina, Georgia, Florida, and Alabama (Herndon 1969, 411).

The tobacco industry during the last half of the nineteenth century continued to be heavily influenced by fluctuating tastes and trends in tobacco products. Chewing tobacco reached its zenith during the Civil War years (U.S. Agricultural Marketing Service, Tobacco Division 1979, 20). The cigar industry also experienced a boost that benefitted Maryland growers of the Maryland Broadleaf, a popular cigar tobacco variety. One of the benefits of Maryland's distinctive air-cured tobacco was that air-cured tobacco was more absorptive than fire-cured, since the fires tend to close pores of the tobacco leaf during curing (Herndon 1969, 413, 414).

Tobacco production in Maryland was heavily influenced by the labor available, since cultivation of the plant was a labor-intensive endeavor. Indentured servants were replaced with slaves during the eighteenth century. By about 1860, Maryland's population comprised approximately 38,000 whites, 10,800 free blacks,

and 40,600 slaves. Nearly half of the state's slave population was located in Southern Maryland (Tobacco Institute 1971, 29).

By the 1800s, the number of slaves owned by a landowner was an indication of prosperity. During the decades leading up to the Civil War, 528 farms in Calvert County owned slaves. Of these 142 owned only one slave, but this was balanced out by the handful of plantation owners who owned as many as 100 slaves. Since many slaves were required for tobacco cultivation, a number of planters reduced their tobacco yields in order to focus attention on a less demanding crop. The emancipation of slaves following the Civil War and the loss of cheap labor would later force tobacco growers to reduce the previous scale of production (Wasch 1990, 52, 53).

A Period of Transition: Agricultural Reform and the Tobacco Economy, 1865–1900

The aftermath of the Civil War and the emancipation of slaves crippled the agricultural economy in Maryland. For tobacco, production and prices of the crop plummeted. Farmers lost as much as one-third of their capital with the end of slavery. Many owners of large plantations let sections of their fields lie fallow or heavily mortgaged their farms (Prola 2007, 8-1). Even so, several lost their farms to foreclosure, bankruptcy, or tax delinquency (Browne 2004, 90).

Labor costs persuaded some tobacco farmers to reduce their tobacco production and add or increase yields of less labor-intensive crops. Charles County's farmers added orchard products, dairy products, livestock, and assorted vegetables (Hardy 2004). Planters in St. Mary's County increased production of wheat, oats, corn, orchard produce, and vegetables, and raised more cattle and sheep (Ranzetta 2005, 83). In Anne Arundel County tobacco production fell 42 percent between 1879 and 1889. Many of these farmers had turned to truck farming (McWilliams 1977, 4). Truck farming is the agricultural practice of growing vegetables and using the farmer's own resources to transport the produce to commercial markets. In Anne Arundel County, truck farming also included fruits. Until the late nineteenth century, truck farming in the county was concentrated north of the South River. Thereafter, many "South County" tobacco farmers set aside land to truck produce, specifically tomatoes and fruit orchards, to supplement their tobacco crop (Mumford 2000, 5, 24).

Farmers who remained in tobacco production quickly learned that the prices fetched from their existing tobacco yield could not pay for the wage-earning farm workers who tended the crop. Farmers faced with the loss of cheap, enslaved labor were forced to reduce the acreage devoted to the labor-intensive tobacco. To stay financially solvent, large landowners sold portions of their land, marking the end of large tobacco farmsteads. Besides selling off land, many farmers rented their land to tenants or sharecroppers in order to survive financially. Consequently, the total number of farms rose dramatically, with a significant increase in farms of fifty acres or less (Browne 2004, 90; Hardy 2004).

With increased mobility of blacks after the war, many former freedmen and newly emancipated slaves left the rural areas seeking economic opportunities off farms (McWilliams 1977, 2). For instance, in Calvert County the black population declined by nearly 1,000 between 1860 and 1870 (Prola 2007, 8-1). However, the majority of blacks in rural Southern Maryland stayed and remained in agriculture, progressing from farm laborers to share or cash tenants for white landowners. A tenancy system of agriculture replaced the slave-labor system in Maryland in the aftermath of the Civil War. A tenant farmer is a person who farms land owned by another and pays rent either in cash, share of products or some combination of the two. A share tenant, or sharecropper, is a tenant farmer who returns a share of the crops raised or the crops' sale price to the landlord in lieu of rent. Although arrangements varied, in most cases the owner received half of the share of crops or cash from crop sales (Prola 2007, 8-1; Sundermann 2005, 40–41, 43, 45).

Cash or share tenants often rented several different parcels of land in a given area in order to make a living farming. Some were exclusively tenant farmers, owning none of their own land. Sometimes landlords would have a house on their rented land for the tenant and his or her family to live in (Sundermann 2005, 40–41, 43).

While the majority of Maryland tobacco farmers were reducing tobacco production, diversifying their crops, leasing land to tenant farmers, or a combination thereof to address the labor shortage in Southern Maryland, a small group of tobacco farmers experimented with the flue-curing process. The flue-curing method involved a system of metal flues connected to a furnace to evenly distribute heat to the hanging tobacco leaves. This process diverted blackening smoke and combustion odors out through a chimney and thus, left the cured leaves light in color since they were not darkened with smoke. After the Civil War, the area straddling the Virginia and North Carolina border took up the flue-curing method in earnest, and the resultant flue-cured tobacco leaf became known as Bright Leaf tobacco (U.S. Agricultural Marketing Service, Tobacco Division 1979, 10).

Planters in both Maryland and Virginia had experimented with flue-cured tobacco in the 1820s. Little came of these experiments and flue-curing earned little attention in Maryland until the 1860s. In 1861, Bently C. Bibb and George F. Needham, both of Baltimore, and Dr. George W. Dorsey of Calvert County patented the Bibb Flue, an "improved apparatus for curing tobacco" (King 1995, 11, 13). These gentlemen believed that their design for a new system of flues would increase the quantity and improve the quality of the tobacco crop. They also believed it would help farmers earn higher sales, since lighter colored tobacco generally garnered a higher price than darker varieties at that time (King 1995, 9–10).

In Southern Maryland, flue-cured tobacco production was practiced on a few farms in the neighboring towns of Port Republic and St. Leonard in Calvert County. One of these farms was Dr. George Dorsey's in Port Republic, and the others were neighbors of Dorsey, including two who were Dorsey's relatives by marriage. They were wealthy men, owning large and valuable farms with a diversity of agricultural products, including

large amounts of tobacco (King 1995, 20–26, 29). Information provided by Dr. Julia A. King, author of research papers and articles on the Bibb Flue, indicates additional instances of the flue apparatus in a few other parts of Southern Maryland. The *Maryland Farmer* cites Thomas Clagett, Jr. of Prince George's County as using the Bibb Flue in 1868. Dr. Harper's store in Upper Marlboro, Prince George's County, and the store in Mr. Fenwick's hotel in Leonardtown, St. Mary's County, sold the flue apparatus, and displayed samples of George Dorsey's flue-cured tobacco. Flue apparatus was advertised in the *St. Mary's Beacon* once or twice (King 2008).

Flue curing was short-lived in Southern Maryland because it did not substantially improve Maryland tobacco (Wagner 2001, 42). Moreover, the relatively high price of the apparatus, coupled with the cost to build or convert an air-curing barn to an airtight flue-curing barn, precluded most farmers in Southern Maryland from adopting the use of flue-curing (King 1995, 16). Flue-curing flourished in the Piedmont regions of Virginia and North Carolina, however, and expanded farther south into South Carolina, Georgia, and northern Florida by the late nineteenth century. Demand for the flue-cured Bright Leaf tobacco from these areas increased significantly after the 1910s with the popularity of the American-blend cigarette (Daniel 1985, 24, 33; Robert 1949, 186, 222).

Old tobacco growing regions in Maryland and Virginia struggled to stay competitive during the Reconstruction era. The impact of the Civil War led to critical shifts in the market that favored tobacco production in states west and south of the Chesapeake. New and popular tobacco varieties emerged in these regions. While Virginia had been a leading tobacco producer by 1850, the war's impact in Virginia halted production there, allowing Kentucky to become a leading producer of the crop after the war's end (Herndon 1969, 414, 420). Over the course of the last quarter of the nineteenth century, Kentucky and North Carolina's Bright tobacco began to take over the market (Wasch 1990, 63).

Popular taste began to favor chewing tobacco following the Civil War, and this helped rejuvenate the slumping tobacco economy in Virginia and North Carolina. The increasing number of tobacco chewers brought fickle tastes and a demand for tobacco that was pleasing to the eye, as well as taste. In response, tobacco manufacturers looked to grow more yellow or Bright tobacco as the wrappers over the dark-colored cigar plugs (Herndon 1969, 414).

Americans began smoking pipe tobacco during the late nineteenth century when tobacco manufacturer John R. Green of Durham Station, North Carolina, shredded his tobacco for this purpose. The trend of shredded pipe tobacco, or "smoking tobacco" caught on during the Civil War, picked up momentum during the Reconstruction Era, and continued to its peak in 1910. The best type of tobacco used for this purpose was Burley or Bright tobacco and the increasing demand drove its production (Herndon 1969, 417).

The first cigarette machine was invented in 1872 and changed the way Americans smoked tobacco. The first cigarettes produced were "straights" because they were made up of wholly one type of tobacco, such as

Burley or Bright Leaf. The famous American blended tobacco, drawing from a variety of American tobacco types including Maryland tobacco, would not emerge for another forty years (Herndon 1969, 418).

The prominence of tobaccos grown in North Carolina and the Burley Belt left Maryland's tobacco production lagging behind its competition in the late 1800s. In 1830, Maryland's yield created 30 percent of national tobacco production, but by 1880, it had declined to 5 percent. Maryland's tobacco flavor was considered neutral in comparison with the more popular varieties. The state's market faced extinction at the turn of the twentieth century, until the introduction of the blended cigarette (Herndon 1969, 419).

The spread of tobacco growing regions into the Deep South, Midwest, and Northeast led to a new emphasis on the particular tobacco varieties of each region. A new system of classification arose in census reports as early as the 1880s. For the first time, different types of tobacco were recognized for their regional name and for the particular tobacco class for which it was best suited, such as chewing tobacco, export, or domestic cigar tobacco. The division of the numerous tobacco types revealed the vast specialization that had emerged during the previous 100 years of tobacco cultivation in America. Over the subsequent decades, tobacco types and classes continued to be revised and expanded until a formal system of organization developed under the federal government in 1929 (Herndon 1969, 422).

Each of the five tobacco-producing counties in Southern Maryland had come to distinguish their own type of tobacco grown by the late nineteenth century. Tobacco continued to be primarily air-cured as it had been since the early 1600s, however, fire-curing methods emerged in areas such as Montgomery County by the 1870s. Maryland's fire-cured tobacco was commonly called "spangled" tobacco, which fetched a high price in the marketplace (Wasch 1990, 58). The prime market for Southern Maryland tobacco at that time continued to be exports to France, the Netherlands, and Germany. In 1880, little of Maryland's tobacco was used domestically for pipe tobacco (Wasch 1990, 65).

Southern Maryland tobacco farmers continued the early-nineteenth century practice of using fires to remove moisture from within the barn. Some farmers used fires for a few consecutive nights after filling the barn with tobacco, especially if leaves were hung too close, to prevent the leaves from "sweating" and subsequently rotting. By the mid-twentieth century, firing typically was done by charcoal fire or by oil or gas burners spaced evenly around the floor of the barn (McKee ca. 1969).

Southern Maryland identified four grades of tobacco produced in the late 1800s: brights, seconds, dulls, and tips. Ground leaf, the lowest quality, was also sold at the lowest prices. The U.S. Department of Agriculture reported the grade quality of the counties in its annual "Report of the Commissioner of Agriculture" (Wasch 1990, 62). Southern Maryland's five counties, Anne Arundel, Prince George's, Calvert, Charles, and St. Mary's, continued to produce the most tobacco in the state (Wasch 1990, 65).

The federal Hatch Act of 1887 helped improve Maryland's tobacco industry by allocating federal funding to establish agricultural experiment stations, which disseminated information on all aspects of crops and farming and the latest improvements and technological innovations (Herndon 1969, 432; Wasch 1990, 55). Experiment stations played a role in steadily increasing per acre production of tobacco (Martin 1992, 6). The Maryland Agricultural College established the Maryland Agricultural Experiment Station in Prince George's County in 1888 (University of Maryland 2008).

The introduction of the Machine Age did not substantially change tobacco farming practices. For economical reasons, few farmers owned tractors. Horses, mules, or oxen were employed to till fields. The plants were still tended and harvested manually, as was hanging tobacco in the curing barn and stripping. Labor typically consisted of low-skilled workers in the fields. Experienced tobacco sorters and packers required additional skill and these workers garnered a slightly higher wage. In 1880, field hands earned $8 a month, while a male day laborer earned fifty cents per day, and woman earned twenty-five cents plus boarding (Wasch 1990, 55).

THE RESURGENCE OF MARYLAND TOBACCO, 1900–1980S

The economy of Southern Maryland was based entirely on farming until about the last quarter of the twentieth century. There were no other major industries and, consequently, no other jobs. The region's residents either worked on a farm or worked on the water (Sundermann 2005, 96). Tobacco was still the cash crop in Southern Maryland. By the early twentieth century, after floundering for more than three decades to rebuild itself after the Civil War and compete with other tobacco-growing regions in the United States, the tobacco industry in Southern Maryland had fully recovered and was starting to experience significant growth. To illustrate the renewed importance of tobacco in this region, a 1935 report on the production and consumption of Maryland tobacco notes that 5,477 farms cultivated tobacco on almost 33,000 acres of land in the state: 99 percent of the tobacco acreage was in Southern Maryland's Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's Counties. More than two-thirds of the farms in Southern Maryland produced tobacco and the sale of tobacco accounted for more than 40 percent of the total value of all farm products sold and used by these farms (Hurley and DeVault 1935, 191).

The Maryland tobacco industry flourished throughout much of the twentieth century. This was a period of significant growth, when both the production and price of Maryland tobacco soared. The Maryland tobacco economy had not experienced such success since before the Civil War. The resurgence of Maryland tobacco in the twentieth century can be attributed to the rise in popularity of cigarettes, both in Europe and most especially in the United States.

During the first quarter of the twentieth century, a significant portion of Maryland tobacco was exported to European countries, which valued its aroma, slow and even burning quality, and low nicotine and tar content for its tobacco products (Martin 1991, 17). In fact, during the 1920s, more than 40 percent of the crop was

exported. The largest importers of Maryland tobacco were Switzerland, Sweden, France, The Netherlands, and Germany (Hurley and DeVault 1935, 188, 285). Switzerland, in fact, became an important buyer of Maryland tobacco in the twentieth century. Cigarette smoking increased in Europe after World War I, and Swiss manufacturers preferred Maryland tobacco for their cigarettes. By World War II, 42 percent of all cigarettes manufactured in Switzerland contained Maryland tobacco (Tobacco Institute 1971, 31). As Maryland leaf comprised 50–60 percent of the tobacco in Swiss brand cigarettes, Switzerland remained the top importer of Maryland tobacco during the second half of the twentieth century; for example, in 1970, Switzerland purchased 7.2 million pounds of the total 12.2 million pounds of Maryland tobacco that was exported (Tobacco Institute 1971, 12–13).

Cigarette consumption was also on the rise in the United States. The modern American-blend cigarette was developed during World War I in 1913, and Americans embraced cigarette smoking almost immediately. Tremendous increases in consumption of cigarettes occurred after World War II and production skyrocketed. American cigarette manufacturers used Bright Leaf and Burley tobaccos as the main components of cigarettes (50 percent and 42–43 percent, respectively). An imported Turkish sun-cured tobacco was a minor component (5 percent), as was Maryland leaf, which was used in American-blend cigarettes for its mildness and even-burning quality. Maryland leaf made up approximately 2–3 percent of cigarette tobacco (University of Maryland Bureau of Business and Economic Research 1954, 24).

The popularity of the cigarette stimulated Southern Maryland's tobacco economy. The demand for Maryland tobacco for domestic cigarette production, which had started in the 1910s, really accelerated after World War II. By the late 1940s, Maryland's tobacco market included all five major American cigarette manufacturers; in the previous decade, only a few manufacturers were represented in the market (University of Maryland Bureau of Business and Economic Research 1954, 15; Weinrich 1949, 29).

As the demand for Maryland tobacco rose, so did its market price. In the period between 1938 and 1945, the price per pound of Maryland tobacco soared from $18.32 to $57.05, a threefold increase (Weinrich 1949, 28). The amount of tobacco produced remained relatively steady during this eight-year period, averaging about 28.5 million pounds each year (University of Maryland Bureau of Business and Economic Research 1954, Table 8; Weinrich 1949, 28).

In the mid-twentieth century, the heart of tobacco production in Southern Maryland was in Calvert County, eastern and southern Prince George's County, eastern Charles County, northwestern St. Mary's County, and the southern third of Anne Arundel County. The farms in these areas had the largest percentage of cropland producing tobacco. Farms in adjacent areas to the west and south also had notable percentages of cropland devoted to tobacco. The extreme northern and western portions of Anne Arundel and Prince George's Counties, western Charles County and the southern tip of St. Mary's County had the least amount of cropland devoted to tobacco in Southern Maryland (Weinrich 1949, 8, Plate III).

In 1944, 5,611 farms in Southern Maryland had 43,588 acres planted in tobacco. This acreage yielded more than 31.3 million pounds of tobacco. Calvert County was the most intense area of production, with nearly 50 percent of its harvested cropland (8,476 acres) yielding just over 6 million pounds of tobacco. However, because of its size, Prince George's led all five counties in the number of tobacco farms (1,365), acres (12,418), and production (8.8 million pounds). Anne Arundel had the fewest number of tobacco farms (758), smallest amount of production (just under 4.9 million pounds), and second smallest amount of tobacco acreage (7,570); St. Mary's had the fewest tobacco acreage (7,346) (Weinrich 1949, 9). Interestingly, although St. Mary's County had the smallest amount of tobacco acreage, its yield of 801 pounds of tobacco per acre was highest among the other counties.

According to U.S. Census of Agriculture statistics, the monetary value of tobacco production (importance to agriculture and economy) in Southern Maryland in 1944 far exceeded the other crops grown for sale in the region, which included corn, wheat, hay, truck produce (vegetables and fruit), and soybeans (Hurley and DeVault 1935, 191). Specifically, in Anne Arundel, Charles, Prince George's and St. Mary's Counties, the value of the tobacco grown in each county was anywhere from 2.75 to 4 times higher than the next four crops combined. In Calvert County the value of the tobacco crop (just over $3.3 million) was a staggering eight times higher than the four grain and vegetable crops combined (just over $402,000 in corn, wheat, soybeans, and hay combined) (Weinrich 1949, 6).

The prosperity of Southern Maryland's tobacco culture continued in the third quarter of the twentieth century. At its peak in the mid-1950s, Southern Maryland produced more than 38 million pounds of tobacco on more than 47,500 acres of land. The yield was valued at just under $18.6 million. Prince George's led the other four counties in number of tobacco acres and yield (McKee 1959). It was not uncommon to see scaffolding used to air-cure tobacco on Southern Maryland farms during this prosperous time of increased yields. Farmers short on barn room would use scaffolding to gain more curing space. The scaffolding was typically erected next to the barn and covered with a plastic cover to protect the leaves in case of rain (McKee 1960b).

In the agriculture of Southern Maryland, black and tenant farmers had an important role in the recovery and revival of the tobacco producing areas in the twentieth century. Sources of labor were scarce and expensive in the tobacco region (Weinrich 1949, 31). Furthermore, labor was the costliest part of growing tobacco. It required several hands in growing, harvesting, housing, stripping, and sorting the crop for market. According to a 1931 study on the distribution of cost in producing and marketing one acre of tobacco in Southern Maryland, labor accounted for almost 42 percent of the total cost of a tobacco crop. The next costliest item, at less than 18 percent of the total cost, was the cost of the barn(s), tobacco sticks, and prize (Hurley and DeVault 1935, 208–210, 214, 215).

Black and tenant farmers provided the necessary sources of labor to produce large quantities of the labor-intensive crop. Agricultural statistics demonstrate the significance of black and tenant farmers and tobacco production in Southern Maryland. In 1929, approximately one-half of the tobacco produced in Southern Maryland was cultivated on farms operated by tenants and one-tenth by sharecroppers (Hurley and DeVault 1935, 282). In the same year, approximately one-fourth of the total amount of tobacco produced was by black farmers (Hurley and DeVault 1935, 194). These trends continued into the mid-twentieth century. One author's study of 1944 agricultural census statistics found a higher percentage of black farmers in the most intensive tobacco-growing areas in each of the five Southern Maryland counties. Similarly, tenancy was also high in these areas. For instance, in Calvert County, which had more farms producing tobacco than the other four counties, the percent of black farmers in tobacco production was almost 50 percent, and approximately 45 percent of tobacco farmers were tenants (Weinrich 1949, 10, 11, 13, 14).

The typical owner-tenant arrangement used for farming tobacco in Southern Maryland during the twentieth century was for the tenant to furnish the labor, work animals, machinery, and one-half of the materials. Profits from selling the crop were divided equally between the owner and tenant. Other owner-tenant arrangements included raising the crop on shares, with each receiving half the crop (Hurley and DeVault 1935, 231).

In the first half of the twentieth century, farm ownership by African Americans increased as a second generation of African American tenant farmers had saved enough money or could secure a loan or mortgage to buy their own farms. The Ponds Wood Road Community (CT-1314) in Huntingtown, Calvert County is representative of the advancement of African Americans from tenancy to landownership. The rural district encompasses 14 farmsteads with a combined total of 250 acres of land flanking both sides of the 3.7-mile-long Ponds Wood Road (Maryland Route 575). The farmsteads comprise modest dwellings with at least one tobacco barn and other agricultural outbuildings. African Americans rented farm land in the Huntingtown area, which included Ponds Wood Road, after the Civil War. By the late nineteenth century, the Ponds Wood Road area began to transition from white to black ownership, as descendants of older white families moved away and black tenant farmers were in a better financial position. All the tobacco farms in the Ponds Woods Road Community are associated with first-time African-American landowners between 1889 and 1958 (Prola 2007).

Farmers of small amounts of tobacco acreage relied on seasonal workers to help cultivate their tobacco crop. Until about the mid-twentieth century, seasonal labor was easy to find. Few other jobs were available in the region and the pay was relatively good. Seasonal workers were primarily sought for the more laborious tasks in the tobacco cultivation process: topping, cutting, hanging, and stripping. Tenant farmers would also help after tending to their own crop. Farmers also relied on family members (Sundermann 2005, 39–40; Martin 1991, 16). Most tobacco farmers in Calvert County depended on hired workers from local African-American communities (Sundermann 2005, 87).

As has been demonstrated throughout this context, labor, and the availability of labor, is a dominant theme in the history of tobacco cultivation. Cultivating air-cured tobacco is not a process that lends itself to mechanization. While technological improvements advanced the cultivation of grains during the twentieth century, only one task in the tobacco cultivation process, transplanting, could be replicated by a machine. A transplanter set and watered young tobacco plants in rows in the fields, speeding up the process previously done by hand. Transplanting machines were used in Southern Maryland as early as the 1890s; however, the expense of the transplanter precluded its widespread use (Wasch 1990, 56). By about 1930, one-third of Southern Maryland farmers used horse-drawn transplanters to plant their tobacco (Hurley and DeVault 1935, 203).

Maryland farmers began to use mechanical transplanters drawn by tractors after World War II (Martin 1991, 31). Two to four workers sit on the transplanter, riding backwards to the row and placing the tobacco plant in the "fingers" in a conveyor-belt type of mechanism. Each finger catches a plant, and goes around and inserts it into the ground (Sundermann 2005, 14).

Since technological improvements would have little impact on tobacco culture in Maryland, faculty and staff with the University of Maryland[2] and private agricultural organizations researched and experimented with ways to efficiently produce better quality tobacco. Through its Department of Agronomy and Agricultural Engineering and its Agricultural Experiment Station, University of Maryland professors and students conducted investigations on a variety of aspects of tobacco farming in order to help Maryland farmers apply practical, scientific-based methods for better crop quality and higher yields. Early studies by the Maryland Agricultural Experiment Station were on the economy of Maryland tobacco production and marketing. This research generated agricultural experiments on tobacco seeds, crop production, pest management, and soil fertility. For instance, the University of Maryland's Department of Agronomy conducted studies on the most effective combinations of fertilizers and crop rotation to use on tobacco farms (Hurley and DeVault 1935, 203).

By the mid-twentieth century, the Maryland Extension Service was conducting experiments on nearly every aspect of tobacco farming, including the performance of different grades of tobacco, efficient stripping methods, the effects of environmental conditions on the curing process, and the optimum amount of ventilation in a barn. For instance, research conducted by the University of Maryland Extension Service on the tobacco experimental farm found that the use of fluorescent lights in stripping rooms resulted in better graded tobacco, and standing up with the use of a table to strip tobacco resulted in a 20 percent increase in output compared to workers who sat down (McKee et al. 1963). In experiments on barn design, the Extension Service found that barns with double driveways and wide doorways saved on labor, and a well-

2 The Maryland General Assembly created the University of Maryland in 1920 by merging the Maryland State College (formerly Maryland Agricultural College) in College Park and the old University of Maryland in Baltimore (University of Maryland 2008).

ventilated barn has vents in one-fourth to one-third of the area of each side wall (McKee et al. 1963, 7; University of Maryland Agricultural Experiment Station 1964, 12). The University of Maryland Extension Service produced a multitude of technical publications and fact sheets on the results of its research and experiments, which were available to farmers through the local county extension agents.

The University of Maryland and the Maryland Agricultural Extension Service also partnered with the USDA and the Maryland Tobacco Improvement Foundation on several tobacco research projects. The Maryland Tobacco Improvement Foundation was formed in 1950 to improve the quality of Maryland leaf tobacco through research and education. The programs of the non-profit organization were financed through contributions from the Maryland State Tobacco Authority, selling agencies, dealers, and the Association of Swiss Cigarette Manufacturers (University of Maryland 2007). The latter benefactor signifies just how important Switzerland was to the Maryland tobacco economy.

The Maryland Tobacco Improvement Foundation's most important program was the free tobacco seed program, which donated an annual average of 15,500 ounces of quality tobacco seed to Southern Maryland farmers. The organization's educational program included publications on a variety of topics related to Southern Maryland tobacco culture. These publications included the *Handbook on the Culture of Maryland Tobacco* and the newsletter *Tobacco Views and News*, with circulation reaching between 5,000 and 7,000. Tobacco Views and News frequently encouraged readers to consult their County Extension Agents for further information and assistance. Through these publications, the Foundation promulgated guidance on a number of topics to improve Maryland farmers' tobacco crops, and thus, their earnings, including types of tobacco seeds, fertilizing tobacco beds, irrigation methods, methods for heating and ventilating barns, locating and building barns, and stripping and grading tobacco (University of Maryland 2007).

The Foundation folded in 1968, but the Maryland Agricultural Experimental Farm carried on the free tobacco seed program and Dr. Claude McKee, Executive Secretary of the Foundation between 1957 and 1962, continued to produce its publications while serving as the Maryland Extension Service's Tobacco Specialist (University of Maryland 2007).

Fall of the Maryland Tobacco Industry, 1980s–2005

Maryland's tobacco farmers earned the highest profit in tobacco sales in 1982, at $57 million. They earned that profit by cultivating 27,000 acres of land, almost half of the acreage dedicated to tobacco in the 1950s (Valentine 2003, 73). However, dry weather devastated the quality of the 1983 crop: no rain fell during the growing season (Sundermann 2005, 37). The price of a pound of tobacco dropped by more than one-third from the previous year, and did not rise above pre-1983 levels for six years. This caused a financial disaster for many farmers who had increased production and invested in new barns and equipment within the past six to eight years because of high tobacco prices (Colbert 2001, 41; Martin 1991, 11). For instance, Jack Morgan and his business partner Clinton Goad grew 140 acres of tobacco in the St. Leonard vicinity, Calvert

County, which was one of the largest operations in Southern Maryland. Morgan and Goad filled 35 tobacco barns on several parcels of rented land, and had just completed a 48-by-108-foot barn in 1983; this barn would accommodate approximately 10 acres of tobacco, more than twice the storage capacity of the average tobacco barn in Southern Maryland. Morgan went into debt as a result of the steep drop in the tobacco price in 1983, and consequently took up another job and became a part-time tobacco farmer (Martin 1991, 11, 14).

The 1983 drought-stricken growing season could be considered the catalyst in a downward spiral of the tobacco industry in Southern Maryland. Beginning in the 1980s, a combination of factors led to the rapid decline of the tobacco industry in Southern Maryland. In *The Money Crop*, writer Anne Sundermann (2005, 47) pointed to three primary factors: high labor costs, less demand for Maryland tobacco, and high land values. Seasonal help was hard to find in the development boom of metropolitan Washington, D.C. and Baltimore, as higher-paying jobs that required much less physical effort than tobacco farming became increasingly available. Land values in rural Southern Maryland skyrocketed under intense development pressure. Compounding the situation was the dwindling demand for Maryland tobacco by the 1980s (Sundermann 2005, 47–54). The American tobacco industry as a whole started to downsize in the 1980s, as lawsuits, negative health claims, and negative publicity increased and the number of Americans who smoke decreased (Valentine 2003, 73). Swiss cigarette production also declined in the 1980s (Downey 1988). The disfavor and decreased demand of tobacco resulted in low prices.

Increased labor costs of hired help, coupled with lower market prices, reduced the profit margins for tobacco. Under these economic realities, many tobacco farmers reduced their acreage or sold their farms entirely (Sundermann 2005, 47–54). Between 1982 and 1987, the number of Maryland tobacco farmers plummeted 45 percent, from 2,489 to 1,357 (Downey 1988). Likewise, tobacco acreage declined almost 60 percent, to approximately 11,000 acres (Colbert 2001, 41). In 1988, tobacco sale prices had decreased 32 percent from 1980 levels (Downey 1988).

The Maryland State Tobacco Buyout Program, begun in 2001, accelerated the already rapid decline in tobacco production in Maryland. The concept of this program, developed by then Governor Parris Glendening and the State Assembly with the input of tobacco farmers, was to buy out tobacco farmers who agreed to grow any other crop but tobacco on their land. The program used nearly $80 million of settlement funds from the Master Settlement Agreement, the result of the lawsuit by the Attorneys General of 46 states, including Maryland, against the major U.S. tobacco manufacturing companies. The Settlement, signed on November 23, 1998, stipulated the tobacco companies would pay the 46 states a combined $206 billion over ten years (Sundermann 2005, 57; Valentine 2003, 70, 73).

Under the Maryland State Tobacco Buyout Program, any farmer growing tobacco in 1998 was eligible to take the buyout. For each eligible farmer who opted to take the buyout, the state agreed to pay a set sum ($1 per pound, based on the farmer's production from 1996 to 1998) for the next ten years in exchange for the

farmer's promise (in the form of a signed contract) to grow any other crop but tobacco on their land (Colbert 2001, 41; Valentine 2003, 73). The average buyout payment is $11,000 per year (Valentine 2003, 73). According to Sundermann (2005, 59), Maryland will pay tobacco farmers $7.9 million over the next 12 years.

Governor Glendening cited three primary goals for the state tobacco buyout program: improve the health of Marylanders, educate Maryland residents on the risks of smoking, and get "Maryland's tobacco farmers out of tobacco production and into life-sustaining crops, while preserving the rural-agricultural heritage in Southern Maryland" (Sundermann 2005, 57–58). Governor Glendening believed it was contradictory for Maryland to receive and use the settlement money from the Master Settlement Agreement to help people to quit smoking and prevent young people from starting while the state's farmers continue to grow tobacco. Because the state of Maryland still values farmers and supports state agriculture, the Governor's idea behind the tobacco buyout plan was for farmers to use the buyout money to transition to another profitable crop (Valentine 2003, 73).

A total of 690 of the 1,017 eligible farmers (68 percent) took the buyout in the first year of the program. By January 2005, 83 percent of the farmers had signed up for the buyout. The tobacco industry in Southern Maryland was immediately impacted by the buyout program. Less than 500,000 pounds of tobacco was produced in 2002, one-third of the total yield from just two years prior (Sundermann 2005, 59). By 2002, only 1,200 acres in Southern Maryland had harvested tobacco (Hirsch 2004).

Before the tobacco buyout, it was a substantial financial risk for a tobacco farmer to switch to another profitable crop. According to an example in one source from 1988, a farmer would need to borrow a minimum of $100,000 to purchase the equipment necessary to convert from tobacco to hay production. Consequently, farmers who decided to give up tobacco farming sold their land. Many of the farms were subsequently developed, particularly in Prince George's and Charles Counties (Downey 1988). After the buyout, the risk was diminished because the annual buyout payment provided a secure income. On the other hand, other crops typically have much lower earnings per acre than tobacco (Sundermann 2005, 79). The alternative agricultural products that former tobacco growers have been growing or raising since the buyout include hay, Christmas trees, sod, grains (e.g., wheat), flowers, beef cattle, goats, berries (U-pick berry farms), grapes for wineries, herbs, and vegetables such as corn, tomatoes, peppers, cucumbers, and green beans (Colbert 2001, 42; Valentine 2003, 73).

Amish and Mennonite farmers in Charles and St. Mary's Counties have stayed in tobacco production. They have not taken the state tobacco buyout because their religious beliefs preclude them from making contractual agreements with government agencies. At the 2003 auction, the approximately 150 tobacco growers left in Southern Maryland sold between 2.3 and 2.4 million pounds of tobacco: Amish and Mennonite farmers accounted for an estimated 50 to 60 percent of this total. Before the state buyout, the

Amish and Mennonites produced approximately 10 percent of the total Maryland crop (Sundermann 2005, 90–91).

The continued commitment of the Amish and Mennonites to tobacco production may be tenuous, as fewer buyers attend Southern Maryland's tobacco auction. With the quantity of the crop diminishing, the number of domestic buyers had decreased from seven to three by 2005 (part of the crop was still being exported to Switzerland and Germany) (Sundermann 2005, 80).

The eventual demise of the tobacco industry jeopardizes social and cultural traditions in Southern Maryland. Tobacco farming was important to the social structure of Southern Maryland communities. Because of their labor intensive nature, harvesting and stripping tobacco provided opportunities for family and friends to socialize while they worked. Similarly, the tobacco auctions were important community gatherings. The spring auctions were social occasions, attended by the farmers and their families to socialize. As such, selling tobacco at the warehouse was a big part of tobacco culture because it was the only time of the year to see fellow farmers and friends (Valentine 2003, 72). Southern Maryland used to have thirteen auction houses. One by one, auction houses closed as production of the crop dwindled. Only the Hughesville Tobacco Warehouse was open in 2005 (Sundermann 2005, 35, 82, 83).

The other potential victim of an end in tobacco production in Southern Maryland is the tobacco barn. In May 2004, the National Trust for Historic Preservation included Southern Maryland tobacco barns in its 2004 list of America's Eleven Most Endangered Historic Places. The National Trust indicated the primary threats to the survival of Southern Maryland's historic tobacco barns are the consumption of the region's tobacco fields for suburban residential and commercial development and the state tobacco buyout program (National Trust for Historic Preservation 2004). For those tobacco barns that do not succumb to development, dozens of others stand in disuse and slowly deteriorate after farmers took the tobacco buyout. For instance, John C. Prouty took the buyout in 1999. At the time, he had been raising six acres of tobacco on his 160-acre farm on the Patuxent River in Calvert County. He now grows flowers and reuses his 1962 tobacco barn to hang and dry flowers instead of tobacco. As of 2004, his six other tobacco barns stood empty (Hirsch 2004).

Tobacco barns are challenging to adapt for different uses because the tiers of poles and posts used to support the hanging tobacco occupy much of the barn's interior volume. The Southern Maryland Tobacco Barns Preservation Initiative was formed in the latter part of 2005 to develop a number of strategies to help ensure the survival of Southern Maryland's historic tobacco barns and the agricultural landscape. The Initiative comprises the National Trust, Preservation Maryland, the Maryland Historical Trust, the region's five county governments, and selected heritage tourism organizations. Preservation Maryland administers the Initiative, which uses various incentives, planning tools, and resources to forward its preservation goals. These include a Tobacco Barn Restoration Fund, an outreach and education program to raise awareness of tobacco barns

and how they can play an important role in heritage tourism, a public policy agenda that addresses the threats against tobacco barns, an information clearinghouse to share and disseminate information, and historical surveys of the region's tobacco barns (Preservation Maryland 2005).

TOBACCO MARKETING AND REGULATIONS, 1620S–1980S

Tobacco has been grown, marketed, and to varying degrees, regulated, since the earliest settlements of the American colonies. England encouraged the establishment of tobacco monopolies in Virginia as early as 1621 when a bill banned the practice of growing tobacco in England, with the exception of small medicinal gardens, so as to maintain the taxes levied on the tobacco imports from Virginia and Bermuda (McGrew 2007). The general marketing system that developed in Maryland and Virginia would continue for more than 300 years (Robert 1949, 19).

Maryland enjoyed relative legal independence from English authority over the regulation of tobacco during the seventeenth century. Unlike Virginia, which was ruled by direct representatives of the king and therefore viewed as a dominion, Maryland enjoyed free, unrestricted trade. Early on, however, Virginia grew a different type of tobacco, called Sweet-scented for its aromatic qualities, and it fetched higher prices than Maryland's Orinoco tobacco, which was considered too strong for English tastes (Foster 1983, C-5; Wyckoff 1936, 51).

Shortly after its first settlement in St. Mary's, Marylanders established tobacco trade routes to the Netherlands and elsewhere, giving the state an advantage over its southern neighbor. The proceedings of the Maryland General Assembly indicate that by 1639 tobacco began to play a larger role in the state's economic affairs. Two laws enacted at that time are evidence that tobacco was used in trade with other countries. The first law was the requirement of an export duty of five pounds of tobacco for every 100 pounds of weight. The second law, called the two-acre law, mandated that every tobacco planter also planted two acres of corn. Tobacco was the preferred cash crop, but the Maryland General Assembly required planting corn as reassurance against famine. Banking records also show that tobacco was used as credit (Wyckoff 1936, 51).

There was no uniform system for marketing tobacco in place during the seventeenth century. Tobacco growers and buyers did not benefit from a centralized or overseeing authority to regulate the grade, quality, and price of tobacco brought to market. Tobacco growers usually packed tobacco in a variety of ways for shipping, using both hogsheads and large, 100-pound rolls of tobacco. Since the seventeenth century, large hogsheads, which were large casks of tobacco weighing up to 650 to 800 pounds, were packed tightly with layers of tobacco and shipped to the hogshead markets in the region's cities for sale and export from Maryland. When nearly all the tobacco grown in the colonies was shipped, the tightly packed hogshead saved space on the ship and prevented deterioration (Hurley and DeVault 1935, 233). Some of the planters began the packing process of stripping, whereby the leaves are separated from the stem. Stripping reduced the mass of the tobacco shipped and benefited the farmer with customs duties, which were levied by weight

of the cask. This method was opposed by government officials, however, because it altered the weight of the hogshead (Wyckoff 1936, 58).

Tobacco growers negotiated their price individually. Some sold their hogsheads to an English merchant or ship captain traveling through the colonies. Other planters shipped their tobacco hogsheads directly to England on consignment. Often farmers with a small production sold their crop to a larger farm, but this practice fetched lower prices. Generally, the price for the tobacco was bargained on the basis of the quality and size of the crop and the state of the tobacco economy at the time. Either the tobacco grower or his agent would conduct the negotiations with the buyer (Menard 1973, 80).

The early colonies could not have survived without the proceeds of the tobacco industry. Although the Mid-Atlantic plantations were primarily self-sufficient, the economic relationship between Maryland and Virginia and the Crown was a symbiotic one. As the Chesapeake plantations cultivated a hearty tobacco export for Britain, in turn, Maryland and Virginia relied on British merchants for imported manufactured goods (Robert 1949, 19). Consequently, a representative of a British mercantile became an important figure in the early economic life of the tobacco region. Local British merchants who maintained a "store" in the colonies could also buy the hogsheads directly from the farm, where the farmer could purchase the imported goods he needed. Only the most prosperous tobacco growers, however, could afford to negotiate directly with British merchants (MacMaster 1968, 172; U.S. Agricultural Marketing Service, Tobacco Division 1979, 1). Over time, the London consignment merchants were replaced by British merchants who could buy the tobacco outright. At the same time, tobacco farmers increasingly sold their tobacco to resident British merchants and then purchased goods against their balance at mercantile establishments in port cities such as St. Mary's and Annapolis (Middleton 1984, 50–51).

Merchants who traded directly with planters were apt to easily take advantage of the planters' dependence on their imported merchandise, which carried prices that were often inflated. Many planters in both Maryland and Virginia who suffered from the steep cost of trade appealed to the Crown with petitions to reduce customs and imports. When the colonies began to strain from debt over the high commissions charged, they turned to trading with other countries where the fees were more reasonable. A Royal commission founded in 1635 recognized the plight of the tobacco grower and conceded to keep the tobacco trade fair. The impetus for coming to the aid of the tobacco growers was perhaps in part due to concern for human welfare, but more likely an effort to keep the tobacco trade within the English market and out of the hands of foreign merchants (Wyckoff 1936, 63).

In 1658, competition between Maryland and Virginia caused the Privy Council in Britain to enact laws that required the two states to standardize the dimensions of the hogshead. Maryland was ordered to conform to Virginia's larger previously established size of hogshead. Most merchant ships carried both Maryland and Virginia tobacco and it was important for the hogsheads from both colonies to be of the same size since

English ships were constructed to carry a specified number of hogsheads. However, there also were strong economic reasons to enlarge the hogshead size. While the shipping duties were paid by the number of hogsheads, the tobacco contents were sold by weight, making larger hogsheads less taxed and therefore, more profitable (Middleton 1984, 129). Nonetheless, irregularities in sizes of hogsheads continued until an inspection system was implemented in the mid-eighteenth century (McGrew 2007).

The more serious problem of overproduction caused an economic crisis in Maryland during the late 1660s. Economic pressure caused the Maryland General Assembly to pass an act that stopped tobacco cultivation for a period of one year from 1667 to 1668 in an effort to stimulate trade for the glut of tobacco that was already on the market at that time. Lord Baltimore openly opposed the plan. The act would not be effective unless the other two tobacco-growing regions in the colonies, one in Virginia and one in North Carolina, also agreed to cease all tobacco farming for the one-year period (Wyckoff 1936, 81). The two states signed off on the Maryland bill, but the regulation did not prove to be very effective at controlling the market (McGrew 2007).

The economic problem of the oversupply of tobacco continued through the 1670s, causing low prices and the low quality of the tobacco crop. In 1681, Virginia and Maryland had amassed a two-year supply of tobacco on hand in the London warehouses, with enough hogsheads to last five years (Wyckoff 1936, 90). At that time, the 40 million pounds of tobacco produced in the Chesapeake constituted all of the tobacco produced in all of Britain and its colonies (Robert 1949, 19). In 1682, the Virginia General Assembly tried again to instate a mandatory suspension on growing tobacco, but this time the law did not pass. Taking matters into their own hands, tobacco growers began burning their crops and those of their neighbors in a riotous backlash. The events resulted in a law making it a criminal offense to destroy tobacco (McGrew 2007).

The tobacco industry in Maryland and Virginia continued to fluctuate according to the tobacco produced and its quality during the 1700s. Since virtually no domestic market existed at that time, the vast majority of tobacco produced in the colonies continued to be exported (U.S. Agricultural Marketing Service, Tobacco Division 1979, 1). In 1712, Whitehaven, a small port on the northwest coast of England, imported 1.6 million pounds of tobacco from Maryland and Virginia. By 1740, the imported tobacco had increased to 4.4 million pounds. Other ports of trade continued in England throughout the eighteenth century (MacMaster 1968, 172).

Economic depression in the early 1700s forced the Maryland and Virginia legislatures to adopt new laws that outlawed low-quality tobacco exports. Measures were taken against planters who packed hogsheads with sticks and tobacco stalks in order to weigh down the load with less tobacco and falsify its contents. A law passed in 1704 that outlawed dishonest packing was the first to do so (Hurley and DeVault 1935, 189). Packing ground leaves, which were of low quality, was also prohibited. In 1713, in an effort to provide quality control, the Virginia House of Burgess voted to create forty public tobacco warehouses, each

equipped with inspectors. The act was unpopular and initially defeated, but was reintroduced when economic hardship continued into the early 1720s. Maryland would not enact an inspection system until later, and instead relied on oaths, fines, and informers, all which did not encourage enforcement (Foster 1983, C-5; McGrew 2007).

The early 1700s also introduced the practice of stripping tobacco in Virginia. Stripping, the practice of removing the tobacco leaves from the stem, reduced the bulk of the shipment by one quarter, which then saved the grower additional costs in packing, shipping, inspection, insurance, and duties. Eyeing the loss of duties from the new method, the English crown banned the practice of stripping in 1722. In response the persuasive Virginian John Randolph was sent to England to repeal the act, and was successful in this endeavor. Stripping would later be practiced by all the tobacco growing colonies (Middleton 1984, 129).

By 1730, Virginia's warehouses and the inspectors were in place and the new system appeared to be successful and even gave Virginia growers an edge over Maryland. Observing Virginia's new inspection program, Maryland's tobacco growers became moved to employ the same system. The Maryland General Assembly, led by Lord Baltimore, refused. Farmers frustrated by the continual low quality of Maryland's exported tobacco revolted against the General Assembly, and in 1747, Maryland finally adopted the official inspection system championed by Virginia. The move was viewed as critical to the state's economical vitality at that time since the tobacco industry still was central to both Maryland and Virginia's social and economic structure (McGrew 2007). After the new regulation was passed, the inferior tobacco crop was burned, ensuring that only the highest quality of tobacco would be brought to market. In 1732, when tobacco quality had improved, the Maryland General Assembly permitted the use of tobacco as a means of currency for repayment of debts and salaries (Foster 1983, C-5; Hurley and DeVault 1935, 189).

With the inspection system in place, Maryland tobacco growers gradually began to sell their crop at colony warehouses. The warehouses initially were located at the region's tidewater ports, but by the 1750s, nearly all the tobacco grown in Maryland was sold through Baltimore's hogshead markets. This practice would continue until 1939, when loose leaf markets were first introduced in Maryland as an alternative to hogshead markets. The colony warehouses eventually consolidated into one warehouse located in Baltimore (Baker 1957, 21).

In 1750, most of the tobacco produced in the Chesapeake region of Maryland and Virginia was shipped directly to England. This was due to England's laws, enacted nearly a century ago, requiring all tobacco to be sent first to England, or one of its colonies, and to pay customs duties before being shipped to other countries (Mumford 2002, 7). The tobacco duties cost the colonies more than any other crop and increasingly irritated tobacco growers. Many historians believe that this contention contributed to the growing unrest that would lead to the American Revolution (Foster 1983, C-5). Tobacco growers also paid export duties to the Maryland government as well, and this provided a substantial amount of its revenue.

The proceeds from the export tax rose from 2,500 pounds sterling in 1700 to 3,000 pounds sterling just before the Revolution, in the 1770s. Both Maryland and Virginia levied a "plantation duty" of one penny per pound of tobacco against its tobacco growers to tobacco traded between the two colonies or with any other British colony. This tax did not generate much revenue due to the lack of trade between the colonies (Middleton 1984, 125).

While Maryland and Virginia were thriving on the tobacco trade, tobacco farming outside of the Chesapeake region was slower to take root during the seventeenth colony. When colonists settled in South Carolina in 1670, they were looking for a crop that was well-suited to its warm climate and its soils, and that was marketable in Europe. English investors supported experimentation in this endeavor and were hoping to fill a void by producing crops that could not be produced elsewhere. Because of South Carolina's southern latitude, these investors were hoping they could cultivate silk, citrus, olives, and wine. None of these, however, were produced with much success. Meanwhile, the colonies were expensive to support and proprietors were becoming eager to generate a self-supporting crop (Prince 2000, 2).

Since Maryland and Virginia were the first colonies to produce tobacco successfully, other states, such as South Carolina, tried to follow its example. Although tobacco had also been proven its worth as a temporary crop in Barbados, English proprietors did not consider tobacco to be a permanent solution because tobacco overproduction in Maryland and Virginia had already saturated the market by 1670, and as a result, it was selling cheaply. Nevertheless, South Carolina's climate was well-suited for tobacco farming and the colony pursued it early on (Prince 2000, 3). The southeast's effort of early tobacco production was short-lived; however, as import taxes, overproduction, and more lucrative crops such as rice impacted the tobacco market (Prince 2000, 7). The second significant period of tobacco cultivation in the lower southeast did not emerge for another 200 years after new curing technologies turned tobacco into a more profitable commodity.

Meanwhile, Maryland and Virginia began to face competition from tobacco farming from the emerging Kentucky tobacco regions. Kentucky began to come forward as an important commercial rival in the late 1780s after New Orleans was freed of the Spanish embargo, which opened the trade routes to the Atlantic Coast and Europe via the Mississippi (Van Willigen and Eastwood 1998, 11).

Debts were commonplace within the tobacco industry due to the unsatisfactory nature of trade that depended solely on the honesty, taste, and care of the consignment merchant. Trading tobacco for English goods, the tobacco planter relied on the merchant to act on his behalf in England in his purchases of anything from small, everyday supplies to furniture. Charged with the task of running errands for the tobacco planter, records show that most of commission charges to the farmer were generally reasonable. Farmers who overestimated the value of their crop, however, found themselves in debt to the merchant. Most of the tobacco planters during the 1700s were in debt to the consignment merchants. Many of the merchants extended credit to the planters so as to allow them to continue farming, but the debts grew and were passed

down from generation to generation. This system fostered dependence on the merchants, relinquishing even more power to them. After the Revolutionary War ended, under the Treaty of Paris, the debts that many planters had to British merchants were upheld, continuing the debt of some tobacco growers (Foster 1983, C-5; Middleton 1984, 118).

The larger planters in the Chesapeake region competed with the British merchants by buying tobacco from the region's smaller farms, and by chartering or owning their own ships to transport their crop to England. Like the merchants, they imported goods bought in England and charged a commission for them and even extended credit to the small-farm growers. These merchant-growers shared the power that many of the merchants enjoyed (Middleton 1984, 122).

The Revolutionary War slowed all trade from the colonies, and slowed tobacco farming and production in Maryland as well. The manufacture of tobacco products following the war turned inward and small tobacco manufacturing plants began to appear in America. Although the tobacco regions of Southern Maryland would never rise to the level of production and prominence that it enjoyed before the war, Maryland's tobacco continued to be prized as high-quality tobacco. Maryland's Orinoco tobacco was considered to be too strong during the 1600s, but by the early 1800s, Orinoco began commanding higher prices on the domestic markets (Foster 1983, C-5). The first tobacco products produced in the independent states took a rolled or twisted form that could be chewed, smoked, or grated for snuff. By the early 1800s, plants began to manufacture cigars using domestic tobacco leaves (U.S. Agricultural Marketing Service, Tobacco Division 1979, 20).

The Chesapeake region had firmly established itself as a leading tobacco-producing state from the earliest period in the American colonies by 1800, but the neighboring tobacco regions were becoming competitive. Out of the 105,000 hogsheads produced in America in 1830, 45,000 were from Virginia, 30,000 came from Maryland, and the remaining 30,000 were grown in the western tobacco region of Kentucky and Tennessee. While Virginia's tobacco was considered higher in quality than tobacco west of the Appalachians, by the mid-1800s, tobacco grown in Kentucky and surrounding areas had vastly improved in quality and effectively competed with Maryland and Virginia (Robert 1949, 55).

Maryland tobacco regulations at the turn of the nineteenth century increasingly looked to the markets and warehouses in Baltimore. The first tobacco warehouse had been erected in 1750 in Baltimore. By the 1790s siltation was preventing passage of large vessels in the upper Patuxent River and secondary waterways of Southern Maryland, and Baltimore, at the head of the Chesapeake Bay, was a growing commercial center. Warehouses in the tobacco farming areas eventually closed and relocated to Baltimore where the market consolidated (Hurley and DeVault 1935, 234; King 19 90). In 1801, Baltimore gained its first public warehouse. The State Tobacco Warehouse was built in 1843 (Compton 1977, 63). By 1864, five storage warehouses and inspection houses opened in the city (Hurley and DeVault 1935, 234).

Baltimore's hogshead market system quickly established a monopoly on the Maryland tobacco trade. In 1845, the *American Farmer* reported that,

> "the city is becoming a grand depot of Tobacco for the U. States [sic]. Notwithstanding the 5th Inspection Warehouse has been opened this spring... the next Legislature will be compelled to direct the erection of additional warehouses... The receipts for the months of May and June average 9,000 hogsheads each!"

While farmers blamed the tobacco merchants for lowering the prices fetched at the market, merchants blamed farmers for growing too much tobacco and of low quality. Some farmers urged others to reduce the acreage devoted to tobacco to drive the value up. Tobacco from competing regions from the west also appeared in the Baltimore markets to the consternation of Maryland growers. In 1847, a group of tobacco growers from Prince George's County lobbied to establish market houses in each of Maryland's tobacco counties instead of centralizing the market under Baltimore's authority (Wasch 1990, 50).

Throughout the 1800s, Maryland's principal market was located in Baltimore, which was favored for its attractive warehouse policies. A smaller portion of Maryland tobacco was sent to Georgetown and to Alexandria, Virginia, where it was exempt from Virginia tobacco inspection laws (Robert 1949, 67, 68). By the early 1800s, some of Maryland's tobacco was also sent to Philadelphia, and farther off to the New Orleans trade port. However, the long distance to Louisiana and the delay in profit returns prompted tobacco growers to sell to manufacturers and middlemen instead for a quicker return in funds (Robert 1949, 68).

By the mid-nineteenth century, America was considered to be the world's great tobacco-growing country. Virginia took the lead to dominate the industry during this time. In 1859, America produced a total of 370,640,000 pounds of tobacco, with 124 million pounds credited to the Commonwealth, which produced more tobacco than the other states by far. That year, Kentucky supplanted Maryland in tobacco production by producing the second largest quantity of tobacco, 108 million pounds. Trailing third that year were Maryland and Tennessee, each producing 38 million pounds. North Carolina and Ohio tied for fourth, each producing 25 million pounds (De Coin 1864, 264, 306). Although Maryland produced a better-than-average tobacco leaf, part of the reason for its decline by the mid-1800s was due to the emergence of Kentucky-grown Burley tobacco, which was favored for chewing and smoking tobacco (Foster 1983, C-5).

By the end of the nineteenth century, cigarettes were introduced and America embraced cigarette smoking (Prince 2000, 17). The first commercially viable cigarette-making machine was invented in 1872 and production of the new tobacco product skyrocketed (U.S. Agricultural Marketing Service, Tobacco Division 1979, 20). By the early 1900s, Virginia and South Carolina became the centers of cigarette production due to the development of Bright Leaf tobacco, a new, smoother and milder type of tobacco that was particularly well-suited for cigarettes. The previously produced varieties of tobacco were considered to be too strong and were better suited for chewing tobacco and pipe smoking. The lighter Bright Leaf tobacco plant was more

palatable and thus more marketable (Prince 2000, 46, 47). The first use for the Bright Leaf, or flue-cured, tobacco was for cigar plug wrappers, but the tobacco was quickly discovered for the new "quick smoke" cigarette. The low-nicotine content quickly gained worldwide notoriety. However, Burley tobacco, which was also used for cigarettes, brought competition to the Bright Leaf farmers (Robert 1949, 185).

The modern American-blend cigarette was developed during World War I when in 1913, the R. J. Reynolds Tobacco Company introduced the first cigarette, under the brand Camel. Cigarette tobacco consisted of mostly flue-cured Bright Leaf, Burley, and to a lesser extent, Maryland tobacco. The white Burley tobacco grown in Kentucky and its surrounding states was considered to be ideal for the cigarette, and production of Burley soared thereafter (Van Willigen and Eastwood 1998, 13). In contrast, fire-cured and dark air-cured tobacco grown for cigars, chewing, smoking, and snuff declined by 50 percent during this period (Robert 1949, 222).

Increasing cigarette smoking shifted tobacco growing patterns toward a dramatic increase in cigarette tobacco farming between 1913 and the late 1930s (Robert 1949, 222). By the 1930s, flue-cured Bright Leaf tobacco was the most valuable import and export tobacco over all the other leaf classes combined (Robert 1949, 213). However, the impending war in Europe hampered tobacco exports. Before 1939, a substantial percentage of Maryland tobacco was shipped to Switzerland, the Netherlands, and France, but this decreased after the beginning of war. Conversely, domestic tobacco use rose during the wartime period due to the increasing popularity of cigarettes at home (Everstine 1942, 2).

In order to establish a federal system of inspection and leaf classification, Congress' warehouse act of 1916 established a federal grading system of tobacco. The inspection system required a farmer to present his tobacco to a federal grader (Robert 1949, 212).

By the twentieth century, Maryland tobacco growers and buyers had established a regulated system of bringing tobacco to the Baltimore hogshead market. Maryland's marketing period during the late spring and summer months was unique to the region. Flue-cured tobacco from the southeastern regions was usually brought to sale during the fall and early winter months while fire-cured and dark air-cured tobacco grown in other regions was marketed during the winter season (Miller 1963, 5). Traditionally, tobacco growers brought the hogsheads to the warehouses by sloops, or boats called flats. During the 1700s, the hogsheads were also rolled over roadways where circular hoops were attached to the hogshead to help absorb the shocks (Middleton 1984, 114). Later railroad transportation was used and in the early 1900s, more shipments were made by truck. Upon arriving to the warehouse, the hogsheads were sampled using six representative hands of tobacco that were selected from a group of thirty-six hands. Sampling was done by a warehouse official or by a buyer. The inspectors graded the samples for the bidders to examine. The samples were then delivered to the commission house while the hogshead is stored (Everstine 1942, 6).

The warehouse was usually frequented by five or six buyers. They purchased the tobacco by submitting closed, secret bids based on the quality of the samples taken from the hogsheads. The hogshead was sold to the highest bidder, although the seller retained the right to reject a low bid. In the event of a sale, money exchanged hands promptly, and the seller took a small commission before sending the net sale to the tobacco grower. The buyers ranged from those who worked directly for factories to speculators purchasing tobacco for their own investment (Everstine 1942, 6, 7).

In 1920, a group of farmers dissatisfied with market prices organized the Maryland Tobacco Growers' Association, a cooperative that attempted to standardize prices. That same year, the Maryland State Board of Agriculture authorized an inspector of tobacco to oversee the tobacco warehouses in Baltimore. Tobacco wholesalers provided monthly reports to the Board that included the amount and average price of tobacco sold (University of Maryland 1976). There were four wholesalers in Calvert County alone (U.S. Distribution Census, Wholesale 1929). The Department of Agriculture eventually established a schedule of grades by 1929. This was protested by farmers, who were required to pay a fee in order for their tobacco to be graded by a federal officer, which was mandatory (Robert 1949, 212).

Seven warehouses operated in Baltimore, including one run by the Maryland Tobacco Growers' Association, in 1929 (Maryland State Board of Agriculture 1929). By that time, the Maryland market was dominated by only a few buyers. Between 1926 and 1929, 87 percent of all the tobacco sold at the Baltimore hogshead market was bought by four buyers. Over the next decade, only two buyers came to purchase 67 percent of the tobacco that was marketed (Baker 1957, 25).

In 1934, complaints from tobacco growers concerning the various phases of tobacco marketing led to a conference by the Director of the Extension Service of the University of Maryland to study the tobacco marketing industry. The conference was held in Baltimore on November 23, 1934, with members of the State Board of Agriculture, USDA, and sellers and buyers attending (University of Maryland Experiment Station and Extension Service 1935).

Around this time, demand for Maryland tobacco in Europe declined, affecting the state's tobacco export economy. The French had acquired a taste for cigarette tobacco during World War I, spurring the demand for Maryland tobacco, which was used in cigarette production. However, by the mid-1930s, France had begun to farm its own tobacco in its colonies, which was far less expensive that importing it from America. The Maryland tobacco export market to England also declined during the 1930s. The English preferred the Bright Leaf tobacco grown in southern Virginia and the Carolinas over Maryland air-cured tobacco for both pipe and cigarette smoking. Likewise, Germany's purchase of Maryland tobacco also dwindled between 1923 and 1934 when the country pursued tobacco cultivation on its own. Changes in tastes and new competition were abetted by rising import duties on Maryland tobacco, which rose from 3.3 cents per pound

in 1925 to 19.4 cents per pound in 1930 (University of Maryland Experiment Station and Extension Service 1935, 56, 57, 58).

Over the next few years, there were several laws that allowed for the collection of tobacco statistics and publications, but the main purpose of these statutes was to pave the road for the Tobacco Inspection Act of 1935. The act gave power to the Secretary of Agriculture to create an inspection of any tobacco market provided that he acquired consent from two-thirds of the growers from that market. The act also charged the Secretary with collecting and publishing information about the tobacco market, such as supply, demand, and market prices (Robert 1949, 212).

In the late 1930s, the Maryland government attempted to address problems in marketing tobacco, particularly its market in Baltimore, which exclusively used the closed market hogshead system. In 1939, the state established an office of the Commissioner of Tobacco Marketing, but the position's power to influence the current system was debatable. Moreover, although the Baltimore hogshead market came under the regulation of the State Tobacco Warehouse, there were no statutory regulations in place at that time for the loose leaf tobacco market, which emerged in 1939 in other areas of Maryland (Everstine 1942, 11).

In response to the changes in the market, in 1941, the Maryland General Assembly initiated the study of tobacco marketing and regulations in the state. After several conferences with the Maryland Tobacco Growers' Association, tobacco buyers, and operators of loose leaf warehouses, the General Assembly issued a series of thirteen recommendations. Most of the recommendations called for the enforcement of existing laws, streamlining the current procedures at that point, and for supporting the Maryland Tobacco Growers' Association for the benefit and fairness of tobacco growers (Everstine 1942, 81).

The General Assembly also determined that tobacco growers should have the option of marketing tobacco in hogsheads or in a loose leaf market. Since the 1600s, tobacco had only been marketed using hogsheads. The new loose leaf market allowed farmers to sell the product in flat baskets weighing about 100 pounds in an open bid market. In contrast, hogsheads were sold using a closed bid system. The first loose leaf market in Maryland was opened by Crosby Wyche, a student of the University of Maryland. In the new system, farmers labeled and displayed their entire crop for sale. Inspectors continued to grade loose leaf tobacco markets as they would with hogsheads, but the tobacco was available for close inspection by the buyer as well, which allowed the market to be fair and open (University of Maryland 1976). By 1941, about 75 percent of all Maryland tobacco was sold using the loose leaf market (Everstine 1942, III, V). In 1950, loose leaf markets encompassed more than 90 percent of the tobacco grown in Maryland. During this time, the number of hogshead warehouses was reduced from five to three (University of Maryland 1976).

Loose leaf markets were established outside of Baltimore when the open system emerged. The first successful loose leaf auction in Maryland occurred in 1939 at a new warehouse in Hughesville, Charles County, closer to the heart of Maryland's tobacco growing region. By 1941, the Hughesville auction was

marketing more than half of the tobacco crop grown in Maryland (Foster 1983, C-1). Additional sales warehouses were built in La Plata, Waldorf, and Upper Marlboro (Compton 1977, 6).

Under the loose leaf system, preparations made to the tobacco leaves were the same as under the hogshead system except that the smaller quantities that were packed in loose leaf baskets required less workspace at the farm. However, the total labor required for both systems was the same. The loose leaf was usually shipped in loosely baled bundles called a "burden" and was transferred to baskets at the marketplace or warehouse (Everstine 1942, 8).

On occasion, the transfer of tobacco to the markets was done by a third party who bought the tobacco directly from the grower. These individuals then conducted the packing and assembly of the hogsheads and loose leaf tobacco and marketed the tobacco for sale themselves. Those who did this on the hogshead market were called "transfer buyers" and those who packed and sold loose leaf baskets were called "pinhookers." Tobacco growers who were willing to take a slightly lower net profit for their crop but avoid the marketing procedure could opt for these methods. Transfer buyers and pinhookers were most beneficial to small-scale growers (Everstine 1942, 10). James P. Ryan and Robert Jamieson were two well-known transfer buyers in Southern Maryland (Compton 1977, 63).

In the warehouse, advantages of the loose leaf markets was that farmers could pack loose leaves easier in the smaller quantities and they could hear and see the tobacco sold in the market with the open bid system. However, this system could require more labor. Proponents of the loose leaf system criticized hogshead markets for its sampling defects, which some argued did not produce a representative sample. This problem was confounded by the practice of mixing varying grades of tobacco in one hogshead, making it impossible to obtain a representative sample. As a result, the sample that was often used was the poorest grade within the pack. On the other hand, tobacco growers had been accused of "false packing" the hogshead with lower quality tobacco for filler. Since the hogshead was sold by weight, the packer hoped the false-packed hogshead would escape notice (Baker 1957, 26).

The hogshead system benefited the seller by selling more quantity of tobacco in bulk, which reduced marketing costs, and the seller had a better chance of refusing an unsatisfactory bid (Everstine 1942, 10). It was also an advantage to a large grower who could afford to wait out a period of low prices at the hogshead market. However, the average tobacco farmer produced a small crop and could not afford to speculate with his crop over a period of several months (Baker 1957, 27).

There were five tobacco warehouses in Baltimore for the hogshead market in the late 1930s and early 1940s (Maryland State Board of Agriculture 1934–1943). The Maryland Tobacco Growers' Association operated one of the warehouses, and the other four were private ventures. All the warehouses provided the same services for the same rates, and the presence of public and private markets maintained some semblance of a

competitive market (Everstine 1942, 6). However, by 1943 the overwhelming majority of hogsheads were sold at the Maryland Tobacco Growers' Association warehouse (Maryland State Board of Agriculture 1943).

According to census data compiled in 1940, 69.9 percent of the 7,514 farms operating within the five counties of Southern Maryland grew tobacco. Prince George's County led the group with 11,823 acres of tobacco planted, followed by Anne Arundel, Calvert, and Charles counties, each with over 7,000 acres. St. Mary's County devoted 5,838 acres to tobacco. The statistics regarding the pounds of tobacco produced by each county corresponded with the acreage. Approximately 9.6 hogsheads were produced per farmer in Prince George's, 9.3 hogsheads in Anne Arundel, 8.1 in Charles, 7.2 in Calvert, and 6.6 in St. Mary's (Everstine 1942, 16).

When compared with other tobacco growing regions in the United States, Maryland generally pursued tobacco farming on a small scale. A 1940 census indicates that while Maryland tobacco accounted for only 0.6 percent of the acreage on farms, it amassed 5.5 percent of the total value of all crops produced, signaling a high return on the acreage invested in growing tobacco (Robert 1949, 224). Among the five counties in Southern Maryland, more than half of the farms devoted less than 8 acres to grow tobacco. Moreover, two-thirds of all farms had less than ten acres for tobacco. The most acreage for tobacco out of any county was 82 acres, grown on a farm in Prince George's County. This amount of acreage for tobacco was uncommonly large for the region (Everstine 1942, 78, 79).

In 1947, the Maryland Tobacco Authority, as part of the State Department of Agriculture, began the tasks of fixing marketing periods and testing weight and measurement accuracy for tobacco sales. The Authority continues to regulate the sale of Maryland tobacco domestically and internationally (University of Maryland 1976).

By the early 1950s, the Maryland tobacco hogshead market was continuing to decline. Only two hogshead warehouses were still operating in Baltimore: the Maryland Tobacco Growers' Association and Edelson Brothers (Maryland State Board of Agriculture 1949–1954). Separate loose leaf auction markets began to open in other parts of the state. Thirteen auction houses had opened close to the tobacco growing areas of Southern Maryland, in Hughesville, La Plata, Waldorf, and Upper Marlboro (Figure 3). Upper Marlboro in Prince George's County was the center of the loose leaf market, with eight warehouses by 1957 (Baker 1957, 28).

For a period of three months between early May and early August, the loose leaf market operated similarly to that of the Baltimore hogshead market. Each grower separated his stripped tobacco into grades, which were contained in brackets. Each grade was inspected by a Federal grader to officially identify the grade. An auctioneer began open bidding in advancing intervals for each basket. The grower paid the auction house a handling charge per basket in addition to a 3 percent commission on the sale. Unlike the hogshead market,

the grower is usually paid the same day as the sale. The close proximity of the auction house to the farm also facilitated the farmer's participation in the bidding process (Baker 1957, 29, 30). (See Figure 3.)

Outside of Maryland, the transition from hogsheads to loose leaf tobacco marketing was also occurring nationwide during the mid-twentieth century. By 1960, approximately 95 percent of the tobacco produced in the United States was sold in loose leaf markets. The remaining 5 percent was sold directly at the tobacco farm and a slim portion was still being packed and sold in hogsheads. By comparison, approximately 84 percent of the crop was marketed using loose leaf baskets in Maryland auction houses in 1962 while 14 percent continued to use hogsheads (Miller 1963, 5, 37, 42).

In 1962, 38.4 million pounds of tobacco grown in Southern Maryland were brought to market. Of this, 6.2 million pounds of tobacco were sold in hogsheads through the Maryland Tobacco Growers' Association in Baltimore, where the auction continued to operate under the sealed bid system (Miller 1963, 41). The final blow to the state warehouses occurred after buyers mandated an inspection of each hogshead before accepting the purchase. The Maryland Tobacco Growers' Association warehouses were condemned in 1969 (Compton 1977, 66). In the mid-1970s, the hogshead auction held in Hughesville closed permanently (Foster 1983, C-5).

By the early 1980s, the tobacco markets were still operating out of auction houses in Southern Maryland. In 1982, 38.3 million pounds of tobacco that was grown on 27,000 acres in the region fetched a record-breaking $58.5 million in the Hughesville auction the following spring. By that time, the USDA Type 32 Maryland Tobacco was the third most important cash crop grown in the state. Tobacco represented 250 man-hours per acre, per year over the course of the 18-month period between seeding and sale (Foster 1983).

SOUTHERN MARYLAND TOBACCO BARNS, 1790s–1960

TOBACCO CULTIVATION

An understanding of the tobacco cultivation process in Southern Maryland is helpful in understanding the architecture of the region's tobacco barns. Tobacco production is a year-round labor-intensive agricultural activity. It requires approximately 200 hours of hand labor during the agricultural cycle, which in Maryland is eighteen months from the time the tobacco seed is sown until the crop is sold at market (Martin 1991). From the field to the market, tobacco leaves are handled over 15 separate times (Robert Cole Films and the Calvert County Historic District Commission 1994). The process includes seeding, planting, weeding, topping, cutting, hanging, stripping, and packing. Because of the labor-intensive tasks involved in tobacco cultivation, a small amount of acreage is devoted to the crop.

The cycle begins in late winter (late February or early March) when seedbeds are sown with the miniscule tobacco seed. The long, narrow seedbeds are covered with cotton or any other type of cloth that protects the

seeds and still allows water to soak through. During early spring the fields are plowed and fertilized in preparation for transplanting the young tobacco plants to the fields. When the plants are about eight inches in height, sometime between mid May to late June, they are drawn out of the tobacco beds by hand and planted in the field two rows at a time. As the tobacco plants grow, the fields are cultivated against weeds and the plants are sprayed with pesticide. Toward the end of the growth stage in July, they are topped to stimulate further growth. Topping is the removal of the tobacco flower from the top of the plant (Martin 1991, 26; McGrath and McGuire 1992; Sundermann 2005, 25–26, 28, 31). The Maryland tobacco plant can grow to more than four feet in favorable weather conditions (Valentine 2003, 72).

Harvesting, the most arduous activity, begins in early August and often runs through September. The tobacco plants are cut and speared on tobacco sticks, which are wood sticks four and one-half feet long and one to one and one-half inches wide with a sharp steel spear attached to one end. Originally farmers made their own tobacco sticks by splitting pieces of oak or chestnut. Milled sticks replaced the hand-riven ones by 1880 (Wasch 1990, 58). Each stick holds an average of six stalks of tobacco (Martin 1991, 31).

The sticks of tobacco are transported to the tobacco barn on wagons or carts and hung on narrow tiers (horizontal beams or poles) up to the top of the barn to air-cure until at least mid-October. Throughout the winter, the cured tobacco is stripped, sorted, and packed. The tobacco is then transported to the warehouse before the market sale, which typically begins in the first week of April. Simultaneously, the tobacco beds are being prepared for seeding in late February or early March; thus, continuing the cycle (Martin 1991, 26; McGrath and McGuire 1992; Sundermann 2005, 31–32, 34–35).

Stripping is the difficult yet delicate task of removing the leaves of the tobacco plant from the stalk without breaking them, and then properly sorting them into different grades by color, type, and quality. After determining that the tobacco is "in order", i.e., moist enough to be pliable, the farmer removes a number of tobacco sticks from the tiers. The leaves are culled (pulled off) from the stalk by hand and sorted into one of four grades. Twelve to sixteen leaves of the same grade are tied into a small bundle called a hand. The farmer uses a lower grade or shorter leaf to tie the hands of better grades (Hurley and DeVault 1935, 205).

To prepare for the auction sale, hands of the same grade are layered between large, flat, thickly-woven square baskets called burdens. As the hands are stacked, the farmer lays a piece of cardboard on top of the burden and carefully walks on it to compress the tobacco (Martin 1991, 35). Burdens, weighing approximately 200 pounds, began to replace hogsheads after the introduction of the loose leaf market in Hughesville, Charles County, in 1937. As an alternative to hand-tied burdens, some farmers bale their tobacco. Workers load the burdens or bales onto trailers or trucks to transport the season's tobacco crop to warehouses for the upcoming auction (Sundermann 2005, 35).

Packing a hogshead, in contrast to packing a burden, required the farmer to crawl into the four-foot long and two and one-half-foot wide hogshead and hand pack the tobacco. To fully pack a hogshead, growers would

weigh down and compress the tobacco with wood boards weighted by blocks. Most growers, however, used a prize to compress the tobacco. A prize, also known as a press, is a wood and iron or steel apparatus that uses a cantilevered operation (earlier horizontal prizes) or a screw mechanism (later prizes, either vertical or horizontal) (see Figure 4) to compact the leaves in the hogshead (Sundermann 2005, 52). A fully packed hogshead could weigh up to 1,000 pounds (Browne 2004, 17). (See Figure 4.)

MARYLAND AIR-CURING TOBACCO BARNS

The tobacco barn is a distinctive architectural form and an important vestige of the agricultural past of Southern Maryland. Tobacco barns have played an essential role in tobacco production since the seventeenth century. They were built to satisfy two basic requirements: provide a protected shelter to store the tobacco and allow for air circulation to cure it.

Controlling the movement of air in the barn's interior is an important part of the air-curing process. The temperature and humidity in the barn are the main factors influencing the rate of drying and chemical changes during curing (McKee et al. 1963, 7). Controlled ventilation within the barn ensured even curing when outside weather worked against favorable ranges in temperature and humidity.

Barn location and design controlled the air-curing process. Although proximity to the tobacco fields was the primary factor in siting tobacco barns (to minimize the distance hauling heavy cut tobacco to the barn for hanging), facilitating air circulation was another important factor. Tobacco barns generally were built among the fields away from woods, and often on a hill or ridge crest with its openings facing the direction of the prevailing breezes to promote the greatest air circulation (Hart and Mather 1961, 284; Martin 1992, 13). Farmers in Southern Maryland generally preferred to orient the longitudinal axis of the barn north-south, which allowed the long sides the fullest exposure to the sun and the barn doors exposure to the prevailing winds (Martin 1992, 13).

Of course, not every planter had the advantage of a hilltop site on their property. Barn design, therefore, was critical in regulating air flow in an air-curing tobacco barn. The earlier barns in Southern Maryland used gaps between the siding, open eaves, open footers, and doors to control air movement (Ware 1990, 57). As technology and theories toward ventilation changed in the late nineteenth century, farmers employed hinged vertical board siding on their barns as a more efficient means to control humidity and air flow between the tiers of drying tobacco plants. In the *Money Crop*, a Calvert County tobacco farmer explained the process:

> "You open the ventilation doors on the barn depending on the weather. If it's dry outside, you close the barn up to try to keep humidity in. If it's wet outside, you open it up to try to dry it out because [the tobacco] will rot" (Sundermann 2005, 51).

The adoption of hinged ventilation boards on the barn exterior is an example of how the architecture of the tobacco barn in Southern Maryland evolved over time, adapting to changes in building technology and tobacco agriculture. Another example includes shed additions to tobacco barns. Farmers added onto older tobacco barns to accommodate their current crops. Lean-to sheds on two or more sides were often added. The sheds frequently served multiple purposes, providing additional curing space, storing new farm implements, and housing livestock. The design of tobacco barns changed again in the first quarter of the twentieth century as more farmers bought new gasoline-powered tractors. Long, aisle-plan tobacco barns with large gable-end door openings were erected to permit tractor access.

The building methods of the Southern Maryland tobacco barn, like its size and architectural form, also evolved over time. However, traditional building techniques persisted for a longer period of time, even if the exterior form was evolving. The earliest barns incorporated traditional construction methods and materials such as hand-hewn principal posts with pegged mortise and tenon joinery, pit sawn lesser posts and beams with lapped joints fastened by wrought nails, and tilted false plates. Tilted false plate construction, which was a late-seventeenth century framing practice, persisted into the early nineteenth century, and barns built throughout the nineteenth century continued to employ hewn sills and principal posts despite the adoption of machine-sawn lumber for secondary framing members and exterior sheathing in mid-century.

The reason for the persistence of traditional building methods is due to the farmer's reliance on personal experience. Southern Maryland's tobacco barns were built by the farmers or by local craftsmen, not by architects.[3] Plans or descriptions of tobacco barns in planters' manuals did not exist in Maryland until the twentieth century; as one source points out, tobacco culture had been long established in Southern Maryland so there was no reason to explain tobacco barns (Wasch 1990, 34).

The preceding paragraphs touched on a few examples of design changes in the Southern Maryland tobacco barn. Below is a detailed chronological description of the architectural evolution of the Southern Maryland tobacco barn from the colonial period to the late twentieth century. Four basic types of Maryland tobacco barns have been identified through previous research and architectural surveys. Each is defined by the time period in which it was built, and is characterized by common features in size, form, building materials, and plan. The discussion identifies design elements that gradually changed from one era to the next as building technologies and the tobacco economy evolved.

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3 Research for this MPD revealed the names of only a couple known tobacco barn builders. Francis Van Ness, an itinerant barn builder from Virginia, built the tobacco house at Rose Hill (AA-191; NR 1987), a farm in Anne Arundel County, in 1821 for Samuel Hopkins (Browne 2004, 151). Clifton Wood, a farmer in Calvert County "known for his carpentry skills" built a gambrel roof barn in the 1940s. In 2001, the Calvert County Commission moved this barn to the county fairgrounds to save it from demolition from the construction of the Prince Frederick campus of the College of Southern Maryland (Wagner 2001, 42).

Colonial Period, 1630s–1820s

Earthfast Tobacco Houses

Like dwellings and other agricultural buildings erected during the colonial period, tobacco barns, called tobacco houses prior to the nineteenth century, generally were impermanent construction, serving as a fast, cheap means for the planter to establish his crop until he earned economic stability. Impermanent construction in Maryland consisted of earthfast construction, which utilized a framing system of heavy timber posts set directly on or into the ground. Down- or upbraces, mortised and pegged to interrupted sills for the former and to a tie beam for the latter, reinforced the wall framing. Tilted false plates were employed to support paired rafters. The tobacco was pegged directly to the interior framing. The exterior was sheathed only partially with clapboards, but roofed entirely to protect the tobacco from rain (Main 1982, 34).

The archaeological record provides information on seventeenth- and eighteenth-century earthfast tobacco houses in Maryland. Archaeological excavations identified the location of a seventeenth-century plantation on the historical tract called Taylor's Disposal, in Calvert County. This 180-acre tract is located on the east bank of the Patuxent River, and is now part of the Jefferson Patterson Park and Museum. In 1984 and 1985, archaeological investigations, coupled with documentary research, identified a ca. 1690 20-by-30-foot earthfast dwelling (18CV83) occupied by Richard J. Smith, Jr., Surveyor General and friend of Lord Baltimore, and a quarter (18CV84). Additional surveys conducted on the site in 1993 and 1994 yielded post molds and holes, wrought nails, large fragments of wood, probably cedar, and other artifacts of an earthfast structure 50 feet long and 24 feet wide (18CV85) (King 1999). The stepped shape of the post holes revealed the building's walls were pre-assembled and then raised as a unit (Wilson 2006, 57). Upon completing the artifact analysis and comparing the site with one other archaeological example of a large earthfast structure, the archaeologists concluded that the structure was likely a ca. 1690 earthfast tobacco house of unusually large size (King 1999).

In the early 1980s the eighteenth-century Hall tobacco house was reconstructed on the grounds of the National Colonial Farm in Piscataway Park, a National Park Service property. The Farm is an outdoor living-history museum that depicts the life of a middling tobacco planter's family in Prince George's County. The earthfast Hall tobacco house stands on eight brick piers. It is 20 feet wide and 37 feet long and has a clapboard exterior (Dent 1980).

Earthfast construction of dwellings ended sometime in the eighteenth century in the Chesapeake region, but its use persisted for agricultural buildings. A few late-eighteenth and nineteenth century earthfast tobacco houses survive in Southern Maryland. Post-in-the-ground-construction is exhibited in two tobacco houses in Anne Arundel County: the late-eighteenth century example at Burrages End (AA-257; NR, 1973) and the early-nineteenth century example at James Owens Farm (AA-247; NR, 1987) (Ware 1990, 9). The 1860–1870 Billingsley Barn in Hollywood, St. Mary's County, which has hole-set posts stabilized with upbraces, is one of the latest examples of earthfast construction methods in the region (Ranzetta 2005, 87). Nonetheless, the use of

earthfast construction for tobacco houses, although a cheap and efficient building method, largely came to an end in the early nineteenth century because it lacked structural rigidity to withstand high winds (Ranzetta 2005, 87).

Log Tobacco Barns

Log tobacco barns also were built in Southern Maryland. According to Martin (1992, 13) in the *Calvert County Tobacco Survey, Phase III*, log tobacco barns were built "into the nineteenth century," implying that log construction in this region began in the eighteenth century and continued into the nineteenth century. Log barns consisted of hewn or pit-sawn horizontal logs joined at the corners by saddle, V, or dovetail notching. They were typically rectangular in form, composed of two square log pens bisected by a central passage (Martin 1992, 13, 18). The late-eighteenth century tobacco house at Willow Glenn (CT-34; NR, 1973) in Prince Frederick is an example of a double-pen log structure. Figure 5 illustrates the double-pen log tobacco barn on the Day-Breedon Farm near Lusby, Calvert County. Single-pen log tobacco barns also were common (Ranzetta 2005, 88). Ventilation was provided by doors or an absence of chinking between the logs. Riven clapboards covered the exterior of the barn (Wilson 2006, 57).

The few log barns that survive in Southern Maryland were all constructed in the nineteenth century. The Sims-Bond Tobacco Barn (SM-246) in Hollywood, St. Mary's County, has an original log section built in ca. 1835–1845. It features earthfast cedar posts pegged to the log walls to help prevent them from sagging under the increased weight of hung tobacco (Ranzetta 2005, 88). The Preston's Cliffs Log Tobacco Barn (CT-59A) is an 1820s saddle-notched log tobacco barn that measures 24-by-36 feet. The 10-foot-high walls consist of 12 rows of logs resting on fieldstone piers. Wide double doors in the centers of the long walls ventilate the barn. The barn includes an original post-in-the-ground frame shed. The 13-foot-wide shed is covered with vertical board siding.

The Hammond Log Tobacco Barn (AA-10) in Millersville, Anne Arundel County, is a single-pen, diamond-notched log barn with seven, four-foot rooms. The south, east, and west walls of the mid-nineteenth century barn, which measures 25′-6″-by-33′-6″, has hewn squared plates, and the north wall has a round log serving as the plate. The framing in the barn is a mix of hewn and circular-sawn timber, including hewn rafters toe-nailed onto circular-sawn false plates. The barn features original 12-foot-wide sheds on the longitudinal sides. The structural framing of the sheds consist of 4 H-bent bays with downbraces in the end bays. Ventilation in the log section was provided by narrow door openings. The Hammond Log Tobacco Barn was relocated to Linthicum Walks (AA-188) in 1996–1997.

Nineteenth-Century Tobacco Barns

1800–1830s

By the turn-of-the-nineteenth-century, planters had gained economic stability and had the capital to build tobacco barns for longer life-spans. The nineteenth century tobacco barn generally measures 24-by-40 feet, and is characterized by a steeply-pitched gable roof. This type of barn adopts a cross-axial plan with wide doorways located on the long elevations. Some of the early tobacco barns also have single doors positioned on the gable ends. Continuous hewn sills resting on stone, wood, or brick piers limited access to only foot traffic.

The framing of nineteenth-century tobacco barns consists of horizontal beams or poles called tiers, which tie into transverse rows of vertical posts to support the tobacco sticks. Primary and intermediate vertical posts spaced at regular intervals and reinforced with downbraces compose the wall framing. Primary structural bays of eighteenth century barns were typically on 5- or 10-foot centers; this dimension gradually changed to eight-foot centers by the end of the eighteenth century. The framing timber is hand-hewn and pit-sawn with the heavy members joined by pegged mortises and tenons. Lapped joints at secondary connections are secured by wrought nails in the oldest barns, or machine-cut nails.

The horizontal space between tiers is called a "room." The size of a room is dictated by the length of the tobacco stick; five-foot rooms were supplanted during the last quarter of the eighteenth century by four-foot rooms when four and one-half foot tobacco sticks became the norm (McGrath and McGuire 1992). One historian hypothesized that tighter construction practices and depletion of timber may have contributed to the switch from the five-foot to four-foot system (Ware 1990, 57). Tracy's Landing Tobacco House #2 (AA-756; NR, 1982; also known as the Tongue Tobacco House), built in 1805, is one of only a few known surviving five-foot tobacco houses (Ware 1990, 56).

Since tobacco is hung in several levels from floor to roof peak, vertical spacing is dependent on the size of the leaf. The Type-32 tobacco grown in Southern Maryland is approximately four feet in length. The traditional 24-by-40-foot barn typically has four tiers below the plate and three above; thus, the barn is 12 feet high to the eaves (Martin 1992, 14).

Early tobacco barn types employed tilted false plate eave construction, a distinctive framing system practiced after the 1720s. Its use faded in the nineteenth century, although sources differ on exactly when.[4] A tilted false plate system employs a square or rectangular plate set diagonally into the end of the tie beams. The ends of steeply-pitched common rafters are fastened to the false plate. The "false" plate, so named because the plate is not part of the wall system, permitted the roof to operate structurally independent of the wall system. Although

4 Architectural historian Orlando Ridout of the Maryland Historical Trust indicated tilted false plates were seldom used after 1800 (PG:71A-36, Maryland Inventory of Historic Properties). However, architectural historian Kirk Ranzetta reported that this type of construction was employed until the 1870s or 1880s (Ranzetta 2005, 88). Review of a sampling of Maryland Inventory of Historic Properties forms on nineteenth century tobacco barns in Southern Maryland reveals that tilted false plates primarily are found in barns dating to the first quarter of the nineteenth century. Barns dating between 1830 and 1890 largely employ flat false plate construction.

the origin of tilted false plate construction is not known, this construction system supported the roofs of barns even if a wall post was damaged or destroyed. Barns, therefore, lasted longer even if farmers did not have the means or time to carefully maintain them (Wilson 2006, 58). Three to four collar beams provide additional support to the common rafter roof. Clapboards or wood shingles finish the roof. A number of tobacco barns in Southern Maryland have tilted false plates, including the ca. 1800 Linthicum Walks Tobacco House (AA-188; NR, 1984), the ca. 1800 tobacco barn at The Exchange (CH-357), and the early-nineteenth century Cox-Ensminger Tobacco Barn (CT-1039). The Warington Tobacco Barn (PG:73-6), built ca. 1840s–1850s, is one of the more "recent" tobacco barns to employ tilted false plate construction (Figure 6). Very few early-nineteenth century barns still retain sections of the original roof cladding, but their rafter spacing or nailers provide evidence of original wood shingle or clapboard sheathing.

The addition of one or more sheds to existing tobacco barns increased after 1820. Shed additions were an expedient and inexpensive solution to increasing hanging space during times of growth and prosperity in the tobacco market (Ranzetta 2005, 89). Sheds typically are 10 or 12 feet wide and employ earthfast posts and common rafter roofs, which are supported on false plates and butt-joined to the main structure's rafters. Most are enclosed and sheathed with slatted vertical boards and punctured by a door for access and ventilation control. Often, the barn is surrounded by lean-to sheds, which result in a gable-on-hipped roof profile. The Warington Tobacco Barn, depicted in Figure 6, exemplifies this roof profile. Early-nineteenth century barns appended with lean-to sheds on both gable ends that extend past the barn face are called "Bonnet" barns (Wilson 2006, 58).

Besides augmenting the hanging capacity of the barn, shed additions also served as storage of farm implements and shelter for cattle (Martin 1992, 14). Farmers adapted their tobacco barns through shed additions and other alterations to accommodate changes in their farming practices. The Sims-Bond Tobacco Barn (SM-246) in Hollywood, represents several different adaptations. A large frame tobacco barn was built next to the ca. 1835–1845 log section of the barn in the mid-nineteenth century. A shed was subsequently added to the frame addition. The shed was later converted to a stable (Wilson 2006, 57). In the mid- to late nineteenth century, a granary and corncrib was built adjacent to the log tobacco barn.

1830s–1900

Technological innovations and other factors resulted in gradual changes to the form and building materials of Southern Maryland's traditional, cross-axial tobacco barn in the nineteenth century, but the structural system remained unaffected. Over the mid- to late nineteenth century, the region's tobacco barns increasingly assumed a more rectangular form, and included an original shed on one of the long elevations. Thus, these barns are characterized by an asymmetrical gable roof. If an additional shed was added, it generally was appended to the opposite long elevation or to one of the gable ends. The mid- to late-nineteenth-century tobacco barn is typically 20 to 30 feet wide, 36 feet long, and 16 to 20 feet high to the eave (Wasch 1990, 58).

Many of these barns have a transverse aisle plan, with double doors on the long elevations. Single door entries may also be on one or both gable ends. A couple of the earliest barns with a transverse aisle plan include the Hill Barn (CT-1040) in Huntingtown, which was built ca. 1830 and has two shed additions, one on the long elevation and one on the end, and the Warington Barn (PG:73-6) in Landover, which was built ca. 1840s–1850s and is surrounded by four sheds (Figure 6). There are also many examples of transverse aisle barns with a shed on the long elevation in the late-nineteenth century, such as the ca. 1890 Maidstone Barn C (CT-1064), as well as several from the twentieth century, including three ca. 1930 barns in the Ponds Wood Road Community (CT-1314) in Huntingtown.

Double barns make their appearance in the region by the late-nineteenth century. Double barns are two tobacco barns of similar size and form, usually the rectangular, asymmetrical gable form described above, built side-by-side, but with separate framing systems (Wilson 2006, 58). Generally, the barns were built at two different times. For example, Maidstone Barn A (CT-1062) is a ca. 1830–1860 tobacco barn with pegged mortise and tenon hewn posts, vertical board siding, and steeply-pitched gable roof. Sheds surround the barn on three sides. Adjacent to the side without a shed is Maidstone Barn B (CT-1063), which, although somewhat larger, is similar in form to its neighbor. Maidstone Barn B was built between 1860 and 1890 using a combination of hewn and circular-sawn timbers. Double barns generally were built between 1870 and 1940 (Wilson 2006, 58).

Whether a single barn or double barns, hewn sills and principal posts with mortise and tenon connections were used to frame the region's tobacco barns throughout nineteenth century. However, by the mid-nineteenth century, machine-sawn lumber was adopted for secondary framing members, shed additions, and, most notably, for exterior sheathing. Vertical board siding began to replace horizontal riven clapboards on barn exteriors in the early nineteenth century (Ranzetta 2005, 86; Wasch 1990, 33, 35). Horizontal clapboards require closely spaced wall studs for nailers. By comparison, vertical siding is fastened to horizontal nailers on the outside of widely spaced secondary posts. The nailers also act as supports for the tier poles (Wasch 1990, 35). This framing and cladding system was more efficient and economical to construct, requiring less time and materials. The vertical boards were installed as green lumber. The subsequent shrinkage of the boards created gaps for air circulation (Martin 1992, 18).

The Bourdon-Dixon Tobacco Barn (CT-1069) features the unusual combination of both horizontal and vertical siding on the exterior walls. The barn was built in 1831, and demonstrates the transition between the two kinds of exterior sheathing. The original sills and plates on the north and south walls of this barn contain mortises on two foot centers for the studs that were used to secure the clapboard siding. Stud mortises are absent on the original east and west sills and plates, where vertical board siding is fastened. A couple of the earliest examples of barns sheathed entirely in vertical siding are Hadlow Tobacco Barn No. 1 (CH-711) from ca. 1840, and the Warington Barn (PG:73-6) from the ca. 1840s–1850s.

Flat false plate construction replaced tilted false plate construction during this period, and was employed until the third quarter of the nineteenth century (Wilson 2006, 58). Schrom Barn A (CT-1051), the Wu-Kehoe Tobacco Barn (CT-1061), and LeVeille Tobacco Barn A (CT-1077) are just a few of the tobacco barns employing flat false plate construction. These barns date to ca. 1830–1860. Maidstone Tobacco Barn C (CT-1064) also features flat false plates, but is of more recent construction, dating to ca. 1890–1930.

The region's nineteenth-century tobacco barns are plain, utilitarian structures, as most farmers were frugal in their use of resources. However, a few farmers elected to embellish their tobacco barns with fashionable stylistic elements from contemporary architectural styles as a sign of prosperity (Ranzetta 2005, 90; Wilson 2006, 58). The main barn in the John Plummer Barn Complex (CT-92) in Chaneyville, which was built ca. 1880, includes a steeply-pitched central gable on the long side of the barn that faces Chaneyville Road (Figure 7). The ca. 1880 Jutland Farm Tobacco Barn in St. Inigoes, St. Mary's County, juxtaposes traditional framing of earthfast cedar posts with late-nineteenth century decorative vergeboard on the main face of the barn (Wilson 2006, 58). The centered gable on the Plummer Barn and the vergeboard on the Jutland Barn are characteristic features of the Gothic revival style, which was popular in the mid- to late-nineteenth century.

Twentieth-Century Tobacco Barns

As technology and theories toward ventilation changed, the tobacco barn form changed. A late-nineteenth and twentieth century tobacco barn assumes a long, boxy configuration and terminates in a moderately-pitched gable roof. Although the transverse aisle plan persisted into the twentieth century, most barns built after 1900 have a center-aisle plan and double doors on both ends. These changes in form resulted because of the arrival of gasoline-powered tractors and farm trucks in the early twentieth century (McGuire 1990). Maryland Extension Service publications promulgated use of this "drive-through" type barn for its labor-saving efficiency, since it required less labor to hang the tobacco (Hurley and DeVault 1935, 205; University of Maryland Agricultural Experiment Station 1964, 12). In older axial plan barns, tobacco had to be carried through a door and across the ends to fill the barn. The *Calvert County Tobacco Culture Survey, Phase III* indicates that the traditional nineteenth-century barn required a minimum of three laborers to hang tobacco, two up on the tiers and one on the ground. In comparison, the lower, longer, center-aisle twentieth-century barn required one person up in the barn and one below, standing on the tobacco wagon (Martin 1992, 17). Wider, double-aisle versions of this barn type were built in the region beginning about 1955 (Martin 1992, 14). A few examples of the dozens of twentieth century aisle plan barns in the region include: a barn at the Steuart Tenant House (AA-732), Hicks Tobacco Barn D (CT-1076), the St. Thomas Parish Tobacco Barn (PG:86A-27) (Figure 8), the Williams Tobacco Barn (PG:87A-33), and several barns at The Cottage (PG:78-18; NR, 1989).

The interior framing system of the aisle tobacco barn retains the same components as earlier barns, i.e., continuous sill, vertical posts, tiers, rafters, and collars. After ca. 1890, no hand work was used in the

construction of tobacco barns; standardized balloon frame construction with circular-sawn timber fastened by wire nails was employed (Martin 1992, 14). Figure 9 is a 1929 photograph of a center-aisle plan barn with circular-sawn interior framing. The foundation of the aisle-plan barn is typically concrete or, by mid-century, concrete block.

The size of twentieth-century tobacco barns increased substantially from that of their predecessors. The aisle plan facilitated building longer barns by extending the system of tiers longitudinally. Barns with a short aisle have less rigidity to withstand high winds and are "inconvenient for labor" (Martin 1991, 73). Thus, long aisle barns, some greater than 60 feet in length, became commonplace in the twentieth century (Martin 1992, 14). According to the University of Maryland Extension Service, an average-sized tobacco barn of the mid-twentieth century was 32-by-64 feet and four tiers in height (16 feet). This size barn could hold 17,300 plants, which is equivalent to a harvest from approximately 2 ¾ acres (McKee et al. 1963, 7). The Calvert County Tobacco Culture Survey recorded several larger-sized barns, including several on Wilson Dowell, Jr.'s farm: his largest measured 52 feet wide, 68 feet long (17 rooms), and 40 feet high (10 tiers) (Martin 1991, 73).

Because these barns may be quite large, they employ hinged vertical board siding for a more efficient means of ventilation. Southern Maryland tobacco barns featured vertical ventilators by the early twentieth century. The ventilators are one to four boards each, and usually fastened with hinges at intervals along the long walls to better control air flow. Barns employing top-hinged ventilators, which are propped out from the base, have the added benefit of protecting the curing tobacco from the rain even when open (Martin 1992, 18). Small numbers of twentieth-century barns have hinged horizontal siding.

Some twentieth-century barns incorporate roof ventilators to improve air circulation, although this technology was expensive, so it is not widespread (Martin 1922, 14). The roofs of most twentieth century barns are clad in standing-seam metal panels or corrugated galvanized steel (Wilson 2006, 58). Because of its durability and relatively low cost, many farmers replaced or covered the roof cladding on older barns with metal.

By the 1940s, Maryland's farmers adopted gambrel roofs to top newly-built tobacco barns. The gambrel roof was used on several different types of barns (i.e., dairy, hay, etc.) because its profile and framing allowed more storage high up into the barn. For tobacco farmers, a gambrel roof provided more hanging space above the plate. Prouty Barn B (CT-1084), according to the owner, John C. Prouty, was built by a master carpenter in 1939 (Figure 10). His tobacco barn was among the first in the county to have a gambrel roof (Wagner 2001, 42). The James F. Foust Barn (AA-2178), the tobacco barn at Poplar Hill (CH-248), and the Laura B. Duvall Tobacco Barn (PG:86A-31) are just a few of the numerous mid- to late-twentieth century gambrel-roof tobacco barns.

Equipment sheds were added to tobacco barns to house new agricultural equipment, such as tractors and transplanters. Additionally, many farmers removed all of the doorway sections of the continuous hand-hewn

sills in older barns and added gable doorways (or enlarged existing ones) to accommodate mechanized equipment (Martin 1992, 14).

Many twentieth century tobacco barns were designed for multiple purposes, incorporating a loft for hay storage and two to four lean-to sheds for stabling and storage of farm implements. The early- to mid-twentieth century Schrom Tobacco Barn B (CT-1052) is a unique, two-story multiuse barn. The upper level is floored and is 7′-6″ aboveground. It is used to cure tobacco. The lower level comprises a transverse aisle plan; the center aisle is flanked on each side by two rooms. One of the room's stores equipment, and the other is a stripping room (see below). The other two rooms were originally holding rooms for tobacco (prior to stripping and sorting the tobacco), but poured concrete floors were added in the 1960s to convert them for hog farming.

Schrom Tobacco Barn B (CT-1052) is one of many examples of a separate, partitioned area for stripping tobacco found in twentieth-century barns. The *Calvert County Tobacco Culture Survey, Phase II* indicates that specialized rooms for stripping came into use sometime around 1930. Indeed, Figure 11 demonstrates an interior, semi-subterranean stripping room in 1929 (Records of the Maryland Agricultural Experiment Station 1929). Calvert Norfolk, a tobacco farmer in Calvert County, reported that his farm was one of the first to build a stripping room into the barn in 1931 (Martin 1991, 31–32). Nonetheless, a 1935 study by the Maryland Agricultural Experiment Station indicates that less than 5 percent of Southern Maryland tobacco farmers had a barn with a dedicated stripping room (Hurley and DeVault 1935, 205). Stripping rooms became more common in the mid-twentieth century.

Stripping is an important step in the tobacco cultivation process because the market price of the crop was often determined by the stripping skills of the farmer and his or her workers. Proper sorting resulted in a better price. In *The Money Crop* one tobacco farmer explained why her crop earned a higher price than that of another farmer's: "It wasn't stripped good like mine. I stripped my tobacco neat and all, honey. They got [different grades] all in one!" (Sundermann 2005, 35).

Before the introduction of a separate stripping room, most farmers stripped tobacco inside the barn (Martin 1991, 31). Light for stripping was provided by opening one of the barn doors as long as it was not too windy or cold, otherwise the only light available came through the cracks in the structure of the barn (Hurley and DeVault 1935, 205). Sometimes farmers stripped tobacco near the fields or inside a temporary windbreak enclosure extending out from the barn (Martin 1991, 31). The widespread availability of electricity in the rural areas of Maryland, coupled with the dissemination of experiments and studies by the Maryland Extension Service, the Maryland Tobacco Improvement Foundation, and other organizations on ways to get better graded tobacco, led to the separation of the task of stripping into a separate space by the mid-twentieth century.

There are two forms of stripping rooms commonly found in Southern Maryland. The first consists of a separate room partitioned in one corner of the barn, with windows, an interior door, and perhaps an exterior door too to provide outside access. This type of stripping room is found primarily in Charles, St. Mary's,

and Prince George's Counties. The other type of stripping room is also positioned at one corner of the barn, but is semi-subterranean. It is dug into the ground on one side of the aisle and includes windows high in the walls. Semi-subterranean stripping rooms are the norm in Calvert and southern Anne Arundel Counties. Regardless of the type, most stripping rooms are built of tightly-fitted wood boards to prevent cold winds from drying the tobacco; fewer numbers are built of concrete block (personal communication, Calvin Bowling, Charles County tobacco farmer, December 19, 2007). The dampness of a semi-subterranean stripping room aids in keeping in moisture and reducing air flow to keep the tobacco in order (keep it pliable) (personal communication, Calvin Bowling, December 19, 2007; Martin 1991, 32). However, it is uncertain why subterranean stripping rooms were adopted only in Calvert and Anne Arundel Counties.

Stand-alone stripping sheds, located convenient to the barn, also occur on Southern Maryland tobacco farms, but with less frequency than stripping rooms in a partitioned section of the barn. A stripping shed is usually detached, but it may also be appended to one corner of the barn, like the semi-subterranean stripping shed at the northwest corner of Hicks Barn D (CT-1076). Stripping sheds are typically frame or, to a lesser degree, concrete block. Stripping sheds built of concrete block are more modernized than stripping rooms built within the barn because they include electric lighting and, typically, are heated by a stove or an oil-fired furnace (personal communication, Calvin Bowling, December 19, 2007; Valentine 2003, 72).

Stripping sheds or stripping rooms within a barn usually have north-facing windows to take advantage of indirect light; glare from direct light impedes sorting, which is done by the color of the leaf (McGrath and McGuire 1982, 38). In stripping rooms or sheds with electricity (mid-twentieth century and later), fluorescent lighting is used to distinguish varying shades in the tobacco; incandescent lighting casts a false color on the leaves (Martin 1991, 32; McKee et al. 1963, 7). Some barns or stripping sheds include two rooms, one of which is used to store tobacco until it can be stripped (Martin 1991, 32).

Flue-Curing Tobacco Barns in Southern Maryland

In the aftermath of the Civil War, Southern Maryland tobacco farmers adopted a few different ways to overcome the labor shortage and depressed prices in the crippled tobacco market. Most commonly, farmers diversified their crops and rented land to cash or share tenants to provide capital and a source of labor for a reduced tobacco crop. A small number of farmers, primarily in Calvert County, experimented with flue-curing in the late 1860s in the hope that flue-cured tobacco would increase the quantity and improve the quality of the crop (King 1995, 11).

The Bibb and Company Tobacco-Curing Apparatus was patented in 1861 by its designers, Bently C. Bibb and George F. Needham, both of Baltimore, and Dr. George W. Dorsey of Port Republic, Calvert County. These gentlemen designed the flue-curing apparatus for barns ranging in size from 20-by-20 feet to 40-by-40 feet (King 1995, 13). The furnace for the Bibb Flue stood in an excavated pit inside of the barn, or the entire floor

was excavated for the furnace and other flue apparatus. Flue-curing requires an airtight barn, so its exterior sheathing is tightly fitted.

Only four flue-curing barns have been identified in Southern Maryland. All of them are in Calvert County. Each of the barns has closely-fitted vertical board siding and three have an excavated pit or excavated floor. The Dorsey Farm (CT-167) in Port Republic includes a mid-nineteenth century flue-curing tobacco barn measuring 36-by-68 feet. The main portion of the barn is 24-by-40 feet, the standard size antebellum tobacco barn in Maryland. The earthen floor of the barn was excavated four feet below the sills to accommodate the flue apparatus. Evidence of close-set vertical siding to minimize the escape of air is present on the barn. On the property neighboring the Dorsey Farm is the James Chesley-Octavius Bowen Barn (not recorded in the Maryland Inventory of Historic Properties). This ca. 1847 barn originally housed livestock, but was converted to a flue-curing barn (Figure 12). It has an excavated floor and was retrofitted to make it airtight with a ridge of clay under the sills, pieces of riven wood nailed to the inside of the sills, and riven battens nailed over gaps in the siding on some of the walls. The barn's east shed was built with tightly-fitted siding (King 1995, 22–23).

A few miles west of the Dorsey Barn and Chesley-Bowen Barn is the Talbott Barn. The Talbott Barn collapsed sometime after it was documented in 1977, and may no longer be extant. It measured 20-by-20 feet with an original shed on the south side. The barn displayed evidence of airtight construction, and reportedly had been fitted with flue-curing apparatus (King 1995, 23–24).

In St. Leonard, a few miles south of Port Republic, is the John T. Bond Barn (CT-1183), which contains the only surviving example of the Bibb flue-curing apparatus in Maryland (Figure 13). The 20-by-40-foot Bond Barn, also known as the Parran Tobacco Barn, was built in ca. 1861 with sheds on three sides. The barn and one of the sheds are sheathed with closely-fitted vertical board siding. The extant furnace stands in a masonry pit in the west end of the barn. Archaeological evidence indicates the pit was filled and access to the furnace doors closed off ca. 1880. The flues and other apparatus also were removed (King 1995, 24–25).

Overview of Tobacco-Growing Regions in the United States

An investigation of tobacco barns outside of Southern Maryland illustrates how the design and construction of tobacco barns was directly influenced by environmental and functional conditions throughout the American tobacco-growing districts. Each region's climate, the type of tobacco grown, and specific curing methods influenced tobacco barn architecture, resulting in a wide cross-section of barn types. At the same time, cultivation patterns and curing methods were often influenced by regional cultural and economic differences and geographical characteristics. Examination of the tobacco barn's close relationship between form and function helps differentiate Southern Maryland's tobacco barns as a singular category distinct to its region.

As tobacco production expanded across broad areas of the nation, from Mid-Atlantic to the Southeast, Midwest, and New England, different functional requirements resulted in distinct variations on the tobacco barn for each region. Nonetheless, there are common physical characteristics among tobacco barns from all the tobacco-growing regions. Although the size of a tobacco barn varies according to how much tobacco the farmer grows and cures, most are tall to allow air to circulate among the tiers of hanging tobacco. As interior climate control was a critical aspect in all types of tobacco curing, steep roofs keep the tobacco dry from rain. Tobacco barns are usually rectangular in plan and are most commonly covered with side-gabled roofs.

Tobacco barns are slightly more uniform in interior design across all the tobacco-growing regions. For all types of curing, the tobacco plants are generally prepared using the same methods between the field and the barn. In most cases, after the plants are picked, they are hung upside down by the base of the stalk and either speared or tied along the length of a tobacco stick. Each stick is laid horizontally across a tiered network of interior scaffolding that allows the tobacco leaves to hang downward loosely but without wasting space. The dimensions of this basic scaffolding framework are generally uniform across all regions. The tobacco sticks are supported on horizontal beams, or tiers, that are four feet apart, as dictated by the length of the tobacco sticks, which are just over 4 feet in length. In this arrangement, the tobacco sticks themselves are spaced several inches apart from one another. The barn's volume is divided by three or four tiers, with the lowest tier six to nine feet above the floor (Hart and Mather 1961, 274).

The interior temperature and humidity is a constant concern among all types of curing processes. During air curing, humidity is monitored and controlled using window or door openings to achieve the best ventilation possible. In regions where fire-curing and flue-curing is practiced, insulation is a key requirement of tobacco barns that apply heat in the curing process.

The technology of tobacco cultivation across all the tobacco-growing regions changed little between the late 1800s and 1950. With a few exceptions, tobacco farms were usually small-scale, family-run operations during this period. The traditional methods of building tobacco barns were followed without much deviation. The Industrial Revolution did not affect much of the cultivation and curing process. Well after the machine age had arrived to America, mules or oxen were still being used to plow the fields during the first decades of the 1900s. Machinery could not replace the traditional method of picking and hanging tobacco by hand (Daniel 1985, 24; Robert 1949, 217).

Aside from these commonalities of tobacco barns in all tobacco-growing areas, regional differences between the barns are apparent. Over time, the variety of tobacco barns increased when more states began to grow tobacco. During the nineteenth century, tobacco was grown by poor and rich landowners alike. Some farmers grew tobacco exclusively while others grew it as a minor crop on a larger farm of cotton, grain, or

livestock. By the early 1900s, the scale of the tobacco farm varied wildly, between large-scale operations in North Carolina to just a few rows of tobacco planted in Louisiana (Robert 1949, 216).

By the 1960s, as many as twenty-six different types of *Nicotiana tabacum* species were grown in the country's widespread tobacco-growing regions (Table 1). Although the tobacco species grown was the same everywhere, the twenty-six tobacco types were created from the variations in soil, climate conditions, and even genetic mutations. To a lesser degree, variations in tobacco were influenced by differences in fertilization, cultivation, harvesting, and curing (Hart and Mather 1961, 274).

Table 1. Tobacco Grown in the United States, Organized by State.

Major Producing State	USDA Tobacco Type	Air-cured	Fire-cured	Flue-cured
Maryland	32-Southern Maryland	X		
Virginia	11-Old and Middle Belt			X
	21-Virginia		X	
	37-Virginia sun-cured	X		
North Carolina	11-Old and Middle Belt			X
	12-Eastern Belt			X
	13-Border Belt			X
	31-Burley	X		
South Carolina	13-Border Belt			X
Georgia	14-Georgia and Florida Belt			X
	62- Georgia and Florida Shade	X		
Florida	14-Georgia and Florida Belt			X
	62- Georgia and Florida Shade	X		
Tennessee	22-Eastern District		X	
	23-Western District		X	
	31-Burley (Light)	X		
	35-One Sucker (Dark)	X		
Kentucky	22-Eastern District		X	
	23-Western District		X	
	31-Burley (Light)	X		
	35-One Sucker (Dark)	X		
Pennsylvania	41-Pennsylvania Seedleaf	X		
Connecticut	51-Connecticut Broadleaf	X		
	52-Connecticut Havana Seed[5]	X		
	61-Connecticut Shade	X		

5 Sources list Type 52 as the Connecticut Havana Seed, but the USDA classification does not seem to include a separate classification for the Pennsylvania Havana Seed.

Table 1. Tobacco Grown in the United States, Organized by State.

Major Producing State	USDA Tobacco Type	Air-cured	Fire-cured	Flue-cured
Wisconsin	54-Southern Wisconsin	X		
	55-Northern Wisconsin	X		
Louisiana	72-Perique	X		

Source: U.S. Agricultural Marketing Service, Tobacco Division 1979, 2.

The first types of tobacco grown in America were established in the Chesapeake region. The Chesapeake tobacco district spanned the southern boundary of Pennsylvania to North Carolina's Albemarle Sound. By the mid-1800s, three major tobacco-growing districts were established in America: Maryland, southern Virginia and northern North Carolina, and Kentucky, including portions of its neighboring states. Southeastern states such as South Carolina and Georgia began to grow tobacco as a small staple, but the advent of the cotton gin supported cotton farming as the Southeast's important crop.

Air-Curing

Maryland

Although certain aspects of the Southern Maryland tobacco district can be found elsewhere in the country, the culmination of several influences have made Maryland's tobacco culture its own. The light, sandy soil of the region helps produce tobacco with a superior burn and taste, both traits that have become the hallmark of Maryland tobacco. The type of tobacco grown in Maryland was called Orinoco. The Orinoco variety predominated tobacco farming in Maryland (Robert 1949, 17).

In Maryland, as in most air-curing tobacco regions, tobacco traditionally has been harvested by stalk cutting, which involves cutting the entire plant including the stalk. Stalk cutting allows the stalk to continue feeding nutrients to the leaves for several days after harvesting. After the tobacco wilts, it is ready to be hung in the tobacco barn for curing (U.S. Agricultural Marketing Service, Tobacco Division 1979, 10).

Tobacco produced in Maryland always has been air-cured using natural atmospheric conditions. The controlled ventilation that is required for air curing avoids heat entirely, instead relying on careful control of moisture in the barn's interior. As described in the 1786 Method of Raising and Curing Tobacco in Maryland, as Communicated to the Committee on Agriculture on Boston, tobacco leaves originally were cured by the method of pegging sun-softened tobacco leaves and hanging them to dry "in the manner that bacon generally is" and closely arranged so that the leaves were touching. Four-foot-long sticks of hanging leaves were laid beam to beam and stacked in tiers from the barn floor to the top of the ceiling. The tobacco leaves dried for six to eight weeks (Wasch 1990, 80–81).

Climate control during the critical drying process is mitigated through the opening of barn doors, or by burning a fire on the barn floor during damp weather. Fires using hickory wood was noted in the 1786 address. The length of time required for curing depended on the type of tobacco produced. Depending on weather conditions, Maryland tobacco and Burley types could be cured in four to six weeks. Cigar type tobacco grown in other regions required a longer duration and could be cured in five to eight weeks (U.S. Agricultural Marketing Service, Tobacco Division 1979, 10).

Following the drying stage, the tobacco plants are taken down and gathered by hand for stripping. Stripping is the delicate task of pulling the cured tobacco leaves from the stalk without breaking them. Stripped and sorted tobacco is next packed into large, wooden hogshead containers. After the leaves are layered tightly into the hogshead, boards weighted by blocks compress the leaves into a flat, three-inch-thick cake (Wasch 1990, 80–81). The hogshead was filled to the top, forming a large, solid mass of tobacco leaves. In Maryland, a hogshead weighed from 750 to 1,000 pounds. In late eighteenth century, hogsheads were noted to be heavier in Virginia than they were Maryland, even though Virginia's hogshead packing process was similar to that of Maryland's (Wasch 1990, 82).

Tobacco barns of Southern Maryland are distinguished from barns of other regions by their somewhat wide variety of roof types. While all other tobacco-growing states typically use a symmetrical, medium-pitched gabled roof, tobacco barn roofs in Southern Maryland vary from regular gable, asymmetrical gable, hipped, gable-on-hipped, gambrel, or gable with shed roofs attached at the sides (Hart and Mather 1961, 281) (See Figure 14.) Another unique structural feature of the Maryland tobacco barn lies in the braced framing that was used by some barns. Southern Maryland's propensity for high winds compelled some tobacco farmers to brace the barn's side walls and roof to the foundation for added stability during windstorms (Hart and Mather 1961, 281).

There are many functional similarities between the Maryland tobacco barn and air-curing barns of other regions. Like many air-curing tobacco barns, the Maryland barn is typically wood frame, rectangular in plan, and clad in wood siding. It is located near the tobacco fields, preferably on a high point of land to optimize ventilation and drainage. The oldest tobacco barns in Maryland were built using only wide door openings at the ends and vertical plank walls with gaps in between the boards for ventilation. By the beginning of the twentieth century, Maryland barns began to feature operable side vents that resemble the air-curing barns in the northern regions of Pennsylvania, New York, and Connecticut. Maryland tobacco barn of more recent age sometimes include an interior room for tobacco stripping. Some stripping rooms are set into the ground several feet, allowing them to retain more moisture, which was desirable during stripping and handling (Hart and Mather 1961, 281).

By the mid-twentieth century, an average-sized Maryland tobacco barn was rectangular in plan, measuring 32 by 64 feet, with 16-foot-tall walls. A barn of this size could house 17,300 tobacco plants, or roughly 2 ¾

acres planted with 6,200 plants per acre. These barns feature a series of door openings along the side walls and double-doors at the building ends for ventilation. The University of Maryland's agricultural engineers during that time recommended that the optimal interior climate was between 80 and 90 degrees and 75 to 80 percent relative humidity. Farmers adjust a barn's numerous ventilators to create the best conditions possible. If the humidity is too high in the barn, the air is heated and most of the ventilators closed, except for a few to let the humid air escape (McKee, Street, and Hoyert 1963).

Maryland's air-cured tobacco was primarily used for cigarette production and other tobacco products in several European countries. It also has been used in domestic cigarettes since the early twentieth century. Domestic cigarettes primarily comprise the light-colored Burley tobacco of the Burley growing regions throughout Kentucky and into its neighboring states (Robert 1949, 214). The air-curing tobacco method used in Southern Maryland is also common to the tobacco-growing region centered on the common borders of Virginia, North Carolina, and Tennessee.

When Maryland began to be outpaced in tobacco production from other regions, Maryland tobacco came to be distinguished from other types by its light flavor and its superior burning qualities, such as aroma (U.S. Agricultural Marketing Service, Tobacco Division 1979, 3). Even though Maryland produced a relatively small quantity of tobacco in the 1900s, especially when compared with large growing districts in Kentucky, Maryland's tobacco was valued for its mild flavor. Maryland's soils and climate help produce its tobacco's unique attributes. As cigarette production began to flourish, Maryland tobacco came to make up about 5 percent of the cigarette tobacco (Everstine 1942, 1, 2).

Kentucky

The tobacco-growing region that encompassed most of Kentucky and parts of the neighboring states of Indiana, Ohio, West Virginia, Virginia, and Tennessee is called the Burley Belt, named for the distinctive Burley tobacco that is grown in the area. Burley tobacco continues to be grown in fourteen states, but Kentucky grows the majority. Consequently, Kentucky has been the largest producer of Burley, and in turn, tobacco is the cash crop of farms in the region (Van Willigen and Eastwood 1998, 12).

Burley tobacco, also called "white Burley," is a light-colored tobacco plant adapted from the dark, red Burley tobacco that had been grown in Kentucky and southern Ohio since the early nineteenth century (Van Willigen and Eastwood 1998, 11). Burley's characteristically thin leaves are lighter to handle during picking and curing and quicker to dry, which makes them resistant to moisture and mildew. These traits required different tobacco curing techniques than the heavier dark tobacco leaf, and a new type of tobacco barn emerged to accommodate it. The Burley tobacco plant can be brought to market faster because it can be harvested using stalk cutting and does not require priming. Priming is the method of selective harvesting where only the ripe leaves are picked rather than cutting the entire plant at once, making it a labor-intensive method of cultivation. Instead, with Burley, the entire plant can be cut and cured at one time. While the red

Burley leaf was thick and required heat to prevent the leaf from rotting during curing, the thinner, white Burley tobacco can be air-cured without heat (Van Willigen and Eastwood 1998, 12).

By one account, the new type of "white Burley" tobacco was introduced as early as 1860. Its popularity took off over the following decade. The new Burley has a light leaf that was derived from an isolated plant mutation that was found from the dark Burley crop. The lighter Burley leaf was considered better tobacco than the former red Burley variety because the leaves had the advantage of more easily absorbing flavors and sweeteners during processing (Van Willigen and Eastwood 1998, 12). Since then, white Burley has been renamed "Burley." At the beginning, Burley grew well in soils rich in silt-loam from the limestone in and surrounding Kentucky (Hart and Mather 1961, 279, 280).

Demand for the dark tobacco leaf waned during the early 1900s when popular taste shifted from snuff and chewing tobacco to cigarettes. Kentucky's dark tobacco was produced using both air-curing and fire-curing techniques (Hart and Mather 1961, 279). Since the region's existing methods of both dark air-cured and dark fire-cured tobacco yielded the lowest returns in profit, many farmers began to switch from growing dark tobacco to light Burley. The transition was easy for farmers' already air-curing dark tobacco, but if necessary, they would convert fire-curing barns to air-curing barns for the Burley variety. This meant that a farmer switching from fire-curing techniques had to build an entirely new tobacco barn due to the necessity of numerous openings in the air-curing barn. For some farmers, Burley's higher profitability over dark leaf tobacco made the trouble worthwhile (Hart and Mather 1961, 279, 280).

Although the types of dark and white Burley tobacco plants were fairly consistent in the Burley Belt, there is no one type of tobacco barn within the Burley Belt tobacco-growing district. Many of the tobacco barns found in this area are considered to be modified versions of the English hay barn, in which the interior was converted into the horizontal tiered system for tobacco drying. Other tobacco barns in the region were used both for curing tobacco and for housing livestock. The dual function became a characteristic trait of Kentucky's tobacco barns (Montell and Morse 1976, 79). Outside of Kentucky, the only other tobacco region known to combine tobacco growing with livestock farming was the Lancaster County region of Pennsylvania (Robert 1949, 216).

According to an 1846 description, Kentucky's air-curing barn was ventilated by double doors wide enough to accommodate a wagon at the ends of the building (Figure 15). The doors would remain open on dry, clear days for air drying the tobacco. The upper gabled ends of the side walls also had doors that could be opened to increase ventilation in the interior. The typical exterior cladding of vertical planks abutted side by side without overlapping also allowed for air circulation. Untreated pine planks resulted in the wood's natural shrinkage to create narrow, ventilating gaps in between the planks. About a 20-inch gap at the upper portion of the side walls under the roof eaves was left open and uncovered to increase air circulation. In the event of

rain, these long openings could be sealed by lowering hinged boards attached to the roof plate (Wasch 1990, 85).

This early Kentucky barn eventually evolved into the most common type of air-curing tobacco barn, which typically features exterior walls clad in hinged vertical boards that can be opened for ventilation and for permitting light into the interior (Figure 16). A typical air-curing barn in the Burley Belt region is a large, rectangular barn ranging from 28 to 40 feet wide and 36 to 72 feet long, although some barns extended up to 300 feet long. Ventilators in the roof allowed for convection of heat within the barn. Although fires were not part of Burley tobacco's curing process, a small fire could be lit on the barn floor to help dissipate sporadic periods of high humidity. A small stripping shed was often attached to the side of the Kentucky tobacco barn. The shed is typically oriented facing north so that the tobacco stripper can inspect the tobacco leaves in the indirect, northern sunlight (Hart and Mather 1961, 281).

Kentucky's white Burley tobacco produces a tall leaf and required more interior space for curing, while the dark tobacco leaf variety was shorter and smaller and required less space. Consequently, the air-curing barn for dark tobacco was small by comparison. It was typically built of wood frame perforated with vertical doors and ventilators along the roof ridge. Unlike the fire-curing barn, the air-curing barn was positioned in the most open and exposed site possible for maximum ventilation from wind (Hart and Mather 1961, 279).

Unlike Maryland's unpainted tobacco barns, Burley barns were often painted in the Kentucky and Tennessee regions during the twentieth century. Typically, all sides of the barn were painted in one color while the ventilators were painted a contrasting hue. Common examples include black-painted barns with white ventilators or white barns with green ventilators. The black paint was created from a tar mixture that was less expensive and more durable that regular paint (Hart and Mather 1961, 282, 283). Many barns were painted black to absorb more of the sun's heat, thereby inducing a shorter curing time (Vlach 2003, 188).

In Kentucky's Bluegrass horse country, painted barns have allowed the structures to aesthetically assimilate to the manicured landscape of horse farms that were showplaces for tourism. In areas where farms combined tobacco farming and horse racing, it was not uncommon for barns to be used for both curing tobacco and stabling horses. In less prosperous regions, tobacco barns were left unpainted. In the mountainous areas of northeastern Tennessee where tobacco farming was done on a small scale averaging one-half acre or less, tobacco barns were created from retrofitted barns built for other purposes (Hart and Mather 1961, 282, 283).

Tobacco barns of the Burley Belt changed after the beginning of the 1920s, when the USDA published plans for tobacco barns. The building plans were offered to farmers through local county agricultural agents. The USDA featured new ideas, such as making the barns lower to the ground. The suggested barns also featured three driveways, whereas earlier vernacular tobacco barns in the region had no driveways (Montell and Morse 1976, 53).

Air-Curing: Cigar Tobaccos

Although air curing was the least common method of curing tobacco leaves in terms of volume of tobacco produced, it was the most common curing method in the northern states. The northern tobacco-growing states of Connecticut, Massachusetts, Pennsylvania, New York, Ohio, and Wisconsin, along with Georgia and Florida, primarily produced cigar filler, binder, and wrapper types of tobacco using air-curing methods (Robert 1949, 214). The farming practices for air-curing cigar tobacco tended to be more labor intensive than Southern Maryland's air-cured tobacco. All the classes of tobacco that were used for cigar wrappers required elaborate farming techniques. These included installing canopies of cloth sheets over the tobacco plants to shade them. Furthermore, while most of the tobacco plants in other regions could be cut whole and hung for curing, the cigar tobacco plants needed to be primed, whereby only the ripe leaves are selectively picked two to three leaves at a time (Robert 1949, 214, 216).

Pennsylvania

Before the 1830s, the poor quality of the tobacco grown in Pennsylvania limited tobacco farming to a small scale for local consumption. Most early attempts at tobacco cultivation occurred in the rural regions surrounding Philadelphia in Lancaster and York Counties. Initially, farmers grew the *Nicotiana tabacum* species and dried and air-cured the leaves by hanging them from the barn rafters. The tobacco was heavy, black, and gummy, and was limited to local consumption for chewing or smoking as cigars. The cigars that were sold locally became known as "stogies," named for the local Conestoga River (Becker 1990, 6, 7).

Tobacco production in Pennsylvania surged after 1837, when a superior type of tobacco seed called Havana was introduced to the region. The Havana tobacco plant produced a broader leaf and higher quality tobacco than the existing local plants. The Pennsylvania Havana Seed tobacco was grown for cigar production, as the leaf was used for the inner wrappers, or binders. Regional farmers also grew a second type of tobacco plant, the Pennsylvania Broadleaf, or Seedleaf, which was used for cigar filler. The emergence of the broadleaf tobacco varieties boosted regional production eighteen-fold over the course of twenty years between 1840 and 1860, with 3 million pounds of tobacco produced in 1860. By 1900, production soared to over 49 million pounds (Becker 1990, 6, 7).

In 1883, Lancaster City was the second largest seedleaf market in the country, behind the New York City market. By that time, the Lancaster cigar tobacco was regarded as superior in quality for both filler and wrapper. The region's success was credited to its rich soil, the practice of fertilizing tobacco-stripped soils, and the cultural legacy of farming in the region, particularly by groups such as the Mennonites and Amish (Becker 1990, 8). When the Pennsylvania Havana Seed lost favor by the early 1900s, the Pennsylvania Broadleaf emerged as the principal type of tobacco grown in the state during the twentieth century (Becker 1990, 6, 7).

After 1837 when tobacco growing became more prevalent in the Lancaster region, the typical Pennsylvania tobacco barn was a ventilated barn for air curing tobacco. Tobacco barns in tobacco districts in southeastern Pennsylvania, southern Wisconsin, and the Connecticut River Valley were built using similar methods to that of the large, air-cured Burley tobacco barn of Kentucky and Tennessee (Hart and Mather 1061, 283). The tobacco leaves were hung by their butt ends from tobacco sticks and dried on a scaffolding of temporary, portable racks for a minimum of eight weeks (Becker 1990, 8). Pennsylvania farmers experimented with cupolas and ventilators, but usually used operable openings in the barns' side walls to allow for cross-ventilation. In this method, every third board was hinged at the top to create an awning opening (Hart and Mather 1961, 284). Unlike the unpainted tobacco barns of Maryland, Pennsylvania tobacco barns were usually painted white.

At the end of the air-curing process, humid air was required to soften the leaves before they could be handled without breaking. This usually took place in a stripping cellar, which was a room with an earthen floor, or a basement where humidity was high. Often it was located in the basement area underneath the tobacco barn. The stripped leaves were then sorted and packed according to the various grades of the tobacco (Becker 1990, 8, 9; Hart and Mather 1961, 284).

When tobacco production in Pennsylvania increased markedly after 1860, small production operations expanded into large facilities. Even large warehouses were built specifically for the packing and storing of tobacco leaves. The typical process involved the farmer's delivery of cured tobacco leaves in bales to the packer/dealer, who prepared the product for the market or for re-sale to other dealers. The packer transferred the tobacco from the bales to wooden cases, where the tobacco would be cured a second time under more controlled conditions than what was possible in the grower's barn. The packer exposed the tobacco to both natural and artificial heat and aerated the leaf bundles by hand. The leaves were then repacked and set to ferment. Historians have documented that some tobacco packing operations added wine to the fermentation process for added flavoring. The final, packed tobacco cases could be stored for a period of months to years for aging (Becker 1990, 13). This lengthy process appears to have been unique to the Pennsylvania tobacco industry. In contrast, Maryland tobacco did not go through a second stage of curing and was usually brought to the market the spring season following harvesting.

New York

Although New York was not a major tobacco-growing region, areas near the cities of Syracuse and Elmira produced the Havana Seed type of air-cured tobacco for cigar binder tobacco (Robert 1949, 214, 215; U.S. Agricultural Marketing Service, Tobacco Division 1959, 5). Documentation in 1864 described a typical air-curing tobacco barn in nineteenth century New York. The typical tobacco barn was similar to barns from other tobacco regions that used air-curing methods. It was a side-gabled, wood-frame building with a rectangular floor plan that maximized natural ventilation through many openings on all sides of the building.

The barn measured 24 by 100 feet and was supported by piers set at 12-foot intervals in the exterior walls and through the center of the interior. These piers were connected by plates at the exterior walls and girts and ties through the center portion. The exterior, ventilating walls were composed of vertical boards. At four- to five-foot intervals, a board was attached by a side hinge that allowed the board to swing open like a door, essentially perforating the exterior walls to maximum interior ventilation. The doors were opened only during dry weather and closed when the climate was damp or windy. Often two long ventilators in the roof ran the length of the ridge to allow further convection. On the interior, tobacco was hung on a three-tiered framework. Double-doors at the barn's end walls allowed easy access when loading and unloading tobacco (Wasch 1990, 83).

Connecticut

Tobacco farming began in the Connecticut River Valley in pre-colonial times. The tobacco-farming area extended along the banks of the Connecticut River from Hartford northward into Massachusetts. The earliest tobacco cultivation was done for local consumption. The cigar industry began in the early 1800s and large cigar manufacturers began to emerge by the 1830s. The tobacco seed was adapted from the Maryland Broadleaf tobacco plant. When this seed was grown along the Connecticut River Valley, it grew into a finely textured tobacco plant called the Connecticut Broadleaf. By the mid-nineteenth century, Connecticut Broadleaf tobacco began to replace corn as the region's cash crop and tobacco farming expanded greatly in the valley (O'Gorman 2002, 17, 58).

Growers in the Connecticut River Valley region began to build tobacco sheds for air curing the broadleaf tobacco in the 1840s. The sheds were long, narrow structures that were divided into two or three aisles by posts on the interior. The sheds were ventilated by vertical side-wall openings at every third board (Figure 17). However, unique to the barns was the addition of these hinged vertical boards at the gable ends above the entrance doors, which essentially perforated every walled surface of the barn. When the local economy afforded farmers to paint the barns, they did so, but the practice fell off during periods of economic recession. A curing practice unique to the Connecticut region was its frequent use of fires in the barn to wilt the leaves more rapidly. Tobacco farmers in all regions nationwide used small fires to combat periods of humid conditions during air curing; however, Connecticut farmers typically used fires sooner after the tobacco was hung in the barn than growers in other regions (Hart and Mather 1961, 286).

The Connecticut River Valley's more profitable tobacco was the shade-grown cigar wrapper tobacco. Connecticut's shade-grown tobacco leaf was the primary variety used to wrap cigars throughout the mid-nineteenth and early twentieth century. By the late nineteenth century, the Connecticut shade-grown leaf faced competition from a higher quality tobacco leaf that was imported from Sumatra. Connecticut farmers impeded distribution of the Sumatra tobacco in 1890 by obtaining a tariff on its import, which added two dollars to each pound. Competition to the Connecticut tobacco farmer's foothold on cigar wrappers leaves

turned domestic when a similar shade-grown leaf was cultivated in Florida on land where soil conditions were similar to those of the Connecticut River Valley. By the 1900s, Florida tobacco growers had achieved a high quality of tobacco that mimicked the Sumatra leaf and brought competition to Connecticut tobacco growers (Hart and Mather 1961, 286).

Around 1900, the shade-grown Sumatra seed was introduced to the Connecticut River Valley region. This new type of tobacco for cigar wrappers required the most elaborate farming techniques (O'Gorman 2002, 22, 23). Since the tobacco wrapper was used for the outside of the cigar, the leaves had to be thin, smooth, and elastic, uniform in color, and possess good burning qualities (U.S. Agricultural Marketing Service, Tobacco Division 1979, 4). To achieve this, Connecticut growers undertook a number of additional steps in the tobacco cultivation phase. While most plants could be cut whole and hung for curing, the cigar wrapper tobacco plants needed to be primed (Robert 1949, 216). The most distinctive feature of the Connecticut River Valley's Sumatra tobacco was that it was grown under sheets of cloth designed to shade the tobacco plant. The shades of cotton or cheesecloth fabric simulated a tropical climate by bathing the tobacco in indirect light, trapping in moisture, and protecting the plants from wind, extreme temperature swings, and insects in what essentially was a pseudo greenhouse. The cloth was stretched across a framework of cedar posts in 33-foot squares at a height of 8 to 9 feet above the plants. Underneath the cloth canopy, the tobacco plants were tied with strings to overhead wires to insure their upward growth. The shade-grown cigar tobacco's labor-intensive cultivation made it the most expensive type of tobacco to grow (Hart and Mather 1961, 286; O'Gorman 2002, 22, 23).

The new shade-grown tobacco caused Connecticut farmers to slightly alter their existing tobacco barns to better suit the needs of the delicate crop. The air-curing barns for the shade-grown tobacco tended to be larger than the broadleaf tobacco barns. A typical barn measured 40 feet wide, 100 to 200 feet long, and 40 feet tall. Since only the tobacco leaves are cured after the priming harvest, the leaves are hung close together in tiers spaced about 2 to 2 ½ feet apart. Although the most common tobacco barn of the Connecticut River Valley featured long, vertical vents along the side walls, some barns had long rows of horizontal ventilators perforating the barn's exterior with continuous, open, horizontal courses to permit ample air circulation. These ventilators were enclosed by numerous hinged louvers that were all attached to one pole so that they could all be raised and lowered at the same time (Hart and Mather 1961, 286; O'Gorman 2002, 26, 51).

By the mid-twentieth century, shade-grown tobacco had overtaken the broadleaf tobacco farming that dominated the nineteenth century. The large scale of shade-grown tobacco in the Connecticut River Valley and the capital it required made it necessary for the shade-grown tobacco farms to be operated by large corporations. Some shade-grown tobacco farms grew fifty to sixty acres of tobacco and had fifteen to twenty barns to accommodate this. These large barns were usually clustered at the edge of the tobacco fields. Many of these farms included dormitories to house the field hands, who were often school boys working during their summer vacation (Hart and Mather 1961, 286).

Wisconsin

By the 1860s, two small regions in southern Wisconsin began growing and producing cigar tobacco. The practice arrived to the Midwest from migrant settlers from eastern regions who carried the tobacco farming practice with them. In Wisconsin, like Maryland, they found that the light and sandy soils were favorable for tobacco cultivation. Tobacco cultivation soon passed into the hands of the region's Norwegian farmers who worked as laborers or tenant farmers and learned the craft. By the late 1860s, 70 percent of the tobacco farmers in Wisconsin were of Norwegian origin (Raitz 1995, 129).

The Wisconsin tobacco barn was built for air curing tobacco using a fairly standardized form that most often resembled the air-curing barns of the Burley Belt region. The typical barn measured 28 feet wide and was as long as necessary to accommodate the farm's tobacco yield. Unlike tobacco barns elsewhere, Wisconsin barns used balloon framing techniques whereby the structure was divided into 12- to 16-foot-deep bents. Each bent included a round rooftop ventilator at the ridgeline. The building was clad in either horizontal or vertical boards. The interior was ventilated by door openings at the gable ends and also along each side wall, which was pierced by swinging or sliding doors spaced every 15 to 20 feet apart. Often the barns were painted white with red doors. A frequent problem in the curing process was that the tobacco dried out too fast due to the relatively low humidity of the local climate. This was minimized by keeping the barn doors closed during the warm, daytime temperatures and opening them at night to ventilate (Hart and Mather 1961, 283; Raitz 1995, 131, 132).

There were many variations between barns in the Wisconsin tobacco-growing regions. When tobacco production in the region increased between 1910 and 1920, some farmers expanded the barns by building a cross-gabled wing resulting in an L-shaped plan. The L-shaped footprint helped decrease wind stress while increasing the barn's capacity for tobacco. The northwestern areas of the state's tobacco district sometimes used gambrel roofs instead of gabled ones. Some of the barns also included attached stripping sheds. Tobacco production began to fall off during the mid-twentieth century and many tobacco barns were converted to other uses at the time (Raitz 1995, 141, 142).

Florida

The relatively small tobacco-growing region of Florida lies in Gadsden County in the northern part of the state near the Georgia border. Tobacco first began to be grown in this region in 1829. By the 1840s, Florida entered the Cuban-style cigar tobacco market and tobacco production boomed through 1850 (Herndon 1969, 403). It grew the similar shade-grown tobacco that had been previously grown in the Connecticut River Valley. Like Connecticut, most of the Florida tobacco was produced by a few individual farmers who operated large farms. These farms typically built shack-like dormitories for the workers, but instead of school children, the workers were primarily African American adults. The farm workers sowed, tended, and

harvested the fields, and also sewed the insulating cloths that covered the fields for growing shade-grown tobacco (Hart and Mather 1961, 286, 288).

The large tobacco farms in Florida meant that the tobacco barns were also large to accommodate the crop. They averaged 42 by 120 feet in plan and rose 20 feet to the eaves and 32 feet to the gabled peaks. Florida air-curing barns were unique from other tobacco barns because they were ventilated by a series of large, 3½ by 12-foot openings with hinged boards in the side walls instead of narrow horizontal courses or vertical openings. These large bays allowed the barn to be used for other purposes, such as feeding barns for cattle. Cattle on a tobacco farm benefited tobacco farming because the cow manure could be used for fertilizing soil depleted from tobacco growing (Hart and Mather 1961, 289).

Florida's production of the Cuban and Sumatran tobacco varieties reached its peak in 1850 and then dramatically declined by the 1870s. After a small renewed interest in cigar tobacco revived some production at the turn of the twentieth century, the region began growing and curing Bright Leaf tobacco after World War I, along the with rest of the coastal southeastern states (Herndon 1969, 403).

Fire-Curing

Until the early nineteenth century, the air-curing method developed in Virginia and Maryland was the typical method used in the colonies. By 1800, however, Virginia's tobacco production in the Tidewater Chesapeake region had all but ceased, coinciding with the end of the Sweet-scented market. The once-prosperous plantations had become exhausted from the tobacco plant's notorious nutrient consumption and the state's cash crop began to shift to a new region of the state. Virginia planters in the Piedmont region in the central part of the state began to take up dark tobacco cultivation using fire-curing methods. The move was successful and by the nineteenth century, this region bordering North Carolina became Virginia's most productive tobacco-growing area (O'Dell and Salmon 1993, 7, 8).

The new fire-curing method by way of introducing heat into the tobacco barn was used increasingly during the early 1800s. The smoky flavor imparted from fire curing was gaining popularity on the European export market by the outbreak of the War of 1812. Fire-cured tobacco was mainly produced in southwestern Kentucky, northwestern Tennessee, and the central Piedmont region of Virginia for European export, and to a lesser extent, domestic production of snuff, cigar plug wrapper, and cigar filler (Hart and Mather 1961, 276; Herndon 1969, 410). One hundred years later, fire-cured tobacco also was used in making an Italian-type of cigarette called Toscani, which was a strong cigarette that was favored by immigrants during the early 1900s (Herndon 1969, 426; Robert 1949, 214).

The fire-curing method involved heating the barn's interior by lighting one or several fires on the barn floor. As a by-product of this process, the smoke imparted a distinctive aroma to the tobacco. It also improved the longevity of tobacco that was shipped to Europe, making it preferable to export markets (Hart and Mather

1961, 279). However, a difficulty in the fire-curing method was that it was tricky to maintain an even temperature throughout the barn, especially when several fires were lit at once. Fires that were too hot could potentially darken the leaves with too much smoke and soot (Prince 2000, 48).

Although the region along the western border of Kentucky and Tennessee used several types of tobacco barns, the oldest tobacco barns in this region were used for fire curing. These were relatively small, unpainted wood-frame or log buildings. Like most tobacco barns nationwide, they were rectangular in plan; typically between 20 to 32 feet wide and 26 to 48 feet long. In Kentucky, larger fire-curing tobacco barns, typically measuring 60 by 45 feet, were built during the mid-nineteenth century, and thus were more square in plan than barns elsewhere (Wasch 1990, 84, 85).

The fire-curing barn was characteristically tall, with as many as five tiers of hanging tobacco in the interior. The barn was built using 18-foot-tall piers set in two parallel rows 21 feet apart in 10- to 12-foot intervals. The exterior posts were placed 3 feet into the ground and were usually made of locust or cedar. The interior piers could be set on rocks for stability (U.S. Agricultural Marketing Service, Tobacco Division 1979, 11; Wasch 1990, 84, 85).

Across the interior, a scaffold of cross ties was erected for hanging tobacco. Fastened to the piers by mortise-and-tenon joints, the highest tier of cross ties was positioned at the top of the piers. Subsequent lower piers were vertically spaced 4 feet apart with the lowest tier at a height of 9 feet above the barn floor. In addition to the tiered scaffolding, roof rafters that were set in 4-foot intervals served as an additional tier on which to hang tobacco (Wasch 1990, 84). The tobacco sticks that were placed on the tiered framework were only slightly longer than the spaces between the ties, measuring four feet, two inches long. The sticks were arranged in 1-foot intervals to maximize the quantity of tobacco cured at one time. Smaller tobacco barns in Kentucky were built on the same module of 12-foot bays with three tiers of cross ties (Wasch 1990, 85).

Like Southern Maryland's air-cured tobacco harvesting practices, fire-cured tobacco was stalk-cut during harvesting. After the barn's scaffold was hung with tobacco, the first phase of fire-curing involved no heat to allow the leaf to yellow naturally (U.S. Agricultural Marketing Service, Tobacco Division 1979, 12). After three to five days, a slow, low fire using hardwood was lit to heat the interior. Unlike the ventilated air-cured tobacco barn, fire-curing barns were designed to be airtight, although few actually were. It was common for fire-curing tobacco barns to be set back on wooded sites for shelter and insulation during the heat-curing process (Hart and Mather 1961, 279).

Fire-curing tobacco became short-lived when popular taste for this tobacco began to wane in the early 1830s. Fire-cured tobacco was still produced, albeit in lower quantities. Some tobacco growers returned to air-curing techniques while others switched from using wood-burning fires to coal, and eventually to flue-curing methods following the Civil War (Herndon 1969, 426, 429).

Flue-Curing

The flue-curing method of curing tobacco first began in the southern states following the Civil War. Flue-curing tobacco presented a favorable alternative to fire-curing because flue-curing allowed for controlled, radiant heat. The traditional method used a furnace that was constructed of stone or brick partly outside of the barn at ground level, which reduced the risk of fire. The furnace had connecting metal flues that extended across the floor of the barn. The flues evenly distributed heat to the hanging tobacco leaves and diverted blackening smoke and combustion odors out through a chimney. This process left the cured leaves light in color since they were not darkened with smoke. The resulting flue-cured tobacco leaf became known as Bright Leaf tobacco for its characteristically light color after curing and non-smoky taste. Since many of the existing fire-curing barns were not easily adapted to the addition of a furnace, a new type of tobacco barn emerged for flue-curing (Brown 1988, 190; Hart and Mather 1961, 276; U.S. Agricultural Marketing Service, Tobacco Division 1979, 10).

Flue-curing tobacco barns first appeared in the tobacco-growing region straddling the North Carolina and Virginia border (Figure 18). In the effort to trap in heat, most of the tobacco barns were built of horizontal logs with heavy clay chinking; however, a few barns were clad in tarpaper, vertical siding, or even stucco (Brown 1988, 220). The buildings were typically located near wooded areas where wood-burning fuel was gathered, and also in close proximity to the tobacco field. The use of wood-burning stoves from which the flues were attached declined after 1940 when oil began to replace wood for fuel (Hart and Mather 1961, 292).

The flue-curing tobacco barn typically had a gabled roof covered in tin or sheet metal and an attached shed roof to protect the furnace and the person who tended it. The barn's footprint was usually square with solid walls and ventilation at the top and bottom of the walls. Originally, a wood-fired furnace extended metal flues around the barn floor to evenly distribute the heat throughout the barn interior, shielding the tobacco leaves from combustion odors and smoke. The furnace was built of brick or stone and was located just outside of the barn at ground level (U.S. Agricultural Marketing Service, Tobacco Division 1979, 10).

By 1930, the flue-curing process had developed into a three-part system. First, the barn was heated to between 90 and 100 degrees for 24 to 48 hours until the leaf was yellowed. After the yellowing, the temperature was increased to 135–140 degrees for 30 to 36 hours, which set the leaves' golden color. Finally, the heat was raised to 180 degrees for 24 hours. This staged heating process was a delicate one that risked total failure if the heat died out or was too hot too soon. After the heating was complete, the barn doors were opened to reintroduce moisture to prevent the leaves from becoming brittle for the handling and packing process (Daniel 1985, 30, 31).

The transition to flue-curing spread over the course of the twentieth century as the practice migrated southward, beginning in Virginia and North Carolina and eventually moving into eastern South Carolina,

southern Georgia, and northern Florida (Daniel 1985, 33). The movement began in 1890 when the price of cotton fell and southern farmers turned to tobacco for a replacement cash crop (Daniel 1985, 24). Although the tobacco-growing regions of the Carolinas, Georgia, and Florida used all three methods of curing—flue curing, fire curing, and air curing—flue curing produced the biggest cash return and thus became the most common curing method in these states (Hart and Mather 1961, 276).

As popular tastes switched from chewing tobacco to smoking tobacco by the 1900s, there was an increase in flue-cured tobacco, which became produced primarily in the southern states. As a result, the southern tobacco-growing regions expanded greatly during this transition. Meanwhile, the shift in demand caused the northern state's cigar tobacco production to decline (Hart and Mather 1961, 278).

Flue-cured tobacco, also called Bright Leaf or Bright Tobacco, became a popular commodity during this time due to its mild flavor. The leaf's popular taste was created in part from the smoke-free, flue-curing techniques, but also was born from the southern region's characteristically poor soils. The nutrient-poor soil starved the plant into producing a weaker, albeit milder flavor that was favored for the "quick smoke" cigarette (Daniel 1985, 24). To demonstrate the effect of the soil on the plant, a tobacco plant that was grown in Virginia produced a heavy, dark green tobacco leaf, while the same plant produced thin, light-colored leaves when grown in the North Carolina Piedmont where soil was less fertile. To starve the tobacco leaf of nutrients even further, rapid heating during the flue-curing process inhibited the leaf's natural metabolic process and resulted in the lightest tobacco flavor possible (Hart and Mather 1961, 290). The result of the southern states' growing and curing methods centered on cigarette tobacco production in the South, while the rich soils of the northern states produced stronger, less palatable tobacco that was better suited for cigars (Daniel 1985, 24).

Bright Leaf tobacco was more expensive to cultivate than other types of tobacco since the leaves are primed from the plant during harvesting, rather than cutting down the entire plant at once. Growers also faced stiff competition from Burley tobacco and the plant's unusual thin leaves that made it ideally suited for cigarette production (Robert 1949, 186, 222). Bright Leaf tobacco came to supply more than half of the cigarette tobacco, with Burley and Maryland tobacco being used for the remainder (Robert 1949, 186, 222).

While Bright Leaf tobacco grown in the Piedmont region along the Virginia-North Carolina border was called "Old Belt" tobacco, the "New Belt" variety of Bright, flue-cured tobacco was grown in the eastern coastal regions of North Carolina and South Carolina: the coastal soil composition produced this new tobacco type. New Belt flue-curing tobacco barns differed from the barns of the Old Belt region. Because logs were either costly or unavailable in the coastal areas, tobacco barns had to be built of wood frame. North Carolina's New Belt tobacco barns were typically sheathed in green and black tarpaper that was held in place on the exterior by vertical battens. The New Belt tobacco barns were small and square, averaging

16 to 20 feet square in plan and 18 to 20 feet tall to the eaves. The roofs included an adjustable ventilator and a smokestack for the flue (Hart and Mather 1961, 292).

Tobacco farming emerged in the northeastern part of South Carolina in 1890, where the region became called the Carolina Border Belt, or simply Border Belt. There, tobacco barns were similar in design to those of the North Carolina's New Belt tobacco barn, but differed in their use of cinder block and tire, in addition to wood or logs, for the exterior building materials. South Carolina's warmer summer climate also compelled farmers to build attached shelters to the side of the barn (Figure 19). These open, shed-roof shelters provided shade from the sun and were used to store equipment and for working with tobacco (Hart and Mather 1961, 293).

Flue-curing barns of the Georgia-Florida region arrived later than the rest of the country, following the South's boll weevil epidemic of the late 1910s. When the cotton crop was decimated by the pests, farmers supplanted the crop with tobacco plants. The flue-curing barns in the lower Southeast differed from their predecessors to the north in several ways. They were typically built within or close to the farmstead. More than one-third of the barns also did not include attached shelters, and those that did include shelters usually only had them on one façade. Instead, the barns were often located close to tree stands to provide shade for the tobacco workers. Tobacco barns in Georgia and northern Florida were commonly built of log construction, but the logs were characteristically smaller in diameter than the log barns of Piedmont North Carolina, the Old Belt region. Less than half of these barns were painted (Hart and Mather 1961, 293).

The result of tobacco-growing regions spreading across the Eastern half of the country was that tobacco growing and cultivation became a highly specialized practice that was unique to each region. Each tobacco district evolved its own methods of growing, harvesting, and curing the leaf for use in a variety of tobacco products.

F. Associated Property Types

The following table provides a summary of the distinctive attributes of air-curing tobacco barns in Southern Maryland for the four time periods defined in the historic context, Southern Maryland Tobacco Barns, 1790s–1960. Table 2 summarizes the **pattern of features** common to the barns constructed in each time period, and is not intended to take into account all of the variability in the attributes of the barns that is known to occur. Most of the region's air-curing tobacco barns are highly individualized structures, built by farmers or local carpenters using (or re-using) the available materials and construction methods and configured to suit the specific needs of the planter. There is typically substantial overlap in the use of a particular plan, framing method, or building material between time periods.

Following Table 2 are the associated property types for air-curing tobacco barns, and then flue-curing tobacco barns. The associated property types for air-curing tobacco barns are broadly defined to encapsulate all associative attributes of each class of resource. The property type descriptions present a synopsis of the detailed architectural descriptions found in the historic context, Southern Maryland Tobacco Barns, 1790s–1960. The statements of significance and registration requirements follow the descriptions.

Table 2. Physical Characteristics of Southern Maryland Air-Curing Tobacco Barns by Period.

Characteristic	1630s–1800	1800–1830	1830–1900	1900–1980
Frame Type	Earthfast (hole set) Log	Braced frame	Braced frame Balloon frame	Balloon frame
Timber	Heavy timber Hewn or pit-sawn logs	Heavy timber Hewn or pit-sawn logs	Heavy timber Machine-sawn (after mid-century)	Circular-sawn
Joinery	Mortise and tenon/ lapped Corner notches	Mortise and tenon/lapped Corner notches	Mortise and tenon/lapped	Let-in joints
Nail Type	Wrought nails	Wrought nails Machine cut	Machine cut Wire (after 1890)	Wire
Plan Type	One, two, or three rooms Single- or double-pen	Cross axial	Cross axial Transverse aisle	Transverse aisle Single- or double-aisle
Siding	Clapboard	Clapboard or weatherboard	Clapboard or weatherboard Vertical board siding	Vertical board siding w/ ventilators Horizontal board siding w/ ventilators
Roof Type and Pitch	Steep gable	Steep gable	Steep gable Moderate gable	Moderate gable Moderate gambrel
Roof Sheathing	Clapboard	Clapboard Wood shingles	Wood shingles	Standing seam or corrugated metal

DESCRIPTIONS

Associated Property Type: AIR-CURING TOBACCO BARNS OF SOUTHERN MARYLAND

Subtype: Earthfast Tobacco House

Description:

The handful of earthfast tobacco houses that survive in Southern Maryland consist of heavy timber posts set into the ground. The framing system is reinforced by down- or upbraces mortised and pegged to interrupted sills for the former and to a tie beam for the latter. Tilted false plates support paired rafters. The exterior and roof are sheathed with clapboards.

Subtype: Log Tobacco Barn

Description:

Log tobacco barns were built in Southern Maryland in the eighteenth and nineteenth centuries. They are constructed of hewn or pit-sawn horizontal logs with notched corner joinery. The most common forms of notching are saddle, V, or dovetail. The interstices between the logs are devoid of chinking to ventilate the building. Doors also facilitate air circulation. Exteriors often are sheathed with riven clapboards. The region's log tobacco barns typically are single-pen structures or double-pen structures bisected by a central passage.

Subtype: Air-Curing Tobacco Barns of the Nineteenth Century

Description:

A typical early-nineteenth century air-curing tobacco barn generally measure 24-by-40 feet, and is characterized by a steeply-pitched gable roof. The structure is often surrounded by sheds (generally as additions), and is clad in clapboards or weatherboard. This type of barn generally adopts a cross-axial plan with wide doorways located on the long elevations; some single doors also might be positioned on the gable ends. The structure is underpinned on stone, wood, or brick piers, and has a heavy timber braced frame with continuous sills. The tiers tie into transverse rows of vertical posts to support the tobacco sticks. The structural bays are typically on 8-foot centers, although barns with 5- or 10-foot structural bays that characterized the eighteenth century continued to be built after 1800. Primary posts are hand-hewn or pit-sawn and mortised and pegged into the sill and tie beam. Intermediate posts, studs, and nailers are pit-sawn and joined by lapped joints fastened with wrought or machine-cut nails. A common rafter roof of collars and wind braces is supported by tilted false plates. The roof is sheathed with clapboards or wood shingles.

After about 1830, the form and construction of the air-curing tobacco barn in Southern Maryland began to change. The barns increasingly assume a more rectangular form, and include an original shed on one of the long elevations. Thus, these barns are characterized by an asymmetrical gable roof. Sheds subsequently added to the barn are appended to the opposite long elevation or to one of the gable ends. Many of these barns adopt a transverse aisle plan with double doors on the long elevations. The structure still consists of hewn or pit-sawn sills and principal posts with pegged mortise and tenon connections, but by the mid-nineteenth century, machine-sawn lumber was adopted for secondary framing members, shed additions, and exterior sheathing. Connections are still secured by machine-cut nails. By the second quarter of the nineteenth century, vertical board siding generally replaced horizontal riven clapboards on barn exteriors and flat false plates replaced tilted false plates in supporting the roof framing.

Subtype: Air-Curing Tobacco Barns of the Twentieth Century

Description:

The typical twentieth century air-curing tobacco barn has a long, boxy configuration. Most barns built after 1900 have a single- or double-aisle plan with double doors on both ends, although the transverse aisle plan persisted into the twentieth century. The barns are one- or two-stories and have concrete or, by mid-century, concrete block foundations. The size of the barns varies greatly, with some being quite long, but the average mid-twentieth century barn is 32-by-64 feet.

The exteriors of these barns are usually clad in vertical board siding, although horizontal board siding might also be used. Most of the barns employ hinged ventilators at regular intervals to control air circulation. For barns sheathed with vertical board siding, the ventilators consisted of either side- or top-hinged ventilators of one to four boards each. Naturally, barns with horizontal board siding on their exteriors employ top-hinged horizontal ventilators of one to four boards each. The barns terminate in a moderately-pitched gable or, generally after 1940, gambrel roof and are clad in standing-seam metal or corrugated galvanized steel panels.

The interior framing system of the aisle tobacco barn retains the same components as earlier barns, i.e., continuous sill, vertical posts, tiers, rafters, and collars, but it is built entirely of circular-sawn lumber with wire-nail fasteners.

These barns often incorporate equipment sheds and stripping rooms. A separate room in the interior of the barn for stripping and sorting was introduced by the late 1920s. The so-called stripping room was usually a separate partitioned area in one corner of the barn, with north-facing windows (usually), an interior door, and perhaps an exterior door too to provide outside access. A variation of this type of stripping room is found in barns in Calvert and southern Anne Arundel Counties. In these areas, the stripping room is usually semi-

subterranean. Stand-alone stripping sheds also occur on Southern Maryland tobacco farms. They are located convenient to the barn and may be detached or semi-attached to the barn. Stripping rooms and stripping sheds are of wood frame or concrete block construction. Some can include electricity and a source of heat.

Significance:

Air-curing tobacco barns of Southern Maryland are significant under Criterion A for their association with the historic context, Tobacco Production in Southern Maryland, 1630s–2005. They have local and state significance in the area of agriculture for their association with the agricultural history of Maryland. Until recent years, tobacco agriculture has always been important to the history and agricultural economy of Maryland. Tobacco instantly became the "money crop" of the Maryland colony at the time of its settlement in the 1630s, and remained the state's mainstay crop for nearly 350 years. Tobacco barns were an integral part of tobacco production, and thus, to the agricultural economy. As shelters for curing, storing, and processing tobacco for market, tobacco barns were essential to the process of air-curing tobacco.

Air-curing tobacco barns of Southern Maryland are significant under Criterion C for their association with the historic context, Southern Maryland Tobacco Barns, 1790s–1960. They have local significance in the area of architecture for illustrating a distinctive type, period, or method of construction. Specifically, Southern Maryland air-curing tobacco barns are important examples of air-curing tobacco barn design and construction that is distinct to Southern Maryland. Tobacco barns are the defining feature of tobacco culture in Southern Maryland. They are the largest, most complex material artifact of tobacco culture, and through their architecture, they document the agricultural practices of tobacco production in Southern Maryland. Additionally, the evolution of their design and construction reveals how Southern Maryland tobacco farmers adapted the barns to respond to changing economic conditions, agricultural practices, and building technologies.

Registration Requirements:

In order to be eligible under Criteria A and C, the air-curing barn must be in its original location in one of the five counties in Southern Maryland. The barn must have been built before 1960. The barn should include the majority of the character-defining features of air-curing barns, such as its framing system, the tiers and transverse rows of vertical posts, and the form of ventilation, whether gaps between horizontal logs or vertical board siding, hinged ventilators, or a series of doors.

Agricultural resources such as tobacco barns are often modified over time to conform to market changes, changing agricultural practices, and technological innovations. One or more shed additions to the barn were common, and in fact the norm, and interior spaces within the barn or the shed were sometimes modified or converted to accommodate changing yields and agricultural practices with shifting market conditions.

These types of alterations or additions would not detract from the integrity of the barn as long as it retains the majority of those attributes that convey its historic agricultural function and original architectural design. New materials such as a metal roof would be acceptable.

The setting of the barn should still convey a sense of the rural or agricultural character of the area. However, because of the endangered nature of tobacco barns in Southern Maryland, the setting should not be as heavily weighted as the aspects of integrity concerning design, materials, workmanship, and location. A barn situated within a setting that is almost or entirely changed by dense suburban or urban development may impair its ability to convey its association with agriculture, but it is not detrimental to its architectural significance.

The earliest, and rarest, barns in Southern Maryland date to the late eighteenth and early nineteenth centuries. As impermanent construction, earthfast tobacco houses are extremely rare. Likewise, there are few surviving examples of log tobacco barns and the earliest heavy timber braced frame barns. Because of their relatively rarity and threatened status, an evaluation of integrity should be lenient when considering workmanship and materials in order to preserve the structure as a whole.

There are numerous examples of twentieth century barns in Southern Maryland. These too, however, are endangered, because many stand abandoned and decaying in the wake of the rapid decline of tobacco production caused by high labor costs, low demand for Maryland tobacco, high land values, and the Maryland State Tobacco Buyout Program. The evaluation of significance and integrity of twentieth century barns should weigh heavily in favor of those with an intact stripping room than those without one. When considering integrity, aspects of integrity should be assessed more stringently for a twentieth-century tobacco barn than for a nineteenth-century barn. Substantial historic material loss or poor condition of a property would likely affect the ability of the barn to convey its historical or architectural significance.

Associated Property Type: FLUE-CURING TOBACCO BARNS

Description:

Tobacco barns built specifically for the purpose of flue-curing in Southern Maryland date no earlier than 1861 and probably date no later than 1880. Flue-curing barns may also comprise an older tobacco barn that was retrofitted for the flue-curing process. As such, the size, form, and construction of the flue-curing barn are largely typical of air-curing tobacco barns of the same period. However, the flue-curing process requires barns to have an excavated floor to contain the furnace and other flue apparatus and be airtight in order to retain heat. Thus, flue-curing barns have an excavated pit inside of the barn, which could comprise the entire floor area. The pit was usually lined with stone or brick. Additionally, these barns also have exteriors with tightly fitted vertical board siding. The barns may also use wood boards or earthen berms around the sill to prevent heat from escaping.

Significance:

Flue-curing tobacco barns of Southern Maryland are significant under Criterion A for their association with the historic context, Tobacco Production in Southern Maryland, 1630s–2005. They have local significance in the area of agriculture for their association with the agricultural history of Maryland. These barns represent an innovative response to the economic and labor crises facing tobacco farmers in the post-Civil War period. These farmers believed that flue-curing would produce a better quality tobacco than the traditional air-curing method, and use less labor in doing so. Although the experiment with flue-curing ultimately failed in Southern Maryland, the flue-curing tobacco barn illustrates the influence of technological innovation and economic forces in the tobacco economy of Southern Maryland.

Flue-curing tobacco barns of Southern Maryland are significant under Criterion C for their association with the historic context, Southern Maryland Tobacco Barns, 1790s–1960. A flue-curing tobacco barn has local significance in the area of architecture as representative of a distinctive type of construction, specifically, as an example of flue-curing tobacco barn construction. This is a unique property type in Southern Maryland, demonstrating one facet of the architectural history of tobacco barns in the post-Civil War period.

Registration Requirements:

In order to be eligible under Criteria A and C, the flue-curing barn must be located in one of the five counties in Southern Maryland and stand in its original location. It should include both of the character-defining features of flue-curing barns, namely airtight construction and an excavated floor or pit, and these features must be intact. A barn exhibiting only one of these features would not be able to sufficiently convey an association to the flue-curing process. The barn should retain the majority of its original framing system, specifically the tiers, and the historic building materials. However, agricultural resources such as tobacco barns are often modified over time to conform to market changes and changing agricultural practices. Most alterations or additions would not detract from the integrity of the barn as long as it retains the majority of those attributes that convey its historic agricultural function and design. New materials such as a metal roof would be acceptable.

G. Geographical Data

The Multiple Property Documentation Form for the Tobacco Barns of Southern Maryland includes all tobacco barns associated with the contexts included in this nomination in Anne Arundel, Calvert, Charles, Prince George's, and St. Mary's Counties, Maryland.

H. Summary of Identification and Evaluation Methods

The Tobacco Barns of Southern Maryland Multiple Property Documentation National Register nomination is sponsored by Preservation Maryland, a non-profit historic preservation organization, and the Maryland Historical Trust, which includes the Maryland State Historic Preservation Office. These two organizations are members of the Southern Maryland Tobacco Barns Preservation Initiative, which was formed in 2005 with the purpose of preserving Southern Maryland's historic tobacco barns and the agricultural landscape using a variety of local and state resources. Other members of the Initiative include the National Trust for Historic Preservation, the five county governments in Southern Maryland, and selected heritage tourism organizations.

The purpose of completing the Tobacco Barns of Southern Maryland Multiple Property Documentation Form is to provide a historic context of Southern Maryland's tobacco barns that will serve as the basis for evaluating and nominating these properties to the National Register of Historic Places and to the Maryland Inventory of Historic Properties. The ultimate goal of the Multiple Property Documentation is to provide information that will assist the members of the Southern Maryland Tobacco Barns Initiative in reaching several of the preservation goals set forth in their 2005 action plan. These goals include:

- Completing a comprehensive tobacco barn survey;
- Nominating important tobacco barns for inclusion in the National Register;
- Prioritizing funding for grants awarded under the Tobacco Barn Restoration Fund; and
- Developing interpretive, educational, and technical publications (paper and electronic) to raise public awareness and augment various heritage tourism programs.

Funding for the Multiple Property Documentation was provided by Preservation Maryland and a non-capital Historic Preservation Grant from the Maryland Historical Trust.

Extensive research of primary and secondary sources at a number of different libraries and archives in Maryland and Washington, D.C. was undertaken to develop the historic contexts. Research reports and publications on the production and marketing of Maryland tobacco were reviewed at the Enoch Pratt Free

Library in Baltimore. Sources on the marketing and consumption of Maryland tobacco and agricultural research reports and publications on the cultivation and economy of tobacco in Maryland were consulted at the Southern Maryland Studies Center at the College of Southern Maryland in La Plata. The Maryland Room at the Anne Arundel Public Library, Annapolis Branch was consulted for county histories. The Architecture Library at the University of Maryland, College Park, and the National Trust for Historic Preservation Library at Hornbake Library, University of Maryland, College Park, have several items on the architecture of tobacco barns in Southern Maryland and in other tobacco-growing regions in the United States. Journal articles, master's theses, and studies on the history of tobacco production in the United States were examined at McKeldin Library, University of Maryland, College Park. The Records of the Maryland Agricultural Experiment Station and the Maryland State Board of Agriculture's reports on the amount of leaf tobacco sold in Maryland were reviewed at the Maryland Room, Hornbake Library, University of Maryland, College Park. Internet searches were also performed to obtain pertinent information.

The architectural context of Southern Maryland's tobacco barns and associated property types was derived primarily by reviewing Maryland Historical Trust files of previous architectural survey projects that have documented tobacco barns in selected parts of Southern Maryland and Maryland Inventory of Historic Properties forms of tobacco barns recorded in the five Southern Maryland counties. Additionally, the historic preservation planners in the planning departments from each of the counties supplied the historic preservation consultant with surveys, reports, and/or records of tobacco barn documentation projects conducted within their respective county. Field survey was not a component of this project.

The definition of associated property types was based on the chronology of the architectural evolution of the tobacco barn, as evidenced by design, form, and materials. Evaluation criteria for each property type, including standards of integrity, were based on the National Register Criteria (36 Code of Federal Regulations 60.4). Information and analysis of architectural survey and Maryland Inventory of Historic Properties inventory data on the condition and relative number of surviving resources in each property type were taken into consideration to determine the degree to which to allow more flexibility in assessing the level of integrity.

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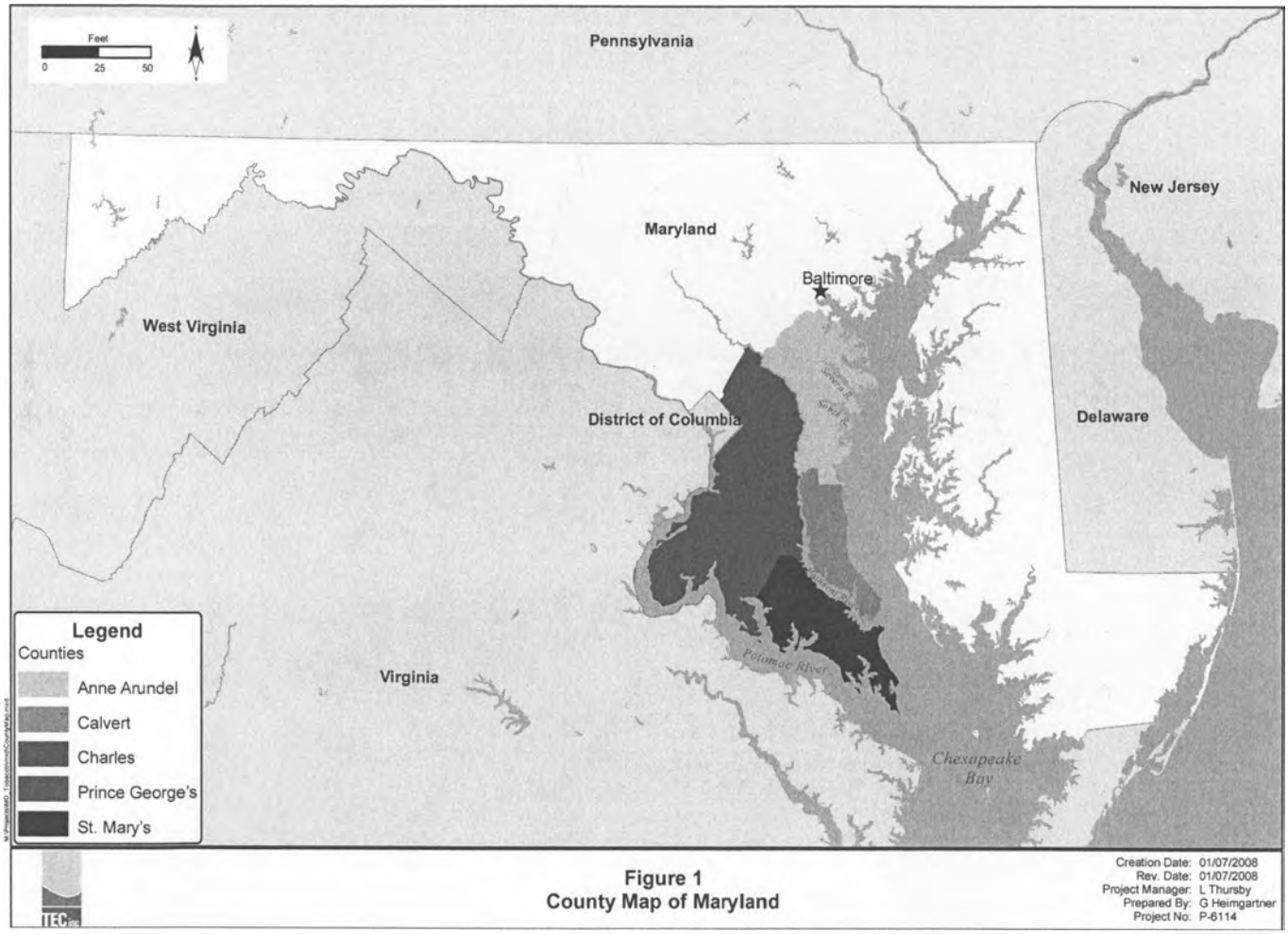

Figure 1
County Map of Maryland

Creation Date: 01/07/2008
Rev. Date: 01/07/2008
Project Manager: L Thursby
Prepared By: G Heimgartner
Project No: P-6114

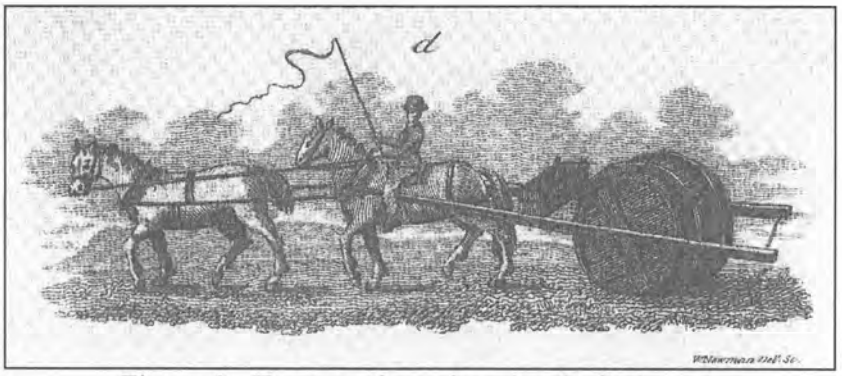

Figure 2. Transporting a hogshead of tobacco.
From *An Historical and Practical Essay on the Culture and Commerce of Tobacco* (1800) by William Tatham, as presented in *William Tatham and the Culture of Tobacco* (Herndon 1969)

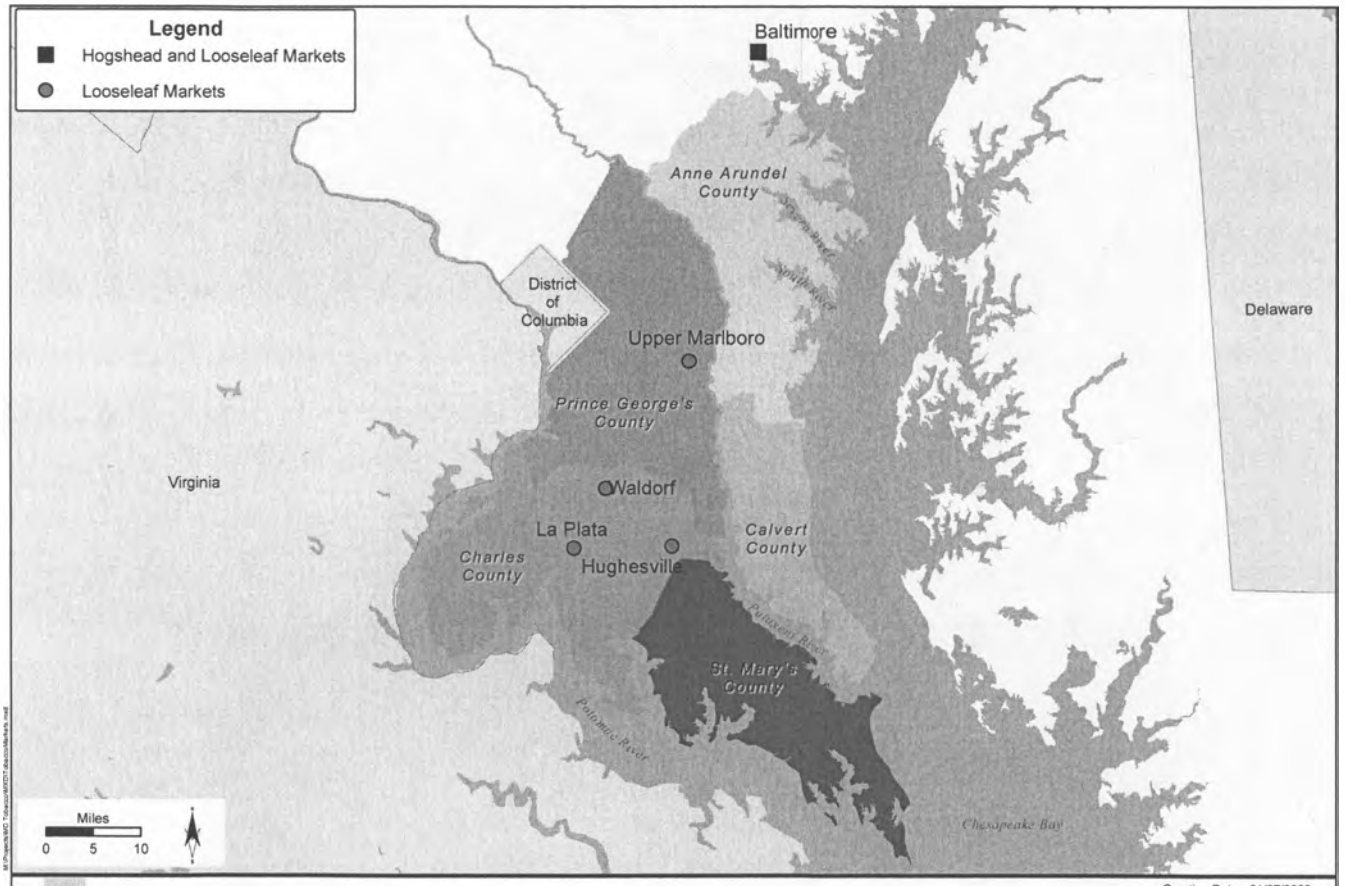

Figure 3
Historic Tobacco Markets of Southern Maryland

Creation Date: 01/07/2008
Rev. Date: 01/07/2008
Project Manager: L Thursby
Prepared By: G Heimgartner
Project No: P-6114

Figure 4. Packing tobacco on the farm of L. R. Gray using a vertical prize
Note the large pile of tobacco sticks in the background
Records of the Maryland Agricultural Experiment Station 1929

Figure 5. Double-pen log tobacco barn, Day-Breedon House and Farm, Lusby vicinity, Calvert County
Library of Congress HABS MD, 5-SOL.V, 2A-1

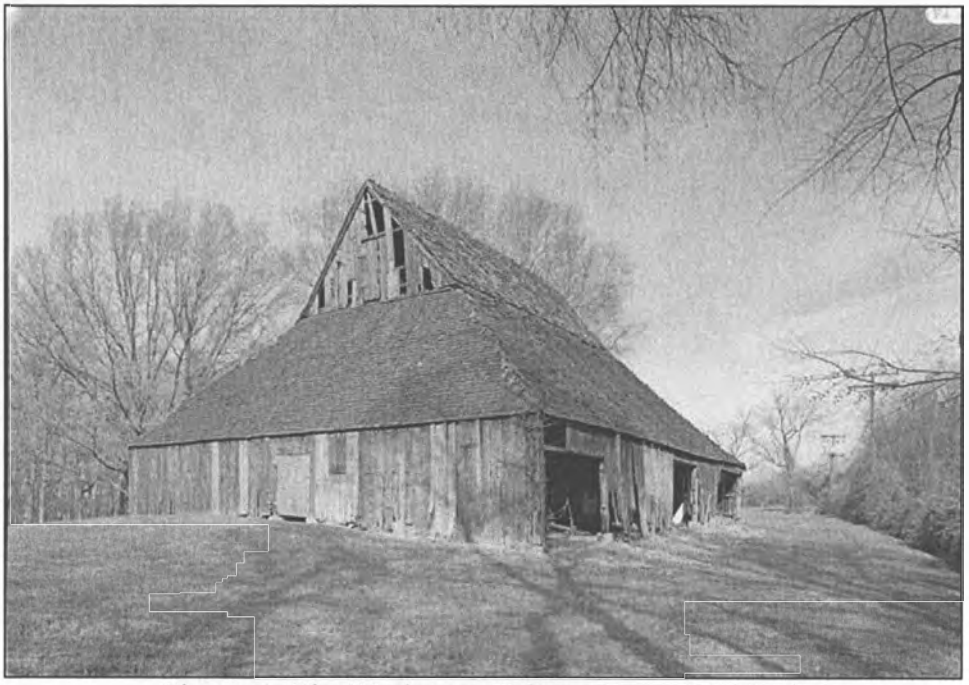

Figure 6. The Warington Tobacco Barn (PG:73-6)
Library of Congress HABS MD, 17-MITV, 2-1

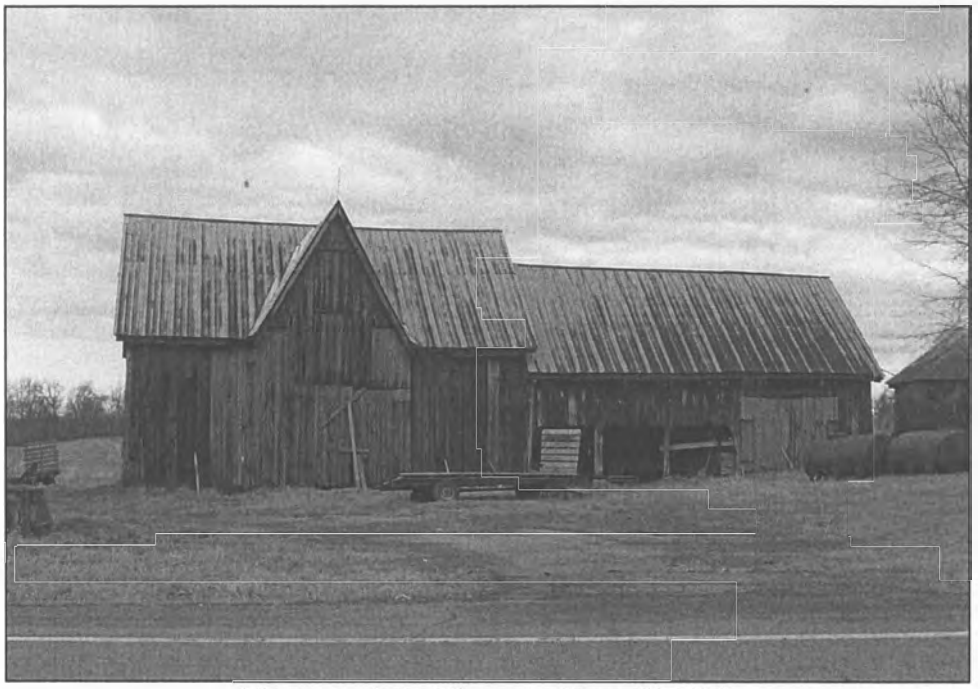

Figure 7. John Plummer Barn (CT-92)
Photo courtesy of Kirsti Uunila, Calvert County Planning and Zoning

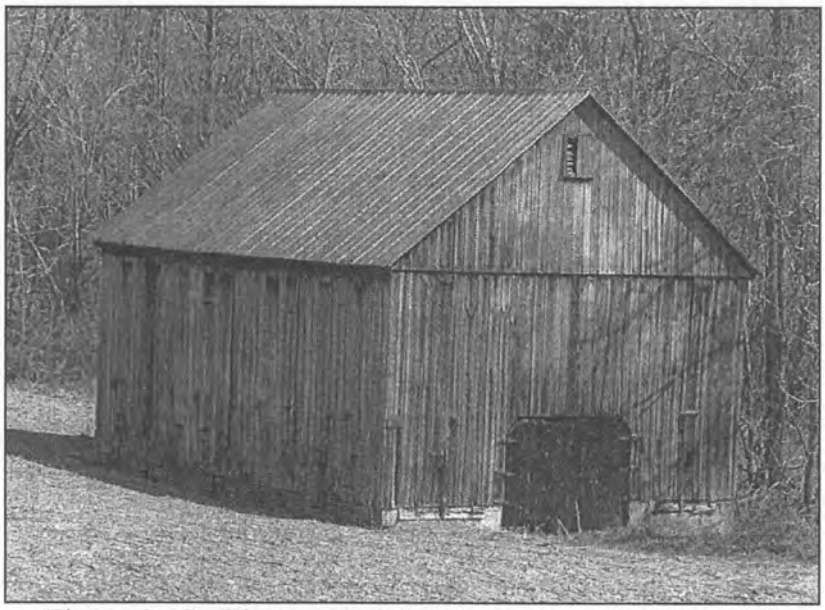

Figure 8. St. Thomas Parish Tobacco Barn (PG:86A-27)
From the *Lower Patuxent Scenic Byway Intrinsic Quality Inventory Report*
(HRG Consultants, 2007)

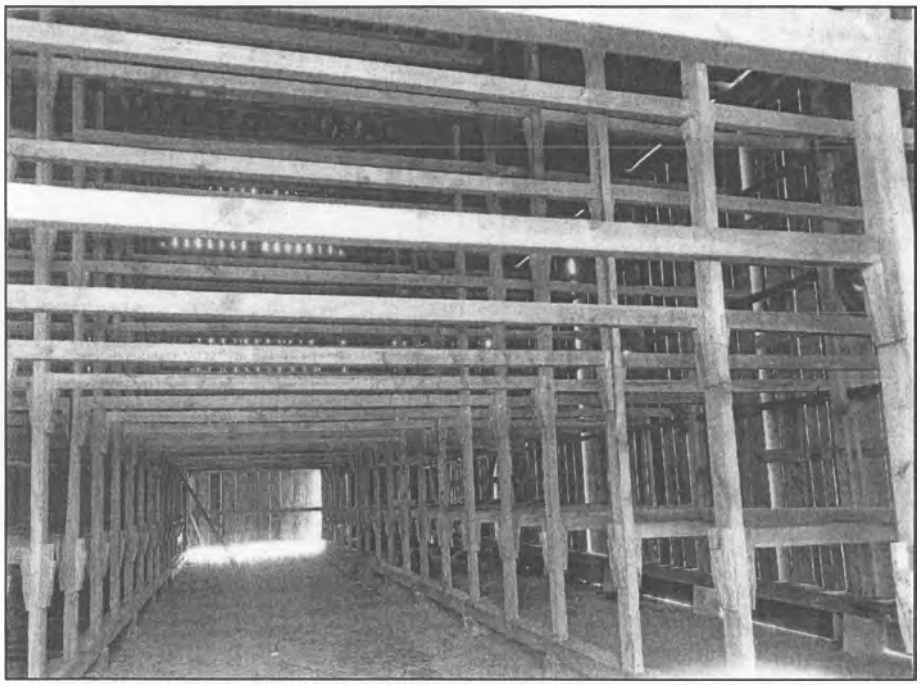

Figure 9. Interior view of the framing system of a single-aisle tobacco barn
Records of the Maryland Agricultural Experiment Station 1929

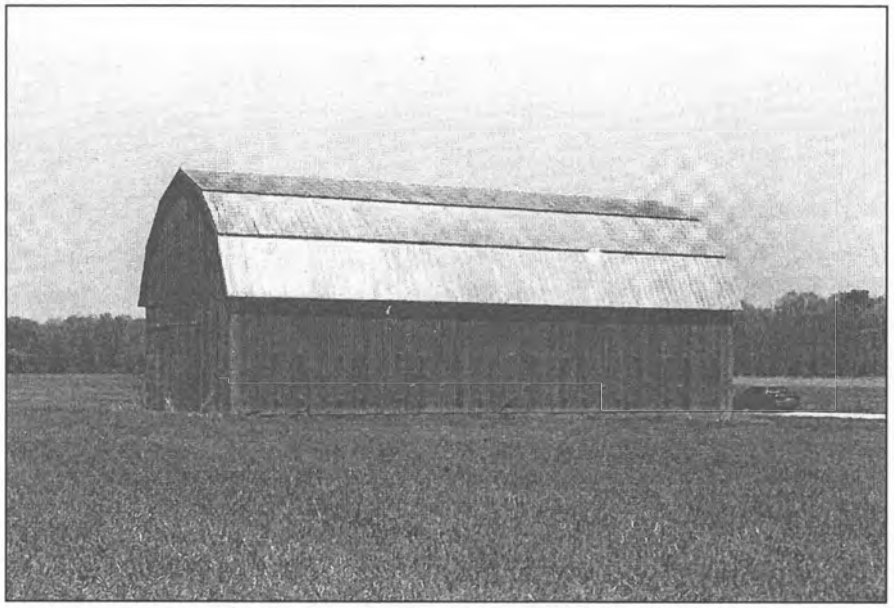

Figure 10. Prouty Barn B (CT-1084)
From CT-1084, Maryland Inventory of Historic Properties

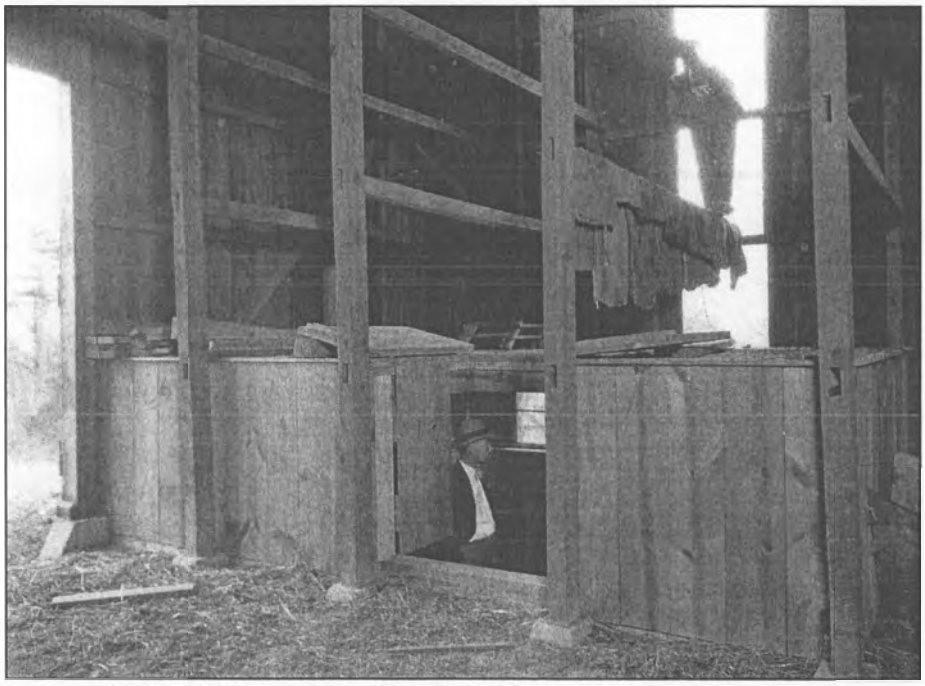

Figure 11. Example of a semi-subterranean stripping room
Records of the Maryland Agricultural Experiment Station 1929

Figure 12. James Chesley-Octavius Bowen Barn
Photo courtesy of Kirsti Uunila, Calvert County Planning and Zoning

Figure 13. Detail view of Bibb Flue in the Bond-Parran Tobacco Barn (CT-1183)
Photo courtesy of Kirsti Uunila, Calvert County Planning and Zoning

Figure 14. Tobacco barn with a gable-on-hipped roof in Prince Frederick, Calvert County, Maryland

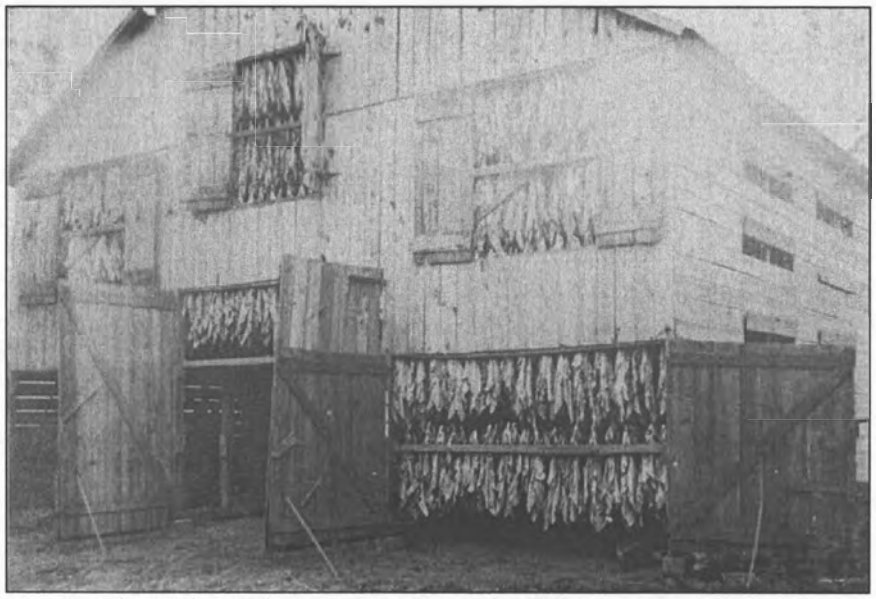

Figure 15. Air-curing tobacco barn from the Winchester vicinity, Kentucky
Library of Congress LC-DIG-nclc_00528

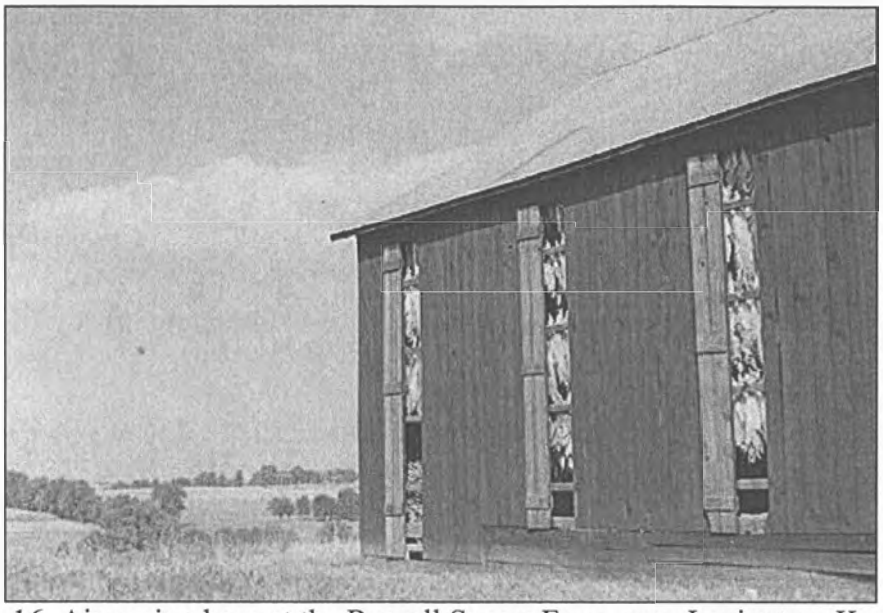

Figure 16. Air-curing barn at the Russell Spears Farm, near Lexington, Kentucky
Library of Congress LC-USF34-055365-D

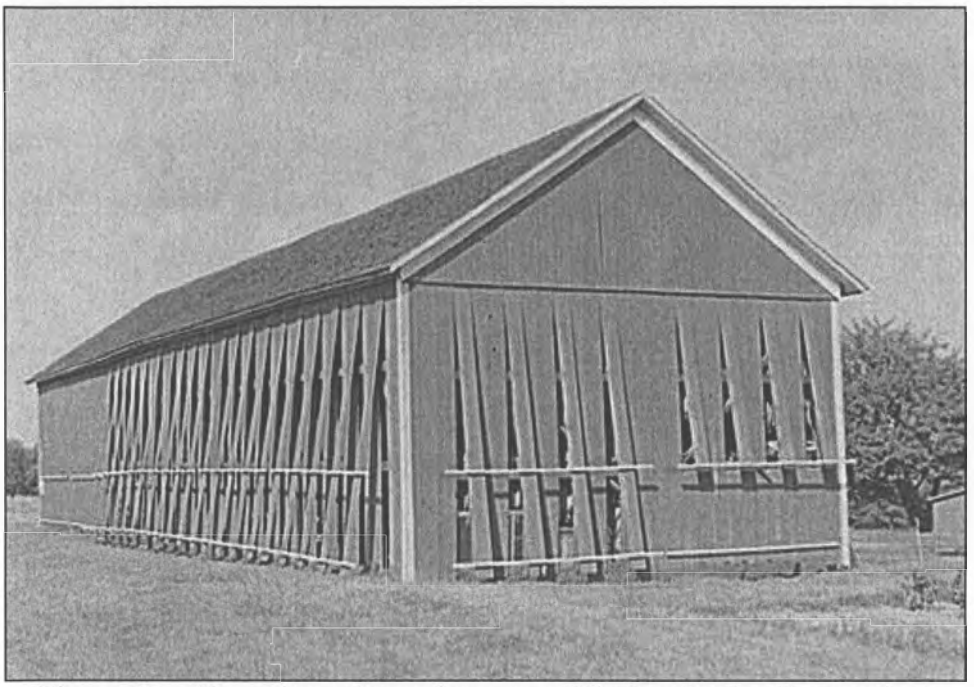

Figure 17. Air-curing tobacco barn near Windsor Locks, Connecticut
Library of Congress LC-USF34-041570-D

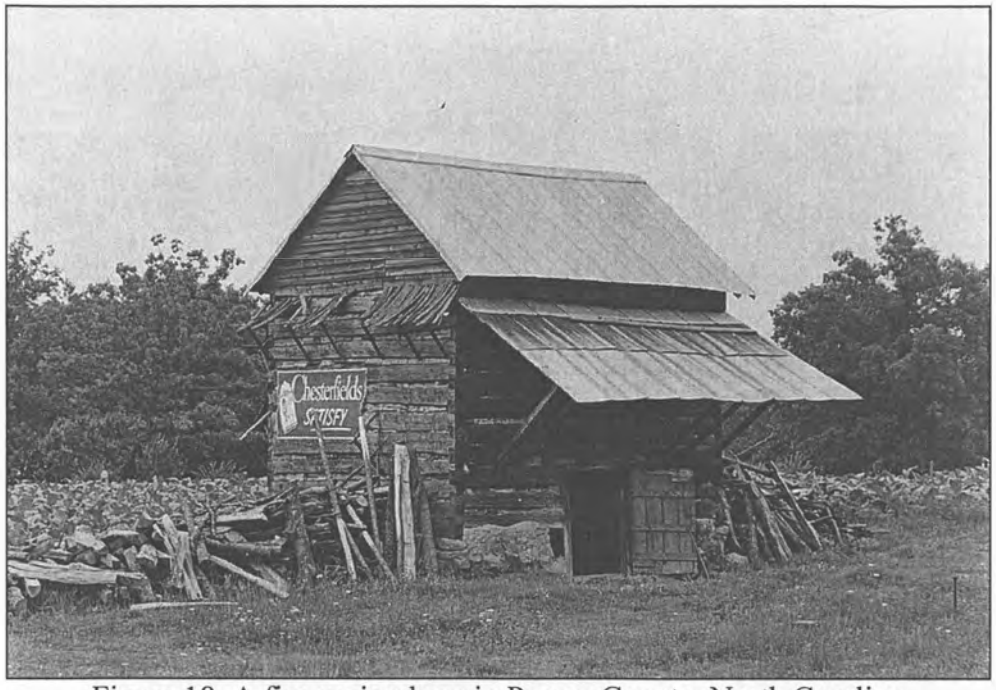

Figure 18. A fire-curing barn in Person County, North Carolina
Library of Congress LC-USF34-020028

Figure 19. Flue-curing tobacco barn in Dillon County, South Carolina
Library of Congress HABS SC, 17-LAT.V, 2-2

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: COVER DOCUMENTATION

MULTIPLE NAME: Tobacco Barns of Southern Maryland MPS

STATE & COUNTY: MARYLAND, Multiple Counties

DATE RECEIVED: 11/10/11 DATE OF PENDING LIST:
DATE OF 16TH DAY: DATE OF 45TH DAY: 12/27/11
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 64501128

REASONS FOR REVIEW:

APPEAL:	N	DATA PROBLEM:	N	LANDSCAPE:	N	LESS THAN 50 YEARS:	N
OTHER:	N	PDIL:	N	PERIOD:	N	PROGRAM UNAPPROVED:	N
REQUEST:	Y	SAMPLE:	N	SLR DRAFT:	N	NATIONAL:	N
NEW MPS:	Y						

COMMENT WAIVER: N

✓ ACCEPT ___ RETURN ___ REJECT 12/27/2011 DATE

ABSTRACT/SUMMARY COMMENTS:

RECOM./CRITERIA Accept Cover

REVIEWER Patrick Andrus DISCIPLINE Historian

Phone _____ Date 12/27/2011

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the National Park Service.