A Dendrochronological Assessment of Clocker’s Fancy

David Huber

SOAN 493 - St. Mary’s Project
Advisor: Dan Ingersoll, PhD
Acknowledgements

This project would not have been possible without the help of several people. I would like to thank my project advisors, Dr. Dan Ingersoll, Ph.D, and Dr. Kate Meatyard, Ph.D, for guiding me through this tough project, as well as letting their home, Clocker’s Fancy, be the locus for my research. I would like to thank Kyle Rambo, the Director of the Conservation Division Environmental Department at PAX River Naval Base, for teaching me how to identify all of the trees on Clocker’s Fancy, as well as for lending me one of his increment borers. I would also like to thank Silas Hurry, curator at historic St. Mary’s City, for showing me how to use ArcGIS and for giving me satellite base maps of Clocker’s Fancy, which showed the topography. I would like to thank Henry Bush, the Research Coordinator for the St. Mary's River Project, for coming out to Clocker’s Fancy and showing me how to use a hand-held GPS system, and also for plotting the coordinates of all of the selected trees for the GPS/GIS database of historic markers in Historic St. Mary’s City. I would like to thank my parents for letting me buy materials for my project which I promise to reimburse them for later. I would also like to thank Dr. Julie King, for giving me several sources that proved to be extremely helpful while working on this research project. Lastly, I would like to thank Daniel Clocker for giving me a reason to do this research project.
Introduction

Life in Seventeenth Century Maryland and Daniel Clocker’s Legacy

In 1636, two years after Maryland’s first settlement was established, an Englishman named Daniel Clocker arrived. Clocker was a servant to Thomas Cornwaleys, who was one of the colony’s Catholic leaders (Carr 2004: 287). After Daniel’s time as an indentured servant was over, he began to settle down and work for himself in Maryland. Within forty years time, Clocker was able to marry, gain lots of land, and even raise a family in the new colony. Not much is known about Daniel Clocker before he moved to Maryland, except that he was probably born in Cumberland county in the north of England (Carr 2004: 287). His grandfather might have been Gosper (Jasper) Clocker, who was a Dutchmen who arrived in Cumberland county in the 1560s as part of a colony of Germans who were put there to work in the copper mines. The records for the Crosthwaite Parish in Cumberland show that Gosper Clocker married Mabell Bullfill in 1569, and since then, there are several records that refer to the Clockers, but only in the context of Cumberland county until the early eighteenth century (Carr 2004: 287).

Daniel Clocker first appears in the records as being born to Hance and Brigid Clocker of Parkside. He was christened in Crosthwaite Parish on May 30, 1619 (Carr 2004: 287). This is most likely the Daniel Clocker who came to Maryland, but there is still speculation about this. Maryland Daniel had a brother named John, and so did the Daniel who was christened in Crosthwaite Parish. If these are the same Daniels, then Daniel Clocker was seventeen when he arrived in St. Mary’s City. If this is not the same Daniel Clocker, then Maryland Daniel’s family origin and age at time of arrival are still unknown (Carr 2004: 287).

Daniel Clocker’s family probably combined a lifestyle of mining and self-sufficient husbandry, which was a common combination in northern England. The population had been growing for a century and opportunities to work were becoming more and more scarce (Carr 2004: 287). By 1636, Daniel was looking to leave England and had reached a port, probably London, where emigrants were sailing to the New World (Carr 2004: 287).

Lord Baltimore, who was the Proprietor of Maryland, had published many pamphlets that advertised his new colony and its opportunities. Clocker, however, could not even write his own name and probably could not read, either. The pamphlets were advertised more towards investors and not servants, and news came to the servants through word of mouth (Carr 2004: 289). Daniel probably heard of a ship leaving for Virginia, which is what the whole Chesapeake region was known as at that time, while he was stationed at the port. The only known fact about Daniel is that in 1636, Clocker arrived in Maryland. He came to a brand new colony where tobacco was becoming very profitable for export, and he then started his indentured servitude to Captain Thomas Cornwaleys, one of the major investors of this new province (Carr 2004: 289).

Lord Baltimore promised in his pamphlets that servants would receive fifty acres of land as a part of their freedom dues (Carr 2004: 290). However, Maryland records show that a warrant for fifty acres was promised instead of instantly earning fifty acres (Carr 2004: 290). The warrant enabled the owner to find a piece of land and pay for a
survey and a patent. A warrant of one hundred acres of land was awarded to the master for paying the costs of transportation for each individual servant; he was actually just giving half of it to each servant (Carr 2004: 290). To attract more indentured servants, Lord Baltimore discovered that it was easier to reduce the warrant for transportation to fifty acres for himself and then grant fifty acres to any ex-servant who applied for it (Carr 2004: 290).

Daniel Clocker came to Maryland’s first settlement either late in its second or early in its third year. Governor Leonard Calvert, in March 1636, with Virginia fur trader Captain Henry Fleet, had selected a spot on the St. Mary’s River to settle (Carr 2004: 292). This river is a small tributary of the Potomac River, right where it joins the Chesapeake Bay. In this area, the soils were wonderful for growing, the fields were already cleared by the previous tenants, the Yaocomico Indians, and fresh water was easily obtained. All of the Indians had moved away by the time that Daniel Clocker arrived at the settlement (Menard and Carr 1982: 167).

Clocker completed his service in 1640. He could now make a contract to serve Cornwaleys for a wage. A contract like this would have provided him with room, board, and washing, but would also have taken away his autonomy. Clocker’s master would be able to discipline him just like any other worker of the household (Carr 2004: 297). Daniel probably moved in with a roommate who was also just granted his freedom. They probably moved onto Cornwaleys land and built a small house, which Cornwaleys would later rent after they abandoned it. If this scenario happened, then they probably gave Cornwaleys about one third of their tobacco crop and also helped with fencing and planting crops (Menard and Carr 1982: 205).

Daniel Clocker married Mary Lawne Courtney, who arrived in Maryland in 1638 at age twenty four. She served as an indentured servant to Margaret Brent, a prominent Catholic. In 1639, James Courtney, who was a free immigrant, married Mary Lawne. He died in 1643 and left her a widow with a son, Thomas, who was one year old. She married Daniel Clocker in either 1645 or early 1646. Being married raised Daniel’s status in the new colony. He was the head of a family, which made him responsible for their welfare and behavior (Carr 2004: 298). According to English common law, he was in charge of whatever property Mary brought to the marriage, including her children’s assets (Carr 2004: 299). Mary Lawne, as a married woman, could not make any contracts; her husband made all of the decisions. If Daniel died, then he owed her some of his estate (Carr 2004: 209).

By 1650, Daniel was able to afford freehold land, and in 1651 Daniel bought 150 acres of land. Using his and Mary’s service rights, Daniel patented one hundred acres which he named “Daniel Clocker’s Hould,” which was situated about seven miles outside of the Town Lands (Carr 2004: 300). During this same time, he purchased fifty acres on the Town lands, located on St. Andrews Creek and known as St. Andrews, from Margaret and Mary Brent who were moving to Virginia (Carr 2004: 300). The Clockers resided on the Town Lands property for the rest of their lives (Carr 2004: 300). They later renamed Daniel Clocker’s Hould to “Clocker’s Marsh,” suggesting that the land was more valuable for feeding livestock than for growing tobacco. Daniel had also purchased fifty acres just across St. Andrews creek in 1659, called “Clark’s Freehold,” which increased Daniel’s property to two hundred acres (Carr 2004: 301).
The Clockers had five children by 1661: Elizabeth was born in 1646, Daniel in 1648, and Mary in 1650. Two more children, John and Catheryn, were born sometime in the 1650s. Forty five to fifty five percent of all children born did not survive past childhood in Maryland. Elizabeth, John, and Catheryn did not live past childhood, but Daniel, Jr., Mary, and Rebecca lived to marry and have families of their own (Carr 2004: 301).

To further supplement his income, Clocker decided to purchase some more land in 1674 with the sole purpose of building an inn. He was following in the footsteps of Vanswearingen and Robert Ridgely, two innkeepers who made a good living (Carr 2004: 306). However, this project was never completed as Daniel Clocker died on February 12, 1675. Mary and at least three of their children preceeded Daniel in death. Three children still remained: Daniel Clocker, Jr., Rebecca Clocker, who was fifteen years old and unmarried, and Mary Clocker Watts, the wife of Peter Watts. Daniel also had two grandchildren, Peter and Mary Watts. Most seventeenth century immigrants never lived to see their grandchildren, so Daniel was lucky to have known his grandchildren (Carr 2004: 307).

Daniel knew that he was in debt so he wrote his will on February 4, 1675, eight days before his death (Carr 2004: 307). In his will were instructions to sell his land in order to pay any obligations, with the rest of what was left he gave to Daniel, Jr. and Rebecca to split. He had already given Mary plenty of goods when she married, but he still left each of her children a cow. Clocker’s personal assets at the time of his death were 17,026 pounds of tobacco, which was about 71 sterling shillings (Carr 2004: 307). The average value of personal assets in Maryland at that time was 50 sterling shillings, so Daniel was richer than the common man. He owned 230 acres of land, since he had added thirty acres to Clark’s Freehold in 1674 (Carr 2004: 307), but he had to sell his city house and lot in order to repay his debts. His children, however, were able to split up the remaining land on Clark’s Freehold.

Clocker descendants lived on the Town Land for two hundred years. There had never been a land patent for that area before and the original certificate of survey had been lost by 1660. Daniel, Jr. had the land resurveyed in 1681, but did not get a chance to patent it because he drowned in an unfortunate accident in 1683 (Carr 2004: 310). Daniel III had the St. Andrews property resurveyed in 1745 for which he obtained a patent, and changed the name of the land to “Clocker’s Fancy (Carr 2004: 310).” Daniel III described the land as having “about twenty acres plantable and about four acres thereof cleared on which stand thirty panels of new fence. All the rest of the land is low and swamp. There is no house nor fruit tree thereon (Kutler and Stone 4).” He died a widower in 1747, and left two children in his will, Rebecca and Daniel IV. He named Daniel IV executor, but left him no legacy. Rebecca received two land tracts: Sisters Freehold, which was about fifty acres, and Clocker’s Fancy, which was fifty six acres (Carr 2004: 310). When Daniel III died, Daniel IV took over his father’s plantation, and Daniel IV left this to his nineteen year old son, Benjamin Clocker, when he died in 1766. In Daniel IV’s will, it stated the names of the properties as Clark’s Freehold, Lewis’s Neck, and Small Addition (Carr 2004: 310). Clocker’s great-great-grandson, Benjamin Clocker, built a house on Clark’s Freehold in the late eighteenth century, which has been dated archaeologically as being built between 1790 and 1810 (Carr 2004: 310). The Clocker family lived there until 1877, when William Clocker Bayne, the great-great-great
grandson of the original Daniel, sold the land and the house. One of the lands later owners renamed the house “Clocker’s Fancy,” which serves as a reminder of Daniel Clocker’s achievements in seventeenth century Maryland (Carr 2004: 310).

**Clocker’s Fancy – The House**

Clocker’s Fancy, 47715 Old Cove Road, is located about one quarter of a mile from Rosecroft Road in St. Mary’s City, Maryland. The main dwelling is reached via a dirt road that travels along Old Cove Road. The house is oriented on a north/south axis with the back of the house facing south (Ranzetta, O’Rourke, and Kiorpes 2002: 1). It is located on very flat land, which gradually slopes to the south towards Milburn Creek, a tributary of St. Inigoes Creek and the St. Mary’s River. A small ditch runs along the west side of the house. Clocker’s Fancy is surrounded on all sides by tall grasses, hardwood forest, shrubs, and ornamental plants (Ranzetta, O’Rourke, and Kiorpes 2002: 1). There used to be fencing surrounding the house, but this is almost entirely gone. There are three main buildings on the premise: the main house, a meathouse, and a cart shed. There is a small parking area on the north side of the house, a concrete path that leads to the back porch, and a three-foot wide concrete walk that starts on the west side of the house. This walk splits next to the west porch: one way leading to the meathouse and the other heading towards the front porch of the main house.
Just about the time that the house was built, in the late eighteenth century, the property and house were purchased by the owners of Chancellor’s Point, the Wolstenholmes. However, a 1798 Federal Direct Tax description of the property names Bennett Clocker as the owner and occupant of a house that is nearly identical to Clocker’s Fancy (Ranzetta, O’Rourke, and Kiorpes 2002: 3). The house was described as a “Fram’d Dwelling house 32 by 18, 3 windows 3.5 by 2.5, 2 d’o by 1.5 feet Log’d Kitchen 16 by 12 feet adjoining St. Mary’s Creek (Federal Direct Tax).” If this property was owned by the Wolstenholmes, then this house would have served as a nice guest house, since their main house was the large plantation overlooking the St. Mary’s River to the west. If it was built by the Clocker family, then this house is a fine example of a modest planter’s home.

Clocker’s Fancy was remodeled in the mid-nineteenth century. It might have happened as late as 1855, when members of the Campbell family, who owned Chancellor’s Point farm and a fifty six acre part of Clocker’s Fancy, sold the property to Louisiana land speculator William F. Hardy for $10,000 (HSMCC, SM-29). The house changed owners several times in the mid to late nineteenth century, until J. Rowland Thomas bought the house in 1917. He turned the house into his summer home, and added wings to the east and west sides of the house between 1917-1936 (HSMCC, SM-9). One of the main reasons for purchasing this house was to renovate it. Clocker’s Fancy was thought to be one of the original houses remaining from the “Citty of St. Maries,” which was the capital of Maryland for most of the seventeenth century. This belief was perpetuated by architectural historian Henry Chandlee Forman, who wrote in his book, Early Manor and Plantation Houses of Maryland, that Clocker’s Fancy was built in the mid-seventeenth century and was where Daniel clocker resided (Forman 1982: 39). Forman also told his readers that Clocker’s Fancy was one of three buildings left standing in St. Mary’s from the colonial times, and that “the third original building in St. Mary’s still stands well cared for and preserved” compared to the other two (Forman 1969: 200). Besides the additional wings, two outbuildings were built: the cart shed, which dates from 1917-1936, and a meathouse, which dates from the mid-nineteenth century (Ranzetta, O’Rourke, and Kiorpes 2002: 15).

Clocker’s Fancy and all of its property were sold in 1947, and soon after, the uncle of Mrs. Louise Heagy built a two-story wing to the east of the original house. Clocker’s Fancy was sold at auction in 1994 to the State of Maryland (Haddad 1994: 3B). up to this point, real estate agents trying to sell the house were saying that it was built in the seventeenth century (Ranzetta, O’Rourke, and Kiorpes 2002: 5). Orlando Rideout V, Marcia Miller, and Michael Day went to the site in 1995 to determine the house’s actual date and also to make recommendations for its preservation. They determined that it most likely dated to the late eighteenth century to early nineteenth century. Rideout also believed that several interior modifications were made to the house during the 1840s or 1850s, and probably even more modifications made in the 1910s (Ranzetta, O’Rourke, and Kiorpes 2002: 6).
In 1807, the St. Mary’s Annual Valuations and Indentures surveyed the site. They found “three shifts of corn ground seventy five acres in each is two hundred twenty five acres at 1.25 – 30 acres of small pines (Kutler and Stone 12).” In 1823 to 1824, J. J. Albert and J. Kearney made a map of part of St. Mary’s County. By then, the land between St. Andrew’s Creek, St. Peter’s Key, and the road to the Collector’s house, which is now the end of Rosecroft Road, was shown as being covered in small pines, brush, and weeds (Kutler and Stone 12). In 1830, St. Mary’s County surveyors said that this same land was “two hundred and seventy acres clear tillable land enclosed in three large fields and three smaller fields and about one hundred acres in pine woods with a very few white oaks (perhaps eighteen or twenty) mixed with the pine (Kutler and Stone 12).” The surveyors said that one of the larger and one of the smaller fields were cultivated that same year. In 1833, St. Mary’s County surveyors said that “the farm is laid off in three large and three small fields, then open or tillable land will contain about two hundred and seventy acres; there is on the said land about one hundred acres in wood, of a small growth of pine woods, with a very few white oaks mixed among the other growth (Kutler and Stone 12).” By 1836, the same surveyors said that “two hundred and twenty-five acres of which is cleared and divided into three fields, seventy-five acres in each field, there is one hundred and fifty-three acres of the said land in wood (Kutler and Stone 12).” The land seems to be becoming more and more grown over with forests, and the cleared and cultivated land is decreasing. In 1859, a U.S. Coast Survey was completed, and it showed this part of St. Mary’s County as woods in “the northern half of St. Andrew’s Freehold and the Chancellor’s Point section of Sisters Freehold. The southern portion of St. Andrew’s Freehold has been cleared (Kutler and Stone 12).”

In 1850, George E. Campbell wrote that there was two hundred acres of improved land, one hundred seventy-eight acres of woodland, five hundred acres of wheat, and seven hundred fifty acres of corn (Kutler and Stone 13). In 1860, William F. Hardy, the Louisiana land speculator who bought the land from the Campbell family, noted that there was two hundred eighty six acres of improved land, one hundred acres of woodland, seven hundred acres of wheat, one thousand acres of corn, two hundred acres of oats, and about ten thousand pounds of tobacco surrounding this area (Kutler and Stone 13). Ten years later, Elizabeth Hardy said that there was three hundred acres of improved land, one hundred sixty five acres of woodland, four hundred eighty acres of wheat, four hundred acres of corn, and one hundred sixty acres of oats (Kutler and Stone 13). By 1880, William M Hilton, who was the tenant on shares listed after John M. Brome, stated that there was one hundred twenty acres of improved land, two hundred eighty acres of woodland, seventy five acres of wheat, thirty five acres of corn, and thirteen acres of tobacco (Kutler and Stone 13). This trend shows that the improved land and cultivated fields are decreasing, while the woodland is steadily growing. The area was becoming overgrown with woods of pine and varieties of oak.
My Dendrochronological Survey of Clocker’s Fancy

There has never been a dendrochronological survey of the trees on Clocker’s Fancy. Besides using historical documents, a dendrochronological survey must have been done to date the age of the main house, the meathouse, and the cart shed. Dendrochronology is defined as the study of using tree rings dated to their exact year of formation. An application of dendrochronology is to analyze temporal and spatial patterns of processes in the physical and cultural sciences (Grissino-Mayer 2006). It is used to study ecology (such as insect outbreaks, forest stand structure), climatology (such as past droughts and cold periods), geology (such as past earthquakes or volcanic eruptions), and anthropology (such as past construction or habitation) (Sheppard 2002). Dendrochronology puts the present in terms of the past, allows us to better understand current environmental processes and conditions, and improves our understanding of possible environmental issues of the future (Sheppard 2002).

A tree ring is defined as a layer of wood cells produced by a tree or shrub in one year, usually consisting of thin-walled cells formed early in the growing season, called earlywood, and thicker-walled cells produced later in the growing season, called latewood. The beginning of earlywood formation and the end of the latewood formation form one annual ring, which usually extends around the entire circumference of the tree (Grissino-Mayer 2006). In order to count tree rings, you may take either a core sample of the tree, use a saw to cut the tree at some point and count the rings, or take a cross-section of an architectural timber. The second way is very easy, but it also kills the tree being studied, so it is best to use this method on already dead trees or ones that have been felled. In order to take a core sample of a tree, you can use an increment borer to extract the sample. An increment borer is an auger-like instrument with a hollow shaft that is screwed into the trunk of a tree, and from which an increment core, or tree core, is extracted using an extractor, which is a long spoon inserted into the shaft that pulls out the tree core (Grissino-Mayer 2006). Using an increment borer produces a hole in the tree, where sap can escape. However, this hole is small enough not to hurt the tree, and the tree grows normally after having a core extracted from it. One way to hurt the tree is if the borer goes all the way through the tree. I tried to avoid doing this in my research. These instruments are quite expensive, normally ranging from $200 to $500. I was luck in that Kyle Rambo, who is Director of the Conservation Division, Environmental Department, at PAX River Naval Air Station, was able to lend me one of his extra increment borers.

According to Grissino-Mayer, there are several principles of dendrochronology. The first one is the uniformitarian principle. This principle states that the same or similar physical and biological processes that link current environmental processes with current patterns of tree growth must have been in operation in the past (Grissino-Mayer 2006). This translates to dendrochronology because if we know the environmental conditions that existed in the past, then we can better manage these environmental conditions in the future. For example, by understanding the climate-tree growth relationship in the twentieth century, then we can reconstruct climate from tree rings before weather records were ever kept. Figure 1 shows long-term precipitation reconstruction for New Mexico based on tree rings. It was made by calibrating tree rings from the 1900s with rainfall records from the 1990s.
The principle of living factors states that rates of plant processes are constrained by the primary environmental variable that is most limiting. Precipitation is often the most limiting factor to plant growth in arid and semiarid areas. In regions where precipitation is the limiting factor, tree growth cannot proceed faster than that allowed by the amount of precipitation, causing the width of the rings to be a function of precipitation (Grissino-Mayer 2006).

The principle of ecological amplitude states that a tree species may grow and reproduce over a specific range of habitats (Schweingruber 1996: 609). All of the trees that I conducted research on have a very large habitat, and thus they all have large ecological amplitudes.
The principle of crossdating states that matching patterns in ring widths or other ring characteristics, such as ring density patterns, among several tree-ring series allow the identification of the exact year in which each tree ring was formed (Grissino-Mayer 2006).
For my project, I took core samples of several different types of trees within the property lines of Clocker’s Fancy. I chose black oak (*Quercus velutina*), red maple (*Acer rubrum*), loblolly pine (*Pinus taeda*), American sweetgum (*Liquidambar styraciflua*), eastern redcedar (*Juniperus virginiana*), and hackberry (*Celtis occidentalis*) trees to study for this project. About fifty years ago, all maps of Clocker’s Fancy show that it was all field and no forest. Today, there is not much field anywhere within the property boundary; it is mainly hardwood forest mixed with pines and cedars. My goal was to find the age of trees in these forests to determine which trees were growing before the land went fallow and which trees were growing after cultivation of the fields stopped. Obviously, the trees which I sampled that were growing in the middle of the backyard at Clocker’s Fancy were not there during the time of field cultivation, but it was interesting to see how old they were and when they started growing. Some trees on the property were fallen down, hit by lightning, or suffered extensive damage from insects and other diseases. I tried to avoid these trees, and instead conducted research on all living trees, except for a few recently dead trees. No trees were harmed during the course of my research.

**Methodology**

I checked out several books on dendrochronology and Dr. Dan Ingersoll gave me some literature to read concerning Clocker’s Fancy. I had been to Clocker’s Fancy a few times in the past, but I was uncertain about the history behind the house and the surrounding property. I was given a tour of the property by Dan and Kate Meatyard, Ph.D. Kate gave me a tour of Clocker’s in her Landscape Archaeology (ANTH318) class a few years ago, and I remembered most of the interesting landscape structures and characteristics of the area. After thoroughly reading literature regarding the history of the house, property, and how to conduct a dendrochronological assessment, it was time for me to get started in the field.

I walked around to several trees that I thought looked different. I had no idea what kind of trees I was choosing to conduct research on, but I knew that the bark looked different, they had different heights and widths, and they all had other kinds of distinctive characteristics. I had bought green marking flags to place at the base of each tree that I wanted to study. After I had marked all of the trees in my notebook and with flags, I used white spray-paint to mark the trunk of each tree with its respective number, 1 - 27.

The proper height for taking measurements of trees is at the base of the tree and at five feet, which is about chest height. These are logger’s standards, and in all areas of forestry these measurements are appropriate. First, I went into the field armed with a flexible tape measurer, calipers, a Bushnell optical range finder, my notebook, and a pen. I did these measurements between Friday, December 22, and Sunday, December 31, 2006. I measured the height of the tree using the rangefinder. I looked at the top of the tree through the viewfinder and tried to align the two mirrors so that the picture looked the same. When the picture was clear, I read the number in the viewfinder, which was the height of the tree in yards and in meters. I measured five feet up the tree and made a mark in the bark with my pen. At that five foot point, I measured the circumference of the tree with the tape measurer and I also measured the diameter of the tree with calipers. I then measured the distance between the caliper points with the tape measurer. I
recorded each measurement, as I took it, into my notebook. I repeated this procedure for twenty seven different trees in varying areas along the property.

I then went to see Silas Hurry on Tuesday, January 23, 2007, at the Historic St. Mary’s City Archaeological Laboratory. He showed me the GIS maps already in place that showed Clocker’s Fancy in detail. These maps were used by Henry Bush to plot historic sites and areas in Historic St. Mary’s City, using a GPS system. Silas gave me a data CD which had several of the base maps, and he told me that my GPS coordinates, when I took them, would be included in the updated version of the maps. These maps are important because they show, in detail, certain historical features in St. Mary’s.

Next, I got in contact with Kyle Rambo, who is Director of the Conservation Division, Environmental Department, at PAX River Naval Air Station. Kyle is very good at identifying different types of vegetation and also graduated in 1982 from North Carolina State University with a double major in wildlife biology and forestry. He is very knowledgeable about tree preservation and also tree ring dating, which is very good since his specialty is basically my entire project. Kyle came out to Clocker’s on Friday, January 26, 2007. When Kyle came to Clocker’s, he taught me how to use a 14 inch Haglof stainless steel increment borer. I first tested it out on a dead tree, and once I got the hang of it, he let me try the borer on a live one. Kyle, Dr. Dan, and I also walked the entire property of Clocker’s, and Kyle identified every type of tree that was present. He told me that age is not indicative of a tree’s height, diameter, or circumference, and that the oldest tree might be the shortest tree that is shaded by the tallest tree on the lot. It is important to do bore analysis in either winter or summer, since these are better times for the trees to sustain a hole in them. The heat in summer kills any bacteria in the hole, and the coldness of winter prevents any fungus from growing in the hole. When taking a core sample in the summer, it is important to bore into the tree at an upwards angle, so that no fungus can live in the hole being made, and all sap can drain downwards instead of pooling in the center of the tree, which encourages fungal growth. While taking the core sample, it was important to take the sample and get the borer out of the tree as soon as possible since the tree exerts a downwards force due to gravity. If the borer is in the tree for more than a few minutes, the force being exerted by the tree is too strong to take the device out, and the tree must be cut down using a chainsaw to salvage the expensive borer. Luckily, I did not encounter any tremendous force while boring into the trees, so there was no damage down to the increment borer or the tree. Kyle had identified the trees that I had previously taken measurements of as being black oak (*Quercus velutina*), red maple (*Acer rubrum*), loblolly pine (*Pinus taeda*), American sweetgum (*Liquidambar styraciflua*), eastern redbedar (*Juniperus virginiana*), and hackberry (*Celtis occidentalis*). I came out by myself on Monday, January 29, Friday, February 2, and Sunday, February 4, 2007, to take core samples of the trees.

I took all of my core samples to the anthropology laboratory in Kent Hall. There, I used steel wool to sand down the core samples to remove any fungus that was growing, and also making it easier to read the rings. Most of my samples were warped since I did not mount them to a core mounter, which stabilizes the cores so they do not break. This did not obstruct my view of the rings, however. I used a magnifying glass to count the tree rings for each sample. Some samples required the addition of Phloroglucinol Core Dye, which comes in 25 gram tubes, mixed with a solution composed of 95% ethyl
alcohol and a solution composed of 50% hydrochloric acid. Together, this mixture stains the lignin red and leaves the cellulose unstained, making it easier to read the rings.

I then constructed a table using Microsoft Excel and Statistical Package for the Social Sciences (SPSS). My table was a general spreadsheet which included the trees’ common and scientific names, the circumferences of the trees (in inches) at five feet and the base, the diameter of the trees (in inches) at five feet and the base, the height of the trees (in yards), the date that the core sample was taken, the number of rings each sample contained, and the approximate age of the tree. Kyle told me that trees grow in a conical fashion, with rings disappearing towards the top of the tree. The way to get the most precise age of the tree is by taking a core sample at the base, since it contains all of the rings. However, taking the core measurement from five feet is widely accepted as the place to take the core sample. Using my spreadsheet, I was able to generate tables showing the median, mode, and range of tree diameters, circumferences, ring numbers, and ages.

On Friday, March 9, 2007, Henry Bush came out to Clocker’s Fancy to help me and Dr. Dan record the GPS coordinates of all of the trees which I conducted research on. Using a Trimble GeoXT hand-held GPS device, Henry was able to map in each tree in the study, as well as some other points of interest that Dr. Dan wanted mapped in. All of these points were mapped into an already existing database which contains GPS coordinates and information relative to Historic St. Mary’s City, Clocker’s Fancy, and St. Mary’s College of Maryland. Most of the positions already mapped in that pertain to Clocker’s Fancy include the house, cart shed, meathouse, dead furrows (from historic field agriculture), all of the fields surrounding Clocker’s Fancy, the St. Mary’s River, Milburn Creek, Rosecroft Road, and other trees that were of interest when interest first began on Clocker’s. In order to get a good reading on the GPS unit, at least three satellites are needed. This is because three satellites produce an effect called triangulation, which is better for mapping exact coordinates than using only two satellites. Using only one satellite does not produce any coordinates at all. Henry suggested that we try to get in contact with five or more satellites, since the more satellites that are in position, the better reading we would get. It was hard getting five satellites because certain areas on Clocker’s are shaded by thick tree coverage, and this obscures the satellites reading. During the summer it is especially hard to get satellite positioning correct since foliage cover is extensive, and the satellites cannot penetrate easily through leaves or other obstructions to the ground.

Finally, I took more core samples on Monday, March 19, 2007, and polished them in the Kent Hall laboratory. I mounted these samples into a core sample holder, which is a grooved piece of plastic used to showcase core samples up to nine inches long. Once the samples are mounted, they cannot warp the way core samples do when left alone. After sanding them down with steel wool, all signs of fungus and mold were gone. Tree rings also stand out more after polishing them with steel wool

Types of Trees Found at Clocker’s Fancy

There are many different species of tree located on the premises of Clocker’s Fancy. I studied, measured, and cored red maples, eastern redcedars, loblolly pines,
American sweetgums, black oaks, and hackberries. In all, I cored 25 out of 27 trees in my survey. The reason why I chose these trees was because they were the most abundant on the property. There were also dogwood, osage orange, and Virginia pine, but these trees were in far fewer numbers than the ones that I studied. I was unable to core Number 15, a black oak, since the tree was too skinny in diameter and the borer could not get a bite on the bark. I was also unable to core Number 1, a red maple, which was cut down a few years ago since it was posing a threat to the welfare of the house.

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Common name</th>
<th>Scientific name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red Maple</td>
<td>Acer rubrum</td>
</tr>
<tr>
<td>2</td>
<td>Eastern Redcedar</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>3</td>
<td>Eastern Redcedar</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>4</td>
<td>Eastern Redcedar</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>5</td>
<td>Eastern Redcedar</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>6</td>
<td>Loblolly Pine</td>
<td>Pinus taeda</td>
</tr>
<tr>
<td>7</td>
<td>Loblolly Pine</td>
<td>Pinus taeda</td>
</tr>
<tr>
<td>8</td>
<td>Black Oak</td>
<td>Liquidambar styraciflua</td>
</tr>
<tr>
<td>9</td>
<td>American Sweetgum</td>
<td>Pinus taeda</td>
</tr>
<tr>
<td>10</td>
<td>Loblolly Pine</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>11</td>
<td>Eastern Redcedar</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>12</td>
<td>Eastern Redcedar</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>13</td>
<td>American Sweetgum</td>
<td>Liquidambar styraciflua</td>
</tr>
<tr>
<td>14</td>
<td>Eastern Redcedar</td>
<td>Juniperus virginiana</td>
</tr>
<tr>
<td>15</td>
<td>Black Oak</td>
<td>Quercus velutina</td>
</tr>
<tr>
<td>16</td>
<td>American Sweetgum</td>
<td>Liquidambar styraciflua</td>
</tr>
<tr>
<td>17</td>
<td>American Sweetgum</td>
<td>Liquidambar styraciflua</td>
</tr>
<tr>
<td>18</td>
<td>American Sweetgum</td>
<td>Liquidambar styraciflua</td>
</tr>
<tr>
<td>19</td>
<td>Red Maple</td>
<td>Acer rubrum</td>
</tr>
<tr>
<td>20</td>
<td>Loblolly Pine</td>
<td>Pinus taeda</td>
</tr>
<tr>
<td>21</td>
<td>American Sweetgum</td>
<td>Liquidambar styraciflua</td>
</tr>
<tr>
<td>22</td>
<td>Red Maple</td>
<td>Acer rubrum</td>
</tr>
<tr>
<td>23</td>
<td>Loblolly Pine</td>
<td>Pinus taeda</td>
</tr>
<tr>
<td>24</td>
<td>American Sweetgum</td>
<td>Liquidambar styraciflua</td>
</tr>
<tr>
<td>25</td>
<td>Loblolly Pine</td>
<td>Pinus taeda</td>
</tr>
<tr>
<td>26</td>
<td>Loblolly Pine</td>
<td>Pinus taeda</td>
</tr>
<tr>
<td>27</td>
<td>Hackberry</td>
<td>Celtis occidentalis</td>
</tr>
</tbody>
</table>

Table 1. Tree number, common, and scientific names for each tree in my dendrochronological survey

For each tree in my dendrochronological assessment, I measured the circumference at its base and at five feet. These are the logging and forestry industry standards on where to measure trees when using trees in studies. The average circumference for all of the trees, excluding tree Number 1, at the base and five feet is 44.6 and 33.1 inches, respectively.
<table>
<thead>
<tr>
<th>Tree number</th>
<th>Common name</th>
<th>Circumference at base (in)</th>
<th>Circumference at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red Maple</td>
<td>143.0</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Eastern Redcedar</td>
<td>49.5</td>
<td>36.3</td>
</tr>
<tr>
<td>3</td>
<td>Eastern Redcedar</td>
<td>45.5</td>
<td>35.0</td>
</tr>
<tr>
<td>4</td>
<td>Eastern Redcedar</td>
<td>49.9</td>
<td>38.0</td>
</tr>
<tr>
<td>5</td>
<td>Eastern Redcedar</td>
<td>60.0</td>
<td>38.0</td>
</tr>
<tr>
<td>6</td>
<td>Loblolly Pine</td>
<td>83.6</td>
<td>65.8</td>
</tr>
<tr>
<td>7</td>
<td>Loblolly Pine</td>
<td>79.5</td>
<td>65.3</td>
</tr>
<tr>
<td>8</td>
<td>Black Oak</td>
<td>68.3</td>
<td>49.0</td>
</tr>
<tr>
<td>9</td>
<td>American Sweetgum</td>
<td>30.3</td>
<td>22.4</td>
</tr>
<tr>
<td>10</td>
<td>Loblolly Pine</td>
<td>48.1</td>
<td>35.5</td>
</tr>
<tr>
<td>11</td>
<td>Eastern Redcedar</td>
<td>30.1</td>
<td>21.0</td>
</tr>
<tr>
<td>12</td>
<td>Eastern Redcedar</td>
<td>37.2</td>
<td>25.4</td>
</tr>
<tr>
<td>13</td>
<td>American Sweetgum</td>
<td>31.8</td>
<td>22.0</td>
</tr>
<tr>
<td>14</td>
<td>Eastern Redcedar</td>
<td>48.5</td>
<td>31.8</td>
</tr>
<tr>
<td>15</td>
<td>Black Oak</td>
<td>19.4</td>
<td>11.6</td>
</tr>
<tr>
<td>16</td>
<td>American Sweetgum</td>
<td>15.2</td>
<td>15.1</td>
</tr>
<tr>
<td>17</td>
<td>American Sweetgum</td>
<td>45.6</td>
<td>31.3</td>
</tr>
<tr>
<td>18</td>
<td>American Sweetgum</td>
<td>41.9</td>
<td>32.6</td>
</tr>
<tr>
<td>19</td>
<td>Red Maple</td>
<td>18.5</td>
<td>14.9</td>
</tr>
<tr>
<td>20</td>
<td>Loblolly Pine</td>
<td>86.5</td>
<td>63.3</td>
</tr>
<tr>
<td>21</td>
<td>American Sweetgum</td>
<td>42.1</td>
<td>32.8</td>
</tr>
<tr>
<td>22</td>
<td>Red Maple</td>
<td>28.9</td>
<td>21.3</td>
</tr>
<tr>
<td>23</td>
<td>Loblolly Pine</td>
<td>42.6</td>
<td>31.9</td>
</tr>
<tr>
<td>24</td>
<td>American Sweetgum</td>
<td>29.5</td>
<td>22.8</td>
</tr>
<tr>
<td>25</td>
<td>Loblolly Pine</td>
<td>59.1</td>
<td>44.4</td>
</tr>
<tr>
<td>26</td>
<td>Loblolly Pine</td>
<td>60.5</td>
<td>47.1</td>
</tr>
<tr>
<td>27</td>
<td>Hackberry</td>
<td>8.9</td>
<td>6.8</td>
</tr>
</tbody>
</table>

Table 2. Circumference of each tree at its base and at five feet

For each tree in the study, I calculated the diameter at the base and at five feet, except for tree Number 1, a red maple, since it is cut down at the base and I cannot calculate its diameter at five feet. The average diameter for all of the trees at the base and five feet is 14.6 and 10.3 inches, respectively. The diameter at the base includes Number 1, since I was able to obtain this measurement.
<table>
<thead>
<tr>
<th>Tree number</th>
<th>Common name</th>
<th>Diameter at base (in)</th>
<th>Diameter at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red Maple</td>
<td>41.4</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Eastern Redcedar</td>
<td>17.5</td>
<td>11.0</td>
</tr>
<tr>
<td>3</td>
<td>Eastern Redcedar</td>
<td>12.6</td>
<td>11.0</td>
</tr>
<tr>
<td>4</td>
<td>Eastern Redcedar</td>
<td>13.9</td>
<td>12.9</td>
</tr>
<tr>
<td>5</td>
<td>Eastern Redcedar</td>
<td>17.3</td>
<td>12.0</td>
</tr>
<tr>
<td>6</td>
<td>Loblolly Pine</td>
<td>25.5</td>
<td>20.5</td>
</tr>
<tr>
<td>7</td>
<td>Loblolly Pine</td>
<td>20.3</td>
<td>19.0</td>
</tr>
<tr>
<td>8</td>
<td>Black Oak</td>
<td>19.6</td>
<td>16.3</td>
</tr>
<tr>
<td>9</td>
<td>American Sweetgum</td>
<td>8.9</td>
<td>7.1</td>
</tr>
<tr>
<td>10</td>
<td>Loblolly Pine</td>
<td>14.0</td>
<td>11.1</td>
</tr>
<tr>
<td>11</td>
<td>Eastern Redcedar</td>
<td>8.0</td>
<td>6.0</td>
</tr>
<tr>
<td>12</td>
<td>Eastern Redcedar</td>
<td>11.6</td>
<td>7.9</td>
</tr>
<tr>
<td>13</td>
<td>American Sweetgum</td>
<td>9.3</td>
<td>6.8</td>
</tr>
<tr>
<td>14</td>
<td>Eastern Redcedar</td>
<td>15.3</td>
<td>10.4</td>
</tr>
<tr>
<td>15</td>
<td>Black Oak</td>
<td>6.3</td>
<td>3.6</td>
</tr>
<tr>
<td>16</td>
<td>American Sweetgum</td>
<td>7.5</td>
<td>4.4</td>
</tr>
<tr>
<td>17</td>
<td>American Sweetgum</td>
<td>13.9</td>
<td>9.8</td>
</tr>
<tr>
<td>18</td>
<td>American Sweetgum</td>
<td>13.6</td>
<td>10.1</td>
</tr>
<tr>
<td>19</td>
<td>Red Maple</td>
<td>5.9</td>
<td>4.6</td>
</tr>
<tr>
<td>20</td>
<td>Loblolly Pine</td>
<td>22.2</td>
<td>19.8</td>
</tr>
<tr>
<td>21</td>
<td>American Sweetgum</td>
<td>15.3</td>
<td>9.8</td>
</tr>
<tr>
<td>22</td>
<td>Red Maple</td>
<td>9.7</td>
<td>7.3</td>
</tr>
<tr>
<td>23</td>
<td>Loblolly Pine</td>
<td>13.2</td>
<td>9.6</td>
</tr>
<tr>
<td>24</td>
<td>American Sweetgum</td>
<td>9.4</td>
<td>7.0</td>
</tr>
<tr>
<td>25</td>
<td>Loblolly Pine</td>
<td>18.3</td>
<td>13.8</td>
</tr>
<tr>
<td>26</td>
<td>Loblolly Pine</td>
<td>20.0</td>
<td>14.6</td>
</tr>
<tr>
<td>27</td>
<td>Hackberry</td>
<td>2.6</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Table 3. Diameter of each tree at its base and at five feet

I was able to obtain the approximate heights for all of the trees in my study except for tree Number 1, a red maple, because it had been cut down two years ago and all that remains is a stump. The average height for all of the trees, excluding tree Number 1, is 12.36 yards.
<table>
<thead>
<tr>
<th>Tree number</th>
<th>Common name</th>
<th>Height (yds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red Maple</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Eastern Redcedar</td>
<td>13.00</td>
</tr>
<tr>
<td>3</td>
<td>Eastern Redcedar</td>
<td>13.25</td>
</tr>
<tr>
<td>4</td>
<td>Eastern Redcedar</td>
<td>12.50</td>
</tr>
<tr>
<td>5</td>
<td>Eastern Redcedar</td>
<td>12.75</td>
</tr>
<tr>
<td>6</td>
<td>Loblolly Pine</td>
<td>14.50</td>
</tr>
<tr>
<td>7</td>
<td>Loblolly Pine</td>
<td>24.00</td>
</tr>
<tr>
<td>8</td>
<td>Black Oak</td>
<td>12.20</td>
</tr>
<tr>
<td>9</td>
<td>American Sweetgum</td>
<td>8.00</td>
</tr>
<tr>
<td>10</td>
<td>Loblolly Pine</td>
<td>12.00</td>
</tr>
<tr>
<td>11</td>
<td>Eastern Redcedar</td>
<td>9.00</td>
</tr>
<tr>
<td>12</td>
<td>Eastern Redcedar</td>
<td>16.50</td>
</tr>
<tr>
<td>13</td>
<td>American Sweetgum</td>
<td>9.50</td>
</tr>
<tr>
<td>14</td>
<td>Eastern Redcedar</td>
<td>13.25</td>
</tr>
<tr>
<td>15</td>
<td>Black Oak</td>
<td>8.00</td>
</tr>
<tr>
<td>16</td>
<td>American Sweetgum</td>
<td>15.25</td>
</tr>
<tr>
<td>17</td>
<td>American Sweetgum</td>
<td>11.00</td>
</tr>
<tr>
<td>18</td>
<td>American Sweetgum</td>
<td>11.50</td>
</tr>
<tr>
<td>19</td>
<td>Red Maple</td>
<td>9.00</td>
</tr>
<tr>
<td>20</td>
<td>Loblolly Pine</td>
<td>16.50</td>
</tr>
<tr>
<td>21</td>
<td>American Sweetgum</td>
<td>14.25</td>
</tr>
<tr>
<td>22</td>
<td>Red Maple</td>
<td>11.00</td>
</tr>
<tr>
<td>23</td>
<td>Loblolly Pine</td>
<td>16.20</td>
</tr>
<tr>
<td>24</td>
<td>American Sweetgum</td>
<td>10.50</td>
</tr>
<tr>
<td>25</td>
<td>Loblolly Pine</td>
<td>15.00</td>
</tr>
<tr>
<td>26</td>
<td>Loblolly Pine</td>
<td>9.00</td>
</tr>
<tr>
<td>27</td>
<td>Hackberry</td>
<td>3.75</td>
</tr>
</tbody>
</table>

Table 4. Approximate height of each tree in yards
<table>
<thead>
<tr>
<th>Tree number</th>
<th>Common name</th>
<th>Date core sample was taken</th>
<th>Number of rings</th>
<th>Approximate age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red Maple</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Eastern Redcedar</td>
<td>2/4/2007</td>
<td>36</td>
<td>36 - 41</td>
</tr>
<tr>
<td>5</td>
<td>Eastern Redcedar</td>
<td>2/4/2007</td>
<td>36</td>
<td>36 - 41</td>
</tr>
<tr>
<td>7</td>
<td>Loblolly Pine</td>
<td>2/4/2007</td>
<td>29</td>
<td>29 - 34</td>
</tr>
<tr>
<td>8</td>
<td>Black Oak</td>
<td>1/29/2007</td>
<td>29</td>
<td>29 - 34</td>
</tr>
<tr>
<td>9</td>
<td>American Sweetgum</td>
<td>1/29/2007</td>
<td>13</td>
<td>13 - 18</td>
</tr>
<tr>
<td>10</td>
<td>Loblolly Pine</td>
<td>1/29/2007</td>
<td>24</td>
<td>24 - 29</td>
</tr>
<tr>
<td>11</td>
<td>Eastern Redcedar</td>
<td>2/2/2007</td>
<td>29</td>
<td>29 - 34</td>
</tr>
<tr>
<td>12</td>
<td>Eastern Redcedar</td>
<td>2/2/2007</td>
<td>40</td>
<td>40 - 45</td>
</tr>
<tr>
<td>13</td>
<td>American Sweetgum</td>
<td>2/2/2007</td>
<td>15</td>
<td>15 - 20</td>
</tr>
<tr>
<td>14</td>
<td>Eastern Redcedar</td>
<td>2/2/2007</td>
<td>29</td>
<td>29 - 34</td>
</tr>
<tr>
<td>15</td>
<td>Black Oak</td>
<td>1/29/2007</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>16</td>
<td>American Sweetgum</td>
<td>1/29/2007</td>
<td>16</td>
<td>16 - 21</td>
</tr>
<tr>
<td>17</td>
<td>American Sweetgum</td>
<td>1/29/2007</td>
<td>26</td>
<td>26 - 31</td>
</tr>
<tr>
<td>18</td>
<td>American Sweetgum</td>
<td>1/29/2007</td>
<td>31</td>
<td>31 - 36</td>
</tr>
<tr>
<td>19</td>
<td>Red Maple</td>
<td>1/29/2007</td>
<td>30</td>
<td>30 - 35</td>
</tr>
<tr>
<td>20</td>
<td>Loblolly Pine</td>
<td>1/29/2007</td>
<td>36</td>
<td>36 - 41</td>
</tr>
<tr>
<td>21</td>
<td>American Sweetgum</td>
<td>1/29/2007</td>
<td>24</td>
<td>24 - 29</td>
</tr>
<tr>
<td>22</td>
<td>Red Maple</td>
<td>1/29/2007</td>
<td>33</td>
<td>33 - 38</td>
</tr>
<tr>
<td>23</td>
<td>Loblolly Pine</td>
<td>1/26/2007</td>
<td>24</td>
<td>24 - 29</td>
</tr>
<tr>
<td>24</td>
<td>American Sweetgum</td>
<td>1/29/2007</td>
<td>37</td>
<td>37 - 42</td>
</tr>
<tr>
<td>26</td>
<td>Loblolly Pine</td>
<td>2/2/2007</td>
<td>19</td>
<td>19 - 24</td>
</tr>
<tr>
<td>27</td>
<td>Loblolly Pine</td>
<td>3/19/2007</td>
<td>15</td>
<td>15 - 20</td>
</tr>
</tbody>
</table>

Table 5. The number of tree rings on each core sample, and the approximate age range for each tree based on tree rings analysis.

For each tree in my study, I took core samples. I used the core extractor on 1/29, 2/2, 2/4, and 3/19/2007. After extracting the core, I was able to count the tree rings. I used a magnifying glass to count the tree rings for each sample. Some samples required the addition of Phloroglucinol Core Dye, which comes in 25 gram tubes, mixed with a solution composed of 95% ethyl alcohol and a solution composed of 50% hydrochloric acid. Together, this mixture stains the lignin red and leaves the cellulose unstained, making it easier to read the rings. To get the approximate age of each tree, I added five to the number of rings, since approximately five years are lost at the spot on the tree where I extracted the core.
Black Oak (Quercus velutina)

Black oak (Quercus velutina) are common within the plat lines of Clocker’s Fancy. Its scientific name means “velvety,” and it refers to the gray hairiness of the buds on the tree (Platt 1952: 17). They are a deciduous tree native to eastern North America, found from southern Ontario to northern Florida, and from southern Maine to northeastern Texas. The black oak is relatively small in the most northern parts of its range, reaching 20 – 25 meters (65 – 80 feet) and a diameter of about 90 centimeters (35 inches) (Phillips 1978: 191). In the central and southern parts of the black oak’s range, it can grow up to 42 meters (140 feet). Flowers are found with the young leaves in late May or early June, along with sharp buds. Black oak buds are grayish, hairy, and angled. According to Platt, black oak should be called yellow oak, since behind the black outer bark is a layer of yellow inner bark. The yellow of this tree is caused by valuable tannin, a chemical which is used for tanning leather. The lining of the acorn cup is also bright yellow. The acorn meat is yellow, and it is so bitter that most animals refuse to eat them (Platt 1952: 16).
Acorns take two years to ripen, so there will always be some acorns on any given black oak tree (Platt 1952: 15). If there are two sizes of acorns on a single tree, the smaller ones are first years, and the bigger ones are second year’s about to fall off. The acorns fall in October, and they can grow up to 1.8 centimeters (0.75 inches) in length. Acorns have a bitter taste. Black oak leaves have sharp angles, the lobes are sharp-tipped, and they bear tiny bristles (Platt 1952: 15). Leaf size and shape varies, but leaves usually grow to about 12.5 centimeters (5 inches) in length (Phillips 1978: 191). Some leaves have been documented to be 30 centimeters (12 inches) long. The upper surface of the leaf is dark shiny green, while the lower surface is usually scattered with a thin scurf and has tufts of down in the vein axils (Phillips 1978: 191).
At Clocker’s Fancy, I studied two black oaks, but I was only able to core one of them, Number 8, since Number 15 was too thin in diameter for the borer to get a good bite on the bark. Tree Number 15 was located in the front yard of the house, right in the middle of what once was a field. There are not many trees in this alley, and on both sides of this front yard (creek site) there are woods comprised mainly of loblolly pines and American sweetgums. The other black oak, Number 8, was located to the right of the house in a clearing on the other side of the woods. This black oak is much bigger in all dimensions than the smaller one, Number 15. The average circumference at base and five feet for the black oaks is 43.8 and 30.3 inches. The average diameter at base and five feet for the black oaks is 12.9 and 9.9 inches. The average height for the black oaks in the study is 10.1 yards. Number 8 has 29 rings, meaning that it is approximately 29 – 34 years old.
<table>
<thead>
<tr>
<th>Tree number</th>
<th>Circumference at base (in)</th>
<th>Circumference at five feet (in)</th>
<th>Diameter at base (in)</th>
<th>Diameter at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>68.2</td>
<td>49.0</td>
<td>19.6</td>
<td>16.3</td>
</tr>
<tr>
<td>15</td>
<td>19.4</td>
<td>11.6</td>
<td>6.3</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Table 6. Black oak circumferences and diameters at base and five

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Height (yds)</th>
<th>Date core sample was taken</th>
<th>Number of rings</th>
<th>Approximate age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>12.20</td>
<td>1/29/2007</td>
<td>29</td>
<td>29-34</td>
</tr>
<tr>
<td>15</td>
<td>8.00</td>
<td>1/29/2007</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 7. Black oak heights, coring dates, number of rings, and ages
Black oak (Number 8), located in a clearing on the right side of the plat (Huber 2007)

Black oak is not only a type of tree, but also the name of a group of oaks, called the black oak group. All of the trees in the black oak group have nondescript bark and bristle-tipped, sharp-angled leaves (Platt 1952: 15). All black oaks are decent sized trees. The inner bark of black oaks is yellow and their wood is not strong at all. Their wood is redder in color than the wood of white oaks, and markings of grain are not so vivid (Platt 1952: 15).
The most common type of black oak is the red oak (*Quercus borealis*) (Platt 1952: 16). It is another deciduous oak that is native to the eastern half of North America.
Its range is from central Florida and Texas to northern Canada. Young red oaks grow at the rate of 2 - 5 meters (8 feet) per year (Phillips 1978: 190). Their wood is hard, but not durable, and is used mainly for firewood. They grow to 18 - 25 meters (60 – 80 feet). Flowers appear in May, and the red females can be seen in the axils of the new leaves (Phillips 1978: 190). Red oaks have vertical light strips in the upper part of the bark on the trunk, which is very smooth to the touch. There is a whitish appearance to the bark, which is really just an optical illusion from the reflection of sky light from the semi-glossy surface (Platt 1952: 16). Red oak leaves are often dark green, dull, and the midrib is usually red. Leaves are 10 – 22.5 centimeters (4 – 9 inches) long, and are bright yellow for the first three weeks of autumn, before they turn deep red and brown (Phillips 1978: 190). The underside of the leaf is very smooth, unlike the black oak which is scruffy. Red oaks have smooth buds that are about 0.25 inches long and reddish-brown in hue (Platt 1952: 16). Their twigs are ridged in shape. The acorns of red oaks are about 1.8 centimeters (0.75 inches) long, and contain white, bitter meat, and a shallow saucer at the base. I found no trace of red oaks at Clocker’s Fancy.

The pin oak (*Quercus palustris*) is found in more suburbs, towns, and parks than any other type of black oak (Platt 1952: 17). These trees are characterized by lots of down-turned branches, with some almost touching the ground, as well as having a sharp, pin-like twig pattern. The wood is strong and hard, and is used for construction and clapboards. Pin oaks grow to about 25 meters (80 feet), or more. This tree flowers in
early May with young, bright yellow leaves, and the females are in the new leaf axils (Phillips 1978: 185). The leaves are deeply cut and very angular (Platt 1952: 17). The pin oak is smaller than other oaks, and so are its buds, which are about 0.125 inches long, angled, and sharp (Platt 1952: 17). Pin oaks have finely sculptured leaves and acorns. The leaves are about 7.5 – 12.5 centimeters (3 – 5 inches) long, and have tufts of brown hair on the vein axils underneath, and turn deep red in autumn (Phillips 1978: 185). Acorns on this tree are about 1 – 2 centimeters (0.5 inches) long and are one-third covered by their cup (Phillips 1978: 185). The name of this tree comes from its tough pin-like twigs, which are used as wooden pegs instead of nails in square timbers of old barns (Platt 1952: 17). The scientific name means “of swamps,” because the pin oak is naturally a wetland tree, with a shallow, fibrous root system, unlike many other oaks which have a strong and deep taproot. There were no pin oaks observed at Clocker’s Fancy.

The scarlet oak (*Quercus coccinea*) is the last member of the black oak family. The scarlet oak is native to north-eastern United States at altitudes to 1,500 meters (5,000 feet) (Phillips 1978: 182). It is very common between New York and Atlantic City. They grow to about 25 meters (80 feet). Acorns are about 2 centimeters (0.75 inches) long, and they ripen in October. It is known for its bright red leaves during the fall months. Leaves are 7.5 – 15 centimeters (3 – 6 inches) long (Phillips 1978: 182). The scarlet oak is easily confused with the pin oak, due to them both having similar, deeply cut, angular leaves (Platt 1952: 18). However, the scarlet oak lacks the pin-like twigs of pin oak, their leaves are larger, and their inner bark is pink. I was unable to find any scarlet oaks at Clocker’s Fancy.

**Red Maple** (*Acer rubrum*)

Red maple (*Acer rubrum*) and its leaves (Hodous 2007).
The red maple (*Acer rubrum*) is found in few places on Clocker’s Fancy. The huge tree that was cut down in front of the house is a red maple. These trees are mainly used in America for furniture manufacturing. Red maples range from Nova Scotia west to Manitoba, and south to Florida and eastern Texas (Grimm 1962: 347). They are large trees, growing to 36 meters (120 feet) in the wild, but much smaller in cultivation. However, they can be described as “intimate,” since the lower branches are within an arm’s reach (Platt 1952: 22). Buds on this tree are rich, smooth, and crimson. The flower buds are sparkling with sap when they start to open, which happens early in the season (Platt 1952: 22). Its flowers bloom in late March or early April, and have male and female flowers on different trees (Phillips 1978: 75).
The red clusters give this tree a red glow when seen from afar. At all times of year, this tree shows red somewhere (Platt 1952: 22). Red maple leaves have a bright red stem and are light green on top, white on the bottom, and make a sharp V angle between the lobes (Platt 1952: 22). Red maples also have red fruit on longer stalks than the flowers, with wings 1 centimeter (0.5 inches) long and spread at an angle of 60 degrees (Phillips 1978: 75). The bark is clean and light gray in the upper part of the trunk and main limbs. It is very smooth and sometimes it is confused with beech (Platt 1952: 22).
The red maple is also known as the swamp, scarlet, white, water, or soft maple. Its trunk has a diameter of about 2 – 4 feet. It inhabits many different types of areas, such as wet bottomlands and swamps to mountain ridges and cold northern bogs (Grimm 1962: 347). It usually follows the aspens into old clearings and burned-over areas, becoming one of the first trees to become established (Grimm 1962: 347). The red maple is an important tree in the developmental stages of many forest types (Grimm 1962: 347).

Red maple (Acer rubrum) winged seeds (Sieren)

Red maple (Acer rubrum) buds and flower (Sieren)

Red maple wood is heavy, soft, and neither strong nor durable (Grimm 1962: 347). It is used for furniture, woodenware, boxes, and crates. It is sometimes planted as an ornamental or shade tree. It blossoms very early in the spring, and the foliage turns a deep red in the fall. Red maples produce sugar and syrup from its sap, and they furnish
lots of palatable and nutritious browse for white-tailed deer, cottontail rabbits, hares, and beavers (Grimm 1962: 347).

At Clocker’s Fancy, I studied two red maples, but I was only able to core one of them, since Number 1 was only a stump. I was only able to obtain the circumference and diameter at the base for Number 1, but it is safe to assume that it was much bigger in all dimensions than Number 19. Number 1 is located in the back of the house, almost three feet from the siding. Number 19 is located in the front yard towards the edge of Milburn Creek. It is mixed in with a forest of loblolly pines and American sweetgum, several yards away from black oak Number 15. The average circumference at base and five feet for the red maples is 23.7 and 18.1 inches, respectively. The average diameter at base and five feet for the red maples is 19.0 and 5.9 inches, respectively. The average height for the red maples in the study is 10.0 yards. Number 19 has 30 rings, which means that it is approximately 30 – 35 years old.

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Circumference at base (in)</th>
<th>Circumference at five feet (in)</th>
<th>Diameter at base (in)</th>
<th>Diameter at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>18.5</td>
<td>14.9</td>
<td>5.9</td>
<td>4.7</td>
</tr>
<tr>
<td>22</td>
<td>28.9</td>
<td>21.3</td>
<td>9.7</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Table 8. Red maple circumferences and diameters at base and five
<table>
<thead>
<tr>
<th>Tree number</th>
<th>Height (yds)</th>
<th>Date core sample was taken</th>
<th>Number of rings</th>
<th>Approximate age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>9.0</td>
<td>1/29/2007</td>
<td>30</td>
<td>30 - 35</td>
</tr>
<tr>
<td>22</td>
<td>11.0</td>
<td>1/29/2007</td>
<td>33</td>
<td>33 - 38</td>
</tr>
</tbody>
</table>

Table 9. Red maple heights, coring dates, number of rings, and ages
Loblolly Pine (*Pinus taeda*)

Loblolly pines (*Pinus taeda*) are also known as the Oldfield Pine. This name derives from the tree’s ability to rapidly invade abandoned fields (Grimm 1962: 48). Loblolly pines range from southern New Jersey to central Florida west to eastern Texas; and north, in the Mississippi Valley, to southeastern Oklahoma, Arkansas, and southern Tennessee (Grimm 1962: 50). It often grows in moist depressions locally called “loblollies,” which is where this tree gets its name (Collingwood and Brush 1974: 26). Loblollies grow to about 80 – 100 feet tall, but trees reaching 170 feet are not uncommon (Collingwood and Brush 1974: 26). Smaller pines have a diameter of about 3 – 4 feet, but larger ones can have a diameter of up to 6 feet (Collingwood and Brush 1974: 26). In some of the larger trees, the first sets of limbs are found 60 feet above the ground. They
have a large crown and a clean bole often 2 – 4 feet in diameter (Grimm 1962: 48). This pine is one of the fastest growing of the southern pines.

Loblolly pine needles, characterized by three needles per bunch (Huber 2007)

Loblolly pine (Pinus taeda) needles (UTIA 2003)
The needles of the loblolly are arranged in bundles of three with a persistent basal sheath usually 0.5 inches long (Grimm 1962: 48). The needles are about 6 – 9 inches long, and they are slender with a grayish-green color. These needles will stay on the tree for around three to four years. The branches of this tree are stout and are reddish-brown to dark yellowish-brown. The bark is reddish-brown on older trees, and it is deeply fissured into irregular, broad, scaly plates, which are about 0.75 – 1.5 inches thick (Collingwood and Brush 1974: 26). The cones are cylindrical in shape, and grow to about 3 – 6 inches long. They are light reddish-brown, with scales tipped by a sharp, stout prickle (Grimm 1962: 48).
Yellow pollen-bearing staminate flowers appear at the base of lower twigs from the middle of March until the first of April (Collingwood and Brush 1974: 26). Higher up in the tree are clusters of yellow ovulate flowers. At the end of the second season, these flowers mature into reddish-brown, egg-shaped cones of about 3 - 6 inches in length. Black, winged seeds are released from the tree from October to late November of the second season. These seeds are carried away by the wind, and can travel vast distances. They usually germinate the following spring, and they do the best on exposed mineral soil, such as abandoned fields. When twenty to thirty years old, these trees seed abundantly, and the seeds are highly fertile.
There are four main southern pines: loblolly, longleaf (slash), shortleaf, and spruce. The wood of the loblolly is rated as inferior to that of the longleaf and shortleaf pines, but its timber is still useful. Its wood is still used for the same purposes as the other southern pines, and loblolly wood is usually marketed as yellow pine lumber. In the South, loblolly wood is used as pulpwood by the growing kraft paper industry (Grimm 1962: 50). The wood weighs about 34 – 38 pounds to the cubic foot when dry (Collingwood and Brush 1974: 26). The wood is used for construction, interior finish, bridges, freight cars, barrels, and boxes (Collingwood and Brush 1974: 26). Approximately ninety percent of the total population of southern pines is in the deep South (Collingwood and Brush 1974: 26). Probably half of this is loblolly pine, especially in Georgia, Alabama, and Texas.
Since the bark on this tree is so thick and it grows in moist soils, it is relatively fire-proof. However, on higher grounds where fire is used to control brush to allow seedlings to grow, this tree does not stand a chance. Pine sawyers, the southern pine bark beetle, and bud moths attack this tree, and can ultimately cause its demise (Collingwood and Brush 1974: 27). The pine sawyers and southern pine bark beetles are insects that bore into the bark and cambium. These attacks can be controlled by cutting all infested trees as soon as their foliage begins to turn brown (Collingwood and Brush 1974: 27). The logs can be used, but the bark and branches should be burned as soon as possible. When the trees are cut from May to October, this same treatment should be done to avoid any problems associated with insects. Depending on the soil, lobollies can grow up to seventy-five feet tall and fourteen inch diameters in thirty years. In one acre, 300 to more than 1,000 board feet of saw timber can be accumulated yearly (Collingwood and Brush 1974: 27).

At Clocker’s Fancy, I studied seven lobolly pines: Numbers 6, 7, 10, 20, 23, 25, and 26. Numbers 6 and 7 are located in the same area as tree Number 8, a black oak; they are located to the right of the house in a clearing on the other side of the woods. These lobollies are part of the first line of trees which start the woods on the other side of this clearing. Number 6 has 33 rings and Number 7 has 29, meaning that these trees are somewhere between 33 - 38 and 29 - 34 years old, respectively. Numbers 20, 23, and 25 are located in the front yard, with 23 and 25 almost touching Milburn Creek. Number 20 has 36 rings, Number 23 has 24, and Number 25 has 10, meaning that these trees are about 36 - 41, 24 - 29, and 10 – 15 years old, respectively. Numbers 10 and 26 are located in the back yard of the house, which is a stand completely covered by eastern redcedars, a few American sweetgums, and a handful of lobollies. Number 26 happened to be dead, and no one is really sure when it died. All around the tree lay its bark in a shingle-like pattern. Number 10 has 24 rings and Number 26 has 19 rings, meaning that these trees are approximately 24 – 29 and 19 – 24 years old, respectively. The average circumference at base and five feet for the lobolly pines is 65.7 and 50.4 inches. The
average diameter at base and five feet for the loblolly pines is 19.1 and 15.5 inches. The average height for the loblolly pines in the study is 15.3 yards.

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Circumference at base (in)</th>
<th>Circumference at five feet (in)</th>
<th>Diameter at base (in)</th>
<th>Diameter at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>83.6</td>
<td>65.8</td>
<td>25.5</td>
<td>20.5</td>
</tr>
<tr>
<td>7</td>
<td>79.5</td>
<td>65.3</td>
<td>20.3</td>
<td>19.0</td>
</tr>
<tr>
<td>10</td>
<td>48.1</td>
<td>35.5</td>
<td>14.0</td>
<td>11.1</td>
</tr>
<tr>
<td>20</td>
<td>86.5</td>
<td>63.3</td>
<td>22.2</td>
<td>19.8</td>
</tr>
<tr>
<td>23</td>
<td>42.6</td>
<td>31.9</td>
<td>13.2</td>
<td>9.6</td>
</tr>
<tr>
<td>25</td>
<td>59.1</td>
<td>44.4</td>
<td>18.3</td>
<td>13.8</td>
</tr>
<tr>
<td>26</td>
<td>60.5</td>
<td>47.1</td>
<td>20.0</td>
<td>14.6</td>
</tr>
</tbody>
</table>

Table 10. Loblolly pine circumferences and diameters at base and five

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Height (yds)</th>
<th>Date core sample was taken</th>
<th>Number of rings</th>
<th>Approximate age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>14.5</td>
<td>2/4/2007</td>
<td>33</td>
<td>33-38</td>
</tr>
<tr>
<td>7</td>
<td>24.0</td>
<td>2/4/2007</td>
<td>29</td>
<td>29-34</td>
</tr>
<tr>
<td>10</td>
<td>12.0</td>
<td>1/29/2007</td>
<td>24</td>
<td>24-29</td>
</tr>
<tr>
<td>20</td>
<td>16.5</td>
<td>1/29/2007</td>
<td>36</td>
<td>36-41</td>
</tr>
<tr>
<td>23</td>
<td>16.2</td>
<td>1/26/2007</td>
<td>24</td>
<td>24-29</td>
</tr>
<tr>
<td>25</td>
<td>15.0</td>
<td>1/29/2007</td>
<td>10</td>
<td>10-15</td>
</tr>
<tr>
<td>26</td>
<td>9.0</td>
<td>2/2/2007</td>
<td>19</td>
<td>19-24</td>
</tr>
</tbody>
</table>

Table 11. Loblolly pine heights, coring dates, number of rings, and ages

Loblolly pine (Number 23), located next to Milburn Creek (Huber 2007)
American Sweetgum (*Liquidambar styraciflua*)

The sweetgum (*Liquidambar styraciflua*) is a very common tree on Clocker’s Fancy. It is a deciduous tree that is native to the eastern United States and Central America. Its range is from Connecticut to southern Illinois, south to Florida and eastern Texas (Grimm 1962: 255). Sweetgum can grow to about 45 meters (150 feet) in the wild, although it is usually about 60 – 80 feet tall (Grimm 1962: 253). On smaller sweetgum, the diameter at the trunk is about eighteen inches to three feet. Larger trees can have a diameter of up to five feet at chest height (Collingwood and Brush 1974: 72). Its flowers open in May, with the males in round heads on a spike 5 – 7.5 centimeters (2 - 3 inches) long (Phillips 1978: 132). Females are solitary or occur in pairs and grow to 1 – 2 centimeters (0.5 inches) long. The sweetgum produces fruits which are 2.5 – 3.7 centimeters (1 – 1.5 inches) broad (Phillips 1978: 132). The leaves have either 5 or 7 lobes on them with fine toothed edges. On the underside of the leaf, the vein axils bear rust colored tufts. In the fall, the leaves turn purple, red, and orange.
The American sweetgum is also known as the redgum, star-leaved gum, bilsted, alligator-wood, and liquidambar. Star-leaved gum derives from the shape of the five to seven point leaves. Redgum refers to the color of the tree’s wood. The trunk on sweetgums is usually about 2 – 4 feet in diameter. This tree develops a symmetrical pyramidal crown, with the lower branches persisting low on the tapering trunk (Grimm 1962: 253). In forests, the trunks of this tree are straight and clean. It is typically found along the Coastal Plain swamps and wet river bottoms, but it can also grow on moist upland soils as well. The sweetgum is one of the most important timber trees in the southeastern United States (Grimm 1962: 255). Its wood is heavy, hard, and close-grained, but it is not strong. Its timber is sometimes known as ‘satin walnut’ (Phillips 1978: 132). Sweetgum wood is used in furniture production, cabinet making, boxes, and crates. Sweetgum exudes a gum, called sweetgum, liquidambar, or “storax.” This gum comes from injuries to the tree, and it is often chewed by children, used in perfume, or used in drugs.
Larger sweetgum are found around the bottomlands of the lower Mississippi Valley and the southeastern coastal states (Collingwood and Brush 1974: 72). They have a strong taproot system, which prevents the tree from collapsing due to wind and also encourages rapid growth (Collingwood and Brush 1974: 73). The flow of resin is faster in trees located in the southern part of the range as compared to those in the northern parts of its range. Sweetgum, named *Liquidambar styraciflua* by the Swedish botanist, Carl von Linne, refers to the yellowish, balsamic liquid which flows from the bark. (Collingwood and Brush 1974: 73).
Flowers of both sexes occur separately on the same tree. They appear anytime from March until May when the leaves are about half grown. Each cluster of hairy, green flowers is about 2 – 3 inches long (Collingwood and Brush 1974: 73). The seed-producing flowers hang in round clusters on long stalks from the base of the upper leaves. They then turn into brown balls or burs that are 1 – 1.5 inches in diameter. These swing on the trees all winter, and then in the spring the burs crack open, allowing 0.5 inch long winged seeds to fall to the ground (Collingwood and Brush 1974: 73).

At Clocker’s Fancy, I studied seven different American sweetgums: Numbers 9, 13, 16, 17, 18, 21, and 24. Number 9 is located in the back of Clocker’s in the eastern redcedar grove. I measured its height as 8 yards at the tallest branch, since its trunk is cut at approximately 6 yards. I counted 13 rings, making this tree about 13 – 18 years old.
Numbers 13, 16, 17, 18, 21, and 24 are all located in various spots in the front yard, with 13, 16, and 17 being nearest to the house on the left side of the woods. These trees had 15, 16, and 26 rings, making these trees approximately 15 – 20, 16 – 21, and 26 - 31 years old, respectively. Numbers 18, 21, and 24 are closer to Milburn Creek, next to some loblollies, Numbers 23 and 25. These sweetgums have 31, 24, and 37 rings, meaning that they are about 31 - 36, 24 – 29, and 37 – 42 years old, respectively. The average circumference at base and five feet for the American sweetgum is 33.8 and 25.5 inches. The average diameter at base and five feet for the American sweetgums is 11.1 and 7.8 inches. The average height for the American sweetgums in the study is 11.4 yards.

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Circumference at base (in)</th>
<th>Circumference at five feet (in)</th>
<th>Diameter at base (in)</th>
<th>Diameter at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>30.3</td>
<td>22.4</td>
<td>8.9</td>
<td>7.1</td>
</tr>
<tr>
<td>13</td>
<td>31.8</td>
<td>22.0</td>
<td>9.3</td>
<td>6.8</td>
</tr>
<tr>
<td>16</td>
<td>15.2</td>
<td>15.1</td>
<td>7.5</td>
<td>4.4</td>
</tr>
<tr>
<td>17</td>
<td>45.6</td>
<td>31.3</td>
<td>13.9</td>
<td>9.8</td>
</tr>
<tr>
<td>18</td>
<td>41.9</td>
<td>32.6</td>
<td>13.6</td>
<td>10.1</td>
</tr>
<tr>
<td>21</td>
<td>42.1</td>
<td>32.8</td>
<td>15.3</td>
<td>9.8</td>
</tr>
<tr>
<td>24</td>
<td>29.5</td>
<td>22.8</td>
<td>9.4</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Table 12. American sweetgum circumferences and diameters at base and five feet

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Height (yds)</th>
<th>Date core sample was taken</th>
<th>Number of rings</th>
<th>Approximate age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>8.0</td>
<td>1/29/2007</td>
<td>13</td>
<td>13 - 18</td>
</tr>
<tr>
<td>13</td>
<td>9.5</td>
<td>2/2/2007</td>
<td>15</td>
<td>15 - 20</td>
</tr>
<tr>
<td>16</td>
<td>15.3</td>
<td>1/29/2007</td>
<td>16</td>
<td>16 - 21</td>
</tr>
<tr>
<td>17</td>
<td>11.0</td>
<td>1/29/2007</td>
<td>26</td>
<td>26 - 31</td>
</tr>
<tr>
<td>18</td>
<td>11.5</td>
<td>1/29/2007</td>
<td>31</td>
<td>31 - 36</td>
</tr>
<tr>
<td>21</td>
<td>14.3</td>
<td>1/29/2007</td>
<td>24</td>
<td>24 - 29</td>
</tr>
<tr>
<td>24</td>
<td>10.5</td>
<td>1/29/2007</td>
<td>37</td>
<td>37 - 42</td>
</tr>
</tbody>
</table>

Table 13. American sweetgum heights, coring dates, number of rings, and ages
American sweetgum (Number 18), situated to the right of the house in the front yard (Huber 2007)
Eastern Redcedar (*Juniperus virginiana*)

In my opinion, this is the most abundant tree on the property of Clocker’s Fancy. A row of eastern redcedars (*Juniperus virginiana*) line the drive, all the way up to the front door. There is also a grove of redcedars to the left of the front door. This tree is an aromatic evergreen, with its trunk angled and heavily supported at the base. It has a compact and columnar crown, which is sometimes broad and shaped irregularly (Little 1980: 311). This tree is generally about 12 – 18 meters (40 – 60 feet) tall, and has a diameter of 0.3 – 0.6 meters (1 – 2 feet) (Little 1980: 311). These trees have two sets of leaves that grow in opposite rows of four, which form slender four-angled twigs. The small ovate leaves are dark green and blue, scale-like and not toothed, and about 1.5 – 10 millimeters (0.0625 – 0.375 inches) long (Little 1980: 311). The other leaves are sharply pointed and narrow, awl-like ones, which are 0.25 – 0.5 inches long (Grimm 1962: 85). A wl-like leaves are loosely arranged and spreading, and are found exclusively on younger trees and on the more vigorous shoots of older trees. Leaves stay attached to the tree for about five to six years on these trees (Grimm 1962: 85). The bark looks almost shredded, and is reddish brown, thin, and fibrous. The fruit that this tree bears are actually the cones, which are 6 – 10 millimeters (0.25 – 0.375 inches) in diameter, and berry-like (Grimm 1962: 85). They are dark blue in hue, have a whitish bloom, feel soft, globular, juicy, and are extremely resinous. Each cone contains 1 – 2 seeds, and the pollen cones are on separate trees (Little 1980: 311).
Usually, eastern redcedars grow from 20 – 50 feet tall and have a short trunk that is about 1 – 2 feet in diameter. However, in the southern states where the tree grows on alluvial soils, it can grow up to 120 feet tall and produce a fluted trunk that is up to 4 feet
in diameter (Collingwood and Brush 1974: 8). In the northern parts of its range where the soil is poor, eastern redcedars grow to be the size of a bush. It is a very slow growing tree, and a specimen that is sixteen inches to two feet in diameter may be 130 – 150 years old. Larger trees can grow to be more than 300 years old (Collingwood and Brush 1974: 8).

The eastern redcedar is found in South Ontario and is widespread in the eastern half of the United States. It ranges from Nova Scotia south to northern Florida, and west to the Dakotas and Texas (Grimm 1962: 85). Due to the redness of the bark and the wood, the French Canadians named the tree *baton rouge*, meaning red stick. When this same tree was found in Louisiana, they gave this name to their state capital (Collingwood and Brush 1974: 9). Its habitat includes dry uplands, especially limestone, to flood plains and swamps. It also grows well in abandoned fields and fence rows. It is often found in scattered pure stands (Little 1980: 311). The eastern redcedar is also known as cedar, savin, and red juniper, with red juniper being the most appropriate name since this tree is really a juniper and not a true cedar.

The eastern redcedar is the most widely distributed eastern conifer, being native to 37 states. This tree is heavily resistant to drought, heat, and cold. Its wood is used for fence posts, cedar chests, cabinets, and carvings. It was first seen at the Virginia colony in Roanoke Island, Virginia, which is why the tree received its name *virginiana*.
(Collingwood and Brush 1974: 8). The colonists loved the tree since it was easy to cut down and the wood made great furniture and log cabins. From the wood and leaves the colonists extracted cedar oil, which was used for medicine and perfumes. The heartwood was at one time the only wood used for pencils, but now Incense-cedar (*Libocedrus decurrens*) is used instead. Today, eastern redcedars are grown for Christmas trees, shelterbelts, and other ornamental purposes (Little 1980: 311). The berries on this tree are eaten by many animals, including the cedar waxwing, which was named for this tree.

Redcedar should not be planted next to apple orchards, since this tree is an alternate host for cedar-apple rust, which is a fungus disease (Little 1980: 311). “Cedar apples” are found on the twigs of the redcedar, and they are caused by this rust fungus, *Gymnosporangium juniperi-virginianae* (Grimm 1962: 85). This disease causes a leaf spot on apple leaves.

Many different bird species then eat the berries on the redcedar during the winter. The seeds pass through the bird’s alimentary canal unharmed, and are then dispersed over the countryside (Grimm 1962: 85).
Eastern redcedar grove, located in the backyard of Clocker’s Fancy (Huber 2007)

Some destructive boring insects prey on the eastern redcedar. Sometimes bagworms eat the foliage on these trees, as well. However, the main threat to these trees is caused by fire. Since the bark is so thin and they have a shallow root system, small surface fires pose quite a threat. When combined in a forest with ash, maple, oak, hickories, beech, loblolly pine, black gum, and cypress, this tree is not affected by fire as much (Collingwood and Brush 1974: 9).
Number 5, a redcedar, is located in the clearing on the right side of Clocker’s Fancy (Huber 2007).

In my analysis at Clocker’s Fancy, I studied seven eastern redcedars. Numbers 2, 3, 4, and 5 were located to the right of the house in a clearing on the other side of the woods, in close proximity to some loblollies, Numbers 6 and 7, and black oaks, particularly Number 8. These four redcedars are located about three feet from each other, and they are all almost identical in dimensions and age. They had 28, 36, 31, and 36 rings, meaning that they are about 28 – 33, 36 – 41, 31 - 36, and 36 – 41 years old, respectively. Numbers 11 and 12 are located in the redcedar grove in the back of the house. They have 29 and 40 rings, making them approximately 29 -34 and 40 – 45 years old, respectively. Number 14 is located in the front of the house, directly in the middle of the yard. It has 28 rings, making it about 28 – 33 years old. The average circumference at base and five feet for the eastern redcedars is 46.1 and 32.6 inches. The average diameter at base and five feet for the eastern redcedars is 13.8 and 10.3 inches. The average height for the eastern redcedars in the study is 12.8 yards.

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Circumference at base (in)</th>
<th>Circumference at five feet (in)</th>
<th>Diameter at base (in)</th>
<th>Diameter at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>49.5</td>
<td>36.3</td>
<td>17.5</td>
<td>11.0</td>
</tr>
<tr>
<td>3</td>
<td>45.5</td>
<td>35.0</td>
<td>12.6</td>
<td>11.0</td>
</tr>
<tr>
<td>4</td>
<td>49.9</td>
<td>38.0</td>
<td>13.9</td>
<td>12.9</td>
</tr>
<tr>
<td>5</td>
<td>60.0</td>
<td>38.0</td>
<td>17.3</td>
<td>12.0</td>
</tr>
<tr>
<td>11</td>
<td>30.1</td>
<td>21.0</td>
<td>8.0</td>
<td>6.0</td>
</tr>
<tr>
<td>12</td>
<td>37.2</td>
<td>25.4</td>
<td>11.6</td>
<td>7.9</td>
</tr>
<tr>
<td>14</td>
<td>48.5</td>
<td>31.8</td>
<td>15.3</td>
<td>10.4</td>
</tr>
</tbody>
</table>

Table 14. Eastern redcedar circumferences and diameters at base and five feet.
Table 15. Eastern redbedar heights, coring dates, number of rings, and ages

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Height (yds)</th>
<th>Date core sample was taken</th>
<th>Number of rings</th>
<th>Approximate age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>13.3</td>
<td>2/4/2007</td>
<td>36</td>
<td>36 - 41</td>
</tr>
<tr>
<td>4</td>
<td>12.5</td>
<td>2/4/2007</td>
<td>31</td>
<td>31 - 36</td>
</tr>
<tr>
<td>5</td>
<td>12.8</td>
<td>2/4/2007</td>
<td>36</td>
<td>36 - 41</td>
</tr>
<tr>
<td>11</td>
<td>9.0</td>
<td>2/2/2007</td>
<td>29</td>
<td>29 - 34</td>
</tr>
<tr>
<td>12</td>
<td>16.5</td>
<td>2/2/2007</td>
<td>40</td>
<td>40 - 45</td>
</tr>
<tr>
<td>14</td>
<td>13.3</td>
<td>2/2/2007</td>
<td>28</td>
<td>28 - 33</td>
</tr>
</tbody>
</table>

Hackberry (*Celtis occidentalis*)

There are not too many hackberry (*Celtis occidentalis*) trees on the premises of Clocker’s Fancy. There is a grove of four trees located next to a spring in the middle of the property, as well as a few in the back yard and along the end of the lane. When Kyle Rambo came out to help me with tree identification, he told me that hackberries are commonly planted around gravesites. Since this little grove was located next to a major spring in the center of the property, and it was totally overgrown with other trees and
bushes, I figured that this might be an important spot in later work to see if there actually is a gravesite on the property.

This tree is native eastern North America, and was planted as a shade or ornamental tree in Mississippi, eastern states, and Europe (Phillips 1978: 99). This tree grows to 9 – 12 meters (30 – 40 feet). The hackberry flowers are 3 millimeters (0.125 inches) wide, and are green in color. Its flowers open in May, with the females developing into fruit which is about 6 - 10 millimeters (0.25 – 0.325 inches) in diameter (Little 1980: 414). The fruit is similar to that of the Sugarberry or Mississippi Hackberry (Celtis laevigata), in that they are both orange red and then ripen to dark purple (Phillips 1978: 99). They are also one-seeded and are dry, sweet, and slender-stalked at the leaf bases. Leaves occur in two rows, with each leaf being 5 – 13 centimeters (2 – 5 inches) long and 4 – 6 centimeters (1.5 – 2.5 inches) wide (Little 1980: 414). They are ovate, long-pointed, and usually sharply toothed. They are also unequal-sided with a rounded base. Hackberry leaves are shiny green and smooth on the top, but have hairy, paler veins on the underside. The leaves turn a dull yellow in autumn. The bark of hackberry is grayish brown with very distinct pimples, commonly called corky warts, which eventually become scaly (Little 1980: 414).
The hackberry’s habitat is mainly in river valleys, upland slopes and bluffs, and also hardwood forests. The range of this tree is from southern Ontario east to New England, south to northern Georgia, west to northwest Oklahoma, and north to North Dakota. It is also a local tree in south Quebec and southern Manitoba. It is found at altitudes up to 1524 meters (5000 feet) (Little 1980: 414). Hackberry is also known as the sugarberry, nettle-tree, and hoopash.

Hackberry wood is very soft and weak, but it is heavy and coarse-grained (Grimm 1962: 228). The wood of the hackberry is used for furniture, athletic goods, boxes, and plywood. The common name derives from “hagberry” which means “marsh berry,” which is the name used in Scotland for cherries (Little 1980: 415). These trees are a
home for many birds, including quail, pheasants, woodpeckers, and cedar waxwings. These birds eat the fruits and live in the shade of the tree. Squirrels, chipmunks, and various other small rodents eat the berries as well (Grimm 1962: 228). Usually, hackberries grow in groups which are scattered across hardwood forests. The branches of hackberry become pimply and deformed by bushy growths called witches’-brooms, which are caused by fungi and mites (*Eriophyes*). The leaves have rounded galls caused by tiny jumping plant lice (Little 1980: 415).

![Pimply bark of the hackberry tree (*Celtis occidentalis*) (OPLIN 2001)](image)

For my study, I chose one of the hackberries out of a grove of four, which is located next to a natural spring in the back of the house on the right side. It is in the middle of a stand of osage oranges, black oaks, and small American sweetgums. It was hard to core this tree since it was very small in diameter, about 2.8 inches. I counted 15 rings, making Number 27 about 15 - 20 years old. The circumference at base and five feet for the hackberry is 8.9 and 6.8 inches. The diameter at base and five feet for the hackberry is 2.8 and 1.4 inches. The height for the hackberry in the study is 3.8 yards.

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Circumference at base (in)</th>
<th>Circumference at five feet (in)</th>
<th>Diameter at base (in)</th>
<th>Diameter at five feet (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>8.9</td>
<td>6.8</td>
<td>2.8</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Table 16. Hackberry circumferences and diameters at base and five feet

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Height (yds)</th>
<th>Date core sample was taken</th>
<th>Number of rings</th>
<th>Approximate age (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>3.8</td>
<td>2/4/2007</td>
<td>15</td>
<td>15 - 20</td>
</tr>
</tbody>
</table>

Table 17. Hackberry heights, coring dates, number of rings, and ages
Discussion of Findings

Based upon my findings from the tree ring analysis, the oldest tree on the plat is Number 12, an eastern redcedar that has 40 rings. This tree is approximately 40 – 45 years old, and is located in the redcedar grove in the back of Clocker’s Fancy. The youngest tree on the property is a hackberry, Number 27, which has 15 rings. This tree is approximately 15 – 20 years old, and is located in the clearing on the right side of the house. From my study, I can conclude that approximately 40 - 45 years ago, none of the trees in my analysis were present on the plat at Clocker’s Fancy. Originally, there were fields surrounding the house on all sides, and my analysis shows that this was the case until about 1962 – 1967. About fifty years ago, all maps of Clocker’s Fancy show that it was all field and no forest. Today, there is not much field anywhere within the property boundary; it is mainly hardwood forest mixed with pines and cedars. My analysis is proved by the fact that the maps show no forests about fifty years ago.

The 1996 Forest Stewardship Plan for Historic St. Mary’s City discusses three major stands on the Clocker’s Fancy plat (Muir 1996: 1). Stand 1 runs on both sides of the lane by the driveway and is approximately 5.4 acres (Muir 1996: 6). This includes the eastern redcedar grove in the back yard of Clocker’s Fancy, as well as tree numbers 1, 9, 10, 11, 12, 26, and 27. Stand 2 starts on the other side of the clearing to the right of the house in the back yard, and continues to includes the trees the front yard of Clocker’s Fancy, ending about 100 feet from Milburn Creek, and comprising about 4.3 acres (Muir 1996: 7). This stand is made up mainly of loblolly pine, but also includes tree numbers 2, 3, 4, 5, 6, 7, 8, 13, 14, 15, 16, 17, and 19. Stand 3 includes the forest on the right side in the front yard of Clocker’s Fancy, and also includes the trees closest to Milburn Creek, comprising about 3.6 acres (Muir 1996: 8). This stand is made up mainly of sweetgum, but also includes tree numbers 18, 20, 21, 22, 23, 24, and 25. The report also includes a minor stand, Stand 3a, which is located on a narrow strip of land adjacent to Milburn Creek (Muir 1996: 9). I did not study any trees in this stand. For each of the stands, the growth potential ranges from fair to good, meaning that these young trees are very
healthy. The older the stand becomes, the more likely that the growth potential will decrease. Therefore, this report also backs up my analysis since these are considered relatively new stands.

Base map of Clocker’s Fancy, which can divided into three major stands
The Forest Stewardship Plan for Historic St. Mary’s City also gives minor
descriptions for each stand. For Stand 1, the report states “this 5.4 acre stand is an old
agricultural field which has been allowed to develop naturally into woodland (Muir 1996:
6).” Based upon this description, my analysis is again backed up that the trees
surrounding Clocker’s Fancy are relatively young.
Bibliography


Federal Direct Tax, List A-6, St. Mary’s County, Maryland. Microfilm available at the Maryland State Archives.


Haddad, Anne. Baltimore Sun, June 19, 1994, 3B.

Historic St. Mary’s City (HSMCC), Research Department, Architectural Research Files, SM-29, Rosecroft.

Historic St. Mary’s City (HSMCC), Research Department, Architectural Research Files, Interview with Mrs. Louise Heagy, SM-9, Clocker’s Fancy. E-mail between Silas Hurry and Kirk Ranzetta, HSMCC.


