"A JOURNEY TO THE LAND OF EDEN":
A SURVEY OF VIRGINIA LAND USE FROM 1584 TO 1884

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(ABSTRACT)

The attitudes of Virginia explorers and colonists toward the land and its resources and how these attitudes informed their treatment of them was investigated. The effect of the expectation that Virginia was a newly discovered Garden of Eden on plant cultivation was explored, in terms of agriculture and domestic utilitarian and pleasure gardens.

It was determined that the expectation of an Eden in Virginia resulted in the exploitation of Virginia's resources and the creation of formal gardens as a symbol of control over the land.

Garden designs and plants used during specific periods in Virginia history were described. In Part II of this thesis this information was used to determine historical gardens for Airfield Conference Center in Sussex County, Virginia.
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Thanks to my family, my teachers, and my friends.
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PART I

INTRODUCTION

The major sources of information used to ascertain attitudes toward the land and how these attitudes informed plant cultivation were:

1. Contemporary Documents:

--Accounts written by early explorers of Virginia. These explorers were instructed to record information about Virginia's resources and landscape for their employers in England. The accounts were in part promotional propaganda intended to encourage colonization and investment. Prominent chroniclers studied: Arthur Barlowe, Sir Richard Grenville, Ralph Lane, Thomas Hariot, John White, Captain John Smith.

--Purely promotional propaganda. This propaganda was written by employees of English companies, investors in those companies, and colonists
about Virginia and its resources. The purpose of these materials was to entice potential investors and colonists. Many accounts were written by Englishmen who had never visited Virginia.

--Histories of Virginia, journals, and diaries. These works were written by prominent colonists and landowners such as Robert Beverly, Reverend Hugh Jones, William Byrd II, Thomas Jefferson, and George Washington.

--Documents of the Royal Governors, Royal Councils, and the House of Burgesses.

--Correspondences.

--Records of the Royal Society of London.

--Advertisements from the Virginia Gazette.

2. Modern Documents:

--Records and correspondences of the Colonial Williamsburg Foundation.
--Books and articles written on the history of the discovery, exploration, and settlement of the New World.

--Books and articles written on the social history of the South and Virginia.

--Books and articles written on worldwide and American garden history.

--Essays and articles on Virginia garden history and on Virginia gardens.

--Records from archaeological investigations of Virginia gardens.

--Books and articles concerned with methods of interpreting historical and modern landscapes.

3. Other:

--Interview with two landscape architects working for the Colonial Williamsburg Foundation: Gordon Chappell, director of landscape maintenance, and Kent Brinkley,
director of landscape architecture.

--Visits to Colonial Williamsburg gardens.
The gardens have been reconstructed, restored, or interpreted according to documentary and archaeological evidence.

--Visits to James River plantations.
The grounds have been reconstructed, restored, or interpreted according to documentary and archaeological evidence.
"THE LAND WOULD FLOWE WITH MILKE AND HONEY"

The second of July, we found shole water, which smelt so sweetely, and was so strong a smell, as if we had bene in the midst of some delicate garden, abounding with all kind of odoriferous flowers, by which we were assured, that the land could not be farre distant (1).

Arthur Barlowe, 1584

The urge to explore the earth and inhabit new lands has often sprung from the need to flee from or advance a way of life. Veiled in political, social, and religious fervor, the underlying reason is an idealism that is typical of the human spirit: the belief in and desire to find a perfect place, to find Eden.

The discovery of the New World revived the traditional
belief that paradise existed (2). Virginia in particular was described by early explorers and settlers as a perfect, rich, and fruitful place, as a terrestrial paradise, a Garden of Eden (3). Reports reached England of a place full of material and sensual delights, a place "so delightful, and desirable; so pleasant, and plentiful; the climate, and air, so temperate, so sweet, and wholesome; the woods, and soil, so charming and fruitful, and all other things so agreeable, that Paradise itself seemed to be there, in its first luster (4)." Perspective colonists were led to believe they would be transported to paradisiac land where a generous climate and soil would afford prosperity and peace unknown to them.

In this paper it will be shown how Virginians' Edenic expectations of the land determined the patterns of land use in Virginia, as well as informed the evolution of its social, political, and cultural institutions. The fundamental belief that guided them—that Virginia was like a Garden of Eden—will be explored, in its many and varied manifestations on the land: on subsistence farming, on extraction of the land's natural resources, on one-crop staple agriculture, on the domestic utilitarian garden "for meate or medicine," on the domestic pleasure garden "for use or for delight (5)," and on the
picturesque pleasure ground.

The English who came to Virginia were well-acquainted with the idea of the garden, and its antithesis, the wilderness. Their world-view was based on the Bible, which over and over juxtaposed the productive and beneficent garden against the indifferent, often cruel, wilderness. In a garden man was ministered to by nature: branches were heavy with fruit, the climate was temperate, and the soil fertile. God meant for nature to serve, protect, and nourish man in the garden. The existence of the garden paradise depended on God's approval, and His supplying it with water, the fountain that sustains the luxurious growth of the garden (6). Paradise was "A good land, a land of brooks of water, of fountains and springs (7)."

Likewise, Virginia was described as "a happy Climate, since it is very near of the same Latitude with the Land of Promise. Besides, As Judaea was full of Rivers, and Branches of Rivers; So is Virginia . . (8)."

The Bible portrayed wilderness, on the other hand, as a desert and wasteland, inhabited by supernatural demons, often by the devil himself. God showed His disapproval by withholding water, without which there could be no plant life or prosperity (9). The Bible described "the great and terrible wilderness" as "a thirsty ground (10)."
It was Virginia's promise as an earthly paradise that attracted investors and colonists. This was the intention of the chroniclers' accounts—they were propaganda written by employees of English companies or by Virginia landowners who intended to entice them (11), as this excerpt from a promotional pamphlet illustrates: "The country is not only plenti-full, but pleasant and profitable, pleasant in regard to the brightness of the weather, the many delightful rivers, on which the inhabitants are settled (every man, almost, living in sight of a lovely river) the abundance of game, the extraordinary good neighborhood and loving conversation they have one with another (12)." The majority of southern writing from the late sixteenth century until the 1730s was about the terrestrial paradise that was Virginia, in contrast to the metaphysical paradise that preoccupied New England thought and prose (13).

People arrived on Virginia soil to map, measure, inventory, and assess with an eye toward extracting its wealth and enriching their lives and those in England. They believed that they would transform a pristine land to a civilized and ordered one, partly effected by organizing a profitable economic structure based on extractive and exploitive pursuits (14). They had been told that in Virginia "the soile is most plentiful, sweete, fruitfull, and
wholesome of all the world . . . The earth bringeth forth all things in aboundance, as in the firste creation, without toil or labour (15)." Such literal descriptions of Virginia as a Garden of Eden promoted the idea of the colony as a place where, without human industry, the land would offer its produce, and where men and women would flourish.

English economic and mercantilistic principles were transported to the New World. Virginia was compared to a "modest Virgin . . . expecting rather ravishment than Marriage from her native Savages" but "worth the wooing and loave of the best Husband (16)." England saw Virginia's forests and fields as inexhaustible, and believed that in a virgin land the extraction of wealth would be easy, and the need for sound husbandry would be diminished. Their English attitudes were reflected in the landscape: in their agriculture and horticulture, and in the way they decorated the land. Virginia institutions were inextricably bound to the land because the land provided the wealth that fostered them. It was destined to be an agrarian colony, by virtue of the fertility of the soil and the amount of land (17).

The English settlers were acquisitive and profit-minded; they wanted to possess and exploit the resources,
and initially to provide England with the spoils. However their profit-mindedness gradually compelled them to see themselves as sole beneficiaries of the wealth. They expected the environment and the natives to acquiesce to their English values. Acclimation to the New World and adjustment to its limitations were slow. Early efforts to extract riches and diversify agriculturally gave way to an export-based, one-crop economy. As a result, a distinct social dichotomy was set in place, one of landed gentry and poor back-country farmers. The exploitive mentality led Virginians to exploit two races of people: the native Indians who occupied the land when they arrived and the African slaves who provided the labor to extract the land's wealth (18).

The underlying belief in Eden, and the desire to make Virginia an Eden even when it proved itself otherwise, is revealed in their treatment of the landscape. With the wealth that some Virginians got from the land they became New World aristocrats. They built formal Georgian mansions whose very architecture implied dominance and submission, by a prominent central structure flanked by smaller dependencies (19). It was at the homes of the wealthy that one found the distinctive southern colonial ornamental gardens. Formal and symmetrical European gar-
dens were a further expression of control of the land. They believed in an Edenic existence, and were so insistent on finding Eden in Virginia that the desire became self-fulfilling: their idea of beauty was the formal English garden (20), and the order it imposed on the landscape fulfilled their Edenic aspirations as well, for in Eden man had dominion over the plants and animals, and only God had dominion over man.

Virginians were well aware of England's role in their affluence. They were insecure about their position in good society; many were descendents of middle class English, so were socially somewhere between common and genteel. Therefore they sought to express civility and culture according to English fashions and priorities. The Renaissance emphasis on symmetry, balance, and harmony in all facets of life, from human health, to art, to religion, to politics, to society, was upheld by Virginians. They exhibited these principles in their town layouts, in their plantation layouts, in their houses, and gardens. Pleasure gardens were deemed an important and visible show of social position and affiliation with English sophisticates, who valued pleasure gardens as such (21).

The cultural landscape that resulted, characterized by
plantations on vast tracts of land laid out in the English formal style, a settlement pattern along the major rivers and a lack of city and town development, and fields almost exclusively devoted to an export-based staple, was a result of the influences upon the colonists. These influences were their English traditions, Christian beliefs, the expectations engendered by the chroniclers' accounts, and the ever-hopeful human spirit.

Insofar as Virginians saw the land as a garden, a conflict existed in their minds about the nature of that garden: whether, in an Eden-like land, stewardship was irrelevant, or, as in any earthly garden, careful cultivation was required. A discrepancy similar to that between the Garden of Eden of the Bible, where God sustains its productivity, and the earthly garden, where man must take responsibility, can be seen in the various expectations and treatments of the Virginia landscape, where reckless and unsound practices vied with prudent ones.

The underlying attitude of the Virginia colonists was that resources were there for the taking and for profit-making. Because of Virginia's paradise-like abundance, the colonists viewed the wealth as limitless, and they extracted it without replenishment, as if it would be spontaneously renewed as in Eden. Robert Beverly com-
explained in his *The History and Present State of Virginia* of 1705 that "They spunge upon the Blessings of a warm Sun, and a fruitful Soil, and almost grutch the Pains of gathering in the Bounties of the Earth (22)."

Virginia was incapable of perpetually supplying resources without sound husbandry. By their methods of dealing with the land, the Virginians impoverished and exhausted it, and in that way nearly transformed it into the "desolate wilderness" described in the Bible. Virginia's natural bounty proved insidious, promoting a lazy and irresponsible attitude toward the land (23). After several centuries of exploitive behavior, and after Virginia had suffered the devastation of two wars, the collapse of its economy, the depletion of its resources, and the disintegration of its social structure, Virginians realized that they had to nurture and protect the land if they wanted a productive garden. A sturdy and traditional agrarian system gradually took hold, where pastoral scenery and conservationist ethics were idealized. However, it took the ruin of colonial institutions to effect the transformation (24).
ENGLAND'S FIRST VIRGINIA

From their initial efforts to establish a colony in Virginia, the English were looking for plants: plants that could bring prosperity and profits to England, and plants that could sustain the lives of the settlers in the New World. England was desperate for colonial expansion because its forests had been impoverished to fulfill the needs of an industrial, military, and mercantile nation. Trees provided timber for masts, and pitch, tar, resin, and turpentine, all important to merchant and military fleets. England could no longer afford to depend so heavily on the Continent for these vital products. The North American Continent, as described by explorers and adventurers, held for whoever could claim it, vast riches in timber, gold, pearls, silk, fish, and tropical plants (25). Of special interest was the sassafras tree, touted in Europe as a cure for all Europe's ailments, from venereal diseases to baldness. The enormous demand for its aromatic root further compelled England's colonial expedi-
Robert Beverly, often irreverent and always uncensored, described the scene in England at the close of the sixteenth century:

The Learned and Valiant Sir Walter Raleigh having entertain'd some deeper and more serious Considerations upon the State of the Earth, than most other Men of his Time, as may sufficiently appear by his incomparable Book, *The History of the World*: And having laid together the many Stories then in Europe concerning America; the Native Beauty, Riches, and Value of this Part of the World; and the immense Profits the Spaniards drew from a small Settlement or two theron made; resolv'd upon an Adventure for further Discoveries. . . . Her Majesty accordingly took the Hint, and espoused the Project, as far as her present Engagements in War with Spain would let her: being so well pleased with the Account given, that as the greatest Mark of Honour she could do the Discovery, she call'd the Country by the Name of Virginia; as well, for that it was first discover'd in her Reign, a Virgin Queen; as that it did still seem to retain the Virgin Purity and Plenty of the first Creation (27).

The patent given Raleigh by the Queen granted him the exclusive right to search for and acquire any lands not possessed by a "Christian Prynce." A reconnaissance was dispatched by Raleigh in 1584 to survey the coast of Virginia and find an hospitable location for England's first colony. Captains Amadas and Barlowe determined that the Island of Roanoke, sheltered by narrow barrier islands, would be a suitable place (28).

The Indians they encountered in Virginia thought they were "men from heaven," and the Englishmen "were enter-
tained with all love and kindness." According to Barlowe, the Indians brought them "divers kinds of fruits, melons, walnuts, cucumbers, gourds, pease, and divers roots, and fruits very excellent good ... Ourselves proved the soil and put some of our pease into the ground, and in ten days they wer of fourteen inches high (29). His extolment of the Virginia bounties inspired Englishmen at home to envision the almost effortless cultivation of plants in the garden that was Virginia.

One year after Barlowe and Amadas' expedition, in the spring of 1585, five ships arrived at Roanoke Island. The 108 colonists included a naturalist, Thomas Hariot, and an artist, John White, who were employed to record the wildlife and wilderness, and to produce a list of the natural resources from which investors and settlers might profit (30). Hariot described those "Marchantable Commodities" in his A Briefe and True Report of the New Found Land of Virginia, which contained unrealistic commodities, as well as some that today are primary products of that region of the continent. Hariot also made a list of the foods that the natives cultivated in their gardens, and continued with an inventory of Virginia's roots, fruits, nuts, and berries that the Indians gathered from the wild (31).

Conspicuously omitted from Hariot's report of the
expedition were accounts of problems with the aborigines; however, hostilities would eventually be the reason for their hurried departure. The magnificence of the landscape was not lost to him, though his writings emphasize its potential utility over its aesthetic qualities. He intended to promote the economic and extractive possibilities of Virginia, to describe the fruits of the garden, not the garden itself (32). A compatriot of Hariot's, the governor of the first colony, wrote less clinically of Roanoke: "It is the goodliest and most pleasing territórie of the world . . . I dare assure my selfe being inhabited with English, no realme in Christendome were comparable to it (33)."

The first colonial winter was mild, and spring was promisingly verdant; the settlers hopefully planted crops, temperate as well as tropical ones. Roanoke Island, though propitious in many respects, had an important limitation: it was inaccessible to large ships, which could not navigate among the narrow inlets. The Indians told them of a deep-water harbor to the north on the Chesapeake Bay; later Hariot would advise Raleigh "to looke for . . . more and greater plentie in upland Virginia (34)."

The governor of the colony witnessed the annual Indian Green Corn Festival, an event attended by 700 eastern
Indians at the August full moon, where he was taught about corn cultivation and cooking, skills that would eventually mean the difference between colonization success and failure (35). However, these earliest settlers were loath to till the soil, being more interested in Virginia's extractable natural resources. They felt that the Indians should provide them with corn, vegetables, and fish, and thought their copper ornaments were just compensation. However, "consumer demand was soon satisfied" and the settlers feared for their welfare. The Indians had adjusted to a diet that suited their North American lifestyle: they gorged when food was plentiful in the fall, and starved during the spring wait for the first corn harvest, eating roots and shellfish during the lean months. The Englishmen, unaccustomed to such feast and famine, insisted that the Indians provide their sustenance. Problems between the two races escalated. Upon the fortuitous arrival of Sir Francis Drake, the 103 surviving would-be colonists gladly accepted his offer to deliver them home (36).

A second Roanoke colonizing expedition was organized by White, appointed governor by Raleigh, to exploit the native rewards of the continent. Raleigh suppressed unfavorable accounts of the first expedition, and colonists, influenced by the glowing promotional propaganda, rallied
to the English cause. This colonizing effort, unlike the last, would include women and children. Another improvement over the previous expedition was that the colony would be located on the deep-water harbor of the Chesapeake Bay, where the land was more fertile and less swampy than at Roanoke (37).

England's second Roanoke colony also failed. The colonists had departed late that spring of 1587, aware of the troublesome possibility that they might arrive too late to plant their crops. As it turned out, it was not the lateness of the season that wrote their fate, but the fact that their captain deposited them, not on the Chesapeake as instructed, but at Roanoke to begin "the Citie of Raleigh in Virginia." A crew looking for the colonists several years later found no trace of them, thus marking the end of the century and England's failure to extract Virginia's riches (38).
Many tribes occupied Virginia at the beginning of the seventeenth century, but they were all members of three linguistic stocks: the Algonquian, who occupied the largest area of land, both north and south of the James and in Raleigh's Virginia, the Iroquoian who lived south of the James, and the Siouan who controlled the Piedmont (39). The intent of the English to extract the wealth of the New World meant that first and foremost they had to acquire the land. If to acquire the land meant exploiting or eradicating the race of people who occupied that land, the means would be justified by the end. The Christian ideology that the English brought with them validated their actions; they believed their religion conferred on them the privilege and right to dispossess any nonbelievers (40).

Though they disregarded Indian civilization in order to justify their objective to acquire Indian land, they recognized and carefully observed the overt and undeniable
The English immediately realized the value of learning aboriginal methods of food planting and gathering, knowing these methods would allow them to get a foothold in the New World, and establish subsistence farming that was so imperative in the settlements' early years. The agricultural methods that the whites learned from the Indians eventually permitted Virginia to flourish into a thriving agricultural state.

The English were familiar with some of the plants that they found, for North American plants had been introduced to Europe before the Roanoke colonies. When the Spanish had conquered Peru and later Mexico, they had found food, medicinal, and ornamental treasures: bananas, cactus, avocados, cotton, peppers, beans, maize, tobacco, potatoes, sweet potatoes, pumpkins, melons, cucumbers, gourds, tomatoes, agave, prickly pear, sunflowers, and squashes. The Spanish introduced these plants into Europe, and introduced European favorites to the New World, that, along with native tropical and subtropical plants, gradually migrated through Indian tribes to the temperate eastern regions of the continent (41).

The agriculture of the southern Indians which the Spanish encountered was more advanced than that of the
northern Indians; besides having the benefit of domestic animals, the southern forests were not so full of game and wild edible plants as those in the north, thus effective agriculture was imperative. By the time the English came to Virginia, plant culture had supplanted hunting as the major means for providing food for the Virginia Indians. The Indians depended on hundreds of species of trees, shrubs, vines, herbs, bulbs, and small fruits, and they had developed many inventive medicinal, culinary, and domestic uses for them (42).

Hariot described their planting methods, significant because some were adopted by the white settlers: "First for theyr corne, beginning in one corner of the plot, with a pecker they make a hole, wherein they put foure graines, with that care they touch not one another (about an inch asunder) and cover them with the moulde againe: and so throughout the whole plot, making such holes, and using them after such maner. . . . By this meanes there is a yard spare ground betweene every hole: where according to discretion heere and there, they set as many beans and peaze: in divers places also among the seeds of Macocquer [Cucurbita spp], Melden [Atriplex spp.], and Planta Solis [Helianthus spp.]." He added that the Indians usually planted a variety of crops in the same plot, and only
occasionally planted monocultures (43).

The Algonquians, of which there were about 30 tribes in eastern Virginia under the rule of Powhatan, placed their houses in the middle of their fields and gardens. Captain John Smith wrote that their fields and garden plots ranged in size from 20 acres to more than 200 acres. The Indians used the trees they cut for tools, weapons, canoes, and their six foot bows (44). The enormity of the primeval trees is disclosed by Smith, who reported that 40 Indians fit in a canoe from a single tree (45).

Accounts of early explorers reveal that the Indians burned large clearings in the forests to provide land for their agriculture. In addition to burning trees, they killed them by girdling or by setting rings of fire at their bases. Much of this preparation for crop planting, including clearing of the undergrowth, was done by Indian women (46). Once the areas were cleared, the women were responsible for planting the seeds, and tending to the growing plants (47). Indian gardens had few pests before the Europeans arrived and brought plant insects and diseases. To eliminate predatory insects, the Indian women, described by Beverly as "generally Beautiful, possessing an uncommon delicacy of Shape and Features, and wanting no
Charm, but that of a fair Complexion (48)," stripped under a full moon and dragged their clothes on the ground, making a "magic circle no worm would cross (49)."

Indian gardens were kept "as neat and cleane as we doe our gardein bedds" reported one Englander (50). Their four primary foods were corn, beans, pumpkins, and squashes, all from southern latitudes. The Indians grew their various crops in the same field, planting pumpkins and squash between hills of corn and beans (51). Gourds, important to their domestic economy, and sunflowers, valued for their oil and as a substitute for tobacco leaves, had prominent roles in their agriculture. Tobacco was cultivated by virtually all agrarian Indians; it was usually planted in a separate garden, and smoked at sacred Indian ceremonies (52).

The peach tree, a Spanish introduction to Mexico, was so widely cultivated by the Virginia Indians that colonists believed it a native of the New World (53). The aborigines also made extensive use of native walnuts, hickories, chestnuts, sassafras, and sumac, and flowers were noted in the villages for decoration. John Smith wrote that the James River Indians cultivated roses and sunflowers near their houses (54).

The extensiveness of their corn fields was often noted
by explorers and colonists, so extensive, for example, that in 1614 the Chickahominy were capable of fulfilling a treaty obliging them to provide the settlers with 1000 bushels of corn each year, in exchange for some iron hatchets (55). Corn had been under cultivation for so long by the Indians that its wild relative is not known and it does not escape from cultivation (56). It was the Indians' most important food plant, and a life-saver for many of the early English settlers.

The Algonquians practiced more sophisticated agriculture than the Iroquoian and Siouan Indians; still, Smith reported, for much of the year they depended on wild plants and game for their food (57). They encouraged the growth of wild plants such as the sun-loving red mulberries, persimmons, cranberries, blueberries, and plums by their methods of land clearing. The Indians relied heavily on wild berries like grapes, strawberries, and raspberries, and mast from field and forest; during lean months they scavenged for roots and bulbs. Besides for agriculture, land was burned to facilitate hunting; in open sunlight the herbs, small fruits, and grasses that game animals fed on grew better. When the animals came to browse they would be killed by the Indians (58). The Indian success with living off the land was viewed by the
English as evidence of the beneficence of Virginia, and they would attempt the same.

The colonists, with their primary motive of extracting Virginia's riches for England, often fell short of producing the food necessary to sustain themselves. When starvation was imminent or real, the Indians were indispensable for providing them with food. During these stable times, when Indian-white relations were good, the Indians offered their seeds and plants, and instructions on how to cultivate them. The agricultural methods of the Indians—planting in hills, fertilizing with fish, girdling trees, planting in rows and hills, burning land for agriculture and homesites—were all adopted by the English settlers. The English also planted in the same simple geometric patterns with pathways between them, though the geometric method of planting had been used by various cultures for millennia because it facilitates cultivation and harvesting. Like the Indian gardens, the colonial English gardens were mainly utilitarian, with some flowering herbs, fruits, and vegetables that were at one time useful and ornamental (59).

English expertise in science, trading, and exploitation, and their advanced use of weapons and artifacts, aided them in apprehending the land. However, it was dif-
ficult for them to adjust to the New World because they were not proficient hunters or fishermen, and because they were not familiar with the diet and climate. They were susceptible to new diseases, but in the end it was European diseases that were more destructive to the natives. By learning from the Indians, of their methods of cultivating the earth and of the plants that they grew, they were able to survive in the New World. Explorers made careful records of these Indian techniques, and by imitation of the Indians and assistance from them, combined with the cultural advantages they brought with them, they were able to prevail, though implicit in English ascendancy was the ultimate extermination of the native Americans (60).
There are no records of colonization attempts by the English in the 1590s, though there were a few attempts to look for the lost Roanoke Island colonists. The war with Spain no doubt affected colonization, profits from privateering being more tempting than those from the New World. However, conditions at the turn of the century prompted England again to turn its attention to Virginia. The war with Spain was ending, and wealth gained from years of privateering, now considered pirating and illegal, was available to fund colonization (61).

By the late sixteenth century a communication gap had been solved—the accounts of the New World were no longer written in Latin, but in the vernacular so that all of literate England was able to learn of and respond to the claims made of Virginia (62). There were many people impatient to discover for themselves the Edenic land of which they had read and heard. Whether for profit or patriotism, men and women came, body and soul, to para-
dise on earth in Virginia. Seduced by the promise of the land that "would flowe with milke and honey (63)," they willingly accepted the uncertainties of life in the New World. The settlers were especially attracted by the promises of easily extracted riches from Virginia's forests and fields, and from the minerals that lay hidden in its soil (64).

Raleigh was convicted of treason in 1603, and the Virginia Company of London, chartered in 1606, received Raleigh's colonization rights. A Royal Council would be appointed to govern the colony according to English law. King James I wanted peace and to establish trade with the Spanish empire, but what was more important, he wanted to begin exploiting the New World and extracting its riches. He planned to use Indians, criminals, and the poor to acquire this wealth. Ex-soldiers were anxious to resume their adventurous lifestyles on the other side of the Atlantic, and would be excellent colonial candidates. The Virginia Company and the aborigines would provide food and provisions, and trade with the Indians as well as their conversion to Protestantism would strengthen the British empire (65).

A settlement at Jamestown was England's next attempt to lay claim to Virginia. It is valuable to consider the
events at Jamestown in some detail. These early colonial circumstances—the policies of the Virginia Company and the Crown toward the land and its riches, as well as the attitudes and behavior of the colonists toward the land—profoundly influenced Virginia's future.

Christopher Newport's "The Description of the Now-Discovered River and Country of Virginia, with the Likelihood of Ensuing Riches, by England's Ayd and Industry" was probably the first account of Virginia to reach England written by a member of the 1607 expedition. In it he claims copious rewards for the vanguard in England (66).

Captain John Smith, illustrious adventurer and proven leader, recorded the current and potential resources of Virginia for the Virginia Company. His approach to the land was much like Hariot's, viewed predominantly in terms of its extractable riches. Of Virginia, Smith proclaimed that "The ground bringeth forth without industrie ... fruits, herbs, and flowers ... (67)." His list of commodities was comparable to Hariot's, including his unrealistic expectations. Thad Tate writes in an essay on the southern colonial landscape for the American Antiquarian Society that "A certain preoccupation with what might make colonization pay was to be expected from Hariot and Smith."
For their explorations were, after all, the business ventures of Raleigh and his backers at Roanoke and the Virginia Company investors at Jamestown. Yet, for men who were inquisitive—the one by virtue of his scientific training, the other from a life of high adventure—and who now had the opportunity to examine a strange, intriguing land, Hariot and Smith were remarkably single-minded in their focus on America as a source of easily extracted wealth (68).

While Smith perceived Virginia's Edenic wealth as having mainly monetary significance, others were more inclined to note the beauty of the new Eden, as is revealed in this 1607 description of Jamestown: "We traced along [the pathway] some four miles, all the way as we went, having the pleasantest Suckles, the ground all flowing over with faire flowers of sundry colours and kindes, as though it had been any garden or orchard in England. . . . We went on our way in this Paradise (69)."

Like the Roanoke colonists, the Jamestown colonists planted temperate and tropical crops (70), but did not think serious agriculture was necessary because they expected the Indians to provide their food. The colony was not perceived as an agricultural enterprise; it was established solely to extract Virginia's highly profitable
commodities (71). Besides, the forests and fields were filled with wild edible plants, some better-tasting than familiar English varieties. They also counted on supplies from England. Though the settlers considered the colony in Virginia a permanent venture, they also considered it an extension of a nurturing motherland, so they did not invest in their own gardens (72). Another obstacle to industrious tilling of the soil was that half of the colonists on board the first ships were "gentlemen." Much work was necessary to prepare the marshy and heavily wooded Jamestown landscape for crop planting, labor that these gentlemen were not eager to undertake (73).

Smith's efforts to trade trinkets for corn initially met with success; Powhatan valued copper as he did good meat, women, children, comfort, and hatchets (74). However, the Indians grew tired of the overtures and demands, and became reluctant to trade with the white men. It was not long before their provisions ran out. By January of 1608, one-half of the 104 colonists had died. Smith, by his own accounts, eked out subsistence for the colonists until the spring of 1609, by his artful trade with the Indians (75).

The Company's insistence on the production of commodities meant that energies were directed at unrealistic
agriculture and manufacture, the extraction of naval stores, and vain quests for precious gems and metals, which proved detrimental to the colonists' welfare, thus impeded development of exports (76). In 1608 a shipload of people arrived to initiate the industrial production of pitch, tar, glass, and iron. Pressure from the Virginia Company to produce commodities was so strong that the colonists, at the expense of subsistence planting, managed to get samples off to England before the year's end. Indian relations were deteriorating, and acquisition of corn was becoming more difficult. The colonists survived the winter of 1608-9, despite their failure to produce sufficient food (77).

By 1609, though new land was cleared and progress in manufactures was made, prosperity from material progress was hindered by the Indians. They killed the colonial pigs, chased away game, and refused all trade. Late May arrived and no corn had been planted and no nets were prepared for fishing. The "Starving Time" ensued, when all but 60 of the 500 colonists died (78). Smith recorded that "for one basket of corn they would have sold their souls (79)." It is remarkable to consider today's vast agricultural resources in light of these early years, when our forbears, surrounded by so much undeveloped wealth,
had to scour the forests for acorns, roots, and snakes to stay alive.

Despite the desperate conditions of the colonists, and their almost complete failure to produce exports, the Virginia Company elected to continue its colonial project because of high hopes that the promised botanical and industrial riches would soon be realized. The importance of industrious tilling, sowing, and reaping was impressed upon the colonists. They managed to get a shipload of cedar, walnuts, and iron ore off to England, and root crops were planted for winter. Diligent work was rewarded with more reliable supplies from home, and, gradually, the hardships of living in the New World were mitigated (80).

The settlers' lack of extensive agricultural progress was in large part due to the limited amount of cleared land available to them. The Jamestown peninsula was defensible, so they preferred to remain within its safe boundaries. In addition, it was difficult to clear the heavily wooded and swampy land. The production of industrial commodities for the Company also interfered with clearing land and planting crops, both for domestic use and for export. As a result, in 1610 the governor decided to apprehend Indian fields. Much of the land that was seized was planted, creating a more dependable colonial
food supply (81).

The policies of the Virginia Company during the gene-
sis of settlement greatly influenced the ultimate economic
and cultural institutions of Virginia. In 1616 it decreed
that each "man of good reputation" could lease three acres
of land for growing any crop. The privilege to rent land
from the Company was the humble beginning of a new atti-
tude of England and the colonists toward the land, where
individual initiative was encouraged. Prior to this time,
all manufactures and agricultural crops, produced on land
owned by investors in England, were collectively the prop-
erty of the Company who was to benefit exclusively from
them (82).

The colonists grew wheat, corn, and tobacco on their
rented land. Large profits from tobacco exports resulted
in the colonists' concentrating efforts on its cultiva-
tion. However, tobacco competed with the Company's
tobacco fields in England, so the Company discouraged
tobacco cultivation. Eventually it gave in to the colon-
ists' desires; it reorganized in 1618, and again altered
its policies toward the colony. Besides a decision to
expand and strengthen colonial production, it elected to
repeal martial law, to permit the colonists to participate
in their government, and to allow them to own land. The
results of these new policies were intensified colonial production of manufactures and crops, the founding of the General Assembly, and the emergence of a new settlement pattern along the major Tidewater rivers (83).

The Virginia Company controlled the colony for seventeen years, until King James revoked its charter and took sole control; during this time the colonists were acclimatizing, were becoming familiar with native plants, and were learning the aboriginal technologies. They were also beginning to understand Virginia's capacities and limitations, trying to reconcile the Virginia they found with the Virginia that they had expected to find. The way was being paved for the plantation system, and for colonial attitudes toward land and labor. Private land ownership and the agricultural initiative it stimulated ultimately resulted in the plantation system that influenced, often dictated, Virginia society and economy. Emigration of colonists increased, and with the suppression of the Indians and the privilege of private land ownership, settlement dispersed throughout Tidewater, predominantly along the fertile alluvial flood plains of the Tidewater rivers, which were the highways to the English markets (84).
The English envisioned the culture of plants native to tropical, subtropical, and temperate latitudes in Virginia. However unrealistic this now seems, to the English, with their Edenic expectations, it was possible. Until experience elucidated Virginia's limitations, hope for the cultivation of these commodities remained alive.

Explorers, colonists, and promotional writers in England made extravagant claims of the productiveness of Virginia soil. Many were blatant attempts to recruit colonists and investors (85). In *A True Declaration of the estate of the Colonie of Virginia*, a list of the tropical plants known to prosper in winter in Virginia was published (86). John Smith, after listing the countries that England depended on for commodities, insisted that they could all be supplied by Virginia (87). Some claimed that the settlers industriously tilled the soil; their reports were likewise exaggerations (88).

Documents from the Assembly, the Crown, and the Virgi-
nia Company reveal that despite the periods of food shortage and famine, from the inception of the settlement at Jamestown and its satellites along the James and York rivers, profits from tobacco were so great that its cultivation preempted the cultivation of other crops and the extraction of raw materials which had been England's motives for colonial expansion (89). For the first few decades even subsistence gardening was insufficient, the demand for food always being greater than the supply. Gradually the colonists produced a modicum of fruits, grains, and vegetables, but the threat of starvation remained. The first Assembly required that every man plant and tend a garden of corn, vines, herbs, and roots on his property (90). Fruit and vegetable production for domestic use increased and became ample during the seventeenth century but their commercial production remained deficient, largely because of tobacco. In 1638 a colonist was prompted to write "how far their poverty had grown upon them by the continuation of their excessive planting of tobacco . . . The people of late, given to affect good buildings, scarce any inhabitant but hath his garden and orchard planted (91)."

As late as 1642 Governor Berkeley was instructed by the Crown to enforce the fencing and planting of orchards
and gardens, including the raising of grapevines for wine, and mulberries as food for silk (92). Wine and silk production were the great hopes of the Company and Crown. Included in the Assembly's first legislation were requirements for planting grapes and mulberries (93). Since Virginia was at the same latitude as China and Persia, and because there was a native mulberry, it was concluded that Virginia would be well-suited for silk culture (94). Attempts to produce silk in Virginia began as early as 1608, and in 1613 the first Virginia silk was delivered to the King. Colonial interest in silk production waxed and waned with encouragements from England and the Assembly; offers of rewards of tobacco, the currency of the day, were made by the Assembly for its production (95).

Endeavors were ultimately unsuccessful, in part due to the confusion over the three species of mulberry, the native red mulberry being the least tasty to the silkworm. Another obstacle was the lack of trained sericulturists to initiate proper production, but most responsible for limited interest was that silk profits could not rival those from tobacco. In 1676, it was said that the only living part of the project was a few mulberry trees (96).

As with mulberries, the existence of native grapes inspired plans for wine production. Barlowe's record of
the grapes he saw growing at Roanoke is illustrative of the Edenic view of Virginia: "wee viewed the lande about us . . . so full of grapes, as the very beating, and surge of the Sea overflowed them . . (97)." The Virginia Company directed the colony in 1619 to apply its industry to vines. French vignerons were sent to Virginia with European vines (98). Prominent planters attempted wine production, including Beverly, Washington, and Jefferson. Byrd cultivated grapes to show his fellow planters that tobacco was not the only crop for Virginia, but bad weather and pests caused his experiments to fail. In 1737 he admitted "our Seasons are so uncertain, and our Insects so numerous, that it will be difficult to succeed (99)."

As with silk, bounties were offered for the production of wine, but despite experimentation no commercial progress resulted. The quality of the wine produced was poor, partly because European vines were susceptible to North American downy mildew, black rot, and aphids, but interest languished mainly because of devotion to tobacco (100).

Toward the middle of the century the Assembly required colonists having 100 acres to fence in one quarter of an acre for orchards and gardens because it was still dissatisfied with the colonists' lack of agricultural diversification (101). European fruit varieties were popular in
the seventeenth century; colonists grafted them onto the roots of native crabapples. By the eighteenth century, fruit tree varieties of American origin had been selected for and had become more important to Virginia fruit culture than English ones. Apples and peaches could be found growing on most farms; less common were pears, plums, cherries, quinces, apricots, and nectarines. Virginians found that apples, cherries, and peaches grew well from seed. By the close of the century, seedling fruit trees were so numerous and prolific that fruits were routinely feed to livestock. Though fruits were commonplace for home use, commercial production was limited, because of their perishability and because of tobacco (102).

John Banister, missionary and botanist, arrived in Virginia in 1678 to write Virginia's natural history, in which he addressed Virginia agriculture. He observed that Virginians had improved upon Indian methods of cultivating corn and tobacco, but prophetically warned Virginians against overproduction of tobacco, because it depleted the soil and precluded crop diversification. The colonists were learning the attributes of native plants, wrote Banister, and more acres were being planted in English vegetables, herbs, and fruits (103).

Trials had been made of other plants that early promo-
tional writers had touted as viable in Virginia but most of these experiments had been successful. Through their many attempts, some genuine, some half-hearted, to increase the variety of plants they cultivated for England's profit, the colonists were discovering the limitations of Virginia's soil and climate. The farmers had failed to get involved in the large-scale cultivation of any commodity for export other than tobacco, but Virginia had become an agrarian colony. However, it was not agrarian in the traditional sense. Virtually everyone was involved in farming to some degree, and corn, tree fruits, English grains, and the lucrative tobacco grew on most of these farms. But the extent of seventeenth century crop diversification was for the benefit of the colonists' diet—produce was largely for one's family, and for sale to townspeople at farmers' markets, though even town residents grew fruits and vegetables in their kitchen gardens. Only a small percentage was for export (104). Wealth came from the soil, but the primary crop was tobacco, an exotic for a world market, whose character of cultivation was extractive and exploitive (105). Tobacco was the colonists' livelihood, and as the seventeenth century progressed, Virginians were becoming entrenched in a dangerous one-crop economy.
The attitude toward Virginia as an Eden was not dispelled by their many failed experiments, only transformed. Since Virginia had been described as a fertile garden, from which an unlimited variety and quantity of plants could be grown, England and the colonists had approached the land with these expectations. England had emphasized the cultivation of plants that could be processed into commodities like wine and silk. In the seventeenth century England had voiced strong objections to tobacco culture, because its cultivation hindered the extraction of naval stores, minerals, the production of wine and silk, and the cultivation of the many plants that England desired. By the eighteenth century, barely a detractor could be heard, because England was satisfied with tobacco's profitability (106). Virginians concentrated on tobacco cultivation because they had the English attitude of extraction, exploitation, and profit. Virginians had found a way to capitalize on the fertile garden: they were self-sufficient in food crops, and they had a staple for which there was much demand in Europe. Though altered and transformed by experience, gradually, the conception of the garden, the productive garden, was being fulfilled.
THE KITCHEN GARDEN

The colonists brought seeds of English plants to Virginia, and were delighted to find that they grew well in Virginia soil. John Rolfe recorded in 1616 that "... for the peoples present labors they have Indian wheate, called mays in the West Indies, pease and beanes, English wheate, carretts, parsnips, and such like, besides hearbes and flowers, all of our English seede, both for pleasure and for the kitchen, so good, so fruitful, so pleasant and profitable, as the best made ground in England can yield (107)."

The Virginia colonists gradually became self-sufficient, depending less on Indian produce and provisions from England, and more on their own gardens. They cultivated Indian plants, however, they were reluctant to use the unfamiliar North American plants, and maintained a close allegiance to tried and true English ones. The reasons for the colonists' nearly unshakable attachment to plants they had grown in England were centuries
old, and even their conception of Virginia as a garden full of botanical miracles could not supplant their beliefs (108).

Their stubborn affection to English plants was derived from the belief that all God's creatures have benevolent purpose. In Genesis it was written that on the sixth day God gave man and woman "every herb bearing seed which is upon the face of all the earth, and every tree, in which is the fruit of a tree yielding seed; to you it shall be for meat (109)." Furthermore, the Bible proclaimed that "the Lord hath created medicines out of the earth, and he that is wise will not abhor them (110)." The colonists believed that everything God put on the earth was meant to serve man. This belief both compelled and justified English settlement of Virginia, and influenced English attitudes toward plants and animals.

God had given plants divine virtues, and these virtues had the capacity to affect human temperament. Temperament, in turn, was controlled by the four chief bodily fluids. These fluids, called humors, were yellow bile, phlegm, blood, and black bile. A perfect balance of the four humors meant health, any corruption of this equilibrium resulted in illness (111). The colonists trusted this wisdom of the ages, and adhered to the medicinal and
food plants whose affects on the balance they knew.

Foods were characterized by their heating or cooling (temperature) and moistening or drying (nature) attributes; if a person was suffering from a fever, that person would be given a cooling food or herbal remedy that counteracted the offending humor and restored his humoral balance, often at dosages that would otherwise have been unhealthy. Conversely, intemperate eating could affect the delicate balance of the humors. Treatment of humoral imbalance involved using drugs or diet to reduce an overactive humor by purging, bleeding, vomiting, blistering, urinating, sweating, or salivating (112).

In addition to plants' abilities to affect the body's humors, other virtues were assigned to plants that affected human health. As Aristotle explained it, these virtues of plants were nutritive, that is, nourishing, restorative, healing (113). Every plant had the capacity to heal; all that kept them from performing was man's ignorance of their proper application. Thus it boded well for man to study the botanical world to elucidate these healing qualities. For centuries man had been learning these healing virtues, and no wise colonist was likely to disregard them (114).

Besides plants, the weather affected the humors; cold
and moist weather resulted in an excess of phlegm in the body, and needed to be counteracted by the proper foods or medicinals. Colonial Virginians observed the weather in terms of their health and diets. If the weather had been dangerously wet or dry, the herbalist would administer herbal remedies or food to augment or diminish the resulting unruly humor (115). The familiar story of George Washington's illness and death illustrates eighteenth century humoral therapy: he had been riding in the rain and did not change his wet clothes before sitting down to dinner; because Washington was wet and feverish he had an excess of blood, hot and moist. Though by the end of the eighteenth century, the humoral theory was losing favor, Washington remained a believer, and insisted that the offending humor be purged by leaches, and he was bled to death (116).

The great herbals written in the sixteenth and seventeenth centuries identified the healing virtues of plants. The colonists brought these herbals to Virginia, because they were indispensable to proper diet and good health. Since vegetables, fruits, and herbs were central to the restoration of the corrupted humor, early Virginia colonists immediately sowed seeds of familiar and long-dependened on plants. The plants the herbals described were
"physick" plants because they possessed healing qualities for physical ailments (117). If a person was healthy, it was because his diet was proper—he ate foods whose temperature and nature were balanced. Some of today's standard food combinations had their origins in humoral theory (118).

During America's first century there was a tremendous rise in interest in science. It was in large part inspired by the strange and vast riches of the New World, especially in Virginia, the new Eden, that had been described in the promotional accounts, such as Newport's report that at Jamestown he found "Hepothicary druggs of diverse sorts, some known to be of good estimacon, some strange of whose vertue the salvages report wonders . . . (119)." From inquisitiveness about plants' healing virtues and their effects on the four humors emerged herbalists, botanists, and the science of taxonomic botany, and since apothecaries and doctors were trained in botany, one may say that modern medicine also had its roots here. Herbaria were established, and interest in exotic plants for European botanical and formal gardens was great. Doctors and apothecaries were botanists. The eighteenth century botanical genius Carlos Linnaeus was training to be a doctor before giving in thoroughly to the
study of plants (120).

English apothecaries and doctors financed plant explorations in America; they were looking for medicinals to plant in their physic and botanic gardens, and the New World was purported to contain botanical riches beyond comparison. The English were ever hopeful for "medicinal miracles" from the garden across the Atlantic. From the beginning of colonization, they had urged the settlers to look for medicinal plants. There was much plant exchange between England and Virginia, the English looking for new and useful plants and the colonists only comfortable using plants from home (121).

The Royal Society of London was chartered in 1662 by a venerable group of English scientists and intellects for "Improving Natural Knowledge." The Society sponsored study and exploration of natural sciences all over the world, especially in the New World. The Society was eager to learn of Virginia's curiosities and to elucidate their benefits to man (122).

The kitchen garden was the responsibility of the housewife; she provided medicinals for her family and the community. Virginia posed new health threats to the susceptible Europeans. It was believed that since the diseases were found in the New World the medicinals to treat
them would also be found there, thus Virginians began to rely on Indian remedies. The Virginia housewife made and dispensed medicinals, cosmetics, dyes, and insect repellants to her family, to servants, to neighbors, and slaves (123). The so-called witches who were executed at Salem were merely women making and dispensing herbal remedies, attracting attention when a concoction or two was a fatal mistake (124).

The isolation of plantations in rural Virginia required that they be medically self-sufficient; the master and wife prescribed for their family, servants, and slaves, and kept the kitchen garden well-stocked. The mistress's responsibility was usually the domestic staff and the nursery, and she directed the cooking of special foods for the sick. Noblesse oblige, the English tradition in which noblemen and their wives benevolently provided medicinal cures for their servants and other less fortunate, was carried on in Virginia (125). Slaves were expensive, making it important for slaveowners to tend to the medical needs of their capital investments. Sickness on shipboard was common, but "seasoning," the acclimation of newcomers to the New World, took the heaviest toll on the Africans. Their diet was drastically changed, and they were forced to perform hard labor in a climate they
were unaccustomed to (126).

Humoral therapy, the relationship of the weather and plants to health and illness, was vital to plantation medicine. William Byrd II of Westover Plantation was intensely interested in medicine, using Old World remedies, and promoting New World ones, writing "I am persuaded we have an abundance of Excellent Simples in this Country . . (127)." His policies toward "his people" epitomized the noblesse oblige of English manor lords, as these directions during an epidemic of dysentery illustrate:

Finding the Flux had been so fatal, I desired Mr. Booker to make use of the following Remedy, in case it shou'd come amongst my People. To let them Blood immediately about 8 Ounces; the next day to give them a Dose of Indian Physic, and to repeat the Vomit again the Day following, unless the Symptoms abated. In the mean time, they shou'd eat nothing but Chicken Broth, and Poacht Eggs, and drink nothing but a Quarter of a Pint of Milk boil'd with a Quart of Water, and Medicated with a little Mullein Root, or that of the prickly Pear, to restore the Mucus of the Bowels, and heal the Excoriation. At the same time I ordered him to communicate this Method to all the poor Neighbours, and especially to my Overseers, with Strict Orders to use it on the first appearance of that Distemper, because in that, and all other Sharp Diseases, Delays are very dangerous (128).

Byrd's beliefs and advocacies were not unlike other prominent planters'; Robert Beverly, Reverend Hugh Jones, George Washington, and Landon Carter were among the many who practiced humoral therapy. The intimate relationship
between the environment, diet, medicine, and the humors illustrates the colonial emphasis on balance in all things. Balance was sought in society, in religion, in politics, in architecture, in gardens. Implicit in this view was the ever-present possibility of imbalance and corruptibility of mind and body, and of man's institutions (129).

For northern and southern colonists alike, at the advent of settlement, kitchen gardens were necessities for providing food, fabric, and medicine. That the colonists depended heavily on English vegetables and herbs is revealed in advertisements from the Virginia Gazette, in which the seeds that merchants offer for sale are almost exclusively those of English plants (130).

The colonists' enclosed kitchen gardens were near the main dwelling, and were allied with the house, dependencies, and other gardens to create a functional arrangement. Included in them were herbs, potherbs, vegetables, bush fruits, and occasionally fruit trees. In Virginia, as well as in the other colonies, herbs were not planted in separate gardens except at an apothecary's or doctor's physic garden. The kitchen garden was rectilinear; herbs and vegetables were planted in rows or in separate geometric plots intersected by pathways. Herbs were also commonly
interplanted among small fruits and flowers in a border surrounding the kitchen garden (131). Beverly described the prolific Virginia kitchen garden, the kind of kitchen garden one would expect in an Eden-like land: "A Kitchin-Garden don't thrive better or faster in any part of the Universe, than there. They have all the Culinary Plants that grow in England, and in far greater perfection, than in England: Besides these, they have several Roots, Herbs, Vine-fruits, and Salate-Flowers peculiar to themselves, most of which will neither increase, nor grow to Perfection in England. . . . I don't know any English Plant, Grain, or Fruit, that miscarries in Virginia (132)."

John Parkinson published his herbal, Paradisus, in 1629 in England. He is credited with democratizing gardening, with promoting the idea that pleasure gardens were not reserved for the rich. This attitude influenced the Virginia colonists, and led them to include decorative native plants in their practical gardens (133).

At most Virginia homesteads in the seventeenth and eighteenth centuries, there was no clear distinction between the decorative garden and the practical one. A few ornamental flowers were commonly planted in the kitchen garden, especially English flowers and bulbs, and
native flowering trees, shrubs, and wildflowers. Ornamentals were often planted in informal flower borders or among the herbs and vegetables. When they could, the colonists got peonies, roses, daylilies, daffodils, gillyflowers and the like from home, but more often the floral display was provided by their medicinal and culinary herbs and by native plants. The wealthiest Virginians, who maintained closer contact with England and Europe, were able to obtain Old World ornamentals (134).

In the eighteenth century, when doctors and apothecaries became more commonplace, the kitchen garden became less important. As the century progressed, space that once had been devoted to medicinal herbs was available for ornamental flowers, shrubs, and trees. In addition, plants that were formerly considered medicinals became valued as decorative (135). Even sassafras, once feverishly sought by Europeans as a medicinal miracle, was now found on Jefferson's list of native plants under the category "Ornamental" (136). On the remote farms and plantations, however, kitchen gardens remained important throughout the eighteenth century, because of the expense and inconvenience of patronizing professionals in the towns.
From the earliest days of Virginia colonization, tobacco received special attention from explorers, chroniclers, and settlers. West Indian tobacco had been introduced to Europe by Columbus in the fifteenth century. It became popular with the English gentry, despite King James' admonishments that the weed was evil and most injurious to the lungs. However, by the turn of the seventeenth century, smoking was popular among all classes of people, and even King James acquiesced to social pressures and became a smoker (137).

John Rolfe, who arrived in Jamestown in 1610, is credited with the decision to substitute the harsh Amerindian tobacco, *Nicotiana rustica*, for the smooth West Indian tobacco, *Nicotiana tabacum*. The first shipment of tobacco was sent to England in 1613, thus beginning the frenzied cultivation of the crop in Virginia, where all available earth was planted in tobacco, to meet the ever-increasing demands of the European market (138). In Jamestown it was
observed that "the market-place, and streets, and all other spare places [were] planted with Tobacco . . . the Colonie dispersed all about planting Tobacco (139)."

By the second decade of the seventeenth century, tobacco had already become an important export. Newly emigrated English artisans would give up their trades for tobacco farming so that there were shortages of skilled laborers in the colony. Everyone, including the governor and clergy, grew tobacco. Efforts by the Virginia Company to encourage the colonists to cultivate Mediterranean-like products continued until James I dissolved the Virginia Company in 1624 and the Crown took over that role, but the colonists were unwilling participants because they made largest profits by planting tobacco in their fields (140).

After many unsuccessful attempts to diversify the economy, the Crown relinquished its stand against tobacco, and became reconciled with the idea that a money-making crop, albeit a luxury crop and not a vital commodity, was better than no crop at all. In addition, colonial production was strong competition against Spain's sale of the crop in Europe (141). Tobacco was a crop for a world market, and was not governed by the traditional English agrarian system. But the extractive nature of this exotic crop, akin to the extractive nature of timber and
minerals, and its substantial profits, was in line with what England had envisioned for her colony in the New World (142). Ultimately tobacco would shape the history of Virginia, determining its class and labor systems, religion, settlement patterns, and attitudes toward the land, fostering a distinct separation between the landed oligarchy and the have-nots (143).

The greatest hindrance to the cultivation of tobacco was the paucity of laborers in the Virginia. The solution arrived on a Dutch merchant ship in 1619: 20 African slaves. (A coincident event was the arrival of an English shipload of women.) However, African slaves would not be important to the cultivation of tobacco until the end of the century; white indentured servants would provide the extensive labor needed to weed, harvest, and cure the plant until then (144). In exchange for their passage, these indentured servants contracted their labor for a period of years, usually seven in the early days of the colony and four or five later. In the seventeenth century, half of the people who came to Virginia and the other southern colonies came as indentured servants (145).

The upper class of Virginia emerged from those who had paid their own passage and established themselves on the land; many were younger sons of aristocrats, ex-soldiers,
and merchants. Stockholders in the Virginia Company, who came to Virginia to settle on their 100 acres per share, also became Virginia gentry. The headright system was a way that the landed got more land, and the much-needed labor for their land: for each person whose passage was paid, the investor received 50 acres of land. This method proved important to bringing people to America who would eventually be Virginia’s middle class farmers, and allowed the upper-class to accrue vast areas of land (146).

In the seventeenth century large plantations were the rare exception, because laborers were hard to come by, making it difficult to acquire and cultivate large tracts. Once the indentures period of servitude had expired, they were often given clothes, money, and land. Hundreds of small farms of several hundred acres or fewer dotted the Virginia countryside, owned by former indentured servants, who cultivated their soil without benefit of slaves or servants (147).

The small farmers had advanced from the ranks of English lower class to prosperous Virginia middle class, having material comforts they had not known in England. They lived in decent and comfortable framed cottages accompanied by the usual dependencies: a barn, a kitchen, a henhouse, and dove-cote. Native trees shaded their
yards. They had small orchards, kitchen gardens containing English herbs and vegetables, and native flowering plants adorned their landscapes (148).

Because tobacco cultivation demanded rich, black soil, farmers settled on the choicest land near the rivers that were their means of transporting their final product. When the soil was exhausted, often in four or five years, the settlers were forced to search for fresh land. Settlement followed the rivers of the coastal plain up to the fall lines, beyond which ships could not pass. Once they became aware of the peculiarities of tobacco farming, especially its requirement for the richest soil, small farmers began to build temporary houses. The larger landholders, who had servants working their many tracts dispersed throughout eastern Virginia, did not have to relocate when their land was exhausted, thus were able to build substantial and permanent homes. As early as the 1640s the Virginia landscape was beginning to have a worn-out appearance due to the constant search for fertile land (149).

If the seventeenth century Virginia economy was based on white indentured servants, the eighteenth century economy was based on African slaves. At the close of the seventeenth century planters were realizing that their eco-
nomic salvation rested on slavery; they believed that the foundation of the affluent Spanish tobacco colonies with whom they competed was slaves. As slaves were brought to Virginia, the role of slave labor in a tobacco economy became apparent to the planters, causing the demand for slaves to escalate and the trade in slaves to increase; from 1699 to 1708 6843 slaves came to Virginia, which was more than the number imported during the entire seventeenth century. Control of the eighteenth century Virginia economy was wrested from the hands of the small farmer and became the domain of the wealthy slaveholder (150).

Slavery was destructive to the middle class farmer. He could not compete with the massive output and high grade of tobacco from the plantations based on cheap slave labor. For those who had planned to emigrate from England to the land of opportunity, this possibility was dashed, because with the existence of slave labor planters were not bringing in indentured servants who were sure to leave them after their contracts were up. The Virginia social dichotomy was firmly established, consisting of the wealthy slaveholders and the poor slaves and whites. The institution of slavery resulted in the multiplication of the number of wealthy and the amount of their wealth, and the firm implantation of the Virginia planters in the
future of England's richest colony (151).
THE CAPITAL CITY

A result of the settlement pattern that occurred due to the Virginia's agrarian economy, was, to some, a lamentable lack of town development. A distressed Virginia minister wrote to the Bishop of London asking him to urge the King to promote the building of towns in Virginia because the colonists were not regularly attending church. Of the benefit of towns, he implored the bishop to "contemplate the poor Church (whose plants now grow wilde in that Wildernesse) become like a garden enclosed, like a Vineyard fenced, and watch'd like a flock of Sheep with their Lambes safely folded by night, and fed by day; all of which are the promised fruites of well ordered Towns, under Religious Pastours and Magistrates (152)."

Another argument made for the establishment of towns in Virginia was that the colonists would be better protected in a fortified settlement. In addition, towns could be marketplaces, ports, and manufacturing centers for the benefit and advancement of the agrarian economy (153).
However, the small farmers did not need towns as marketplaces, or as places for socializing. It was at the quintessential southern country store that they met to talk, as well as to arrange sale of their tobacco crop, for the storekeeper often doubled as an agricultural agent (154). In 1680, an offer of a half-acre of land in any of the underdeveloped town sites in Virginia only managed to entice a few craftsmen (155).

By the turn of the eighteenth century the number and size of the large plantations in Virginia was on the rise. The headright system permitted planters to amass huge tracts of land. In 1679 there were already over 400 plantations of 1000 to 10,000 acres in Virginia. These plantations were self-sustaining and their labor source was self-perpetuating (156). The wealthy planters did want towns and cities, though their reasons were not the traditional ones. They had no need for the goods and services which were ordinarily towns' raison d'être. The planters envisioned towns as cultural centers. As Governor Berkeley put it in 1660, towns would not only protect them "from savage enemies without," but "from the savage nature that lurked within. . . . only towns and cities could nourish the arts and skills that distinguished civil men from barbarians (157)." The House of Burgesses, composed
of Virginia's wealthiest planters, passed a series of acts beginning in 1662 aimed at promoting town development in Virginia, but they were unsuccessful because Queen Anne feared that towns would be detrimental to tobacco farming, drawing people to the towns to set up "handicraft trades" (158).

Situated on high ground between the York and James Rivers, in 1695 Middle Plantation could claim a church, a few stores, a tavern, houses, and the College of William and Mary. Jamestown, on account of its low and swampy location, was infested with malarial mosquitoes, and contaminated drinking water (159). But perhaps more important than Jamestown's health hazards, was that it did not give the grand impression that Virginians thought the capital of England's richest and largest colony should impart. So when the statehouse burned for the fourth time in 1698, Governor Francis Nicholson and the president of William and Mary College succeeded in having the capital moved seven miles inland to Middle Plantation, renamed Williamsburg in honor of the King (160).

The new capital city would be the cultural and political center of the colony until 1781 when Thomas Jefferson had the capital moved to Richmond. Williamsburg would also be "the venue of some of the most innovative and
energetic gardening (161)," and the gathering place of the most influential and educated botanists and plantsmen of the eighteenth century. The capital city and the College would provide Virginia elite with culture; scholars, statesmen, and fashionable people would meet and discuss the heady topics of the day. And Governor Nicholson, with his plan for the city's layout, a plan so detailed that it indicated which building was to have a clock on it, would see that it was an aesthetic statement as well (162).

Nicholson intended to keep the capital city village-like. Reverend Hugh Jones noted in his *Present State of Virginia* that the town was "regularly laid out . . . in lots or square portions, sufficient each for a house and garden (163)." Greens were included; one would be a market place, another an entrance to the Palace. In her book on urban planning in colonial America, Sylvia Fries explains Nicholson's motives: "The use of long avenues ending in elegant buildings, monuments, or fountains combined with a concern for the third dimension—the architecture of public and, less predominantly, private buildings—declare the planned city of the sixteenth and seventeenth centuries a work of art. Sweeping diagonals radiating from large squares or ovals . . . emphasize the dynamic potential of a 'commodious place, suitable for the
This baroque layout, with its finely-tuned mathematical proportions, made the kind of formal and authoritarian statement so important to the English colonists in the New World, yet maintained a village-like quality in its human scale. Intellectuals believed that the soul responded to harmony and symmetry, in music, in painting, in medicine, in architecture, and in gardens. It was not sound or color or form that the mind appreciated, but the "Perception of Harmony, Beauty or Symmetry arising from them." Adherence to these "harmonick proportions" showed good taste and culture, and attention to all things English almost guaranteed their attainment (165). Evidence of Virginians' aspirations is revealed by Hugh Jones' remark that in Williamsburg people "live in the same neat manner, dress after the same modes, and behave themselves exactly as the gentry in London (166)."

This dedication to balance, formality, harmony, proportion, and symmetry was an important aspect of the Virginians' world-view. They orchestrated their social, political, and religious institutions, and designed their Georgian mansions and gardens, according to these rarefied principles (167). The planter gentry that created the new
capital city were the second generation of middle-class English families who had owned shares in the Virginia Company. For them, gentility was still at arms-length (168). These new rich made calculated decisions about their capital city, and would make it a "greene country towne (169)" in the English manner. They were evidently successful: an English visitor in 1764 remarked that it resembled "a good Country Town in England (170)," and in 1795 it was noted that "the society in it is thought to be more attractive and more genteel at the same time than any place of its size in America (171)."

In Virginia towns like Williamsburg and Yorktown, gardens, deemed an important symbol of civilization and control in an uncivilized land, were especially important to the residents. Jefferson once remarked that Williamsburg's gardens were its greatest visual asset. The residents were English in their attitudes toward gardens and their love of plants, and considering their conception of Virginia as an Eden, it was natural for them to cultivate this Eden-like beauty at their domiciles. Garden historian Peter Martin claims that the Virginia town dwellers' aim to keep their towns quaint and village-like, as achieved through their gardens, prevented them from growing into active industrial, political, and social centers (172).
THE PALACE AND ITS GARDENS

Both Nicholson and Alexander Spotswood, governor from 1710 to 1722, intended for Williamsburg's gardens to be inextricably tied to its identity, though Nicholson envisioned his gardens as a perpetuator of village-like intimacy, while Spotswood wanted his gardens to confer a sense of aristocracy. Their aspirations were similar in that they both wanted to convey English refinement through their gardens (173).

Governor Spotswood expected to live like a squire on his country manor. He revealed in a letter to his brother his attitudes toward his new home: "The life I lead here is neither in a crow of company nor in a throng of business, but rather after a quiet country manner, and now I am sufficiently amused with planting orchard and gardens and with finishing a large house which is designed (at the country's charge) for the reception of their Governours (174)."

The Assembly planned for the grounds of Spotswood's
prototypic "colonial Georgian" mansion to have a modicum of facilities and gardens, but Spotswood had other ideas (175). He spent a decade adding such courtly features to the Governor's Palace Gardens as a maze, a canal, a mount, parterres, decorative walls, topiary, a bowling green, allees, pleached arbors, espaliered fruit trees, a fish pond, and a falling garden. In 1718 the House of Burgesses complained to the King that Spotswood was "lavishing away the country's money," and as garden historian Peter Martin tells us, "By 1721 Spotswood was fed up with the inferences and ingratitude of the House, especially since he had supervised the projects free of charge."

Spotswood was imitating English Court gardening, and some were offended by his extravagances, especially by the high brick wall he built to keep out the public (176).

Though many resented Spotswood's pretensions, Virginians were whole-heartedly disciples of English formal gardening. Peter Martin explains that anything English, especially English gardens, allowed Virginians "to assume a pose of an elegant living that they thought they badly needed in the Tidewater wilderness (177)." Their Edenic aspirations were fulfilled by transporting their beloved English formal garden to Virginia. This architectonic garden type gave them a sense of domination and control
of the environment. In addition, the presence of pleasure
gardens conveyed wealth and status, because they required
slave labor to maintain them and implied leisure to enjoy
them (178).

The English were completely won over by the grand French style when Cromwell ruled England and the Court was in exile on the Continent, where it was exposed to Le Nôtrean formal gardens. Italian formalism, which had been expanded and perfected by Le Nôtre (1613-1700), was adopted by the British Isles (179). Graham Stuart Thomas acknowledges that Versailles has been the most influential garden in history. The central axis extends to the horizon, thus suggesting that the ordering and domination of nature is infinite (180). Components of the grand French gardens are parterres, expansive lawns, fountains, and long vistas. From the restoration of Charles II to the throne in 1660, until 1728, when Charles Bridgeman became Royal Gardener and the intelligentsia turned against formalism in gardening, the grandiose French style was practiced in England. The Le Nôtrean views were entirely embraced by the English. They believed that man should dominate nature and "should force nature to comply to the rigid forms of shears (181)." These views of nature, as they relate to both agriculture and gardening, were
brought by the colonists to Virginia.

The Dutch are often credited with originating the English and consequent colonial American formal styles, characterized by enclosed small-scale axially symmetric gardens, filled with topiary and a great variety of plants. Though they deserve recognition for horticultural advancement and diversity, the gardens they planted were modeled on French gardens, augmented with Dutch plants, Dutch garden buildings, and Dutch mastery of horticultural techniques. They advanced French pleaching and topiary arts, were innovators of the sunken parterre, and their flower bulbs became a vital component of formal gardens. The orderly and intensive Dutch manner of farming complemented and enhanced the small-scale geometric designs they adopted (182).

The first garden installed in Williamsburg at the Palace was a version of the formal European garden, though scaled-down to suit the village atmosphere important to Williamsburg's founders, and modified to suit the Virginia setting. William and Mary were the monarchs in England during Williamsburg's inception; William, from Holland, was influenced by the Dutch style of axially symmetric, enclosed gardens, filled with topiary and garden ornaments (183). Spotswood imitated what was fashionable in
England, well-aware of the statement of refinement he was making.

The Palace Gardens were constructed from 1710 to 1722 during Spotswood's tenure as governor. The design of the forecourt was ascertained from a copperplate found in the Bodleian Library at Oxford, which depicts four oval beds, stone walks, and curved walls. The stable yard consisted of a paddock, coach house, and stable, and was balanced on the opposite side of the grounds by a paved service yard. Excavation revealed the layout of the Ballroom Garden with a central north-south marl (crushed shell) walk connecting the center of the mansion with the gate at its far end. Crosswalks were identified by the archaeological excavation of gate foundations. Diamond parterres shown on the Bodleian plate were interpreted as filling the ballroom garden. The pleasure garden was likely to have contained tulip beds, pleached arbors, and topiary, and was enclosed in a brick wall with an elaborate wrought iron gate. Archaeological and documentary research revealed that the pleasure garden contained lead vases, stone finials, urns, and balanced necessary houses. Tree boxwood enclosed the bowling green, and a dwarf boxwood parterre overlooked the falling gardens and canal. The fruit garden was enclosed in a brick wall, and contained espaliered figs, apples,
pomegranates, and pears. There was a mount and an American holly maze beyond, inspired by the maze at Hampton Court added by William and Mary in 1699 (184).

Though Virginians recognized the Palace and its gardens for what they were—the residence of the Governor and a statement of English rule of the colony—they nevertheless attempted to copy them in their homes and gardens. The imitations were necessarily less elaborate, and were personalized to suit the tastes of the particular landowner, but the precepts on which the Palace and its gardens were built were recognizable in the plantations, in the town residences of the gentry, and even to some degree, in the residences of the modest Virginian (185).
THE TOWN GARDEN

It was not the oppressed labor class that was responsible for the most extensive and beautiful Virginia gardens, rather it was the wealthy planters and professionals that emerged due to Virginia's tobacco-based economy that had the most notable gardens. As a general rule, the extent of a colonial Virginian's gardens, especially the presence and extent of a pleasure garden, was directly related to wealth and social position. If tobacco had not provided them such great money and status, and concomitant leisure and luxuries, it is likely that Virginia's distinguished place in colonial gardening would never had occurred. It was at the plantations, at the town residences of the plantation owners, and at the town residences of the upper class where elaborate utilitarian and pleasure gardens were planted. The Virginia gentry maintained the closest ties to England and were privy to English books, gardening tools, and English professional gardeners, and would be invited inside the Palace's brick
wall, where they would be influenced by formal English court gardening (186).

Garden historians do not know with certainty what individual gardens looked like, except for the rare exception where archaeological digs have been undertaken, or where written descriptions or other elucidating records exist. In the past few decades, archaeological techniques have been greatly advanced, permitting accurate detection of planting beds, fence, gate, and pathway locations, remains of gardening artifacts and implements, outbuilding locations, and fossilized plant material (187). Restorations in the early part of the century were interpreted from scant documentary evidence, thus these "colonial revival" reconstructions are largely glorifications of what actually existed. Further recovery of written accounts of gardens, combined with soil stratigraphy technology, has revealed accurate layouts, and replacement of colonial revival gardens with authentic restorations is ongoing (188).

Historians do know what the elements of gardens of this period were, such as holly topiary, pleached hornbeam arbors, boxwood parterres, garden seats, brick walls, wooden fences, and summerhouses, and this knowledge has guided much of the garden reconstruction and restoration
in Williamsburg (189). Evidence of plant material used has been more easily collected than that of layout, from letters, advertisements, sales receipts, household inventories, diaries, and essays. Commonly used plants were bayberry, yaupon holly, sweetshrub, rose of sharon, American holly, roses, periwinkle, English ivy, American and English boxwood, and native and imported shade trees of all descriptions (190).

Boxwood was the hallmark of Virginia gardens, rare in New England colonial gardens except in maritime areas where the climate is milder. It is not known whether boxwood is native to Britain or Rome; there is written and fossil evidence that suggests both. It has been popular in England for centuries, most notably when Dutch gardening was promoted by William and Mary. For as long as it has been planted in parterres, knots, and hedges, it has been used as a herbal remedy, "for foulness of blood," for hair loss, and "for diseases that delicacy forbids us to mention." Boxwood mazes in England were noted for being places where it was "very easy for Gentlemen and Ladies insensibly to lose their company in these pretty labyrinths of Box-wood, and divert themselves unperceived." Because boxwood is a long-lived plant, its current locations in Virginia often infer colonial garden
designs (191).

It is clear that most of the residents of Williamsburg had neither the available manpower nor the interest in gardens to have had extensive ones, especially extensive pleasure gardens. The residents were hard-working coach-makers, shopkeepers, and businessmen; their industry, and their slaves', was invested in their trades and maintenance of their households. The homeowner who had money and manpower leftover to invest in high-maintenance ornamental colonial gardens was the exception and not the rule (192).

A small percentage of the population of the Williamsburg was Virginia's elite, which included statesmen, plantation owners, and scholars. The wealthy Virginia tobacco planters of the eighteenth century had town residences, but they mainly used them when the legislature and courts were in session, and often devoted little to their beautification (193).

The eighteenth century Virginia urbanite recognized that a measure of gentility and refinement was associated with pleasure gardens, but was forced to defer to the more pressing activities of earning a living. Landscape architects currently working for the Colonial Williamsburg Foundation admit that much reconstruction is based on spe-
culmination of what a particular citizen was likely to have had. Few plants have survived the centuries since the height of colonial Williamsburg gardening; a few that have—boxwood, yew, shade trees, and bulbs—often give clues to former garden layouts. When archaeological or documentary evidence is available for a specific site, the evidence guides the reconstruction. The existence and extent of pleasure gardens is unclear; as the relatively new discipline of garden history evolves, answers to these questions will be revealed (194).

Kitchen gardens were common among all classes of people in Williamsburg; though there were apothecaries and doctors in Williamsburg to provide medicinals, and the farmers' market met several times a week to sell produce, most lots contained at least a few vegetables, fruit trees, and herbs. Groupings of English flowers were interspersed throughout the productive gardens, especially those roots and bulbs that could stand the many weeks of shipping across the Atlantic, like tulips, hyacinths, daffodils, and fritillaries (195). The town residents rarely had separate practical and pleasure gardens. Most garden space was devoted to food plants, and to prolong the growing season colonists grew early, middle, and late varieties of English vegetables (196). Williamsburg merchants
sold a great variety of English vegetable and herb seeds, greater, in fact, than we find in today's stores (197).

According to Governor Nicholson's plan, Williamsburg was divided into half-acre lots, suitable for a house, dependencies, a small orchard, and garden. The town garden of a wealthy planter, a professional, or a curious plant enthusiast was likely to have been planted in the overcrowded English and Dutch manner. The rectilinear town lots were perfect for these enclosed gardens; lots were long and narrow because street front property cost more than property depth. A 1704 ordinance required that houses be set at least six feet back from the street, which permitted a fenced dooryard (198).

The pleasure garden of the wealthy homeowner was often separate from the kitchen garden, and usually located at the middle of the lot, though designers were sensitive to topography and placed it accordingly. The main axis was a path of brick, gravel, dirt, or marl path which led from the central back door straight to the back gate. Sometimes the path was interrupted by a bed halfway along its length. Gardens were divided by crosswalks, often cleverly arranged, to create a collection of geometric planting beds, either square, rectangular, diamond-shaped, oval, or circular. Plants contributed color, texture,
size, and form, and were less valued for their individual beauty (199).

The geometric planting beds were often edged in dwarf boxwood, with herbaceous plants like snapdragons, asters, cornflowers, tulips, cockscomb, primrose, nasturtiums, buttercups, and French marigolds planted within them. Occasionally an evergreen topiary or fruit tree punctuated the center of the beds. More elaborate geometric patterns consisted exclusively boxwood, laboriously and creatively clipped into parterres. Gardens on either side of the main axial path were mirror images of one another. Garden features such as pleached arbors, seats, gates, and summerhouses were at the end of the central path, and features like sundials, topiaries, and statues were often placed in a central bed. Topiaries of boxwood, holly, and yew, and tree fruits, accentuated corners and beds throughout the garden, and honeysuckle, jasmine, daffodils, roses, and lilies were grown for their scent (200).

The various dependencies were symmetrically arranged, and were attractive enough to serve as garden features. The shaded and paved service yard was nearest the house, and the kitchen, dairy, smokehouse, well-house, and shop were proximate to it. In the kitchen garden, herbs and vegetables were planted in rows or in geometric beds, and
bush fruits, ornamental flowers and shrubs, and herbs were planted in a border around the kitchen garden. The ornamented necessary houses were balanced on either side of the pleasure garden. Fruit trees were usually planted in rows at the back of the lot, where the stable and paddock were located. The pleasure and productive gardens were enclosed with paling or horizontal rail fences, and stone or brick walls, to keep wandering livestock at bay (201).

The dooryard at the front of the house often contained native trees to provide shade during Virginia's hot summer months. Foundation plantings were unknown, though sometimes evergreen shrubs were planted on either side of the front door, or punctuated buildings' corners. Groundcovers like ivy and periwinkle were common in the front dooryard (202).

These town lots of the middle and upper class citizens of Virginia were plantations in miniature, containing many of the dependencies and gardens that were found on the larger plantations. Town residents valued their villages for their English-like qualities. The towns were "a civilizing influence" on the plantations, offering culture and scholastics, and the plantations supported the towns' merchants, if only during "publick times" when the legislature and courts were in session. The affluent in the
towns and on the plantations could afford servants and slaves to care for high-maintenance formal pleasure gardens, with their parterres, topiaries, bowling greens, and pleached arbors. Those with wealth and coincident leisure entertained more than those without it, and they entertained in their gardens, thus furthering the cause of ornamental plantings (203).
THE GOLDEN AGE

Virginia's wealth came from the land. The fact was a foregone conclusion, due to its vastness and fertility, and the attitudes and expectations of the English who settled on it. The early explorers and publicists had extolled its beauty and bounties, the Crown had proclaimed its intention to possess it and extract its riches, and the colonists had readily complied. By ingenuity, industry, and inheritance, Virginia's gentry emerged, and they owed their fortunes to the land.

Wealth from tobacco was the foundation upon which the eighteenth century gentry emerged, for "never was a marriage of soil and seed more fruitful (204)." It has often been espoused that the tobacco economy was "backward or unsound." Though it was unquestionably unsound ethically, this assertion is erroneous monetarily: Richard Beale Davis, author of *The Intellectual Life of the Colonial South* wrote that Virginia and Maryland, the tobacco colonies, had sophisticated and lucrative economies.
Between 1697 and 1775 their populations were 30 percent of the English colonies, yet they exported 50 percent of the colonial commodities. Burgeoning agriculture and trade, and the money they generated in the colonies, led to a period of great prosperity for the plantation owners; they controlled Virginia's economy, politics, and society. It was common for Virginia's leading families to hold well over 50,000 acres in the eighteenth century, and many hundreds of slaves. One of the largest landholders, Robert "King" Carter, owned more than 700 slaves (205). Tobacco was virtually the only source of wealth; its export was five times the combined total for other primary agricultural (corn and wheat) and extractive (skins and iron) exports (206).

The planters were ever-conscious of the fact that they depended on English brokers, slave traders, and markets for their affluent economy. When the northern colonists were trying to sever their ties with England, the southern colonists were strengthening them. They aspired to express the genteel and refined English Renaissance principles of balance and harmony in all facets of their lives. This symmetry was expressed in the layouts of their plantation buildings and gardens. The northern colonists were disposed to site their outbuildings to best
protect their houses from northwesterly winter winds, but the southern colonists did not have this imperative. Because winters and topography were milder, houses could be situated on high ground where the landowner had the best views of his holdings, and of the river that was almost always nearby. Dependencies were arranged in the pleasing and prestigious balanced and symmetrical fashion, and together with the house and gardens the overall impression portrayed the harmonious principles that the Virginia landowner valued (207).

The houses were usually approached along a formal allee through the woods, which led to the impressive main dwelling flanked by its many dependencies. The barn, stables, mill, and servants' quarters were at a greater distance from the main house than were the dairy, kitchen and laundry. The kitchen and pleasure gardens were separated by walls, fences, or hedges, and were adjacent to the "great house" (208). The plantation landscape was one of pleasure gardens in scale with the needs of the family, kitchen gardens and fields of English grains and corn in scale with the needs of the entire plantation population, expansive grassy pastures grazed by livestock, wooded tracts, long views to the river, and seemingly endless fields of tobacco (209).
The planters built their mansions in the colonial Georgian style; Spotswood had built the first in Williamsburg. They expressed their control of the environment in their houses, and imagined themselves living in "the quiet country manner," like the English they emulated. According to Rhys Isaac:

The new style of building conveyed a whole set of social values and assumptions through attention to mathematical proportion and through the invariable usage of a three-part design. A strong sense of gradations and dominance and submission was expressed in the elevation of a central unit by means of balanced, subordinated lateral elements. . . . Rule over slave-supported plantations encouraged in the Virginia gentry a deep response to the symbolism of rank that the three part structures so strongly expressed. The prominence of an elevated center, or "head," to which all other parts, or "members," were subordinate silently reinforced the dignity and claims to obedience of the gentleman who styled "the head" of the household (210).

The eighteenth century was the Golden Age for the Tidewater Chesapeake landholder. The Indian threat had been removed. They understood the climate and successfully cultivated English and American vegetables, fruits, and herbs. They had capitalized on a profitable crop and had a self-perpetuating labor supply to cultivate it. And they had accumulated great wealth. Furniture, paintings, and expensive clothes were imported from throughout the world. Merchant ships arrived at the plantations' private wharves, and the finest luxuries were exchanged for the
Travel was slow in the eighteenth century—horses could cover at most seven miles in an hour. Consequently, those who lived on the plantations along the major Virginia rivers rarely ventured out, and they did not need to because their plantations were miniature towns. Skilled craftsmen and laborers were in residence, capable of performing all the work necessary to maintain the plantations. Aside form spices, tea, coffee, salt, sugar, molasses, and certain farm equipment, the plantations were self-sufficient. These circumstances hindered town development in Virginia (212). Williamsburg never became the thriving city that its founders had planned for it to become. Twice a year, during the "publick times," Williamsburg came alive. The city's merchants, aware of the gentry's partiality for English goods, offered the latest English fashions (213).

The first notable ornamental gardens were at the riverfront plantations of the Tidewater Chesapeake landowners. Like their Georgian mansions, their gardens were symmetrical and formal. The pleasure gardens had a central axis that often directed one's eye to the river below. Falling gardens, a series of terraces that led to the river, were common features of plantations. The upper
terraces contained the most elaborate gardens, and the terraces became less ordered as they fell to the water. Gardens near the house on either side of the axis were mirror images, and contained formal colonial garden features like boxwood parterres, topiary, and long, straight, evergreen hedges. Secondary walks created the overall geometric patterns of the formal gardens. Flowering shrubs and fruit trees, as well as English herbaceous flowers, grew in the pleasure garden. Medieval mounts were constructed to give elevated views of the gardens and property. Native oaks, tulip poplars, sycamores, and hickories shaded the pleasure gardens and buildings. The presence of shade trees was a notable departure from the plants found in formal English landscapes where brightness was encouraged in an often overcast climate (214).

Hedges and brick walls enclosed the gardens, and some gardens, like Byrd's Westover, were entered through ornate wrought iron gates. Orangeries and greenhouses were added to plantation grounds in the second half of the century as tender plants were discovered by explorers and popularized by English botanical enthusiasts. Summerhouses were a common architectural feature across the Virginia landscape, providing shade from the hot summer sun (215).

Ornamental plants in the eighteenth century pleasure
garden were more valued for their contribution to a larger architectural scheme than for their individual assets. (216). They provided texture and mass, influenced shadow and light, and were treated as walls and corridors.

The planters who built elegant Georgian houses and surrounded them with tasteful English gardens were the same gifted intellectuals and patriots so important to the America's growth from colonies to nation. Some historians have wondered how an agrarian Virginia could have produced such an august group of leaders. However, these historians fail to see the Virginian as who he really was, as intellect, orator, architect, writer, musician, politician, theologian, scientist, and naturalist. His appreciation of fine arts is evident in his buildings and furnishings, and in his gardens (217). Jefferson mused over the idyllic life of the Virginia aristocrat in his garden: "A spring, centrically situated, might be the scene of every evening's joy. There we should talk over the lessons of the day, or lose them in Musick, Chess, or the merriments of our family companions. The heart thus lightened, our pillows would be soft, and health and long life would attend the happy scene (218)." It is no coincidence that Thomas Jefferson, William Byrd II, George Washington, and many others, those Virginians responsible
for our most valued rights and freedoms, cultivated the earth and decorated the land.
THE PICTURESQUE

Toward the close of the seventeenth century the undercurrent of a wave that would engulf much of the western world's artistic, literary, and philosophical thinking could just barely be felt. It was inaugurated by the English upper class intelligentsia who began speaking out against the excessively formal English garden styles, which had been brought to what they considered ridiculous heights by the monarches William and Mary. But more than a reaction against formal gardens, it was a commentary on the condition of man and his relationship to the world around him. The rigid geometry and control that man imposed on nature was beginning to seem discordant in light of a whole world view, and its expression in the garden was a logical place to direct the first verbal blows of this move to change man's approach to nature and life (219). Joseph Addison put pen to paper, writing:

Our British gardeners ... instead of humouring nature, love to deviate from it as much as possible. Our trees rise in cones, globes and pyramids. We see the
marks of the scissors upon every plant and bush. . . . I would rather look upon a tree in all its luxuriance and diffusion and branches, than when it is thus cut and trimmed into a mathematical figure: and cannot but fancy that an orchard in flower looks infinitely more delightful, than all the little labyrinths of the most finished parterre (220).

With Horace Walpole's christening comment that landscape gardener William Kent "leapt the fence and saw all nature as a garden," the movement was officially underway, and England finally had its own gardening style. Landscape gardeners faithfully imitated the landscape paintings of Claude Lorrain, Nicholas Poussin, and others. The landscape gardens, like the paintings, were meant to evoke a mode in their audience, often reverent melancholy. From the intelligentsia's criticisms of the formal court gardens, and the admiration of the moody landscape paintings of the early years of the eighteenth century, emerged the idea of picturesque gardening in England: landscapes that were inspired by paintings, thus were themselves valid works of art. However this achievement was not enough; it would be necessary to further the mood and profundity of the scene by including classical temples and busts of ancient Greek and Roman philosophers. Formal gardens were razed, and the gardens that replaced them made a much different political and social statement (221).

The features of the picturesque gardens—meandering
walks, cluster plantings, temples with busts, grottoes, cascades, curvilinear ponds, pleasure grounds, roaming animals, long vistas, and the all-important ha-ha wall that permitted uninterrupted pastoral views of the countryside—were intended to convey the idea that the free spirits of man and nature existed in harmony. The gardeners believed they were celebrating nature in its purest form. But in order for nature to be at its best, the landscape gardeners felt they had to give it assistance, by carving, grading, and moving the earth, by building lakes and damming rivers, by planting calculated clusters of trees and shrubberies. This stands out as the fundamental incongruity in this movement in which nature is idealized, but drastically altered in order to be made ideal (222).

It is unclear when the principles of the picturesque first emerged in America, and how widespread their application was. Certainly there are elements of the picturesque in late colonial estates of Jefferson and Washington, and landscape historians have recovered other eighteenth century examples, from as early as the 1720s. Martin contends that Nicholson and Spotswood were innovators of the picturesque movement, sympathetic to the "landscape gardening-style vistas and perspectives," and that Byrd's
writings reveal "an alertness to the pictorial." He also purports that some Williamsburg residents sought to integrate their property with the surrounding countryside, and that "within the confines of their lots they strove for pictorial effects and the illusion of greater space (223)." James Kornwolf, in his essay on picturesque in America, concedes that there is some truth to the idea that "the picturesque aesthetic was not needed in America, for the sublime was already there," but writes that it was not completely correct "because enough evidence exists to show an American awareness of the picturesque from at least 1740 onward by more than 'a few influential landowners' (224)."

There is not much hard evidence, documentary or archaeological, that "proves American gardeners followed picturesque principles on a large scale before 1786 . . ." writes Kornwolf (225). If one considers the attitudes and preconceptions of the English who settled Virginia, and the archaeological and written evidence that does exist, one must conclude that the man-made landscapes of colonial Virginians were overwhelmingly formal. It was not until the end of the century, when Virginians had earned their freedom from England and had a new ideology of individualism, as well as had sufficiently conquered the land, that
they were compelled to express the political and social sentiments of the picturesque, and to experiment with its garden elements. This expression was largely found at the homes of the especially forward-thinking gentry like Washington and Jefferson.

Virginia inherently owned the basic features of the English landscape garden: sublime and picturesque trees, vast expanses of land, vistas through natural scenery, and water in meandering creeks and rivers or curvilinear lakes and ponds. Gardens in Virginia were for pleasure, for shade, and for produce. The elements of the picturesque were found at distances from the main house by virtue of the natural Virginia landscape. The houses had been sited to enjoy long views; close to the house they kept the formal gardens that they had so recently installed. As to the English quest to inspire awe in the landscape, that too was unnecessary in Virginia. In contrast, the English landscape often lacked the kind of vast open spaces and picturesque scenery that they admired, so they sought to construct it. Ann Leighton writes that "... all over the world, every man's garden is what that man feels most lacking in his immediate environment. Reduced to its absurd but nonetheless true extreme: a nearby flower is a weed—a distant weed is a flower. A garden, to be a
garden, must represent a different world, however small, from the real world. . . (226)."

The first obvious signs of the picturesque in Virginia were the ha-ha, wildernesses, shrubberies, and meandering paths of Mount Vernon and Monticello. Jefferson redeigned his garden by adding the informal "round-about" flanked on either side with curved beds of flowers. His serpentine walls at the University of Virginia were probably not to conserve bricks, but a reflection of the idea that the curved lined is more beautiful than the straight (227). Mount Vernon had formal elements—the kitchen garden is mirrored by the flower garden, he included a mount, parterres, and symmetrically placed his dependencies—as well as picturesque wildernesses, groves, and shrubberies. Before the Revolution Washington was more of a horticulturist, interested in utility and technique. After the War he undertook a beautification project at Mount Vernon and combined the natural with the formal (228).

Jefferson, Washington, and other Virginia plantation owners endorsed the idea of the ferme ornée, the ornamental farm, which was an important precept of the picturesque. As Jefferson put it, "the attributes of the garden" would be found among the "articles of husbandry (229)." However, neither Washington nor Jefferson
approved of the predominant crop being grown on Virginia's ornamental farms, because they realized tobacco was ruinous to the land and placed Virginians at the mercy of English brokers (230).

It has been suggested that Virginia may have been part of the inspiration for the picturesque movement in England. Besides its "vast spaces, botanical richness, and innovative naturalists (231)," the English conception of Virginia as a new Eden instilled in them the yearning and possibility for rediscovering pastoral and pristine simplicity through the art of the landscape gardener. At the birth of the nation, the ideals of freedom and individualism furthered the romantic and naturalistic spirit, as expressed in the creative arts throughout Europe and America (232).
"EARTH FELT THE WOUND"

The first half of the eighteenth century, when tobacco profits were high and the land was productive, was the Golden Age for Virginia planters. However, as the century progressed, the planters began losing their indisputable control of the tobacco market. Around the time of the Revolution, some, like Jefferson and Washington realized that the Golden Age was fading. Jefferson wrote of the failing economy in his Notes on the State of Virginia:

In the year 1758 we exported seventy thousand hogsheads of tobacco, which was the greatest quantity ever produced in this country in one year. But its culture was fast declining at the commencement of this war and that of wheat taken its place . . . it requires . . . an uncommon fertility of soil; and the price which it commands at market will not enable the planter to produce this by manure. But the western country on the Mississippi, and the midlands of Georgia, having fresh and fertile lands in abundance, and a hotter sun, will be able to undersell [Maryland and Virginia] and will oblige them to abandon the raising of tobacco altogether. And a happy obligation for them it will be. It is a culture productive of infinite wretchedness. Those employed in it are in a continual state of exertion beyond the power of nature to support (233).

Though by fits and starts, the tobacco industry bur-
geoned in the South until the Civil War, but as the land in eastern Virginia became inferior, the vigorous plantation economy was carried by the pioneers to southern and middle Virginia, and west of the Appalachians into Kentucky and Tennessee. New plantation communities detrimentally affected the older ones, siphoning their labor and income. Slavery had impeded diversification and immigration of free whites, and demands made by tobacco on the soil had widened the area where plantation agriculture was no longer viable. By 1840 little tobacco was grown in Tidewater Virginia (234).

The demise of the eastern Virginia plantation regions was a consequence of the attitudes that had created them. In the South the ratio of land to population was high, thus agriculture immediately took hold. The vastness of the land and the imperative of the early colonists, as directed by England, to immediately and thoroughly extract the valuable commodities of Virginia, inspired exploitive and short-sighted handling of the land and its resources. In the early colonial period, land grants and the headright system had led to accumulation by some of large tracts of land. The vigorous English tobacco market, and the suitability of Virginia's climate and soil for the crop, led to the virtually exclusive cultivation of
tobacco. It made heavy demands on the soil, depleting it of nutrients such that in four to seven years, when the crop was no longer remunerative, the land was abandoned. The methods of cultivating tobacco—planting it in straight hilled rows, completely removing all other cover vegetation, and planting it on slopes where the soil was thin—resulted in sheet erosion and gully formation during heavy rains. The topsoil washed away, thus the land was rapidly reduced to a gravelly, infertile subsoil that could not support tobacco, sometimes any crop, until it was left fallow for a number of years. Toxic substances and pathogens accumulated in the soil, both common consequences of monocultures. These imprudent methods of cultivating the crop resulted in the devastation of the soil, thus ultimately the collapse of the Virginia institutions that the wealth from the land had supported (235).

Virginia planters had chosen to overproduce and waste their land, knowing they had surplus land to turn to when one tract's soil was depleted. Because slaves were expensive, it was cheaper for the planters to buy more land than to employ labor in time-consuming methods of soil conservation. At the large plantations, labor was conserved at the expense of land. The abundance of land and the high cost of labor meant agriculture was extensive,
not intensive as in New England where arable land was at a premium. New Englanders' realized that sound husbandry was required, and instituted traditional and stable agricultural practices. Virginians, with their attitude that unlimited resources could provide easy wealth, unwisely exploited their land (236).

As the eighteenth century progressed, the tobacco plantations headed toward increased specialization and commercialization, at the expense of the self-sufficiency which had been their hallmark earlier in the century. All the plantations resources went into the production of tobacco. When profits were high, the planters did not invest valuable labor and land in other crops. The gentry lived extravagantly in good years, as their social position demanded, but in years of poor harvests or low market prices, they lived on credit from English brokers (237).

Small farmers could not compete with the large-scale commercial production of staples in eastern Virginia. Those who could not manage to acquire slaves and become planters, moved to western states where lands were fresh and the tobacco cultivation was profitable, or were pushed to the Virginia back-country where the land was less conducive to commercial tobacco farming. Many migrated out of eastern Virginia, away from the early settled areas to
the Piedmont. Those who remained in eastern Virginia farmed Tidewater's upland soils, much of which was land that had been exhausted and abandoned by tobacco planters (238).

They grew alternative crops that did not demand so much of the soil; due to the diversification forced upon them by the commercial tobacco farmers, and more prudent agricultural methods, they gradually became self-sufficient husbandmen. The plantations came to depend on the back-country Virginia farms for their food supply. The small farmer was developing commercial agriculture, but it was traditional, not exotic. As the planters involved in their one-crop economy got into more trouble, the small farmers, though living austere lifestyles, were able to hold on, make advances in horticulture and agriculture, and emerge as a strong contingent in Virginia's society and economy (239). In the early decades of the nineteenth century, Virginia saw progress in commercial fruit and vegetable production, and a profitable apple and pear industry developed in Tidewater, where advanced techniques in grafting, pruning, and fertilizing were employed (240).

The decline of Virginia's economy, as well as that of much of the South, in part resulted from slavery's detri-
mental influence on diversified agriculture and industry. Free whites who would have contributed to diversification of the economy left Virginia, because of the social stigma attached to labor, and because they competed with slaves for jobs. In addition, whites did not settle in Virginia because of the nature of Virginia agriculture and the lack of opportunities. The slim population of free whites prevented domestic and municipal improvements, such as roads and schools. There were also few material comforts and conveniences. Some Southerners believed that if slave trade was reopened the economy would be revitalized. The scarcity of labor, white and black, in proportion to land, which had been the situation since early colonial days, reinforced and perpetuated the exploitative practices (241).

During the Civil War, the South was reluctant to give up its commercial crops, and because of the lack of subsistence planting, there was food shortage and famine. The food that was available was sold at drastically inflated prices, leading to riots, class strife, and civil chaos. With Confederate money worthless, food shortages, and two severe droughts during the 1860s, parts of the South were near ruin at the close of the decade (242).

The Virginia landscape, as a consequence of centuries
of exploitive tobacco farming and two wars, was pitifully worn-out. Many of the plantations were destroyed during the Civil War or the years leading up to it. Berkeley became a storehouse for grain, and every tree was cut from the property but one. Rosewell, which had "rivaled the grandeur of the Governor's Palace," was dilapidated by the middle of the century. Mount Vernon, Wilton, Westover, and Sabine Hall were likewise nearly destroyed, and many were reduced to their brick foundations (243). Williamsburg had greatly decayed; its downfall was set in motion during the Revolution. A visitor remarked that the war had "almost ruined" the city, and that "most of the Gardens [had been] thrown to the street (244)." In Virginia, where so much had been built in so remarkably few years, so much had been lost in even fewer.
CONCLUSION

When analyzing the forces that together made it possible for Virginia to recover, one is led to Addison and Pope and Walpole, because it was the mentality that they set in motion, the belief in an intimate and reciprocal relationship between man and nature, that was responsible for a new ethic toward the land. From its nucleus in the early eighteenth century, the romantic movement was embraced by artists, writers, musicians, and philosophers, who were inspired by the landscape gardener's idealization of the bucolic landscape. Nature preservationists consecrated the pastoral, and saw the value in protecting nature for aesthetic, spiritual, and moral reasons. They were guided by nostalgia for an assumed primeval Edenic harmony between man and nature.

The romantic idealists, together with the scientific community that advocated the benefits of stewardship as a way to sustain the earth's productivity, advanced an ideology that espoused protecting the environment. It was
not until the second half of the nineteenth century that their movement saw widespread application in America, a time when the country, due to unprecedented expansion, waste, and insouciance toward the environment, was desperate for salvation (245). The colonial Virginian business-like conduct with the land had influenced the rest of the country, in time even effecting the dissipation of the responsible New England treatment of the land. Alexis de Tocqueville who visited America in 1831 wrote that "in Europe people talk a great deal of the wilds of America, but the Americans themselves never think about them; they are insensible to the wonders of inanimate nature and they may be said not to perceive the mighty forests that surround them till they fall beneath the hatchet. Their eyes are fixed upon another sight, the . . . march across these wilds, draining swamps, turning the course of rivers, peopling solitudes, and subduing nature (246)."

Americans reckoned the acute diminution of their resources and realized the need to protect them, some with the vision of restoring the land to its pristine state, others with the desire to rehabilitate it so that wealth could be efficiently withdrawn. These efforts were first applied to the region of the country that needed them most: the exhausted soils of the Virginia farms (247).
In the seventeenth and eighteenth centuries man and nature were viewed as separate—man as master, nature as servant. Man had pressed the land into his service, and extracted its wealth. The plow had altered the Virginia landscape, such that natural processes and vegetation were distorted. The sought-after "harmonick proportions" placed geometry on nature's curves. The focus on tobacco spelled the wasting of the land, and the devaluation of family and home. Virginians were forced to move upstream in pursuit of the land's wealth; their dilapidating homesteads remained as scars of their battle with the land (248).

The Civil War was the culmination of centuries of devastation of the landscape. Virginians suffered the destruction of property and the loss of their fortunes. Southern institutions, southern buildings, and southern gardens were lost, and recovery was slow. The southern governments were paying war damages, and the land-poor aristocrats were paying excessive taxes on their unproductive land (249). With the extirpation of their tobacco-based economy, they had lost control of their environment, and the situation they found themselves in was akin to their condition in the earliest colonial days. But this time a vast and bountiful land of resources was not
available on which to build social, economic, and political order. The seeds of destruction had been planted with the first tobacco, and Virginia's Eden-like fecundity had foretold its demise.

The demise of the land brought about by the extraction of Virginia's resources was followed by an attempt to return to the uncorrupted paradise, to the Garden of Eden that had been destroyed because it was a garden on earth, superintended by natural laws. As early as 1743 the American Philosophical Society had been founded, and scientists and forward-thinking gentry discussed agricultural problems like soil conservation, fertilization, and crop rotation. The ascendancy of scientific knowledge, combined with the Romantic's sanctification of nature, would be the powerful forces that saved Virginia (250).

It was the awareness of the deterioration of the land which was revealed by diminished productivity, and the glorification of nature by Emerson and Thoreau, by George Perkins Marsh and John Muir, that inaugurated the move to redeem the land. Soils and forests were reclaimed, watersheds were protected, and National Parks and U.S. Forests were established. Developments in agricultural technologies, combined with the new conservation ethic, fostered responsible husbandry. In Virginia, however, as in most
of the South, the fall had been so all-consuming that recovery of the prelapsarian landscape would be hard-fought.

To understand the role of the land in the history of Virginia, one must cast a backward look: past the ante-bellum aristocrats, the poor back-country farmers, the wasteful agricultural policies, to the first colonists and their naive perception of the New World as an Edenic garden. It was their extractive imperative, their irrational insistence on fulfilling a collective fantasy, that determined a long history of land exploitation in the region. In time, an awareness of the destructive process led to a transformation in attitudes—some among them learned to feel for the fragile land, to work toward the protection and restoration of the decaying garden. But while the wounded earth can heal, the scars of human extravagance are slow to fade. Though evidence of the depletion remains, the pattern of the Virginia land today, with its productive corn fields and wheat fields, its orchards and gardens, was laid in colonial times.
PART II

OBJECTIVE

to apply the information learned about Virginia gar-
dens to Airfield Conference Center in Sussex County, Vir-
ginia in order to create a walking tour illustrating
period garden designs and plant materials.

INTRODUCTION

The aim of this project is to establish a living plant
history of Virginia. A walk-through sequence of natural
"windows" showing authentic plant species arranged as in
the specific historical periods when they were popular,
and accompanying labels and literature will provide for
visitors a clear sense of how closely the botanical and
social histories of the area are interwoven.

Airfield is an ideal location for the establishment of
such a garden chronology. It is the southeastern Virginia
4-H educational headquarters, as well as an executive con-
ference center and hotel. The juxtaposed contrasting gar-
dens from different periods in Virginia history will enhance the educational experience of the campers who visit Airfield, teaching them about their heritage and about the uses and value of plants. The hotel and conference center user group will also benefit from this educational and attractive landscape. The location of Airfield in one of the most historic regions of the United States not only facilitated the study and documentation of the history of cultivation in the area, but provides proximity to tourist traffic as well.

METHODOLOGY

Field research on the Airfield site included an inventory of the dominant and associated plant species, and an analysis of the plant communities. Soil conditions and sunlight exposures were ascertained for the areas under consideration for installation of the gardens. Factors such as efficient vehicular and pedestrian traffic flow, proximity to buildings frequented by the various user groups, and overall appearance were combined to determine the locations of the gardens and the particular plant species recommended. The needs, preferences, and sensi-
bilities of the conference center and hotel patrons, as well as those of the over one thousand 4-H campers who visit Airfield each year were factors in determining garden types and locations.

A large part of the research was the investigation into the land use and garden history of Virginia detailed in Part I of this thesis. This information guided the garden and plant material choices for Airfield.

Determination of Authentic Plant Materials:

--Observations of Virginia period gardens.
--Lists compiled by the Colonial Williamsburg Foundation.
--Lists compiled by garden historians.
--References to plants by explorers, colonists, and other chroniclers as revealed in their accounts, correspondences, histories, promotional propaganda, diaries, advertisements, wills, and other writings.
RESULTS

Airfield Site Analysis

The largely undeveloped 218 acre site is composed of three major vegetation types: pure stands of loblolly pine (*Pinus taeda*), mixed mesophytic forests, and pure stands of the hydrophytic tree water tupelo (*Nyssa aquatica*) growing in the adjacent Airfield Pond.

A sign at the property boundary reads:

Even-aged pine forest
cut clear, inferior hardwoods killed
and planted to pine 1955 for continuous forest production.

Union Camp, Inc. subsequently donated the property for development into a 4-H camp and hotel and conference center. At present, the range in tree height is approximately 30 to 60 feet, with most trees at a height of 40 to 50 feet. Relatively even-aged loblolly pines are dominant. The shade-tolerant deciduous tree canopy is at or below the pine canopy; it will presumably overtake the pines and become dominant. The most common deciduous
trees are red maple, water oak, sweetgum, white oak, and post oak. There is a moderately dense shrub layer composed largely of summersweet, vacciniums, and other berries. The herb layer, except in rare sunny openings in the canopy, is thin or absent.

There are pure stands of loblolly pine in areas on the property more recently cut, as well as mixed mesophytic deciduous hardwood stands uncolonized by pines. The range of the water tupelo has diminished greatly in the past decade, possibly from extensive beaver damage and stresses placed on the plant due to building construction on the property.

Inventory of Dominant and Associated Plant Species at Airfield:

**TREES:**

- Southern red oak: *Quercus falcata*
- Black oak: *Quercus velutina*
- Red oak: *Quercus rubra*
- White oak: *Quercus alba*
post oak | Quercus stellata
water oak | Quercus nigra
bitternut hickory | Carya cordiformis
pignut hickory | Carya glabra
water tupelo
blackgum
sassafras
black willow
cherry
white flowering dogwood
loblolly pine
sweetgum
red maple
American holly
tuliptree
black locust
princess tree

Alder | Alnus glutinosa
Sassafras | Sassafras albidum
Nagvoa | Nyssa aquatica
Nyssa | Nyssa sylvatica
Black willow | Salix nigra
Cherry | Prunus spp.
White flowering dogwood | Cornus florida
Loblolly pine | Pinus taeda
Sweetgum | Liquidambar styraciflua
Red maple | Acer rubrum
American holly | Ilex opaca
Tuliptree | Liriodendron tulipifera
Black locust | Robinia pseudoacacia
Princess tree | Paulonia tomentosa
SHRUBS:

sweetshrub  
Clethra alnifolia

waxmyrtle  
Myrica cerifera

blueberries  
Vaccinium spp.

rhododendrons  
Rhododendron spp.

wild roses  
Rosa spp.

HERBS:

bluets  
Houstonia caerulea

bracken fern  
Pteridium aquilinum

cinnamon fern  
Osmunda cinnamomea

VINES:

smilax  
Smilax hispada

wild grapes  
Vitis spp.
Gardens determined appropriate to the site and illustrative of Virginia Garden History:

1—Virginia Indian plants.
2—Seventeenth and eighteenth century kitchen garden.
3—Eighteenth century pleasure garden.
4—Late eighteenth and nineteenth century picturesque pleasure ground.
5—Victorian annual carpet bed.
6—Twentieth century woody ornamentals and ground covers, highlighting modern hybrids and cultivars.
7—Twentieth century cultivated varieties of annual flowers.
8—Native Virginia wildflowers known to have been cultivated by Virginians from as early as the seventeenth century.

1—Virginia Indian Plants

Since a suitable location for an Indian agricultural garden demonstrating authentic Indian planting design cannot be integrated into the overall plan, it was determined that a collection of plants used by the Indians is appro-
appropriate. The collection will be located in the area encircled by the driveway in front of the Gray Building. It will include plants used for food, medicinals, dwelling construction, weapon construction, domestic articles, and ornament by the Virginia Indians. Plants are natives as well as those introduced by the Spanish into more southerly latitudes prior to the seventeenth century that migrated northward through Indian nations. Exact species used by the Indians are often unknown, thus accurate generic representation is acceptable.

SUGGESTED PLANTS:

- sunflower *Helianthus annuus*
- passion flowers *Passiflora incarnata*
- huckleberries *Gaylussacia spp.*
- red mulberry *Morus rubra*
- gooseberries *Ribes spp.*
- raspberries *Rubus spp.*
- cherry tree *Prunus spp.*
- persimmon *Diospyros virginiana*
- wild plums *Prunus americana*
- peaches *Prunus persica*
walnut
hickories
chinquapin
oaks:
  live, post, white
  chestnut, basket
ground nuts
tuckahoe roots
birches
elms
pine
blackberries
cardinal flower
lobelia
mayapple
sarsaparilla
snakeroot

wild roses:
grapes:
  sweet muscadine,
  small sour, summer, fox
locusts
blueberries

Juglans nigra
Carva spp.
Castenea pumila
Quercus spp.

Apios tuberosa
Peltandra virginica
Betula spp.
Ulmus spp.
Pinus spp.
Rubus spp.
Lobelia cardinalis
Lobelia sylphilitica
Podophyllum peltatum
Aralia nudicaulis
Aristolochia serpentaria
Rosa spp.
Vitis spp.
Robinia spp.
Vaccinium spp.
crabapples
Jerusalem artichoke
sassafras
dahoon holly
witch hazel
angelica
ashes
cypress
cedars
maple: red
beech
willows
yucca
white mulberry
tulip tree
sweetbay magnolia

Malus spp.
Helianthus tuberosus
Sassafras albidum
Ilex cassine
Hammamelis vernis
Angelica spp.
Fraxinus spp.
Taxodium spp.
Juniperus spp.
Acer spp.
Fagus spp.
Salix spp.
Yucca filamentosa
Morus alba
Liriodendron tulipifera
Magnolia virginia

2--Seventeenth and Eighteenth Century Kitchen Garden

As described in Part I of this thesis, kitchen gardens in the seventeenth and eighteenth century contained a mixture of vegetables, herbs, fruit bushes, fruit trees, and ornamental shrubs and flowers. Most of the utilitarian
plants cultivated in the seventeenth century were ones that the colonists had known in England. They gradually began to include native herbs and Indian vegetables, and replaced English varieties of fruiting shrubs and trees with those of American origin. They cultivated native wildflowers in their kitchen gardens for ornament, and when they could acquire them they planted favorite European flowers. Herbs doubled as ornamentals, and ornamentals often had practical uses. As the years passed, when observation and advances in medicine showed them to be inefficacious, formerly utilitarian plants became ornamentals.

Some of the species included in the following lists would not have been found in seventeenth century kitchen gardens of average Virginia families, either because they had not yet been brought under cultivation from the wild, or because these families did not have the means of acquiring them from abroad. The kitchen garden of wealthy colonial families would have been similar, though they often contained more exotic ornamental and utilitarian species, and servant and slave labor permitted them to be more neatly kept.

The kitchen garden planned for Airfield is a synthesis of kitchen gardens found in both the seventeenth and eigh-
teenth century. The number of ornamental plants would have been limited due to the need to maximize the productivity of utilitarian plants; gardens were likely to contain only a few North American and European ornamental species. Shade, evergreen, and nut trees grew in the dooryard adjacent to the kitchen garden and shaded the house and work areas.

Since the kitchen staff at Airfield plans to use the produce of this garden, it was placed as close to the kitchen as possible. It utilizes a space that at present is unattractive. The compacted soil requires amending, and screening from the road is suggested, as well as transition plantings between this garden and the rest of the property. Shrubs and trees listed are suitable for these purposes.

SUGGESTED PLANTS:

HERBS: herbaceous plants primarily grown for utilitarian purposes, though many doubled as ornamentals

- lemon balm *Melissa officinalis*
- coriander *Coriander sativum*
fennel
feverfew

horseradish
lavender
wild margoram
sweet margoram
parsley
rosemary
rue
clary sage
common sage
summer savory
spearmint
strawberry
tansy
thyme
wormwood
chives
garlic
leek
shallot
lemon verbena
angelica

Foeniculum vulgare
Chrysanthemum parthenium
Armoracia rusticana
Lavandula angustifolia
Origanum vulgare
Majorum hortensis
Petroselinum crispum
Rosmarinus officinalis
Ruta graveolus
Salvia sclarea
Salvia officinalis
Satureja hortensis
Mentha spicata
Fragaria virginiana
Tanacetum vulgare
Thymus vulgaris
Artemisia absinthium
Allium schoenoprasum
Allium sativum
Allium ampeloprasum
Allium cepa
Aloysia triphylla
Angelica archangelica
tarragon
southernwood
wild ginger
borage
caraway
camomile
common chicory
yellow bedstraw
American alumroot
common hyssop
perennial flax
pennyroyal
apple mint
pineapple mint
bee balm
catnip
black cumin
sweet basil
anise
garden sage
chamaedrys germander
drug speedwell
pot marigold

Artemisia dracunculus
Artemisia abrotanum
Asarum virginicum
Borago officinalis
Carum carvi
Anthemis nobilis
Cichorium intybus
Gallum verum
Heuchera americana
Hyssopus officinalis
Linum perenne
Mentha pulegium
Mentha suaveolens
Mentha suaveolens
'Variegata'
Monarda didyma
Nepeta cataria
Nigella sativa
Ocimum basilicum
Pimpinella anisum
Salvia officinalis
Teucrium chamaedrys
Veronica officinalis
Calendula officinalis
ORNAMENTAL FLOWERS: herbaceous plants grown primarily for ornament, though some had utilitarian uses

- bouncing bet
- lavendar cotton
- hollyhock
- love-lies-bleeding
- poppy anemone
- snapdragon
- American columbine
- English daisy
- feather cockscamb
- cornflower
- daisy
- oxeye daisy
- florist's chrysanthemum
- autumn crocus
- lily-of-the-valley
- lance coreopsis

- Saponaria officinalis
- Santolina chamaecyparissus
- Alcea rosea
- Amaranthus caudatus
- Anemone coronaria
- Antirrhinum majus
- Aquilegia canadensis
- Bellis perennis
- Celosia argentea
- Centaurea cyanus
- Chrysanthemum maximum
- Chrysanthemum leucanthemum
- Chrysanthemum x morifolium
- Colchicum autumnale
- Convallaria majalis
- Coreopsis lanceolata
common crocus
sweet William
Chinese pink
grass pink
bleeding heart
foxglove
Spanish bluebell
crown imperial
common snowdrop
snowpink gladiolus
baby's breath
common heliotrope
tawny daylily
lemon daylily
rocket candytuft
yellow flag iris
sweet iris
Siberian iris
German iris
sweet pea
madonna lily
cardinal flower

Crocus vernus
Dianthus barbatus
Dianthus chinensis
Dianthus plumarius
Dicentra spectabilis
Digitalis purpurea
Endymion hispanicus
Fritillaria imperialis
Galanthus nivalis
Gladiolus carneus
Gypsophila paniculata
Heliotropium arbores-
cens
Hemerocallis fulva
Hemerocallis lil-
ioasphodelus
Iberis amara
Iris pseudacorus
Iris pallida
Iris sibirica
Iris germanica
Lathyrus odoratus
Lilium candidum
Lobelia cardinalis
sweet alyssum Lobularia maritima
rose campion Lychnis coronaria
maltese cross Lychnis chalcedonica
grape hyacinth Muscari botryoides
jonquil Narcissus jonquilla
poet's narcissus Narcissus poeticus
common daffodil Narcissus pseudonarcissus
flowering tobacco Nicotiana alata
evening primrose Oenothera biennis
common peony Paeonia officinalis
tree peony Paeonia suffruticosa
oriental poppy Papaver orientale
summer phlox Phlox paniculata
balloon flower Plagycodon grandiflorus
tuberose Polianthes tuberosa
cowslip Primula veris
black-eyed Susan Rudbeckia hirta
African marigold Tagetes erecta
French marigold Tagetes patula
common pansy Viola tricolor
foamflower Tiarella cordifolia
spiderwort Tradescantia virginiana
dwarf nasturtium Tropaeolum minus
garden nasturtium

Tropaeolum majus

tulip

Tulipa spp.
sweet violet

Viola odorata
Jamestown lily

Zephyranthes atamasco

wallflower

Cheiranthus virginica

larkspur

Delphinium ajacis

Delphinium consolida

VEGETABLES: (the tomato (love apple) was not widely planted until the nineteenth century because the colonists believed it poisonous)

turnip

Brassica rapa
carrot

Daucus carota
beet

Beta vulgaris
cabbage:

Brassica oleracea

smooth savoy, curled

var. capitata

red, curled green

cauliflower

Brassica oleracea

var. botrytis
artichoke

Cynara scolymus
radish

Raphanus sativus
potato

Solanum tuberosum
red lettuce: Latuca sativa
  smooth, curled
spinach: Spinacia oleracea
  round, prickly
rhubarb Rheum rhabonticum
garden cress Lepidium sativum
asparagus Asparagus officinalis
melon: Citrullus vulgaris
  Guinea, golden,
  green, orange
watermelon Citrullus vulgaris
cucumber Cucumis sativas
pumpkin Cucurbita pepo
squash Cucurbita spp.
bean Phaseolus vulgaris
pea: Pisum sativum
  heartpea, ronceval
black-eyed pea Vigna sinensis
corn Zea mays
broccoli Brassica oleracea
  var. botrytis
endive Cicerium intybus
celery Apium graveolens
  var. dulce
Jerusalem artichoke  Helianthus tuberosa

SHRUBS: for fruit and for ornament

red chokecherry  Aronia arbutifolia
tree boxwood  Buxus sempervirens
dwarf boxwood  Buxus sempervirens
'Suffruticosa'
carolina allspice  Calycanthus floridus
common camelia  Camelia sinensis
flowering quince  Chaenomeles speciosa
sweet pepperbush  Clethra alnifolia
red-osier dogwood  Cornus sericea
common fig  Ficus carica
shrub althea  Hibiscus syriacus
dahoon holly  Ilex cassine
possum haw  Ilex decidua
inkberry  Ilex glabra
yaupon holly  Ilex vomitoria
spicebush  Lindera benzoin
waxmyrtle  Myrica cerifera
sweet mockorange  Philadelphus coronarius
flame azalea  Rhododendron calendulaceum
Carolina azalea  Rhododendron carolinianum
pinxterbloom azalea  Rhododendron nudiflorum
white swamp azalea  Rhododendron viscosum
fragrant sumac  Rhus aromatica
smooth sumac  Rhys typhina
sweetbrier rose  Rosa eglanteria
dog rose  Rosa canina
cabbage rose  Rosa centifolia
 'Muscosa'
damask rose  Rosa damascena
Cherokee rose  Rosa laevigata
swamp rose  Rosa palustris
Virginia rose  Rosa virginiana
flowering raspberry  Rubus odoratus
highbush blueberry  Vaccinium corymbosum
deerberry  Vaccinium stamineum
nanny berry  Viburnum lentago
mapleleaf viburnum  Viburnum acerifolium
wayfaring tree  Viburnum lantana
European cranberry bush  Viburnum opulus
arrowwood  Viburnum dentatum
blackhaw viburnum  Viburnum prunifolium
highbush cranberry  Viburnum trilobum
chaste tree  
Persian lilac  
common lilac  
cherry laurel  
dwarf fothergilla

**WOODY VINES:**

American bittersweet  
Carolina yellow jessamine  
English ivy  
Virginia creeper  
muscadine grape  
American wisteria  
cross vine  
trumpet creeper  
virgin's bower  
poets' jasmine  
coral honeysuckle  
Tatarian honeysuckle  
periwinkle

Vitex agnus-castus  
Syringa persica  
Syringa vulgaris  
Prunus laurocerasus  
Fothergilla gardenii  
Celastrus scandens  
Gelsemium sempervirens  
Hedera helix  
Parthenocissus quinquefolia  
Vitis rotundifolia  
Wisteria frutescens  
Bignonia capreolata  
Campsis radicans  
Clematis virginiana  
Jasmiium officinale  
Lonicera sempervirens  
Lonicera tatarica  
Vinca minor
FRUIT TREES:

common persimmon  Diospyros virginiana
southern crabapple  Malus angustifolia
wild sweet crabapple  Malus coronaria
common apple  Malus domestica

'Yellow Newtown'
'White Apple'
'Golden Russet'
'Golden Wilding'
'Royal Wilding'
'Roan'
'Pippin'

sour cherry  Prunus cerasus
'Morello'

sweet cherry  Prunus avium
'Black Heart'
'White Heart'
'May Duke'
'Oxheart'
'Honey'

apricot  Prunus armeniaca
'Large Early'
'Brussels'
'Green Roman'
peach

Prunus persica

'Plum Peach'

'Red Plum Peach'

'Yellow Plum Peach'

'Pineapple Clingstone'

'Catherine'

'White Soft Peach'

'July Peach'

garden plum

Prunus domestica

'Green Gage'

'Magnum Bonum'

'Damson'

'Cherokee'

'Cherry Plum'

'Red Imperial'

'Yellow Egg'

myrobalan plum

Prunus cerasifera

nectarine

Prunus persica var. nectariana

'Newington'

'Green Clingstone'

'Red Roman'

'Yellow Roman'
black cherry
common pomegranate
bantum pomegranate

pears

white mulberry
English mulberry
red mulberry

MEDIUM TO LARGE DECIDUOUS AND EVERGREEN TREES: the colonists had many uses for their nuts, bark, roots, and wood

pawpaw
red maple
silver maple
common horsechestnut
shadbush
river birch  Betula nigra
American hornbeam  Carpinus caroliniana
pecan  Carya illinoiensis
common catalpa  Catalpa bignonioides
hackberry  Celtis occidentalis
yellowwood  Cladrastis lutea
flowering dogwood  Cornus florida
pink flowering dogwood  Cornus florida 'Rubra'
Washington hawthorn  Crataegus phaenopyrum
American beech  Fagus grandifolia
honey locust  Gleditsia triacanthos
Kentucky coffeetree  Gymnocalcus dioicus
Witchhazel  Hamamelis virginiana
American holly  Ilex opaca
butternut  Juglans cinerea
black walnut  Juglans nigra
English walnut  Juglans regia
sweetgum  Liquidambar styraciflua
tulip tree  Liriodendron tulipifera
osage orange  Maclura pomifera
cucumber tree  Magnolia acuminata
Southern magnolia  Magnolia grandiflora
red mulberry  Morus rubra
Norway spruce  
black tupelo  
Loblolly pine  
Virginia pine  
sycamore  
cottonwood  
white oak  
scarlet oak  
red oak  
shingle oak  
blackjack oak  
water oak  
willow oak  
red oak  
black oak  
live oak  
black locust  
weeping willow  
sassafras  
American mountain ash  
American linden  
littleleaf linden  
Canada hemlock  
winged elm  
Picea abies  
Nyssa sylvatica  
Pinus taeda  
Pinus virginiana  
Platanus occidentalis  
Populus deltoides  
Quercus alba  
Quercus coccinea  
Quercus falcata  
Quercus imbricaria  
Quercus marilandica  
Quercus nigra  
Quercus phellos  
Quercus rubra  
Quercus velutina  
Quercus virginiana  
Robinia pseudoacacia  
Salix babylonica  
Sassafras albidum  
Sorbus americana  
Tilia americana  
Tilia cordata  
Tsuga canadensis  
Ulmus alata
SMALL ORNAMENTAL TREES: some can be pruned into large, multi-stemmed shrubs

red buckeye
silktree
redbud
Atlantic white cedar
fringe tree
smoke tree
Franklin tree
silver bell
goldenchain tree
crape myrtle
sourwood
American elder
Stewartia

Aesculus pavia
Albizia julibrissin
Cercis canadensis
Chamaecyparis thyoides
Chionanthus virginica
Cotinus coggygria
Franklinia alatamaha
Halesia carolina
Laburnum anagyroides
Lagerstroemia indica
Oxydendron arboreum
Sambucus canadensis
Stewartia malacodendrom

3-Eighteenth Century Pleasure Garden

Pleasure gardens, usually a luxury reserved for wealthy eighteenth century colonists, contained many of the same ornamental herbs, shrubs, and flowers as the kitchen gardens. In addition, they often contained fruit-
ing shrubs and trees grown for their beauty as well as for their fruits. The medium and large deciduous and evergreen trees listed for the kitchen garden were also found within these pleasure gardens or just outside of them. They are excellent subjects for the proposed screens and transitions between this garden and the rest of the property.

The site chosen is proximate to the hotel in a space that at present is partially fenced. The area, which borders Airfield Pond, is low and swampy. Fill dirt and topsoil will be required in order to install this garden in this location. Guests will walk past the entrance to this garden many times a day—the garden will offer them a place to rest and relax. This garden, necessarily formal, can be designed as informally as the nature of the garden permits, in order to be harmonious with the rest of the site. A combination of free-form and clipped specimens, with emphasis on bright flowers and informal hedges is appropriate.
SUGGESTED PLANTS:

- mountain stewartia
- Eastern arborvitae
- common paper mulberry
- Medlar
- cornelian cherry dogwood
- sweetbay magnolia

SUGGESTED PLANTS FOR PLEACHED ARBORS:

- American hornbeam
- American beech

SUGGESTED PLANT FOR PARTERRE:

- dwarf boxwood
SUGGESTED PLANTS FOR ESPALIERS:

fruit trees
roses
firethorn Pyracantha coccinea

SUGGESTED PLANTS FOR TOPIARY:

dahoon holly Ilex cassine
American holly Ilex opaca
yaupon holly Ilex vomitoria
American boxwood Buxus sempervirens
waxmyrtle Myrica cerifera
inkberry Ilex glabra

SUGGESTED PLANTS FOR HEDGES:

waxmyrtle Myrica cerifera
littleleaf linden Tilia cordata
(aerial hedge/canopy)
tree boxwood Buxus sempervirens
dwarf boxwood
American hornbeam
Redosier dogwood
Washington hawthorn
American beech
dahoon holly
inkberry
American holly
yaupon holly
Norway Spruce
live oak
Eastern arborvitae
Eastern Hemlock

Buxus sempervirens
'Suffruticosa'
Carpinus caroliniana
Cornus stolonifera
Crataegus phaenopyrum
Fagus grandifolia
Ilex cassine
Ilex glabra
Ilex opaca
Ilex vomitoria
Picea abies
Quercus virginiana
Thuja occidentalis
Tsuga canadensis

4—Late Eighteenth and Nineteenth Century Picturesque Pleasure Ground

In the late eighteenth century, George Washington and Thomas Jefferson were among the first to bring the English picturesque style of gardening to America, employing its principles at Mount Vernon and Monticello. It called for naturalistic plantings—"clumps," "groves," "shrubberies,"
and "wildernesses." Many native American plants were suitable for this kind of landscape design. In the nineteenth century the naturalistic style was modified by A. J. Downing and others, and two approaches to planting were identified: the beautiful, characterized by "simple, flowing" forms, and the picturesque, by "striking, irregular, and spirited" forms.

Jefferson described a good method for planting a picturesque grove in his "General ideas for the improvement of Monticello": "The best way of forming thicket will be to plant it in labyrinth spirally, putting the tallest plants in the center and lowering gradation to the external termination. A temple or seat may be in the center, thus leaving space enough between the rows to walk and to trim up, replant the shrubs (1)."

The number of species suitable for the naturalistic garden grew in the nineteenth century as plant exploration burgeoned throughout the world. Plants used in the picturesque gardens of Jefferson's day, and those used by others in the middle to late nineteenth century when availability was greater, are grouped into one list.

Jefferson's plant arrangement can be followed at Airfield, or, more simply, naturalistic groupings of the following plants can be used. It is recommended that the tennis courts, well-house, and the recreation building be screened by these picturesque plantings.

SUGGESTED PLANTS:

- Norway spruce: *Picea abies*
- Eastern arborvitae: *Thuja occidentalis*
- Atlantic white cedar: *Chaemecyparis thyoides*
- Eastern red cedar: *Juniperus virginiana*
- azaleas: *Rhododendron* spp.
- rhododendrons: *Rhododendron* spp.
- umbrella magnolia: *Magnolia acuminata*
- poplars: *Populus* spp.
- lilac: *Syringa vulgaris*
- cornelian cherry dogwood: *Cornus mas*
- smoke tree: *Cotinus coggyria*
- forsythia: *Forsythia* spp.
- viburnums: *Viburnum* spp.
- Canadian hemlock: *Tsuga canadensis*
- Carolina hemlock: *Tsuga caroliniana*
douglas fir  
Pseudotsuga menziesii

horsechestnut  
Aesculus hippocastanum

birches  
Betula spp.

blue atlas cedar  
Cedrus atlantica
'Glaucan'

cedar of Lebanon  
Cedrus libani

deoagara cedar  
Cedrus deodara

English beech  
Fagus sylvatica

American beech  
Fagus grandifolia

larch  
Larix decidua

loblolly pine  
Pinus taeda

black locust  
Robinia pseudoacacia

pagoda tree  
Sophora japonica

5—Victorian Annual Carpet Bed

The method of massing brightly colored annuals which became popular during the Victorian period of 1850 to 1900 is called carpet bedding or bedding out. The location chosen is highly visible and will provide summer color. It is recommended that a Victorian garden ornament be included in the display, such as a cast iron urn or bird bath.
SUGGESTED PLANTS:

- century plant: Agave americana (for urn)
- cordyline: Cordyline indivisa (for urn)
- coleus: Coleus blumei
  - var. golden bedder
- coleus: Coleus blumei
  - var. kirkpatrick
- coleus: Coleus blumei
  - var. vershaffeltii
- dwarf lantana: Lantana camara var. hybrida
- edging lobelia: Lobelia erinus
- sweet alyssum: Lobularia maritima
- single and double geraniums: Pelargonium spp.
- scarlet salvia: Salvia splendens
- lavender cotton: Santolina chamaecyparissus
- stonecrop: Sedum acre
- dusty miller: Senecio leucostachys
- nasturtium: Tropaeolum majus
- tulip varieties: Tulipa spp.
pansy

Joseph's coat amaranth
snapdragon
china aster
canna
cleome
calliopsis
California poppy

blanket flower
globe amaranth
candytuft
impatiens
tree mallow
toadflax
four o'clock plant
forget-me-not
petunias

portulaca
butterfly flower
African marigold
French marigold

Viola tricolor
var. hortensis
Amaranthus tricolor
Antirrhinum majus
Callistephus chinensis
Canna indica
Cleome unguiculata
Coreopsis tinctoria
Eschscholzia californica
Gaillardia pulchella
Gomphrena globosa
Iberis umbellata
Impatiens balsamina
Lavatera trimestris
Lunaria vulgaris
Mirabilis jalapa
Myosotis arvensis
Petunia nyctaginiflora
Petunia phoenicia
Portulaca grandiflora
Schizanthus pinnatus
Tagetes erecta
Tagetes patula
In this century many of the woody ornamental plants that were discovered in past centuries have been genetically altered to produce a great variety of interesting hybrids and cultivars. Since there exists a good collection of such plants at the front of the Gray Building and around the swimming pool, and because these plants impart the resort image desired by Airfield management, these locations are suitable for a more extensive collection. It is recommended that the existing plants be reorganized and integrated with the new specimens to create an attractive display. Many cultivars are available of the species listed below.
SUGGESTED PLANTS:

SHRUBS AND TREES:

junipers

Chinese hollies

Japanese hollies

Mesorve hollies

Liriope

Shrub dogwoods

Cotoneasters

Hawthorns

Euonymus

Hypericums

Crape myrtle

Scarlet honeysuckle

Magnolias

Osmanthus

Mugo pine

Pyracanthas

Juniperus chinensis

Juniperus conferta

Juniperus procumbens

Juniperus virginiana

Ilex cornuta

Ilex crenata

Ilex x meserveae

Liriope muscari

Liriope spicata

Cornus spp.

Cotoneaster spp.

Crataegus spp.

Euonymus spp.

Hypericum spp.

Lagerstromia indica

Lonicera sempervirens

Magnolia spp.

Osmanthus spp.

Pinus mugo

Pyracantha coccinea
roses
lilacs
viburnums
arborvitaes
falsecypress

Rosa spp.
Syringa spp.
Viburnum spp.
Thuja spp.
Chamaecyparis spp.

ORNAMENTAL GRASSES:

giant reed
miscanthus
pampas grass
fountain grass
fescues
ribbon grass

Arundo donax
Miscanthus spp.
Cortaderia selloana
Pennisetum setaceum
Festuca spp.
Phalaris arundinacea
var. picta

7--Modern Annuals for Cut Flowers and Ornament

This century has also seen a great multiplication in the number of cultivated varieties of annual flowers. A bed containing these plants is suggested for along the deck at the back of the Gray Building. Most of the sug-
gested plants are tall-growing so can be viewed from the
dining room and the deck. The lower growing species can
be used as edging flowers. Species adaptable to shade are
listed, however it is recommended that some of the trees
in the lawn area be removed and others have their branches
thinned, in order to provide adequate light for the many
sun-loving annuals. Since the exposure is a northeastern
one, efforts must be made not only to open up the tree
canopy but to site plants appropriately. An additional
feature of many of the plants chosen is that they produce
excellent cut flowers for both fresh and dried arrange-
ments.

SUGGESTED PLANTS:

suitable for sunny of partially shady areas:

<table>
<thead>
<tr>
<th>impatiens</th>
<th>Impatiens wallerana</th>
</tr>
</thead>
<tbody>
<tr>
<td>balsam</td>
<td>Impatiens balsamina</td>
</tr>
</tbody>
</table>
| begonias      | Begonia x semper-
                | flores-cultorum      |
| browallia     | Browallia speciosa   |
| wishbone flower | Torenia fournieri    |
canterbury bells
monkey flower
flowering tobacco
pansy

for sunniest areas:

snapdragons
pot marigold
China aster
canterbury bells
vinca
cockscomb
plume celosia
bachelor's button
wallflower
spider plant
coleus
dwarf morning glory
calliopsis

China pink

Campanula medium
Mimulus x hybridum
Nicotiana tobacum
Viola x wittrockiana

Antirrhinum majus
Calendula officinalis
Callistephus chinensis
Campanula medium
Catharanthus roseus
Celosia cristata
Celosia plumosa
Centaurea cyanus
Cheiranthus cheiri
Cleome hasslerana
Coleus x hybrid
Convolvulus tricolor
Coreopsis tinctoria
Cosmos bipinnatus
Cosmos sulphureus
Dahlia x hybridum
Dianthus chinensis
blanket flower  
Gaillardia pulchella

gerber daisy  
Gerbera jamesonii

globe amaranth  
Gomphrena globosa

annual baby's breath  
Gypsophila elegans

heliotrope  
Heliotropium arbores-cens

candytuft  
Iberis umbellata

tree mallow  
Lavatera x hybridum

four o'clock plant  
Mirabilis jalapa

flowering tobacco  
Nicotiana alata

shirley poppy  
Papaver rhoeas

Iceland poppy  
Papaver nudicaule

geranium  
Pelargonium x hortorum

petunia  
Petunia x hybrida

annual phlox  
Phlox drummondii

gloriosa daisy  
Rudbeckia hirta var. pulcherrima

'sGloriosa Daisy'

scarlet sage  
Salvia splendens

blue sage  
Salvia farinacea

pincushion flower  
Scabiosa atropurpurea

French marigold  
Tagetes patula

African marigold  
Tagetes erecta

Mexican sunflower  
Tithonia rotundifolia
nasturtium  
verbena  
zinnia

Tropaeolum majus
Verbena x hybrida
Zinnia elegans
Zinnia angustifolia

8---Native Virginia Wildflowers Known to Have Been Cultivated by Virginians Beginning in the Seventeenth Century

The area at the back of the Gray Building near the water is an ideal location for this collection of native plants. They have various requirements for sun and shade, and moist and well-drained soil. All of these conditions are met in the designated area. In addition, the location is proximate to sites of activity, thus will facilitate the close inspection often required to appreciate inconspicuous and delicate wildflowers.
### Suggested Plants:

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamestown lily</td>
<td><em>Zephyranthes atamasco</em></td>
</tr>
<tr>
<td>wild bergamot</td>
<td><em>Monarda fistulosa</em></td>
</tr>
<tr>
<td>coneflower</td>
<td><em>Rudbeckia laciniata</em></td>
</tr>
<tr>
<td>black-eyed Susan</td>
<td><em>Rudbeckia hirta</em></td>
</tr>
<tr>
<td>columbine</td>
<td><em>Aquilegia canadensis</em></td>
</tr>
<tr>
<td>evening primrose</td>
<td><em>Oenothera biennis</em></td>
</tr>
<tr>
<td>goldenrod</td>
<td><em>Solidago spp.</em></td>
</tr>
<tr>
<td>sneezeweed</td>
<td><em>Helenium spp.</em></td>
</tr>
<tr>
<td>turks-cap lily</td>
<td><em>Lilium martagon</em></td>
</tr>
<tr>
<td>blue lobelia</td>
<td><em>Lobelia siphilitica</em></td>
</tr>
<tr>
<td>cardinal flower</td>
<td><em>Lobelia cardinalis</em></td>
</tr>
<tr>
<td>rose mallow</td>
<td><em>Hibiscus moscheutos</em></td>
</tr>
<tr>
<td>spiderwort</td>
<td><em>Tradescantia virginiana</em></td>
</tr>
<tr>
<td>Virginia bluebell</td>
<td><em>Mertensia virginica</em></td>
</tr>
<tr>
<td>dog's tooth violet</td>
<td><em>Erythronium americanum</em></td>
</tr>
<tr>
<td>bloodroot</td>
<td><em>Sanguinaria canadensis</em></td>
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<tr>
<td>monkshood</td>
<td><em>Aconitum uncinatum</em></td>
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<tr>
<td>pink lady's slipper</td>
<td><em>Cypripedium acaule</em></td>
</tr>
<tr>
<td>yellow lady's slipper</td>
<td><em>Cypripedium calceolus</em></td>
</tr>
<tr>
<td>spring beauty</td>
<td><em>Claytonia virginica</em></td>
</tr>
<tr>
<td>Solomon's seal</td>
<td><em>Polygonatum biflorum</em></td>
</tr>
<tr>
<td>trillium</td>
<td><em>Trillium spp.</em></td>
</tr>
</tbody>
</table>
CONCLUSION

The text of the thesis, the accompanying landscape plans, and the instructions provided here are adequate information to get this educational landscape beautification project started. However, if the project is to be seen to its fruition, it will be necessary for landscape architects to design a master plan for the grounds at Air-
field, because only from such a comprehensive plan can an entirely functional and attractive landscape be generated. Detailed plans for the specific gardens must also be produced, which designate species and spacing.

Further information on authentic period species, hybrids, varieties, and cultivars is available from the sources listed in the citations. A policy must be determined concerning the acceptance of modern versions of these historical plants. In some cases, the authentic period plants no longer exist, and it will be necessary to either use their modern relatives or to select alternatives to these lost plants. Speciality nurseries and seed houses offer some rare authentic plants for sale. Acquiring them from these sources may be determined worthwhile, or too time-consuming and expensive. A list of sources for authentic plants can be found in Rudy and Joy Favretti's *Landscapes and Gardens for Historic Buildings*.

In addition, further recommendations and instructions on the horticultural aspects of the gardens are necessary—on proper soil, exposure, fertilization, pest control, and general maintenance. Signs, labels, and informational literature are also important aspects of the project, and should be part of the garden experience.
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