

The Trees of Arlington National Cemetery

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In the fall of 1959 I was engaged by the Army to make a study of all the trees within the developed portions of our National Cemetery at Arlington. This consisted of mapping exact locations, identifying trees as to genus and species, and recording measurements. The final count was 6,079 trees, with the detailed report covering 277 pages, together with 53 maps. All the foregoing was accomplished with an eye to quick and easy identification of any tree within the grounds as an aid to the already extensive maintenance program.

While engaged in this survey, I was impressed by two items in particular: first, the variety of native and cultivated material—177 species and varieties—and, second, the great number of truly specimen trees found among the indigenous species, for nowhere in northern Virginia have I ever before encountered such a representative assemblage of forest giants as here.

In this day and age of cutting down trees to widen the roads, removing the forests to build houses, and cutting up historical estates to make way for subdivisions, we can only decry the passing of such historic landmarks as Ossian Hall on the Bristow Tract and Ravensworth Farm on Braddock Road, for who can purchase these priceless items of our heritage, and so preserve them for antiquity? The only value of the trees is in lumber, and that only if the time schedule of construction permits. It rarely does, and hundreds of years of majesty are sawed or bulldozed to the ground, pushed to a crane which stacks them trunk to trunk, as so many matchsticks, and then burned.

It was with these observations before me that I turned my thoughts to the trees of Arlington and the reasons for their preservation through the years. From the log of Capt. John Smith, we find that in the year 1608 he and his men sailed up the "Patawomeck" as far as Little Falls, finding the river full of fish and the shore full of savages. We are all familiar with the story of John Smith, Pocahontas, John Rolfe, and the Indian chief Powhatan, who claimed jurisdiction over this part of the country. It is not my intent to delve into the early history; suffice it to say that by 1665 settlers were coming into the area and by 1700 the "savages" had, for the most part, either been exterminated or had moved elsewhere.

However, from the standpoint of trees, the early land grants and surveys are of interest to us, inasmuch as many of the corners, or points of deviation from the tangents, are described in terms of standing trees or stumps. Thus, in an effort to discover which trees were recognized as native to the area several hundred years ago, it was with great delight that I seized upon the

description of the Howson Land Grant, which was issued on October 21, 1669, by Sir William Berkeley, Governor of Virginia, to Robert Howson for 6,000 acres beginning on the west side of the Potomac River "at a red oak standing by a small branch or run of water neare opposite to a small Island commonly called and known by the name of My Lord's Island [Roosevelt Island] extending downe Potomack River * * * to a pokecory standing at the north point of a creek named by the English Indian Cabin Creek [Great Hunting Creek]."¹ Pokecory was from the Indian name "Pohickory," used to designate the hickory trees. The northern boundary of this grant is the present northern boundary of Arlington National Cemetery.

In 1775 George Washington bought a tract of ground at Four Mile Run, which included about 1,200 acres, comprised of two holdings which had been described in 1720 and 1730, respectively. Here again, the boundary corners prove most interesting. From General Washington's original survey of this plot we find that he was unable to locate three corner trees, but located one stump, one pine, one chestnut oak, two hickories, two red oaks, and five white oaks!

Although the sampling of these 11 trees out of a forest of 1,200 acres cannot be considered as significant, the recurrence of the white oak was so striking that I could not help but compare these with my own findings. Taking only the species involved, the oaks, hickories, and pines, I was inclined to dismiss the pine as a short-lived tree which belongs rightfully to the coastal region and occurs here only possibly as a fire subclimax tree. General Washington's remaining boundary trees were then composed of 50 percent white oak, 20 percent red oak, 20 percent hickories, and 10 percent chestnut oak. With 1,254 trees representing the total of the four types listed as found and identified in Arlington Cemetery, the distribution of individual species is 53 percent white oak, 15 percent red oak, 19 percent hickories, and 13 percent chestnut oak. This is possibly coincidental, yet still is indicative that the ecological relationships in a relatively undisturbed forested section in this area have not materially changed in over 200 years.

Inasmuch as climate is the controlling factor in producing a climax forest, from a botanical standpoint we should not expect any change to have occurred in these forested sections unless it might have been occasioned by fire or by man. The age of some of the trees would indicate that the forests of Arlington have not known fire for at least 250 years; therefore, if there were any change in the forest types it could only be because man himself cut the trees, perhaps to furnish lumber or to extend the size of the cultivated fields.

With these thoughts in mind, let us examine the development of Arlington under the guidance of George Washington Parke Custis, the owner and builder of Arlington House, which today is officially known as the Custis-Lee Mansion and is hereinafter referred to as the Mansion.

¹ Charles W. Stetson, *Four Mile Run Land Grants*, p. 1. 1935.
See also *Arlington Historical Magazine*, vol. 1, No. 3, p. 64. 1959.



THE CUSTIS ELM.

George Washington Parke Custis, the father-in-law of Gen. Robert E. Lee, was the grandson of Martha Washington. When he was six months old his father died, and he was adopted by the Washingtons and taken to live at Mount Vernon. He was 19 at the time of General Washington's death in 1799. Custis continued living at Mount Vernon until the death of Martha Washington in 1802, at which time he moved from Mount Vernon to "Mt. Washington," which was the first name given to the 1,100-acre tract purchased by his father in 1778. Only later did he name it Arlington, after the family home on the Eastern Shore of Virginia. History tells us that at this time the entire holding was "mostly woodland and virgin forest with some cultivated land near the Potomac."² Brought up at Mount Vernon for his

² *Lee Mansion*, National Park Service Historical Handbook Series No. 6, Washington, 1953.

first 19 years, we can assume that the improvements effected by General Washington must have created a lasting impression on the growing youth. We know that Washington was an ardent gardener and agriculturist, and we find Custis establishing at Arlington agricultural practices which laid the groundwork for the vast system of agricultural improvements in effect today in this country.

The following excerpts from the diary and letters written by General Washington well illustrate the type of development under way at Mount Vernon, and we find that a comparable program was continued by Mr. Custis at Arlington. On January 6, 1785, the General wrote to his nephew George Augustus Washington, as follows: "I wish you would procure for me in South Carolina a few of the acorns of the live Oak, and the seeds of the Evergreen Magnolia."³ A seedling magnolia of this planting survived at Mount Vernon until 1918, and descendants of this tree are growing there today. In his diary of January 12, 1785, we find: "Rode to my Mill Swamp * * * and to other places in search of the sort of Trees I shall want for my Walks, Groves, and Wildernesses,"⁴ and in a letter of January 22, 1785: "Are there any young shoots which could be had of the Yew tree or Hemlock (For I do not now recollect which of these it is) that grows on the margin of Quantico Creek? Plantations of this kind are now become my amusement and I should be glad to know where I could obtain a supply of such sorts of trees as would diversify the scene."⁵

Here we might note that along the cool, damp ravines of Occoquan Creek, hemlock (*Tsuga canadensis*) can be found today.

From General Washington's diary of February 22, 1785, we see that he "also removed from the woods and old fields, several young trees of the Sassafras, Dogwood and the Red bud, to the shrubbery on the No. side of the grass plot."⁶ Four days later he "dug most of the holes where the trees by the side of them are to stand, and planted some of the Maple which were dug yesterday." He "planted the Hemlock Scions which were brought home yesterday, 28 in number * * * and 13 Weeping and 13 Yellow Willow Trees" the following month.⁷

In a letter to George William Fairfax, dated June 26, 1786, Washington writes: "I will receive with great pleasure and gratitude the seeds of any trees or shrubs wh. are not natives of this country, but reconcilable to the climate of it."⁸

From letters and early drawings, we know that Custis established a similar garden at Arlington, but most of the shrubs have been displaced by

³ Gerald W. Johnston, *Mt. Vernon*.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*

others. However, off the southeast corner of the Mansion is an American elm (*Ulmus americana*) with a diameter of almost 6 feet, and an estimated age of 150 years. This would place its time of planting at about 1810. It is thought that the Mansion was completed in 1817, which would indicate that this particular tree might well have been planted by Mr. Custis. Further, a water color in the Mansion, painted in 1853 by the historian-artist Benson J. Lossing, shows a view of the Mansion as seen from the southwest. To the left of the house is a tree, unmistakably an elm, which, judged from its size



THE PARK AS SEEN FROM CUSTIS WALK.

in relation to the house, would have been about 35 years old at the time of the painting. This is undoubtedly the same elm we see today.

Along the same line of research, an earlier engraving of about 1845 shows a closer view of the Mansion, and thus excludes the elm, but it does show, in the foreground, two trees about 6 to 8 feet tall, columnar in growth and with branches extending completely up the trunk, starting at ground level—very probably red cedars. Around each tree is a protective wooden structure, consisting of four posts with a top rail and bottom rail to keep the cattle (four of which are shown) from damaging the young trees.

The painting of 1853 shows several red cedars in the foreground in a position comparable to that of several growing there now. However, details are not as clear on these as those of the elm, and we are unable to say whether these are the same as the ones depicted.

From this historical information, we can readily see that the trees were a most important asset of Arlington. We are told that Mr. Custis's main income was derived from other estates which he owned and that Arlington was maintained as a gentleman's estate. Undoubtedly underbrush and secondary growth had been cleared from these areas to produce the "Park," as indicated on the earlier maps. Unsightly trees were removed and others added as might be expected of a gentleman's estate.

However, there was one disturbing discovery. In the light of this early history of virgin oak forests, well cared for, why was I finding two distinct age groups among the trees? For two distinct epochs there are, separated by as much as 150 years. To the east of the Mansion, on the gentle slopes approaching the flats of the Potomac River, I found our largest trees: on the 330 acres examined I found 26 trees with diameters of 48 inches and larger, yet 17 of these trees are growing on these 37 acres to the east of the Mansion.

The answer was obvious. During the Civil War a ring of forts was constructed around Washington, and one of these, Fort McPherson, was built some distance west of the Mansion. During the process of construction new roads were cut through the forests, and a considerable portion of the trees in the vicinity of the Fort were removed to create fire lanes. With the close of the War, the native trees began to grow back in the denuded areas. This new forest contained the same types as the previously destroyed one. To understand completely the development of these Arlington forests from the beginning of our country's history until the present, some knowledge of soils and climate, and their relationship to vegetation, is necessary.

Specifically, Arlington Cemetery is located south of the "fall line," which separates the Piedmont Plateau on the northwest from the Coastal Plain on the southeast. The Piedmont Plateau is characterized by steep ravines with creeks flowing to the Potomac, whereas the Coastal Plain has more gradual slopes bearing to the east and southeast. The term "fall line" derives from the numerous abrupt drops (falls) in the rivers and streams, and, further, the

Coastal Plain soils are in general made up of unconsolidated gravels, sand, and clay, deposited during successive advances of the seas in Cretaceous, Tertiary, and Quaternary periods. True Coastal Plain is characterized by bogs, usually



300-YEAR-OLD WHITE OAK AT FOOT OF THE MEADOW. NOTE ORNAMENTAL CHERRY IN LEFT FOREGROUND.

underlaid with gravel, with the accompanying hillsides of dry, sterile soil clothed with mountain laurel (*Kalmia latifolia*), interspersed and going into mixed pine-oak (*Pinus virginiana-Quercus marilandica*) woods.

In examining the ecology of the eastern United States, we find the entire section is a deciduous forest, which has its counterpart only in isolated sections of the Pacific coast, and in certain sections of Europe and Asia. Within the deciduous forest there exist three distinct divisions: the Maple-Beech, the Oak-Hickory, and the Oak-Chestnut. The Maple-Beech is characteristic of the cooler northern section; the Oak-Hickory extends down the Appalachian Chain and into the Ozarks; the Oak-Chestnut adjoins the Maple-Beech to the north and is bordered on the west by the Oak-Hickory belt. In the Piedmont region of the southeastern United States this Oak-Chestnut climax passes into one composed of Oak-Hickory mixed with pines, which extends on to the Atlantic coast. Wherever fire has destroyed the original forest of deciduous trees, pines come in as a subclimax, being displaced in time by the climax Oak-Hickory forest.

The foregoing description applies to this northern Virginia section as a transitional area, one characterized by a multiplicity of plant associations.

Although the American chestnut (*Castanea americana*) has disappeared from our woods as a dominant, numerous rotting trunks, white with age, can still be found in some of the wooded areas to the northwest of Arlington County. In this climax association, the dominants are chestnut-oak (*Quercus montana*), scarlet oak (*Quercus coccinea*), and tuliptree (*Liriodendron tulipifera*). Frequent associates are red oak (*Quercus borealis maxima*), white oak (*Quercus alba*), sweet gum (*Liquidambar styraciflua*), and the shell-bark hickory (*Carya ovata*).

In the Oak-Hickory climax, the dominants are the red oak (*Quercus borealis maxima*), black oak (*Quercus velutina*), white oak (*Quercus alba*), bur oak (*Quercus macrocarpa*), shell-bark hickory (*Carya ovata*), and mockernut hickory (*Carya tomentosa*). Frequent associates are scarlet oak (*Quercus coccinea*), southern red oak (*Quercus falcata*), and pignut (*Carya glabra*), with post oak (*Quercus stellata*) and black-jack oak (*Quercus marilandica*) being a subclimax found mostly on drier soils.

Associates of these two climaxes are found in valleys or along river banks where the soil profile shows greater depth of topsoil. These consist of red maple (*Acer rubrum*), ash (*Fraxinus*), elm (*Ulmus*), silver maple (*Acer saccharinum*), walnut (*Juglans nigra*), and sycamore (*Platanus occidentalis*).

The above has been confined to the dominant trees constituting our deciduous climax forests, together with some of the subclimax associates. However, these would not be complete without some mention of the understory as recognized in this area.

Perhaps most familiar is the State flower, dogwood (*Cornus florida*), and the evergreen sentinel of our hedgerows, the red cedar (*Juniperus virginiana*). Farmland permitted to lie fallow will soon spring up in pine (*Pinus virginiana*) and locust (*Robinia pseudoacacia*), and how many of us, with the first frost, have competed with the "possums" for our share of the persimmons (*Diospyros virginiana*) in these same fields? Or perhaps we have

searched the deeper woods along the creek banks for the little glades wherein grows the pawpaw (*Asimina triloba*). Then again, it may have been in early summer that the small black fruit of the wild cherry (*Prunus serotina*) satisfied, not necessarily our appetites, but our pioneer instincts to gather food from the woods about us; or perhaps we made excursions to gather hickory nuts from the abundant small-fruited variety (*Carya ovalis*). How often have we admired the magenta drifts of redbud (*Cercis canadensis*) blooming with the dogwood, followed by the delicate white-pink of wild azaleas and mountain laurel? All these trees and shrubs are the forest cover over the gentle hills and slopes which make up Arlington National Cemetery.



WHITE OAKS IN THE PARK SOUTHEAST OF THE MANSION HOUSE.

As we stand in the driveway of the Mansion facing Washington, we are instantly aware of the broad, open meadow immediately before us, rolling in gentle swales down toward the Potomac. On either side this meadow is bounded by great trees composed almost exclusively of oak species, with predominantly white oak to the south and chestnut oak to the north.

At the foot of the meadow is the largest tree found, a white oak with a circumference of 16 feet, shading an area in excess of a quarter of an acre. This represents only three-quarters of the original tree, for the north side exhibits an immense healed scar, where a portion of the tree was split away by a storm many years ago.

To our left, the driveway leads north into Custis Walk, which follows a

gentle grade downhill and finally terminates at one of the east entrances on Arlington Ridge Road. It is believed that this walk follows the original carriage road which led up to the Mansion.

In its entirety the walk is in the shade of a parklike forest, and, indeed, the earliest maps of the Custis-Lee holdings designate this entire acreage which makes up Arlington Cemetery as "the Park." As we start down the walk we discover first a hillside to our left, the trees of which are predominantly chestnut oak, with a scattering of mockernut hickories and white oaks. This section has been underplanted with laurel, hemlock, and dogwood. Farther down the forested slope, where the ground begins to level out, we find the dominant association is now white oak, with a scattering of hickories, black oaks, chestnut oaks, and post oaks.

The general character of the woods remains the same all the way to Arlington Ridge Road, but as we approach the more level ground the chestnut oaks disappear and are supplanted by more post oaks. To the south of the walk, and bordering the meadow, are several specimen southern red oaks (*Quercus falcata*), sometimes called Spanish oaks, and on the edge of the meadow itself are several fine red cedars with diameters in excess of 12 inches. Indeed, the red cedar is typically found wherever the heavy shade areas give way to more open glades or sunny fields, and here at Arlington we have counted 350 of them.

However, the best represented family is that of the oaks, there being almost 2,000 trees distributed among 17 varieties, ranging from 687 white oaks down through the more common species to only one example of Fernow's oak (*Quercus fernowii*), which is a natural hybrid between the white oak and post oak. Its occurrence is somewhat rare and represents an excellent addition to our list of species. Of equal interest was the discovery of still another hybrid, Saul's oak (*Quercus saulii*), represented by five tremendous trees, the largest of which was 34 inches in diameter. This tree is a hybrid of the white oak and the chestnut oak and is found in mixed stands of the parents.

The second largest group is that of the maples—738 trees, among 12 species and varieties. The tulip poplar, hemlock, ornamental Japanese cherries, American elms, dogwoods, hickories, and American holly each have over 200 members to their credit. The arbor-vitae, American beech, black gum, magnolias, and spruce are represented by almost a hundred trees each; 48 true cedars are thriving here. Not only the cedars of Biblical note, Lebanon and atlas, but that graceful native of the Himalayan foothills, the deodar, have been planted in informal groupings which blend with our native materials.

The remaining 1,000 trees are represented by about 70 species, ranging from 35 each of silver linden (*Tilia tomentosa*), black locust (*Robinia pseudoacacia*), sweet gum (*Liquidambar styraciflua*), and European beech (*Fagus sylvaticus*), down to several single species. Among the latter are weeping beech, bald cypress (best known as the knobby-kneed individ-

uals of our southern swamps), fringe tree, paulownia, smoke tree, and that giant among ancients, the sequoia (*Sequoiadendron*), native of our own West coast.

Among the 170 species, more than half are not native to this section but have been introduced from various compatible parts of the United States, and many from the temperate areas of the world, or, to quote George Washington, we have certainly managed to gather an impressive collection "of all the clever kinds of Trees (especially flowering ones) that can be got."⁹ These additions have been accomplished in a manner not to supplement but rather to augment the existing tree cover; in other words, by additional planting we are not supplying something which nature lacks, but rather enhancing something which already exists, as witness "the Park" in cherry-blossom time. With Washington renowned for its cherry trees, we feel that here in Arlington is a display second to none in this area. For here the senses are not overwhelmed by sheer weight of numbers, as is common elsewhere, but rather the eye is led along the graceful drives and paths by bursts of pale beauty against a backdrop of ever-increasing greenery among the awakening trees of the natural forest.

We have now come full circle from the time when Capt. John Smith and his crew first viewed these oak-hickory forests as they sailed up the "Patawomeck" and so into history. Their arboreal descendants are still here today, and, a gracious climate willing, will be here tomorrow.

⁹ *Ibid.*

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NOTE: Illustrations accompanying this article are from U. S. Army photographs.