

FREDERICK LAW OLMSTED:

HIS HORTICULTURAL PHILOSOPHY AND PRACTICE

BY

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PREFACE

The preparation of this thesis was made possible through the Longwood Graduate Program in Ornamental Horticulture at the University of Delaware. The purpose of the research is to document the horticultural philosophy, objectives, and methods of Frederick Law Olmsted.

The interest of Dr. Richard W. Lighty in horticulture, Dr. Charles W. Dunham in plant materials, and Dr. Edward P. Alexander in history led me to discover the contributions of Olmsted. Encouraged by Olmsted scholars-- Dr. Charles Beveridge, Dr. Albert Fein, Jane Loeffler, Dr. Charles McLaughlin, and Cynthia Zaitievsky--I pursued Olmsted's horticultural career.

The staff in the Manuscript Division of the Library of Congress was most cooperative in assisting me to explore the 200,000 items in the Olmsted collection. Henry Hope Reed, curator of Central Park, and Cornelius O'Shea, director of horticulture for the New York City Department of Parks, provided me with invaluable advice and information on Olmsted's work in Central Park.

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And, of course, without the guidance and understanding of my wife, Marcia, this thesis would never have been written.

--H.J.O.

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INTRODUCTION

Wise leaders in our society constantly try to better its future, just as Frederick Law Olmsted did a century ago. Attempting to create an enriched life for people, he planned parks, communities, college campuses, institutional grounds, and private estates. In 1972, the sesquicentennial of his birth, renewed acclaim came to Olmsted, the "father of American landscape architecture."

Among Olmsted's principal works are the parks of New York, Boston, Buffalo, Chicago, Milwaukee, Rochester, Louisville, Detroit, and many other cities across the country. He was also responsible for designing the U.S. Capitol grounds in Washington, the World's Fair (1893) in Chicago, Stanford University, and George W. Vanderbilt's estate, "Biltmore."

In all of his works, the skillful use of plant material played an important role. There is little doubt of his mastery of design and organizational genius. But was Olmsted a horticulturist? This thesis will attempt to prove that, indeed, he had mastered the art and science of horticulture.

The first chapter will examine Olmsted's background that led him to horticulture: his boyhood, education, travels,

observations, and reading. His philosophy concerning the importance of nature, and specifically of plant materials, to man was a vital foundation for his design, and will be discussed in chapter two. The third and final chapter delves into Olmsted's horticultural objectives and methods by exploring his first and last major works, Central Park in New York and Biltmore Estate in North Carolina.

Frederick Law Olmsted was more than a horticulturist or landscape architect. He was an organizer and leader, a thinker and inspiration to succeeding generations. Olmsted's prophetic vision is as important to us today as his insights were over a century ago.

Chapter I

THE DEVELOPMENT OF OLMSTED'S PHILOSOPHY

Frederick Law Olmsted's remarkable ability to create landscape beauty resulted in large part from his life-long appreciation of nature's scenery. Gifted with an intelligent mind, Olmsted developed the ability to observe accurately and keep carefully detailed diaries. He was fortunate to live in a period of great expansion of the country and had many opportunities to travel and explore the world. Although he did display a good working knowledge of horticulture, Olmsted did not consider himself especially interested in the botanical aspects of plants and flowers. Instead, their appeal to him was aesthetic. In later life he said in an interview:

The root of all my work has been an early respect for and enjoyment of scenery, and extraordinary opportunities for cultivating susceptibility to its power. I mean not so much grand or sensational scenery as scenery of a more domestic order---scenery which is to be looked upon contemplatively, and is productive of musing moods.¹

Olmsted was given to frequent and thorough introspection even at a young age. In a short handwritten essay, "Tendencies that Led Frederick Law Olmsted to Landscape Architecture in Early Life," he wrote:

My boyish wanderings often take in the enjoyment

of scenery and I [have] thought a little of what afforded my enjoyments of it. Not enough to make me a scholar of the subject,...[i]t first included and prepared me to be a farmer, a woodsman, and in an elemental way, a designing engineer ...²

He credited his father and step-mother (his mother died when he was four years old) with introducing him to the beauties and pleasures of nature. Under his parents' guidance, Olmsted explored the woods and fields, seeking and delighting in the picturesque views. He wrote of his father:

His sensitiveness to the beauty of nature was indeed extraordinary...he gave more time and thought to the pursuit of this means of enjoyment than to all other luxuries...³

Olmsted's travels, which helped shape his horticultural thinking, began when he was still a child. Of this period, he said:

Thus before I was twelve years old, I had been driven over the most charming roads of the Connecticut Valley and its confluents, through the White Hills and along most of the New England coast from the Kennebeck to the Naugatuck. ...I had also before I was twelve traveled much with my father and mother by stage coach, canal and steamboat, visiting West Point, Trenton Falls, Niagara, Quebec, [and] Lake George.⁴

Olmsted's formal education began in a rural Connecticut schoolhouse "on the bank of a brook in the midst of the woods." Along with his regular lessons, young Frederick learned much about nature too. In his later

years, he recalled the chestnut, hemlock, birch, and alder trees and thickets of mountain laurel near the school. He apparently noted the various species and the particular environment in which they grew.

I remember beds of fragrant mint along [the brook's] banks and of pennyroyal on the drier roadside. Here too, by an old stone fence we drew out sassafras roots and in a marshy place at the foot of the hill we pulled the sweetflag root from the black mire.⁵

While studying as a young child with a minister-farmer, Olmsted first saw that important horticultural technique--scions grafted to trees.⁶

Although Olmsted later found himself under the tutelage of five other ministers, he ultimately rejected the Protestant Fundamentalist teachings. He preferred to look toward nature, rather than formal religion, for spiritual uplift.⁷

His friend, Maria van Rensselaer, described him as: instinctively, persistently a rambler, spending all the time he could in long, solitary walks, [giving] himself up to the silent influence of wood and field, hillside, brook and cloud.⁸

Seeking a Career

Partially blinded by sumach poisoning at the age of fourteen, Olmsted was forbidden to read or attend school, "a fine excuse for the still wider indulgence of his rambling, contemplating propensities." He forfeited his college plans and took up a civil engineering apprenticeship

for two years under Frederick A. Barton at Andover, Massachusetts. Yet when the training was over, Olmsted

spent most of his time, as before, in wandering afield, strengthening his love for natural beauty, unconsciously storing his memory with countless impressions of characteristic New England scenes.

At sixteen, he abandoned his goal of becoming an engineer. He spent two unsuccessful years at a New York City importing company and then traveled for a year at sea.⁹

Olmsted decided upon farming as a possible career, and devoted the next two years to farming in the summer and attending scientific classes as a Yale University special student in the winter. Between 1844 and 1846, he divided his time among three farms: his uncle Brooks's at Cheshire, Connecticut; Joseph Welton's at Waterbury, Connecticut; and George Geddes' at Syracuse, New York.¹⁰ These experiences convinced Olmsted of his suitability for farming and the rural life.¹¹ In 1847, he was named an "honorary member" of Yale's graduating class.¹²

Eager to begin his own career, Olmsted established himself on the Ackerly farm on the south side of Staten Island, New York, in 1848 and continued this endeavor until 1854. He procured many popular, as well as rare trees, some imported from France, and several cedars of Lebanon,¹³ which were difficult to obtain.¹⁴

During this time, he gave particular attention to tree planting, and in 1849 he began a nursery business. Yet this farm was not a success. Olmsted's brother, John Hull Olmsted, described the tree branches as "straggling," the leaves as "pale, scorched and blackened," and the quantity of fruit as "surprisingly small;" he blamed a lack of pruning for the failure.¹⁵ However, Frederick's many journeys at this time must have been a distraction from farming.

Travels: Comparison of Scenic Effects

By the age of 28, Olmsted had traveled extensively throughout the world, visiting China, Germany, Belgium France, Ireland, Scotland, and England. His extensive travels which continued throughout Olmsted's life had great influence on his horticulture. Wherever he went, Olmsted kept careful journals detailing what he saw.

Typically, he compared unfamiliar plants and scenes with those familiar to him. These descriptions not only provide interesting parallels, but display his horticultural knowledge as well. Visiting Texas, he notes that the shrub mesquite bears "a close resemblance to a struggling, neglected pear tree;"¹⁶ "[t]he Kentucky coffee tree suggest[s] at this season our own ailanthus;"¹⁷ and "[t]he live oaks are often short and even stunted in growth...in shape, size and hue similar

to the olive."

Comparing exotic scenes with those well known to him, Olmsted noted the similarities between a prairie rain and a Pacific sea storm.¹⁹ In England, he noted:

Thick plantations of trees, no way differing from the twenty-year old natural wood of my farm except that hollies, laurels and our common dog-wood were planted regularly along the edge.²⁰

On the Isle of Wight, Olmsted described an unexpected quasi-tropical effect:

[D]ark, picturesque, rugged ravines...provide a strange and fascinating enrichment of half-tropical foliage so deep, graceful and luxuriant as I never saw anywhere in the world.²¹

Travels: Observations of Plant Material

Olmsted's diaries reveal some attention to, and knowledge of, individual plant materials. Although he was a horticulturist who specialized in landscape architecture and therefore avoided extensive botanical detail, his horticultural observations served him well in his later projects.

Throughout one journey to England, he noticed the use of Fagus sylvatica pendula (weeping copper-leaved beech)²² and the value of Ampelopsis quinquefolia and other vines on English homes.²³

A diary written in Italy 28 years later provided the strongest evidence of his observations of plant material:

Taxus tardiva ♀ --6 feet high, 8 feet broad
(T. adpressa?) somewhat loose below but healthy
and beautiful.²⁴

Cryptomeria japonica elegans--10 ft. high

Cupressus glauca--15 ft., very beautiful²⁵

Cupressus goveniana--larger and finer

Ephedra altissima--perfectly dense mass of
delicate drooping spray with loose spaced twigs.

Abies menziesii--nearly 20 ft. broad, dense to
ground and still glaucous strongly.²⁶

Pinus sylvestris--20 ft. high, very delicate,
dense to ground, graceful

Juniperus phoenicea--12 feet dense, fastigiata
tree

Deodora--40 ft. and overgrown with ivy²⁷

Juniperus virginiana--35 ft. high, thin, delicate,
graceful, hardly recognizable

Torreya--50 ft. high²⁸

Mag[olia] grand[iflora]--planted 1802, 2 ft. in
diameter--another 1787, not much bigger

C. Libani--1787, planted. 12 ft. circumference²⁹

Spanish oak--1770, two trunks covered with ivy³⁰

Eucalyptus viminalis--planted 1872, 29 inch cir-
cumference, about 45 feet.

Melaleuca acuminata--loose evergreen heath-like.
10 feet.³¹

At Washington, D.C., he discussed in particularly
extensive detail the Juniperus virginiana (Eastern red cedar):
Its "lively green color," he wrote, "carries all the light-
ness, gracefulness and beauty of foliage in the [w]inter..."

I have frequently noticed that the beauty of
this tree is greatly affected by the soil it

stands in; in certain localities, on the Hudson River, for instance, and in the lower part of New Jersey it grows in a perfectly dense, conical, cypress-like form. These, on the other hand, were square-headed, dense, flattened at the top, like the Cedar of Lebanon and with a light and slightly drooping spray, deliciously delicate and graceful where it cut the light. They stood in a soil of small quartz gravel slightly bound with red clay. In a soil of similar appearance at the North, cedars are usually thin, stiff, shabby and dull in color. I notice that they are generally finer here, than we often see them under the best circumstances; and I presume they are better suited in climate.³²

Travels: Observations of Environments

Another aspect of Olmsted's travel reports was his environmental observations. He made notes of a particular area's characteristics and the specific plants which best suited them. His extensive descriptions of the forests, mountain tops, swamps, and prairies show he was familiar with a wide range of environments. He used this knowledge to emulate various biomes in his later designs.

Apparently, Olmsted was interested in both overall design and the ecological balance of an area. In Virginia, he described a field changing into a forest:

[T]he pine was just beginning to spring in beautiful green plumes from the ground, and was yet hardly noticeable among the dead brown grass and sassafras bushes and blackberry--vines which nature first sends to hide the nakedness of the improverished earth.³³

At the "Balsam Mountains," an Appalachian peak, he commented on the plant associations:

Beside the thick growth of firs, I noticed black birch, chestnut, mountain ash, wild currant, whortleberry, blackberry, honeysuckle, and a variety of cherry, all growing on the highest point.³⁴

In Texas, he described the prairie environment:

In the morning we at first rode through the rich alluvial border of a creek, dark with the rank luxuriance of a semi-tropical vegetation; great trees, with many reclining trunks springing together from the ground, their limbs intricately interlaced with vines; grotesque cactus and dwarf palm, with dark, glossy evergreen shrubs, and thickets of verdant cane hedging in our bridle-path; the sunshine but feebly penetrating through the thick, waving canopy of dark gray moss which everywhere hung above our heads.³⁵

While climbing the Balsam Mountains in North Carolina, Olmsted observed the effects of plants at different elevations:

The mountain, to within less than a mile from the top is entirely shaded by a forest of large trees, the chestnut predominating... [A]s you ascend... the trunks [are] continually becoming shorter and sturdier... [A]t a quarter of a mile from the top, begins a forest of balsam firs... These balsams are thirty or forty feet high, and under their shelter flourish a variety of smaller trees and shrubs... [T]he nearer I came to the top the steeper became the ascent, the more frequent the prostrate trees, and the thicker and more impenetrable the undergrowth.³⁶

The effects of time, careful planning, and good taste were important to him. Just outside Raleigh, North Carolina, Olmsted described the beauty of some young long-leaved pines. Yet he knew the effects of old age, for he noted that years later the tree would have a stiffer character and darker color.³⁷ In the swampland of North Carolina, he saw the damages of the raging river about the

bases of huge trees having a "thick network...of beautiful climbing plants."³⁸

Travel: Importance of Overall Effect

In his writings, Olmsted showed a special devotion to an area's overall effect. Since his descriptions were written from a design standpoint, he referred to entire vistas, and provided little mention of botanical characteristics of the specimens. In England, Olmsted noted:

Where trees are set in masses for ornament, the Norway spruce and the red beech generally give a dark, ponderous tone, which we seldom see in America; and in a hilly and unfertile country there are usually extensive patches of the larch, having a brown hue. The English elm is the most common tree in small parks or about country homes. It appears, at a little distance, more like our hickory, when the latter grows upon a rich soil, and is not cramped, as sometimes in our river intervals, than any other American tree.³⁹

Although his chief objective at the time was to record the human problems of the South,⁴⁰ Olmsted employed his powers of observation in describing the countryside. Traveling in South Carolina and Georgia, he wrote:

A grove which surrounded the house was all in dark verdure; there were green oranges on the trees nearer the window, buds were swelling on a jessamine vine, and a number of camelia-japonicas were in full bloom; one of them at least seven feet high, and a large, compact shrub, must have had several hundred blossoms on it.⁴¹

One particular scene in South Carolina especially exhilarated Olmsted and he carefully analyzed the beauty he saw. Although he used specific plant names in this pas-

sage, it should be noted that he did so only to explain the overall effect, for scientific explanations were neither his interest nor his purpose.

The character of the scenery was novel to me... we could see from the coach-top to the distance of a quarter of a mile, everything upon the ground. In the swamps, which were frequent and extensive, and on their borders, the pines gave place to cypresses, with great pedestal trunks, and protuberant roots, throwing up an awkward dwarf progeny of shrub cypress, and curious bulbous-like stumps, called "cypress-knees." Mingled with these were a few of our common deciduous trees, the white-shafted sycamore, the gray beech and the shrubby black-jack oak, with broad leaves, brown and dead, yet glossy, and reflecting the sun-beams. Somewhat rarely, the red cedar, and more frequently than any other except the cypress, the beautiful holly. Added to these, there was often a thick undergrowth of evergreen shrubs. Vines and creepers of various kinds grew to the tops of the tallest trees and dangled beneath their branches, in intricate network. The [tillandsia] long in festoons, sometimes several feet in length, and often completely clothed the trunks, and every branch of the trees in the low ground. It is like a fringe of tangled hair, of a light gray pearly color, and sometimes produces exquisite effects when slightly veiling the dark green, purple, and scarlet of the cedar, and the holly with their berries. The mistletoe also grew in large, vivid green tufts, on the ends of the branches of the oldest and largest trees. A small, fine and wiry, dead grass, hardly perceptible, even in the most open ground, from the coach tops, was the only sign of herbage.⁴²

Olmsted wrote he "always had a reaching out for tropical effect" for its "quiet suggestion to reflections... its superabundant creative power, infinite resource, and liberality of Nature."⁴³ Visiting the parks of Paris, he saw tangible evidence that a tropical effect could be suc-

cessfully achieved in a temperate region.⁴⁴ (It should be noted that Olmsted disapproved of the emphasis on the individual plant materials found in Paris.) This "pseudo-tropical" effect was created with hardy materials whose characteristics, specifically broad leaves, dense foliage, or glossy texture contributed to "luxuriant jungled variety and density and intricate abundance."⁴⁵ He used this guideline in a memorandum on the pseudo-tropical planting⁴⁶ to be later used in the Ramble and on the lake shores of Central Park.

While in Europe studying its parks, Olmsted described his visit to Paris in a letter to Central Park's Board of Commissioners:

I remained a fortnight in Paris, examining as carefully as practicable in that time, all its pleasure-grounds and promenades, also visiting the the parks of Versailles, of St. Cloud, and the wood of Vincennes, the improvement of which is now being prosecuted under the general direction of M. Alphand. To the Bois de Boulogne I made eight visits, four of them in company with either Mr. Phalen or Mr. Bigelow, of New York, whose previous observations upon the customs of the grounds were of value to me.⁴⁷

Horticulturist Barillet-Deschamps made use of an on-site nursery as an integral part of his parks in Paris.

Barillet-Deschamps wrote:

...attached to the Bois de Boulogne..was a nursery of young trees, in order to furnish all the ornamental plants necessary, not only for the wood itself, but also for all the squares and public places of the city of Paris. In these all the newest varieties of plants are tried and multiplied, such as the city delights in propagating

for the encouragement of horticulture.⁴⁸

Those eight trips to the Bois de Boulogne made an indelible impression on Olmsted, for he made distinct references to it when helping plan San Francisco's water works⁴⁹ and discussing potential public usage of the Boston Park System.⁵⁰ He also recalled his Paris trips when he compared the location of the Tuileries Garden in Paris with Chicago's Jackson Park.⁵¹

Olmsted's day in Brussels was "most profitably occupied" in the park and gardens of that capital city. He spoke with a Dr. Linden, horticultural director of the Horticultural and Zoological Garden, and to Dr. Funck, the Zoological Department director of this institution and chief editor of the Royal Belgian Horticultural Journal, both of whom expressed a strong interest in the Central Park.⁵²

Traveling to London again, Olmsted recorded:

I remained again a week in the vicinity of London, visiting the Royal Botanic Gardens of Kew, the superintendent of which, Sir William Hooker, I found extremely interested in the Central Park, expecting my visit, and ready to furnish me with most valuable advice; the Crystal Palace Grounds at Sydenham, recently completed under the direction of Sir Joseph Paxton, the Secretary of the Company furnishing me with important information; the Royal Botanic Garden, the Garden of the Zoological Society in Regent's Park, to the kindness of the Secretary of which I am also much indebted; and several public and private grounds of minor importance in and near London.⁵³

Before he returned to America, Olmsted selected a valuable collection of trees and shrubs to be shipped to Central Park. He also managed to visit "the finest plantations of Evergreens in Europe" at Elvaston Castle; the "best private garden in England" at Trentham; Biddulph Grange, noted for its superb rock work; an ancient park at Stoneleigh Abbey; Peel Park and the Botanic Garden at Manchester; and several lesser known parks. In Ireland, he visited Phoenix Park and the Zoological Garden of Dublin, then boarded the steamer for home.⁵⁴

In 1859, Olmsted married Mary Cleveland Perkins Olmsted, widow of his brother who had died of tuberculosis. Soon after that, the Civil War interrupted Olmsted's work on Central Park when Dr. Henry Bellows, president of the newly-formed Sanitary Commission, noting Olmsted's management ability, asked him to serve as executive secretary of the Commission. Still on crutches after a carriage accident, Olmsted accepted the new job and moved to Washington, D.C.⁵⁵

Fully immersed in his Sanitary Commission work, he drove himself nearly to the point of exhaustion. Olmsted was described by George Templeton Strong, a diarist and member of the Commission, as having "a monomania for system and organization on paper...and appetite for power."⁵⁶

Because of an untenable position, he left the Sanitary Commission in 1863. Olmsted then sailed to California

via Panama and assumed managership of the Mariposa Estate.⁵⁷

Olmsted made several astute observations of the native scenery along the journey in a letter to his horticultural assistant, Ignaz A. Pilat:

...the peculiar beauty in tropical landscapes which is due to the frequent cavernous depths of shade, to the constant recurrence of those on the forest slopes...the umbrella-like trees overhanging dense undergrowth and the vines making a drapery, all natural ravines and cliffs of rock and caverns of rock which form the characteristic topography of this coast as of parts of the Italian and English coasts, being thus clothed with foliage.⁵⁸

Passing through the Chagres River in Panama, he felt a supreme spiritual uplift as he wrote to his wife:

I am thoroughly enchanted with the trees and vines. But cane and palms are not trees or vines or shrubs or herbs. They are Glòria in Excelsis with lots of exclamation points thrown in anywhere, in the grand choral liturgy.⁵⁹

In 1864, Olmsted was appointed to the Yosemite Park Commission where he compared California's scenery to that of England:

There is nothing strange or exotic in the character of the vegetation; most of the trees and plants, especially those of the meadows and water-side, are closely allied to and are not readily distinguished from those most common in the landscapes of the Eastern states or the midland counties of England. The stream is such a one as Shakespeare delighted in, and brings pleasing reminiscence to the traveler of the Avon or the upper Thames.

Banks of the heartsease and beds of cowslips and daisies are frequent, and thickets of dogwood, alder and willow often fringe the shores...Flowering

shrubs or sweet fragrance and balmy herbs abound in the meadows, and there is everywhere a delicate odor of the prevailing foliage in the pines and cedars.⁶⁰

Influence of Others

In his lecture notes prepared for a class of architecture students about 1890, Olmsted readily admitted that he adopted successful designs used by others.⁶¹ He recalled his boyhood introduction in the Hartford (Connecticut) Public Library to Uvedale Price's Theory of the Picturesque and William Gilpin's Forest Scenery.⁶² He valued those two books perhaps more in their "exercise of judgment" than any others written since the late eighteenth century to his day.

I put them into the hands of my pupils as soon as they come into our office, saying 'You are to read these seriously, as a student of law would read Blackstone.'⁶³

Olmsted's own interest in nature and scenery prompted him to read William Shenstone, William Marshall, and Humphry Repton, all of whom would profoundly influence his later work.⁶⁴ In trying to discern other books which influenced Olmsted, one can study the advice he gave a young landscape architect:

Much the most valuable work for you will be Alphand's Les Promenades de Paris; Rothschild edition, Paris; a large quarto with numerous plates, giving details of construction. Much has been compiled and condensed on it in Mr. Robinson's Parks and Promenades of Paris, published two years ago in London, a very valuable work.
Sir Uvedale Price on the Picturesque;
Repton's Landscape Gardening;
Loudon's Encyclopedia of Gardening;

Loudon's Suburban Villas;
" Cottage Gardener;
" Horticultural Magazine (Serial);
" Arboretum Britannicum (8 volumes);
Sir Henry Steuart's Planters' Guide;
John Arthur Hughes' London Architecture;
Smith's Landscape Gardening
Kemp's How to Lay out a Garden.

As to general principles and spirit of design,
all of Ruskin's art works are helpful.⁶⁵

Influence of the English Landscape School

The English Landscape School, which had such a strong influence on Olmsted, was an informal movement of eighteenth-century poets, writers, designers, and gardeners who tried to modify the strict geometric forms so much in vogue in their day. The School got its start when landscape gardeners and architects first seriously considered the relationship between art and nature. They argued that trees and shrubs ought to grow naturally rather than be artfully trimmed.⁶⁶

Perhaps one of the first Englishmen to praise the beauties of untamed nature was John Milton. In Paradise Lost, he described the Garden of Eden in a tropical setting in precise detail as if he himself had been at the Creation:

A happy rural seat of various view;
Groves whose rich trees wept of odorous gums and balm
Others whose fruit, burnished with golden rind,
Hung amiable--Hesperian fables true,...
Another side, umbrageous grotts and caves
Of cool recess, o'er which the mantling vine
Lays forth her purple grape and gently creeps
luxuriant;...⁶⁷

The tropical effect that Milton chose for his utopia was the same invigorating horticultural setting which Olmsted

described as "Gloria in Excelsis" and would substitute for a formal religion. He described Milton's Eden as a

fertile and well-watered countryside with a beautiful spontaneous vegetation informally disposed; without distinct lines; without defined limits; vision extending to a background of mountains with dim and mysterious details, in short a place beautiful in the way of scenery.⁶⁸

William Kent (1684-1748) was responsible for the beginnings of the English School of the Beautiful, an informal movement characterized by simple and flowing forms. Kent's work showed a distinct break with the orderliness found in the work of André Le Nôtre (1613-1700). Instead of planning formal axes laid out in a parallel and perpendicular fashion, Kent planted shrubs in natural-looking masses. He created meandering channels, instead of geometrical man-made pools, to connect bodies of water. Edouard André, in his L'Art des Jardins (1879) pointed out that Kent preferred to create a sylvan seclusion, rejecting the strong perspective view whose distant details were dim and unintelligible.⁶⁹

In creating his sylvan seclusion, Kent gave paramount importance to particular views of the garden and only secondary consideration to details of the garden itself. Loudon observed that Kent created the garden only as an anticlimax to the scenery from the building. Kent thus felled certain trees to open up a vista, while he "planted others to increase obscurity, gain mystery or produce variety."

For his work in promoting scenery as a chief gardening objective, Kent gained unbounded admiration from contemporary authorities. Moreover, for perhaps the first time, landscape design was brought to prominence as an art form. It was put in league with creative arts like theater, music, and painting, rather than the formal craft it had been before.⁷⁰

Olmsted, however, had reservations about Kent, who was an artist by training. Olmsted could find no evidence of Kent's skill or knowledge of horticulture or gardening.⁷¹ He neglected several prime opportunities to visit the European gardens in connection with his artistic study. This was further indication, Olmsted thought, that Kent was neither a gardener nor a horticulturist. Although Kent sought the inspiration of great artists such as Raphael and Michelangelo and lifted the art of landscape architecture out of the tired formal pattern, Olmsted concluded that Kent actually made little outstanding contribution to the English Landscape School. He was not "aiming to reform or improve upon the method of gardening;" rather his work depended upon "mystery and infinity." Olmsted was distressed over the lack of defined limits and dearth of intelligent reasoning behind Kent's work.⁷²

Kent's successor, Lancelot Brown (1716-1783), also moved in the opposite direction from Le Notre's formal geometric style. "Capability" Brown was described as an "egregious mannerist...whose plantations were void of genius,

taste or propriety,"⁷³ and Olmsted agreed. After studying the man and his work, Olmsted doubted Brown's design abilities and horticultural training.

Although Olmsted much preferred the naturalistic style following the guidelines of nature--rather than a formal geometric design--he was still inspired by Le Notre's style. Olmsted's son, Frederick Law Olmsted, Jr., has pointed out that his father was not averse to the formal style; he only objected to it when formalism conflicted with the naturalistic style.⁷⁴ He was realistic enough to foresee the need to accommodate masses of people in Central Park and to employ a formal design in the Park's Mall.

Humphry Repton (1752-1818) was another member of the English Landscape School who left a strong impression on Olmsted. Though a lover of nature, Repton admitted that Brown "sacrificed straight lines,"⁷⁵ and he thus employed both the formality of Le Notre and the naturalness of Brown in his own work.

Of all the men associated with the English Landscape School, Repton probably had the strongest influence on Olmsted. It was Repton who held that "the first object to improving the natural landscape...ought to be convenience and the next, picturesque beauty."⁷⁶ Landscape gardening should appear as nature's work, according to Repton,⁷⁷ and he pro-

posed conducting walks through the shrubberies, plantations, and small sequestered lawns, sometimes winding into rich internal scenery.⁷⁸ The chief beauty of a park, Repton said, was in its uniform verdure and undulating lines contrasting with each other.⁷⁹ Even though Repton objected to avenues which "act as a curtain,"⁸⁰ he probably would have recognized the need for the formal Central Park Mall.

Yet Repton, like Kent and Brown, had only a limited knowledge of plant material. They all relied on a handful of species and used them repeatedly. The oak, Scotch pine, elm, beech, alder, plane, horse chestnut, and yew trees predominated in Kent's works.⁸¹ Brown depended upon the oak, elm, beech, ash, lime [linden], Scotch pine, larch, and cedar.⁸² Repton tried to offset the disadvantages of working with a few species by seeking subtle differences among them.⁸³

However, John Loudon (1783-1843), one of the last members of the English Landscape School, challenged the gardening style of Kent, Brown, and Repton. Loudon quickly recognized the "prevailing taste for botany and horticulture" which had come about since Repton, and reacted by introducing the "Gardensque" movement.⁸⁴

If Kent, Brown, and Repton erred by overlooking the tremendous variety of plants available, then Loudon was guilty of not exercising enough selectivity. His Gardensque theory

emphasized the use of individual plant material, with only minimum regard to overall design. Thus Loudon would typically choose many different, but interesting species and display them all. Although he made an important contribution in recognizing individual plant material, his own work all too often resulted in a hodgepodge design.⁸⁵

Olmsted studied all these approaches and adapted a compromise of his own. He needed a wide variety of plant material for the various effects he wanted to achieve. Yet he did not have enough technical expertise in horticulture to always make specific planting decisions.⁸⁶ Instead of limiting himself to a few familiar species, Olmsted relied on professional horticulturists, like Ignaz Pilat, to select particular plants and satisfy his design requirements.⁸⁷

Influence of the Picturesque School

The "Picturesque" was still another important movement in the English Landscape School that subsequently influenced Olmsted. William Gilpin (1724-1804) and Uvedale Price (1747-1829) were landscape theorists, writers, and artists whose commentaries helped define the movement.

Gilpin described the effect of Picturesque beauty: "...that kind of beauty which would look well in a picture."⁸⁸ He added that roughness or irregularity, rather than smoothness or regularity, were critical factors. Price defined

"the rugged old oak, or knotted wych elm as Picturesque."⁸⁹

He wrote:

A lawn with trees of every growth dispersed in the happiest manner, and with as much intricacy and variety as mere grass and trees can give to a lawn without destroying its character, such a scene, painted by a Claude, would be a soft pleasing picture...⁹⁰

The Picturesque philosophy was translated into reality in Central Park where Olmsted wanted to provide a "strong contrast of Central Park with the surroundings of the city."⁹¹ Olmsted's design for Central Park was described by horticulturist Pilat:

spaces [were] left for more or less expanding views of open lawns...which give the idea of extent and diversity; but whenever these open spaces would destroy the harmony of the landscape, a few scattered trees or low shrubs are so arranged as not to obstruct the view.⁹²

One method of blending distinct plant clusters and giving a wild, rambling effect was to plant climbing vines, according to both Price and Gilpin. In praising the use of the honeysuckle vines in Picturesque landscapes, Gilpin wrote:

With clasping tendrils it invests the branch
Else unadorned, with many a gay festoon,
And fragrant chaplet; recompensing well
The strength it borrows with the grace it lends.⁹³

Likewise, in his instructions to assistant Robert Demcker, Olmsted wrote:

Shrubs growing together must be made to blend more...by introducing such vines as clematis,

lycium, wisteria, honeysuckle and for immediate effect, convolvulus, vetches, etc.⁹⁴

Furthermore, Gilpin pointed out that when vines were allowed to climb up a tree bark, they lent a richer value to the tree.⁹⁵ Olmsted followed this practice in the formal Central Park Mall where the vine Ampelopsis quinquefolia was planted about the elms there.⁹⁶

Gilpin also recommended the use of the larch as a connector between deciduous and evergreen trees.⁹⁷ Similarly, Olmsted noted that the:

deciduous cypress, the Whitecedar or swamp arborvitae and the red and black American larch or hackmatack would both harmonize with the scenery and be most sure to flourish.⁹⁸

As for color, American landscape gardener Andrew J. Downing had observed the different effect color displays as varying distances. He called this "aerial perspective," as did his mentor, Loudon, who had written:

Standing at a certain position in a scene, the coloring is deep, rich and full in the foreground, more tender and mellow in the middle-ground, and softening to a pale tint in the distance.⁹⁹

Thus when carrying out Olmsted's designs, Pilat arranged the darkest colored trees in front and the lightest colored specimens in the distance.

Conclusion

Olmsted thus sought to combine plants and design, yet

he felt a landscape gardening career was too restricted. Applying the art of scenery, science of architecture, and his knowledge of plant material, Olmsted created a new field of endeavor, and coined the term, "landscape architecture."¹⁰⁰

Since Olmsted lacked a formal horticultural education, he looked primarily toward his own experiences as a laborer for his practical training.¹⁰¹ Olmsted perhaps could not have fully developed his horticultural ideas if he had not had the opportunities to travel throughout the United State and abroad. It was on these journeys that Olmsted had a chance to carefully study the European parks and, in some cases, meet with the designers. Traveling throughout this country and parts of Latin America, Olmsted had the invaluable opportunity to observe environmental and climatic conditions unfamiliar to him-- mountaintops, prairies, deserts, swamps, woodlands-- as well as plant material he had never seen before.

His quest for knowledge also led him to study the English Landscape School and the work of contemporary designers. Olmsted capitalized on all his experiences by keeping detailed notebooks of both his observations and impressions. After carefully analyzing these influences, Olmsted was able to develop a horticultural philosophy of his own.

Chapter II

HORTICULTURE AND SOCIAL DEMOCRACY

Olmsted was a strong believer in social justice, and saw the public park as a triumph of democracy. In a class-conscious society, public parks provided one of the few places where poor and rich came together. Yet just one century before, parks, (as privately-owned grounds), were the exclusive domain of the wealthy. By Olmsted's day, the concept of the tax-supported public park became a reality.¹

During a sudden rainstorm at Birkenhead Park, near Liverpool, England, Olmsted, along with all the other park visitors hurriedly sought shelter. In this 1850 encounter, Olmsted observed all classes of people together, an apparently rare occurrence in those days.

It [the shelter] was soon filled, ...and I was glad to observe that the privileges of the garden were enjoyed about equally by all the classes. There were some who were attended by servants, and sent at once for their carriages, but a large proportion were of the common ranks, and a few women with children, or suffering from ill health were evidently the wives of very humble laborers.²

Not only did the park provide a pleasant retreat, but it bestowed an important sense of ownership on all who used it. As Olmsted remarked:

...all this magnificent pleasure ground is entirely, unreservedly, and forever the people's own. The

poorest British peasant is free to enjoy it in all its parts as the British queen. More than that, the baker of Birkenhead has the pride of an OWNER in it.³

Birkenhead was one of the first truly public parks, and the people saw it as a direct benefit of their taxes. Before 1847, the area had been a barren and sterile wasteland. Then designer Sir Joseph Paxton added turf, a stocked pond, shrubs, heath, ferns, and flower beds and transformed it to a great public utility. This visit inspired Olmsted to wonder if a publicly supported park were possible in New York, where taxes paid for hospitals, sanitation, and fire-fighting services for people. Parks, according to Olmsted's philosophy, were just as essential for the general well-being as any other public institution.⁴

Applying his observations of Birkenhead to Central Park, Olmsted took the democratic concept one step further. He envisioned visitors arriving at the park by the "exceedingly democratic conveyances, the street cars."⁵ Integral to his plan was the idea that "men must come together, and must be seen coming together in carriages, on horseback and on foot..."⁶ Albert Fein comments that the park does cut across the differences in society: "All could accept the park as a unifying institution; a catalyst in the creation of a homogeneous democratic culture."⁷

The plant material, too, could represent democracy.

Olmsted read Gilpin's comments in Forest Scenery:

A forest is a picture of the world. We find trees of all ages, kinds and degrees--the old, and the young--the rich and the poor--the stately and the depressed--the healthy and the infirm.⁸

Olmsted's partner, Calvert Vaux, summed up this thinking when he wrote that Central Park would "translate...democratic ideas into trees and dirt."⁹

According to Olmsted's plan, Central Park would serve to bring together the "poor and rich, young and old, Jew and Gentile."¹⁰ It would provide "scenery offering the most agreeable contrast to that of the rest of the town" and the "opportunity for people to come together for the single purpose of enjoyment."¹¹ The overall natural design incorporated the democratic planting that Gilpin idealized, while a more formal central meeting place, "The Mall," was also provided.

If Central Park was to be a triumph of democracy, it should not only be paid for by the people, but built by them as well. Olmsted was first made aware of the suffering and despair of the slaves during his travels through the South. Maintaining this situation demanded "...no free press, no free pulpit, no free politics can be permitted in the South."¹² Furthermore, Olmsted read that "all great and enduring monuments of human art and industry--the wonders

of Egypt and everlasting works of Rome--were created by the labor of slaves."¹³ Therefore, Central Park's construction by free men was all the most important to Olmsted to guarantee the true triumph of democracy.

The park found considerable support in contemporary social thinking. The Protestant ideology urged open space for the underprivileged, and the then-popular Transcendentalist movement supported the park on the basis of its uplifting spiritual value. Furthermore, the French utopian socialist Charles Fourier believed that the environment must change before society would improve. Thus Central Park, as an environmental asset, would signal an enhanced quality of life in America.¹⁴

Olmsted was committed not only to establishing urban parks, but to preserving large tracts of land for public use too. He urged the preservation of the striking natural scenery found at Yosemite Valley for all the millions who would some day visit it. According to Albert Fein, "The site afforded the viewer a spiritual experience--nature sanctified in a democratic setting."¹⁵

The Future Learned from the Past

Olmsted never expected the park to be immediately successful. Its purpose, he was confident, would only be realized in the future. He predicted:

It [Central Park] will be in the center of a population of two millions hemmed in by water at a short distance on all sides; and that much of the work done upon it is, for this reason, as yet quite barren of results.¹⁶

Olmsted had often warned of the dangers of delay in postponing park construction. His influence and philosophy apparently were adopted by a group of Buffalo, New York, residents, after Olmsted completed their city's park system. They commented: "Its chief value lies in its evergrowing capabilities of usefulness in the future."¹⁷

Olmsted planned for the future by remembering lessons of the past. He traced the development and design of early European cities where the need for protection and trade brought the people together. Yet Olmsted also understood how unbearable life in these early cities could be:

The government of these towns...was always essentially a military despotism of the most direct and stringent character, under which the life, property, health and comfort of the great body of their people were matters, at best, of very subordinate consideration.¹⁸

When protection was no longer crucial, the people still looked toward the cities for work, entertainment, and a better way of life. Thus country-to-city migration heightened with the industrial revolution, and urban density increased dramatically. Yet the urban structure remained unchanged. Olmsted noted the devastating effect in London.

[T]he greater part of the inhabitants were so much confined in the dark, ill-ventilated and noisome quarters, that they were literally decimated by disease as often as once in every two years... four thousand deaths occurred in a single night, and many streets were completely depopulated. All who could by any means do so, fled from the town, so that in a short time, its population was reduced more than fifty per cent. It had not yet filled up after this calamity when a fire occurred which raged unchecked during four days, destroyed the houses and places of business of two hundred thousand of the citizens.¹⁹

Arguments for Open Space

A city demands commercial, industrial, and residential areas in close proximity. Yet for Olmsted, space was more important than structure in a city. He saw high density areas as a breeding ground for corruption and distress, both physical and mental.²⁰ He blamed the ill-planned, congested cities for widespread plagues, sweeping fires, poor sanitary conditions, and high mortality rates.

The average population of Liverpool is about 140,000 to the square mile, that of London is but 50,000; the average age at death in Liverpool is seventeen, that in London, twenty-six. In the city of Brooklyn, the number of deaths for each thousand of population that occurred this last year in the close built parts was twice as large as in those where the streets are wider and there are many gardens.²¹

Therefore, he reasoned, cities of the future must be laid out with much larger spaces open to sunlight and fresh air.²²

Olmsted had been an advocate of the large urban park for its aesthetic, restful and social values. He saw it as a vital central feature of the city. Yet the benefits of

open space and plant material in a city could extend far beyond the park borders. Trying to integrate plants as "permanent furniture...growing naturally, gracefully,"²³ Olmsted devised the "parkway," a term he coined, and "parkway neighborhood."²⁴

As the name implies, a parkway combines planned open space (even if only a "shaded green ribbon"²⁵) with a city artery. Specifically, Olmsted planned a boulevard for express traffic, with smaller peripheral roads for local traffic. His parkways also incorporated pedestrian walkways, benches, bridle paths, and sidewalks, each separated by rows of trees and lined with detached private homes. In addition, individual homes would have a garden and trees of their own.²⁶ Deviating from the naturalistic style seen in many of his parks, Olmsted designed his parkways in either a formal or strikingly picturesque style.²⁷

He described his proposed parkway plan:

the mall being again divided into two parts to make room for the central road-way, prepared with express reference to pleasure-riding and driving, the ordinary paved traffic road-ways, with their flagged sidewalks remaining still on the outside of the public mall for pedestrians.²⁸

The parkway also benefits the city residents, according to Olmsted, by:

giving access for the purposes of ordinary traffic to all houses that front upon it, offering a special road for driving and riding without turning commer-

cial vehicles from right of way, and furnishing ample public walks, with room for seats, and with borders of turf in which trees may grow of the most stately character. It would contain six rows of trees, and the space from house to house being two hundred and sixty feet, would constitute a perfect barrier to the progress of fire.²⁹

Around Prospect Park, Brooklyn, Olmsted wanted boundary streets widened to one hundred feet. Thirty foot sidewalks shaded with a double row of trees would shield the view of the houses that would surround the park.³⁰ The ideal design for the spacious city, according to Olmsted was "a series of lots adapted to be occupied by detached villas each in the midst of a small private garden." His argument was based on the Roman design.

Rich people were offered every facility for surrounding their houses with open garden spaces, and the larger part of the Eternal City was composed of what we should now term detached villas, while in no part was it permitted that a new house even though intended for the residence of slaves, should be built within five feet of walls previously erected.³¹

Thus, Olmsted argued, the Brooklyn park would attract people, initiate building, and increase the value of the property. He maintained that with land value quadrupling, the city's financial burden would be easier to carry.³² Property surrounding Central Park had already increased at the rate of "two hundred per cent per annum."³³

Overcoming Urban Monotony

When Olmsted was asked if a city could afford to have a park, he astutely replied that a city couldn't afford not to have one!³⁴ Although many citizens thought the land could be used for more "practical" uses than a park, Olmsted insisted that any construction on the land would only intensify the city's already critical over-crowding. Instead, by reserving the land exclusively as open space, Olmsted could guarantee the park could provide relief and refreshment for the city dwellers.

A man's eyes cannot be as much occupied as they are in large cities by artificial things, or by natural things seen under obviously artificial conditions, without a harmful effect, first on his mental and nervous system and ultimately on his entire constitutional organization.³⁵

The function of the park was to provide relief from the congestion and fast pace of the city. Olmsted argued that the parks were as much a necessity as the water supply or the fire department.

The urban grid pattern in New York City was an anathema to Olmsted. Its greatest failure, Olmsted argued, was that it restricted man to a rigid formula, not allowing him to adapt to nature in his street design.³⁶ He admitted that straight roads were still the most efficient for a commercial district. Yet for residential areas of the city, he urged the inclusion of curving roads both for their physical efficiency and aesthetic values:

[E]very crowded neighborhood ought to be provided with a place removed from the paved streets, in which mothers, babies and small children may find opportunity to rest and sleep and play in the open air.³⁷

Following the lines of natural topography would also refresh the spirit and improve man's health and vigor.

The want of such occasional recreation where man and woman are habitually pressed by their business or household cares often results in a class of disorders the characteristic quality of which is mental disability, sometimes taking the severe forms of softening of the brain, paralysis, palsy, monomania, or insanity, but more frequently of mental and nervous excitability, moroseness, melancholy or irascibility, incapacitating the subject for the proper exercise of the intellectual and moral forces.³⁸

Conclusion

As the cities' population increased, Olmsted foresaw problems of crowding, unsanitary conditions, and monotony intensifying. Thus he proposed to relieve the urban congestion by providing pastoral scenes in city parks which all citizens could enjoy. Using an overall, interdisciplinary approach, Olmsted devised a large centrally-located park and smaller neighborhood parks, all connected by a series of "parkways," another term coined by Olmsted. He created the American urban park movement to ensure the survival of social democracy in the cities.

Chapter 3

OLMSTED AND HORTICULTURE

Olmsted, the Farmer

After dabbling in several possible professions, Olmsted decided to become a scientific farmer with the hopes that he could help improve the lot of his countrymen. He read about agriculture and studied several farming operations as a young man. He established his own independent operation at Sachem's Head in Guilford, Connecticut, on the Long Island Sound.¹

Attempting to make optimum use of his location, he wrote to Downing's magazine The Horticulturist asking specific advice for his seaside property. He asked about apple varieties, as well as shade and ornamental woody plants which might be suitable for his grounds. Apparently, he felt that quince did well in salty air, and he inquired about their cultivation.²

The next year, Olmsted acquired a large farm on Staten Island, New York, where he showed superior management and leadership skills, which would serve him well in his later projects.

He shrewdly made use of the old and somewhat run-down buildings and equipment, had his hired men do their chores on an hourly schedule, and required

his foreman to give him a report on the day's work every evening before supper.³

Apparently, Olmsted was primarily interested in nursery production. In 1849-50, he "planted one thousand pear trees, embracing most of the varieties that are much esteemed on quince stock," and found success growing the Bartlett pear in rich, deep clay loam.⁴ By the end of 1850, Olmsted had imported 5,000 pear trees for resale.⁵

Although his farm was not a financial success, it did provide valuable horticultural experience for Olmsted. His wheat, turnip, and fruit crops earned prizes for quality at the Richmond (Staten Island) Agricultural Fairs.⁶ However, his brother John took charge of the farm in 1854.⁷

HORTICULTURAL METHODS

Leadership

Olmsted noted that in 1857, there was the largest number of men unemployed in New York City's history. The Central Park project was just beginning, and was considered by many as an easy means of employment. Politicians tried to use their influence to hire friends, and there was a mob that paraded about Olmsted's office waving a banner threatening: "Bread or blood!"⁸ These demonstrators presented Olmsted with a list of 10,000 men who begged for employment to help their starving families. However, Olmsted hired only one thousand men and "rigidly discharged any man who failed to work industriously and to behave in a quiet and orderly manner."⁹ By 1859, the initial crew grew to a maximum of 3,666 men.¹⁰

Olmsted's talents were found in his organizational and leadership skills. He assembled a high caliber group of co-workers: George Waring, Jr. directed the draining and pond excavation; William Grant, Olmsted's principal assistant, worked on road design; and Ignaz Pilat, horticulturist, directed the planting activities.¹¹ In a letter to his partner, Calvert Vaux, Olmsted remarked: "...I can do anything with proper assistants, or money enough--anything

that any man can do."¹²

An inspection of Central Park conducted under the auspices of the N. Y. State Senate Investigation Commission found the organization and superintendence excellent. Olmsted felt the credit was his, and he told his friend, social reformer Charles Loring Brace, that the public should know the findings of the report.¹³ Charles McLaughlin, contemporary Olmsted scholar, stressed Olmsted's talents in management and leadership. Olmsted was confident, McLaughlin noted, that his office staff could carry out project details even in his absence. This freed Olmsted to study the site and plan a project's major thrust.¹⁴

Ignaz Pilat and Other Horticulturists

Ignaz Pilat's work was crucial to carrying out Olmsted's Central Park design. Only with Pilat's genius, horticultural expertise, and devotion did the park become a reality.

Ignaz Anton Pilat was born in St. Agatha, Upper Austria on June 27, 1820.¹⁵ His family wished him to enter the ministry, but his love of gardening drew him to another career. During his training at the botanical gardens in Vienna and Schonbrunn, he was an eager student. The botanical garden in Vienna was connected with the University of Vienna and it was here that Pilat received a general education.¹⁶

Pilat's rich background as a landscape gardener is evident in his biographical notes to "Your Imperial Royal Apostolic Majesty Kaiser Ferdinand I, for the most gracious appointment to the position of Gardener in the August Imperial Service," According to Pilat, he "learned the art of gardening in the Gardens of the Earldom of Karrach in Aschach on the Danube." Later he entered the service of Herr Baron von Hugel in the Heitzing Gardens, where he served as a gardener's assistant, and on April 1, 1846, he was appointed assistant gardener in the Imperial Royal University Botanical Garden.¹⁷

Yet it was the laying out of Prince Metternich's grounds in Vienna that brought him the most acclaim.¹⁸ The dominant position of Prince Clemens von Metternich ended in 1848 when revolution broke out in Vienna. Metternich fled the country and Emperor Ferdinand I gave up his Austrian throne.¹⁹ Feeling threatened, Ignaz Pilat emigrated to the United States. He arrived in New York and later went to Dalton, Georgia, where he landscaped the private grounds of Alexander H. Stephens and Thomas Metcalf.²⁰ Returning to Vienna in 1852, he assumed the post of director at the botanical gardens at Vienna.²¹ During these years, he

wrote a book on elementary botany, published in Austria.²²
Back in the United States in 1856, Pilat drew up a planting
plan for the Cumming-Langdon estate in Augusta, Georgia.²³

The Commissioners of Central Park were impressed
with his talents and appointed Pilat as horticulturist of the
park. Working with Charles Rawolle in the summer of 1857,
Pilat identified and catalogued 281 different plants found
naturally on the site.²⁴ He devoted the remaining 13 years
of his life to enhancing the plant collection in Central Park.
By 1873, with the park near completion, a survey indicated
over 3000 different plants were growing there.²⁵

Thus Pilat brought to Central Park a knowledge of
design and horticulture, including a basic familiarity with
American native plants. The actual planting design of
Central Park, in fact, was credited to Pilat by Samuel
Parsons, later superintendent of planting and Calvert Vaux's
horticultural partner.

The single specimens of trees (for Central Park)
could only have been selected and arranged with
the help of a plant expert who was also a land-
scape gardener, like Ignatz Pilat.²⁶

Olmsted explained his philosophies to Pilat who
would later defend them to different groups.²⁷ Pilat first
learned some of Olmsted's thinking while on a camping trip
with fellow architects: Olmsted, Vaux and Mould in 1857.

For a week they stayed on the borders of a mountain lake in the Shawangunk range.²⁸

During Central Park's construction, Olmsted had spent much time away from New York, and major responsibility for the park's planting was left to Pilat. Greatly in need of money, yet still respectful of Olmsted's position, Pilat requested a promotion. In 1860, he asked Olmsted to create a separate landscape gardening department with Pilat serving as superintendent under Olmsted's direction.²⁹

Two years later, Head Gardener Pilat prepared a report for Park Controller Andrew H. Green with a copy also sent to Olmsted. Even though Olmsted was still in Washington (serving as secretary of the U. S. Sanitary Commission), the report showed that Pilat was clearly following the overall design of Olmsted.³⁰

During the fall of 1863, Olmsted described for Pilat the tropical effect he sought for Central Park. In January of the following year, Pilat wrote Olmsted for more information on natural sceneries and vegetation.³¹ When Olmsted and Vaux were reappointed to the Central Park in 1865, they referred to Pilat as a "brother artist," credited him with having "freely rendered the design in our absence," and sent

him a \$500 bonus.³²

During 1867, Olmsted and Vaux requested Pilat to help prepare detailed planting maps for Prospect Park, Brooklyn.³³ Ignaz Pilat's grandson, Oliver R. Pilat, in a personal letter to the author, said Ignaz "had quite a lot to do with Prospect Park..."³⁴ Pilat's assistant at Central Park, Frank A. Pollard, also helped with Prospect Park. In August 1866 he submitted a list of trees originally found in the park with notes on their condition.³⁵

Still another assistant of Olmsted's was Oliver Crosby Bullard. During the fall of 1871, Olmsted directed Bullard's activities at Tompkins Square Park, Brooklyn. Here again, Olmsted prepared the plan, and Bullard, as his horticultural assistant, attended to the details. For each tree planted, Olmsted wanted the optimal soil used. He urged Bullard to consider the elevation, drainage, and staking process involved in the planting. According to Olmsted, age and root pruning were the most important factors for transplanting trees into the park.³⁶ In selecting actual plant material, Olmsted shied away from "nurserymen's varieties or fancy trees;" he was unsure about the effect they would create.³⁷

However, if his horticultural assistant suggested

a plant unfamiliar to Olmsted, he trusted the horticulturist's judgment and allowed him to use it.³⁸ For the Tompkins Square planting, Olmsted wanted large trees that would grow freely and suggested Tilia alba pendula.³⁹ He cautioned against dense and cramped trees, such as the weeping beech, Kilmarnock willow, or other dwarfs.⁴⁰ For a light effect by an upper pool, Olmsted suggested the common aspen. In the central grove, he would have liked Platanus orientalis, but fearing only poor stock available, he recommended English elm if need be, supplemented with Acer pseudoplatanus. The latter variety, he remarked, would be surest to thrive in ample shade. Realizing that a shrub plantation takes a long time to develop, Olmsted suggested using coarse-leaved plants that appeared subtropical in order to obtain an immediate effect.⁴¹

Olmsted used plant material only when he was familiar with its character. For the "high central points" in his Tompkins Square Park's foliage, he wanted upright junipers and yew, Thuja sibirica, Podocarpus japonica,⁴² Cephalotaxus, and one of the spruces. Smaller specimens recommended as centers were Magnolia purpurea,⁴³ the cut-leaved weeping birch, the Kilmarnock willow, the weeping cherry, Ko[e]l reuteria, Halesia, hawthorn, Laburnum, tamarisk, Chionanthus, and lilacs.⁴⁴ Around the central specimens, he requested dwarf conifers like Abies pygmaea.⁴⁵

Golden yew and Thuja were desirable as salient points in the lawn plantation. Similarly, smooth-leaved evergreens like holly, box, and euonymus were also considered for this purpose:⁴⁶

After Ignaz Pilat's death in 1870, Olmsted relied on Robert Demcker for the completion of Central Park. In a memorandum to the superintendent's office, Olmsted wrote:

It seems to me necessary that a man of thorough technical training and large experience and observation of plants should be in control of the work...I supposed that Mr. Demcker must be our man, if for no other reason, because it is now too late to take the risk of any unknown man. As far as mere technical knowledge is concerned, I have no doubt of his being efficient.⁴⁷

One of Demcker's responsibilities was to prepare a screen of loose hedges about the park's arches over transverse roads.⁴⁸ A listing of evergreens planted by Demcker supports the hypothesis that Olmsted relied on his assistants for particular horticultural expertise.⁴⁹

While Olmsted permitted and encouraged his horticultural assistants to use different plant material, he frowned upon plants that would spoil the naturalistic style. He criticized his assistant Fischer for planting flowers, rather than vines and other woody plants. In letters to Fischer, Olmsted explained the effects he wanted for the planting of an overlook in a Boston park:

I tried to make as clear and plain to you as I could the considerations that had affected my mind and thus convey to you the general principles and motives of the design which I wished you, with your superior botanical and horticultural knowledge, to carry out. It contained no list...of the plants that were to be used.⁵⁰

The plants Olmsted did mention were simply to give an indication of the general character of the planting. Thus Olmsted suggested rhododendrons, yuccas, and sedums for their foliage effects, although he considered their flowers too conspicuous. Rhus aromatica, Genista, Euonymus and Ampelopsis veitchii would help to shadow striking flowers. Olmsted was concerned with obtaining masses of foliage to please the eye. Yet he avoided any plant which would detract from the natural scenery.⁵¹ Olmsted once again utilized horticultural assistants during the planting of Biltmore, George W. Vanderbilt's estate in Asheville, North Carolina. In a letter to his step-son, John C. Olmsted in 1892, Olmsted remarked:

My idea is to indicate on these skeletons the general character of the planting required stating what should 'predominate' then turn them over to Fischer with instructions to have in view greater variety of detail.⁵²

Olmsted relied on the young horticulturist, Warren Manning, to work out most of the Biltmore planting plan, a project which took several months to complete.⁵³ Manning was quite knowledgeable of plants, especially the native species, and served as a horticulturist and design assistant for Olmsted before opening his own office in 1896.⁵⁴

Another prominent horticulturist under Olmsted at Biltmore was Canadian-born Chauncey Delos Beadle, who trained in engineering and landscape gardening at Ontario Agricultural College and Cornell University. During his sixty years of service at Biltmore Estate (1890-1950), Beadle's outstanding accomplishment perhaps was the establishment of the world's largest and most complete azalea collection.⁵⁵ Olmsted advised his son, Frederick Law Olmsted, Jr., to learn as much as possible from Beadle.⁵⁶ Although Olmsted admitted he had never formally studied horticulture, he advised his son to listen closely to professional horticulturists, like Beadle.⁵⁷

Thus Olmsted depended on the horticultural expertise of others throughout his career. At the U.S. Capitol grounds, William Cogan assisted Olmsted in the plantings. In the Buffalo, New York, park system, Olmsted employed William McMillan as horticulturist.⁵⁸

Use of Plant Catalogues

One of Olmsted's first tasks when undertaking a project was to have catalogued the native plants found on the site. For Central Park, the listing was prepared by Charles Rawolle and Ignaz Pilat who used a natural order. This classification system was based on overall similarities of plant characteristics. After Rawolle and Pilat decided the plant arrangements, the men wrote short descriptions of the species, the approximate number found, time of bloom, and often, the location.

A typical entry reads:

Saponaria officinalis, L. (Common Soapwort. Bouncing Bet.) Herb, with opposite entire leaves, and large rose colored flowers. July-September. To be found near dwellings.⁵⁹

Olmsted again used a native plant catalogue when working on the Biltmore estate in 1890. This time, instructions were included on how to propagate the plants and a copy was sent to Biltmore's nurseryman, James Gall, Jr. Olmsted told Gall the number of each plant to be propagated,⁶⁰ and asked him not to proceed further until Olmsted had approved that stage of the work. This procedure allowed Olmsted to conduct Biltmore's planting in carefully planned sequences.⁶¹

Horticultural Instructions

To know how to grow plants and how to design with them is not enough. A good horticulturist must also know the techniques of planting trees and shrubs.

Two basic documents provide evidence that Olmsted was familiar with planting procedures, and took great care in establishing plants. He gave detailed "instructions to all engaged in moving of planting trees and shrubs" (for Central Park), published in more complete form in the New York Daily News of June 27, 1860.⁶²

In the Daily News piece, Olmsted demonstrated that he understood the importance of a good root system. When

moving or planting shrubs, he noted, every fiber or root should be preserved. "The tree or shrub should be lifted directly upward by a hold as near as practicable to the roots, and not drawn out by a sideways pull." To avoid the necessity of "heeling in" the plants, Olmsted advised his workers not to remove more plants that could be replanted immediately. If the plants had to be carried far, one should "cover them with damp straw or weeds or earth in the cart..." He cautioned against letting the roots dry out in transplanting.⁶³

Olmsted noted he had no patience for workman who were clumsy in their handling of roots. At the actual planting site, the workmen were instructed to cover the newly-planted trees to protect them from frost, sun and wind. Each planter was to use a sharp knife and cut off any bruised or broken roots at the time of planting, but to attempt no other pruning.⁶⁴

"No tree or shrub is to be planted under any circumstance except in the best manner," was a principle Olmsted had his workers strive for. When ready to plant, the workers were advised to dig a hole twice the width of the roots' diameter. Olmsted specified:

No shrub should be planted in the ground which has not been dug or loosened to a depth of at

least two feet within a circle of at least six feet across. No tree should be planted in the ground which has not been dug or loosened to a depth of at least two feet within a circle of at least twenty feet across, (unless where trees or rocks to be saved interfere);⁶⁵

Olmsted urged the workers to use their fingers to open out and spread the roots in every direction before planting. He also warned them against creating air pockets:

Don't leave cavities....Use fingers to gently, but firmly settle earth around the trees, and don't tread heavily near the newly-planted tree.

He also noted that no tree ought to be planted deeper than it was found in its previous location. After the tree was secured in the ground, mounds of earth were supposed to be used to brace it for the duration of the winter, according to Olmsted's instructions.⁶⁶

In a typical perfectionist's maxim, Olmsted remarked, "Better one shrub planted an hour in the best manner than 50 planted pretty well."⁶⁷

Plant Procurement

In search for variety, harmony, and special effects, Olmsted tried not to overlook any source of plant material. He contracted with neighboring farmers to provide nursery stock for two to five cents per plant. Preferring to transplant trees and shrubs in a dormant condition, Olmsted waited

until the early fall or spring for the procedure. The fall, however, offered soil which would cling better to the roots, according to Olmsted.⁶⁸

The most important determinant of a tree's price was its age. Olmsted was able to import an assortment of three-year old trees at a cost of two to three cents each. Three or four years later and twice transplanted, the trees would be worth as much as a dollar, he noted.⁶⁹ Olmsted told George Vanderbilt that plants could also be gathered by the thousand within twenty miles of his residence for ten cents a plant. Then after two years in the nursery, they would be as good as the plants from any European or American nurseryman.⁷⁰

Olmsted often sought his plants overseas. British nurseries supplied a large number for Biltmore.⁷¹ Olmsted's desire for Japanese bamboo, however, presented some problems in nomenclature. Apparently, the Japanese names he encountered did not correspond with the Latin system of naming he was familiar with. Furthermore, when he asked questions concerning a species' hardiness or other characteristics, the replies were general at best.⁷²

Plant expeditions were also an important source of new varieties for Olmsted. Seeking a variety of ivy with special hardiness, Olmsted sent his son, Frederick,

to obtain seed from the most northern point of the country where ivy forms seed.⁷³

On another occasion, a Biltmore plant explorer, Mr. Boynton, was dispatched to Florida and Bermuda to collect a number of palms and cycads for Mr. Vanderbilt's conservatory.⁷⁴ Olmsted also participated in plant exchanges; in an 1895 letter to his partners, he mentioned one such trade with the East Indian Forest Department.⁷⁵

Of course, Olmsted, as a horticulturist, collected seed himself. In 1865, he brought seed of the California giant cedar back to New York⁷⁶ and presented it to Central Park.⁷⁷

On-Site Nurseries

Olmsted utilized on-site nurseries to provide many plant materials, and to enable him to experiment with new varieties. Starting with his first major work, Central Park, Olmsted employed a nursery where he would propagate trees and shrubs, to be later transplanted as necessary.⁷⁸

In his annual report to Park Controller Andrew H. Green, Head Gardener Pilat entered a statement of the 1860-61 planting in the nursery.

	<u>Taken from</u> <u>C.P. Nurseries</u>	<u>Received from</u> <u>Outside Nurseries</u>
Evergreen trees	2833	6177
Deciduous trees	6757	2002
Evergreen shrubs	----	700
Deciduous shrubs	9952	17,752
Vines and creepers	----	6570

Total number of plants planted in 1861: 52,743.

Plants remaining in the Central Park nursery in the year 1861.

Evergreen trees (small from 1 - 4 feet high)	570
Deciduous trees (various sizes)	15,904
Deciduous shrubs	<u>4,830</u>
Total	21,304. ⁷⁹

In an 1873 report, Olmsted noted that within three years, 50,000 hardy perennial plants were propagated and planted in the park, and "160,000 hardy ferns and common wild plants of the woods and swamps have been collected and planted..."⁸⁰

When working on the National Cemeteries, Olmsted again put nursery development as a top priority.

To get plants much your best as well as your most economical plan would be to collect young plants in each case, from the indigenous woods of the vicinity, chiefly seedlings of from six inches to four feet in height; plant these in a nursery on the ground.⁸¹

The next year, Olmsted made a similar recommendation in reference to the Buffalo Park System, where he urged the establishment of a nursery and suggested procuring native trees from neighboring woods.⁸²

In a letter to Colonel Gzouski in 1887, Olmsted again gave evidence of the nursery's importance. Olmsted claimed that a nursery would allow plants to be obtained at great savings. Small plants for the nursery could be bought in large quantity at a low price, he explained.⁸³

Olmsted argued for the Biltmore nursery on economic grounds. He wrote to Vanderbilt that the propagated plants "would cost you not a quarter as much as the commercial priceYou can have a stretch of bamboos at little less cost than one of blackberries."⁸⁴

As might be expected, the backbone of Biltmore's planting was its nursery. Olmsted mentioned that in 1891 there were two or more examples in the nursery of over 4,200 species and varieties.⁸⁵ Its stock was huge, with 100,000 trees and about a half million seedlings and cuttings propagated on the grounds.⁸⁶

HORTICULTURAL EFFECTS

The Naturalistic Style

Perhaps the most important guideline Olmsted used for his work was nature. He studied nature's designs and tried to enhance them in his projects. Olmsted did not completely imitate nature, nor did he consider an area's undeveloped condition necessarily its most desirable state. He sought harmony and congruity of plant material and a pleasing overall view in his designs. This may be called Olmsted's naturalistic style. He achieved it through two techniques: massing and selection of particular plants for specific effects.⁸⁷

Massing As Part of the Naturalistic Style

Olmsted designed landscapes by following nature's guidelines. He utilized three elements of scenery--turf, foliage, and water--to create park designs.⁸⁸ Following the practice of landscape painters like William Gilpin and John Ruskin, Olmsted emphasized mass effects instead of individual details. He wrote:

For the enjoyment of landscape beauty, we are to regard the detail of what we see mainly as it affects the character and expression of masses, these masses being considered as elements of composition and perspective.⁸⁹

To Olmsted, massing was a technique of blending

harmonious plant material to create a pleasing nature-like scene. No individual plant was highlighted; each one contributed to the whole group. The technique produced a synergistic effect, where the whole was greater than the sum of its parts. Thus the entire grouping evoked a more pleasing, tranquil scene than each of the plants could individually without the benefit of a massing arrangement. As Olmsted wrote, "the charm of scenery or landscape lies not in the beauty of its parts, but in the manner of their association."⁹⁰

Massing also provided mutual protection which isolated specimens could not have. The roots, trunks, and branches of neighboring trees and shrubs protect their plants against wind, rain, and storm.⁹¹

In his design for Biltmore, Olmsted strove for a "natural aspect," except for the area around the mansion, which required a formal style. He wanted the plants to "stand in harmonious and modest subordinate relations with the general landscape of this region."⁹²

Park scenery is developed by the "character and expression of masses," Olmsted wrote.⁹³ Unlike a garden where conspicuous blooms and specimen plantings were highlighted, individual plant material was of secondary importance in Olmsted's designs.

At one point, Olmsted feared that the shrubs in

Central Park were planted too far apart to provide a massing effect. He asked Demcker to remove some of the monotonous, patch-like clusters and replace them with suitable mixed groups of both upright and spreading shrubs, which would add density and congruity to the design. Specifically, he recommended Forsythia suspensa and Rubus odorata for this purpose.⁹⁴ He also suggested the vines: Clematis, Lycium, Wisteria, Lonicera and, for immediate effect, Convolvulus and vetch to blend together with the shrubbery.⁹⁵ The Ramble section of Central Park was an outstanding example of the use of massing to produce a natural, picturesque effect.⁹⁶

To insure this effect, Olmsted suggested nature-like pruning in his instructions for both Central Park⁹⁷ and Montebello Park, Ontario, Canada. For the Montebello report, he wrote, "...shrubbery is intended to be disposed in groups and masses and to be grown in natural forms, loosely; not to be trimmed and pruned into hedge-like thickets."⁹⁸

Olmsted wanted his Biltmore assistant, James Gall, Jr.,⁹⁹ to "establish masses and groups of plants in suitable relation one to another." Urging Gall to avoid straight lines in the planting, Olmsted wanted the "patches" of planting to dovetail into one another. The overriding theme would be the natural outlines of the planting groups.¹⁰⁰

The continuous hemlock plantation which towered over the broad-leafed overgreens, Olmsted observed, was to have more of an irregular outline. This was accomplished by introducing a few more hemlocks and adding some red cedars and yellow and white pine.¹⁰¹

Plant Selection for the Naturalistic Style

Although mass grouping contributed much to the naturalistic style, Olmsted was also concerned with the specific plants selected. He sought only plants which would blend together in a natural-like fashion. Striving for a harmonious effect, he judged plants' color, density, and shape for their unifying qualities. Interestingly, Olmsted would often intersperse contrasting trees or shrubs for their variety. He was not limited by a plant's natural habitat, but discovered fitting relations between native and foreign plants.

For one section of Central Park, Olmsted suggested purchasing at least 1000 each of hickories, oaks, elms, beeches, chestnuts, ashes, and maples, the largest and finest trees native to the area. He intended to use these in an area where some young specimens of native deciduous trees had already been found "admirably grouped by nature."¹⁰²

In another part of the park between a rugged ground and tableland, Olmsted used 300 white pine, 150 each of Pinus sylvestris, P. pinaster, P. nigra calabrica, and P. cembra as

soft evergreens to help bridge the transition area.¹⁰³

Variety and harmony among a group of plants were important to Olmsted. Typically, he would add contrasting trees to heighten a local effect. The deciduous trees listed above, for example, enhanced the existing grouping. In a section between the skating pond and The Ramble, Olmsted cleared away various plants which did not look as if they belonged together, at least according to Olmsted. This left an "exceedingly intricate and interesting group of sweet gum, spice bush, tulip tree, sassafras, red maple, black oak, azalea, and andromeda and made the area quite "charming."¹⁰⁴ Yet he was careful to avoid monotony by introducing several upright shrubs and occasional evergreens.

Following the Olmsted philosophy, Pilat interspersed a few deciduous trees of light foliage around a steep bank of densely planted dark evergreens in Central Park. He used Acer rubrum, Acer saccharinum, Betula, Larix, Taxodium distichum, and others to produce a pleasing contrast and variety. In another grove of deciduous trees and shrubs, Pilat intermingled Taxodium distichum, Tilia, maple, and ash, "each contrasting its distinct qualities, yet all harmonizing together."¹⁰⁵

In an article, "Plan for a Small Homestead," Olmsted observed that a 50-foot long thicket of thorny bushes appear-

ed "stiff and monotonous." He suggested blending a few shrubs with the group, some sending "straggling sprays" above the thicket, others giving "delicacy, grace and liveliness both of color and texture...common privet, red-twigged dogwood, common and purple barberry, Deutzia scabra, spice-bush and snow-berry may be used for this purpose."¹⁰⁶

Evergreens were again added for diversity among several densely planted belts of linden, maple, and American cypress in Central Park. The same report also mentioned that deciduous trees were used to relieve that "sad and sombre effect" of heavy evergreen plantings.¹⁰⁷ At Biltmore, Olmsted listed five reasons for recommending white pine: contrast with oaks; winter verdure; pleasant footing; agreeable balsamic odor; and future economic value.¹⁰⁸

In making specific planting decisions, the environmental conditions, especially the soil and climatic character, played a vital role. From the instructions he left, Olmsted apparently was quite cognizant of proper conditions for the various trees and shrubs used.

Olmsted's "Report Relative to Trees" contained his project for plant selection in line with prevailing conditions. In areas where rugged terrain and picturesque rocks were found, he suggested the stiffer forms of evergreen trees. In an area of deep, loose, rich, black soil,

hemlock and black spruce should be planted; however, Norway spruce would be more appropriate on steeper slopes and higher ground.¹⁰⁹

Evergreen larch, Scotch fir, and American arborvitae were recommended for positions of thin soil. The more sheltered low-lands, especially near a pond might require the deciduous cypress, white cedar, red and black American larch, or hackmatack, Olmsted remarked these would both harmonize with the scenery and flourish.¹¹⁰ The report also called for European larch, varieties of arborvitae, and silver fir for the rocky terrain west of the reservoir.¹¹¹

Olmsted's notebook mentioned:

oaks for sand, moist clay--chestnuts prefer old Redland stone soils and avoid limestone. The reverse is true of hard maple and beech. Elm and soft maple need low alluvial soil. Hickory in sand is brittle...reverse of locust.¹¹²

Olmsted cautioned against the use of several species which had brittle wood, a short leaf period, or other unfavorable characteristic. Specifically, he avoided the poplars, ailanthus, paulownia, Koelreuteria, European linden, silver maple, balsam fir, and American and Chinese arborvitae.¹¹³ The black walnut fell into disfavor with Olmsted because it was in leaf for so short a time. He also deleted the cherry tree, which was susceptible to bagworms, and black locusts, which were often plagued by borers.¹¹⁴

Convinced that partial concealment "excites and nourishes curiosity," Olmsted had a proclivity to partially cover bare rocks, trunks, and bridges with plant material.¹¹⁵ He instructed that ivy, McCartney evergreen roses, and honeysuckle be planted by two bridges in Biltmore.¹¹⁶ Scattered along the honeysuckle plants would be Kalmia, Leucothoe, and Andromedas.¹¹⁷ But Olmsted also thought he could enhance a bare tree truck by planting ivy, Euonymus radicans, Bignonias, and Virginia creeper. If the deciduous trees were small, he urged the use of Clematis instead.¹¹⁸

To maintain the naturalistic style, Olmsted followed the maxim, "Plant thick and thin quick."¹¹⁹ He suggested that young trees ought to be planted densely, and later thinned out, if necessary. He considered this process, which encouraged natural selection, essential for guaranteeing the best species for his park. A kind of "suival of the fittest," this practice, Olmsted believed, hastened what nature took too long to do.¹²⁰ As an example, Olmsted recommended that at least four trees of each species be planted at Biltmore Arboretum. He had assumed that only two of these would remain after the thinning process.¹²¹

Exotic Plants for Naturalistic Style

Olmsted firmly believed that native and exotic plants could successfully be combined in harmonious groupings. With careful selection, he argued, the plants could be grouped so

that their dissimilar origins were not apparent. But the heart of the philosophy lay in Olmsted's conviction that a native and foreign plant could offer a more harmonious pair than two native or exotic selections. In an imaginary example, he made his point. Suppose, he reasoned, a man from New Zealand (or the moon) who knows nothing of European, Asian, or North American vegetation, passed through an abandoned clearing where:

there is a more recent, yet well advanced, growth of trees and bushes sprung from seed, of which a part has drifted from the forest, a part from a neighboring abandoned homestead, while a part has been brought by birds from distant gardens, so that along with the natives, there is a remarkable variety of trees of foreign ancestry.¹²²

Our hypothetical visitor, who has "a good eye and susceptibility to the influences of scenery," was asked to wander through the plantation and distinguish the incongruous and apparently exotic plants. The question uppermost in Olmsted's mind was:

Would all of the trees and bushes that come from a foreign ancestry be noted before any of the old native stock?¹²³

There are some notable exceptions, of course, like the horse chestnut, ginkgo, weeping beech, and the Japanese maples which appear quite distinctive from the native selections. But not all the exotic plants, Olmsted was careful to point out, would be immediately recognizable as exotic. Olmsted theorized that the American magnolias would seem more incon-

gruous than the Asiatic, and that the European red bud, Oriental plane tree, and the Chinese wisteria (out of bloom) would be selected as apparently native before the truly native plants.

We doubt if the stranger, seeing some of the foreign Barberries, Privets, Spireas, Loniceras, Forsythias, Diervillas or even Lilacs forming groups spontaneously with natives, American Chionanthus, Angelica, Cercis, Ptelia, Sumachs, Flowering Dogwood, Pipevines and Rhododendrons would suspect them to be of foreign origin, or that they would appear to him any more strange and discordant notes in the landscape than such common and generally distributed natives as have been named.¹²⁴

Olmsted applied his theory of foreign and native plant grouping to a Biltmore glen where cane, bullrushes, sagittarias, and other aquatic forms of vegetation were naturally found. In this area, Olmsted carefully blended some bamboos, Nelumbiums,¹²⁵ and Nymphaeas. He attempted to naturalize the foreign plants, which, although they slightly differed from the natives, did "pleasingly associate" with them.¹²⁶

After comparing native and exotic rhododendrons, Olmsted thought he could obtain still better plants by crossing the two. Using his horticultural knowledge, he suggested breeding the R. catawbiense with the R. ponticum for a hybrid with better form and tints. Among these hybrids he would place other native and exotic plants: Kalmia (native), Andromeda (Japanese and native), euonymus (Japanese) and the Aucuba (Japanese) and Mahonia (Japanese and native). All of these were

smooth-leaved evergreen shrubs which were easy to obtain and blended well in the woods. In a letter to Mr. Vanderbilt, Olmsted predicted the area would be so beautiful that "You would have people crossing the Atlantic to see it."¹²⁷

The Pseudo-Tropical Effect

After seeing tropical Central America, Olmsted wanted to recreate the tropical effect in Central Park. He sought plants with luxuriant foliage, coarse texture, and abundant green color. Palms could no doubt be simulated with Ailanthus or Aralia in the temperate zone, he theorized. Olmsted told Pilat he was certain the tropical shoreline could be copied in New York City.¹²⁸

Instead of tropical plants, he would substitute the holly-leaved barberry, and beds of sweet flag, and tiger lily with vines wandering among them to achieve a lush setting. Since broad-leaved foliage was one characteristic of tropical plants, Olmsted suggested that Pilat use skunk cabbage wherever the tropical effect could be created. The coarse-textured Paulownia was another excellent choice to simulate tropical growth, Olmsted noted.¹²⁹ He also made mention of the Forsythia and the Oriental magnolia¹³⁰ for their density, form, size, and color.

The Oriental magnolia reminded him of similar plants he saw in Panama. The use of clematis climbing over sumacs

simulated tropical trees covered with vines. Large spreading trees, like the chestnut or sycamore, covered with Virginia creeper would enhance the effect. The sassafras was another perfect "tropical" tree.¹³¹

On a Central Park island, Olmsted asked Pilat to plant aralias and ailanthus with numerous vines climbing about. Removing the deciduous cypress from one location, he planned to conceal rocks and evergreens by covering them with catbriar or clematis. Indian corn and sorghum were also included to produce a cane-like appearance.¹³²

The 1868 Annual Report for Central Park listed a number of actual tropical plants under greenhouse cultivation: Datura fastuosa (conspicuous flowers), Erythrina Crista-galli (crimson-colored flowers), Trichosanthes scabra (climbing plant with large palmate leaves), Solanum aviculare (large purple flowers), Caladium esculentum (leaves three to four feet high), Humea elegans (particularly rich foliage, delicate flowers), Melianthus majus (showy-leaved silvery plant), and Acanthus mollis (jagged-edged leaves).¹³³ Interestingly, these ornamental, almost ostentatious, plants, if used in great abundance, would probably have displeased Olmsted, since he considered that colorful flowers belonged in gardens, not parks.¹³⁴

Fundamental to the success of Olmsted's tropical

effect was the use of ornamental grasses. He especially favored Arundo donax, a "noble plant on good soil.. [which] forms canes 10 foot high;"¹³⁵ it was found in many of the parks he designed. Gynerium argenteum, Panicum virgatum, Saccharum officinarum, and Zea mays were other reed-like grasses which mass together well for a pseudo-tropical effect.¹³⁶

Another example of the tropical effect was planned in Central Park's west-side neighbor, Morningside Park. Here Olmsted planned a lagoon where aquatic plants and luxuriant foliage would enhance the setting.¹³⁷ In Tompkins Square Park, Brooklyn, Olmsted used tropical-like plants such as castor beans, Wigandias, tobacco, Arundo donax, and striped maize.¹³⁸

Years later, while involved at Biltmore, Olmsted described for Beadle the sub-tropical luxuriance as "the use of plants that simply, in certain respects, will produce a distant, broad resemblance to the landscape qualities of a tropical forest." Envisioning rich, crowded, and entangled growth, he urged the spreading of manure beside the grapevines. These vines would grow up into the largest trees "and hang from them in the manner of the great climbers of a tropical forest."¹³⁹ Arundo donax appeared again. Bambusa metake and Bambusa falcata¹⁴⁰ were noted as two bamboo grasses that should be kept under control or they will spread rapidly.¹⁴¹

Arboretums

Olmsted recognized the importance of learning plant materials and their foliage effects. He urged his son "Rick," a fledging landscape architect, to:

establish the names of the plants in your memory and attach ideas, figures, pictures to these namesReview! Review! and train yourself...Beadle and Manning have gained their knowledge of plant material in nurseries.¹⁴²

An arboretum would serve as a perfect school for the serious botanical student, and Olmsted hoped his son would learn his lessons well from the Biltmore Arboretum.

[T]he main essential object of this Biltmore school is gaining such knowledge of plants as you can get in no other school, knowledge and more than knowledge--wisdom--in plants.¹⁴³

Thus, Olmsted envisioned an arboretum as not only a living museum, but a source of botanical pleasure for all. He further credited himself with being influential in starting arboreta on private properties in four states, each intended to have a complete collection of that state's woody plants.¹⁴⁴

The Arboretum in Central Park

Olmsted included a projected arboretum in his 1858 "Greensward" plan for Central Park.¹⁴⁵ He envisioned this as an area where a wide variety of native trees and shrubs, arranged botanically, would enhance the park both aesthetically and educationally.

Located on about 40 acres, the arboretum was to be situated in the northeastern quarter of the park. Olmsted attempted to include three examples of every species of tree and shrub which would flourish in New York. He allotted sufficient space around each plant to allow it to grow to full maturity with no restrictions. Furthermore, he planned to display each tree in masses so that the visitor could judge the tree's qualities for grouping. In addition to serving as a catalogue of American woody plant materials, the arboretum would maintain the beautiful features of the landscape.¹⁴⁶

Trying to preserve the natural order of families for his arboretum, Olmsted apparently started with the angiosperms, particularly the division Polypetalae, series Thalamiflorea. He decided on the location for each plant family based on the De Candolle system.¹⁴⁷ Unfortunately, natural order was based on the assumption that plant species were immutable.¹⁴⁸

It was Pilat who worked up specific plans for the Central Park Arboretum,¹⁴⁹ though the project never materialized.¹⁵⁰ There is, however, talk today of reviving the arboretum in Central Park.¹⁵¹

The Arboretum at Biltmore

Realizing the great potential Biltmore held and his own advancing age, Olmsted planned to build the finest arboretum in existence there.¹⁵² He included 4,200 species, representing a few specimens of every tree from every part of

the world.¹⁵³ The arboretum encompassed a winding roadside area, nine miles long that Warren Manning, Biltmore's superintendent of planting, had estimated was needed.¹⁵⁴

For the most part, the Biltmore Arboretum was based on the natural order, similar to the proposed arboretum for Central Park.¹⁵⁵ A list of the families, genera, and species to be placed in Biltmore's arboretum was prepared. Then the required space was estimated for each family and genus.¹⁵⁶ Soil conditions and protections from the elements needed were also recorded.¹⁵⁷ Then the sequence of the family and genera was determined by the order of appearance in Bentham and Hooker's Genera Plantarum.¹⁵⁸

Through careful study, the arboretum road was developed. Functioning mainly as a pleasure road, it combined distant scenery with plantings at the road's border.¹⁵⁹

During the fall of 1894, Olmsted and Manning spent several days adjusting maps to the particular ground and landscape conditions.¹⁶⁰ Besides the planting of the various species of trees, Olmsted had a dilemma to resolve. Gifford Pinchot, the noted forester, complained to Olmsted about the large number of horticultural curiosities that would be included. Olmsted argued that he would rather overplant than not reserve space for trees that ought to be included in the arboretum. Should a horticultural form prove undesirable,

he could have it cut out. On March 22, 1895, a meeting was held with Manning, Pinchot, Beadle, Olmsted Jr., and Olmsted Sr. on what plants should be included. Class I consisted of the main collection composed of species, natural varieties, and horticultural varieties which were distinct and recognized as having value in the landscape. Class II contained horticultural varieties that were not distinctly valuable in the landscape, but were not objectionable either.

Class III was the horticultural varieties that were unacceptable in a natural landscape setting. It was suggested that if planted in rows away from the arboretum, a living specimen of each would be preserved.¹⁶¹

Fear of developing an arboretum of garden forms was the reason for excluding some of the varieties. The Biltmore Arboretum was never fully to materialize.¹⁶² At the end of May 1895, Olmsted left Biltmore in the hands of Olmsted, Jr., and from Brookline sent letters of advice on the Arboretum. That September, he retired from professional practice. It was later that year that Olmsted's mind began to fail him. Ironically, he spent his last years at the Waverly Asylum, the very grounds he had designed 30 years earlier.¹⁶³

Conclusion

Thus Olmsted certainly was a horticulturist. He

recognized and developed plant relationships, advised on planting, encouraged plant exploration, distributed seed, established park nurseries, recommended hybridizations, and encouraged and built arboretums.

Olmsted recognized three areas of horticulture: the cultivation of plants for their individual qualities; the arrangement of plants strictly for ornamentation; and the developments of natural scenery. Yet he chose to specialize in one area of horticulture--landscape architecture, which he defined as "the application of art...within a certain space, so that each [object] may increase the effect of the whole as a landscape composition."

Olmsted believed that a horticulturist who was concerned primarily with plant material lacked an overall perspective and thus could not successfully design a park. As a landscape architect, however, he could direct the activities of other plant specialists, architects, and engineers. Thus Olmsted was himself a coordinator in the broad field of horticulture.

Just as a historian cannot know all aspects of history, a horticulturist cannot know all the particulars of horticulture. Olmsted concerned himself with the overall production and thus worked with other horticulturists, like Ignaz Pilat, who dealt primarily with the plantings.

FOOTNOTES FOR CHAPTER I

- 1 M. G. (Mrs. Schuyler) Van Rensselaer, "Frederick Law Olmsted," Century Illustrated Monthly Magazine, XLVI (October, 1893), 860. (Cited hereafter as Century Illustrated.) Mrs. Van Rensselaer, a friend of Olmsted, published this article after a lengthy interview.
- 2 Frederick Law Olmsted, "Tendencies that Led F.L.O. to L.A. in Early Life," Autobiographical manuscript scrap, (ca. 1880-90), p. 1. Frederick Law Olmsted Papers, Library of Congress. (Cited hereafter as Olmsted Papers, Washington, D.C.)
- 3 Frederick Law Olmsted, 1822-1903: Early Years and Experiences, ed. by Frederick Law Olmsted, Jr. and Theodora Kimball, (New York: G.P. Putnam's Sons, 1922) I, 46. (Cited hereafter as Olmsted, Early Years.)
- 4 Ibid., pp. 46-47. (In his interview with M. G. Van Rensselaer, Olmsted felt that the Connecticut River-Meadow scenery "influenced his mature taste more forcibly than anything else."), Century Illustrated, p. 861.
- 5 Olmsted, Early Years, pp. 51-52.
- 6 Ibid., p. 49
- 7 For a fuller discussion of Olmsted and his religious beliefs, see Frederick Law Olmsted, Landscape into Cityscape: Frederick Law Olmsted's Plans for a Greater New York City, ed. by Albert Fein (Ithaca, N.Y.: Cornell University Press, 1967), pp. 4, 7-10.
- 8 Van Rensselaer, Century Illustrated, p. 861.
- 9 Ibid.
- 10 Olmsted, Early Years, pp. 4-5
- 11 Olmsted wrote to his brother, "...Farmers are, and have cause to be, the most contented men in the world;..." Olmsted to John Hull Olmsted, June 23, 1845, in Olmsted Papers, Washington, D.C.
- 12 Olmsted, Early Years, p. 5
- 13 Olmsted to Fred Kingsbury, December 21, 1850, in Olmsted, Early Years, p. 81. (Frederick J. Kingsbury, a friend of Olmsted's, lived at New Haven, Connecticut.)
- 14 Andrew Jackson Downing, A Treatise on the Theory and Practice of Landscape Gardening... (New York: Funk & Wagnalls, 1967), p. 264

- 15 Broadus Mitchell, Frederick Law Olmsted: A Critic of the Old South, (4 vols.; Johns Hopkins University Studies in Historical and Political Science; Baltimore: The Johns Hopkins Press, 1924), XLII, 211.
- 16 Olmsted, A Journey Through Texas; Or a Saddle Trip on the Southwestern Frontier: With a Statistical Appendix, (New York: Mason Brothers, 1861), p. 148.
- 17 Ibid., p.21. (The season was winter.)
- 18 Ibid., p. 130.
- 19 Mitchell, op. cit., p. 252.
- 20 Olmsted, Walks and Talks of an American Farmer in England, (2 vols.; New York: G.P. Putnam and Co., 1852), I, p. 134.
- 21 Ibid., II, 156.
- 22 Ibid., I, 108.
- 23 Ibid., pp. 206-08. A quinquefolia is now Parthenocissus quinquefolia, Virginia creeper. Alfred Rehder, Manual of Cultivated Trees and Shrubs Hardy in North America... (New York: Macmillan Co., 1934), P. 610.
- 24 Taxus tardiva is now Taxus baccata var. adpressa Carr. This explains Olmsted's confusion with T. Adpressa. Ibid., p. 6.
- 25 Cupressus glauca is now Cupressus lusitanica (Tourn.) J. C. Loudon, Arboretum et Fruticetum Britannicum;... (8 vols.; London; H. G. Bohn, 1854,) IV, p. 2477.
- 26 Abies Menziesii could be Picea pungens or Picea sitchensis according to Rehder, op. cit., pp. 47-49. But according to Henry Winthrop Sargent; A. Menziesii was A. Sitchensis which would now be known as Picea sitchensis. Downing, op. cit., p. 486.
- 27 Deordora is Cedrus deodora, according to Rehder, op. cit., p. 53.
- 28 Torreyeas is Torreya, according to: L. H. Bailey and Staff of the Bailey Hortorium, at Cornell University, Manual of Cultivated Plants Revised Edition (New York: Macmillan, 1949), p. 100.
- 29 C. Libani was Cedrus Libani, now C. libanotica Link, better known as Cedar of Lebanon, according to Rehder, op. cit., p. 53.
- 30 Spanish Oak is Quercus falcata, according to Bailey, op. cit., p. 331.

- 31 M. acuminata is native to Australia. J. M. Black, Flora of South Australia (Adelaide, Australia: Harrison Weir, 1922-29), pp. 406-07. Notes 24-31 in FLO Notebook "Notes on European Gardens, Trip of 1878," Olmsted Papers, Washington, D.C.
- 32 Olmsted, A Journey in the Seaboard Slave States... (New York: Dix and Edwards, 1856), pp. 23-24. (Hereafter cited as Olmsted, Slave States.)
- 33 Olmsted, Slave States, p.65.
- 34 Olmsted, A Journey in the Back Country (London: Sampson Low, Son & Co., 1860), p. 254.
- 35 Olmsted, A Journey through Texas..., p. 97.
- 36 Olmsted, A Journey in the Back Country, p. 253-54.
- 37 Olmsted, Slave States, p. 321.
- 38 Ibid., p. 373.
- 39 Olmsted, Walks and Talks of an American Farmer in England, II, 91.
- 40 Accounts of Olmsted's southern journeys were published in The New York Times and in Olmsted; Slave States; A Journey through Texas; A Journey in the Back Country.
- 41 Olmsted, Slave States, p. 411
- 42 Ibid., pp. 382-83.
- 43 See Olmsted to Pilat, September 26, 1863, in Frederick Law Olmsted: Landscape Architect, ed. by Olmsted, Jr. and Kimball II, "Central Park...", p. 346. (Hereafter cited as Olmsted: Central Park.)
- 44 George F. Chadwick, The Park and the Town: Public Landscape in the 19th and 20th Centuries, (New York: Frederick Praeger, 1966), pp. 161, 177.
- 45 Olmsted: Central Park, p. 346.
- 46 Ibid., pp. 342-43.
- 47 Olmsted to the Board of Commissioners of Central Park, December 28, 1859, in Olmsted: Central Park, pp.55-57.
- 48 Samuel Gustin, Explanatory Notices of a Design for Laying Out the Central Park, (New York: Baker & Godwin, 1858), p. 25. (Samuel Gustin received the second prize for his design of the Central Park.)

- 49 Olmsted, "Preliminary Report...A Plan of Public Pleasure Grounds for the City of San Francisco" in: S. B. Sutton, ed., A Selection of Frederick Law Olmsted's Writings on City Landscapes (Civilizing American Cities; Cambridge, Mass.: MIT Press, 1971), p. 121. (Hereafter cited as: Olmsted Papers, City Landscapes.)
- 50 Olmsted, Seventh Annual Report of the Board of Commissioners of the Department of Parks for the City of Boston for the Year 1881, City Document No. 16, 1882, in Olmsted Papers, City Landscapes, p. 258.
- 51 Olmsted Papers, City Landscapes, p. 188, citing Olmsted, "A Report Upon...the Columbian Exposition..." American Architect and Building News, XVI (September 1893).
- 52 Olmsted: Central Park, p. 56.
- 53 Ibid., p. 57.
- 54 Ibid., p. 57.
- 55 Elizabeth Barlow, Frederick Law Olmsted's New York (New York: Praeger Publishers, 1972), pp. 24-26., passim.
- 56 Ibid., p. 28: quoting Allan Nevins and Milton Halsey Thomas (eds.) The Diary of George Templeton Strong, III: "The Civil War 1860-1865." (New York, 1952).
- 57 For more details, see: Olmsted, "Mariposa Estate, Manager's General Report." (New York, 1864.)
- 58 Olmsted to Ignaz Pilat, October 6, 1863, off Cape Corrientes, as cited in Olmsted: Central Park, pp. 348-49.
- 59 Charles C. McLaughlin (ed.), "Selected Letters of Frederick Law Olmsted," (unpublished Ph.D. dissertation, Dept. of History of American Civilization, Harvard University, 1960), p.296.
- 60 Olmsted, "The Yosemite Valley and the Mariposa Big Trees: A Preliminary Report (1865)," in ed. by Laura Wood Roper, Landscape Architecture XLIII, October 1952), 14-16., . . . citing New York Evening Post, June 18, 1868.
- 61 Olmsted, "Lecture to Students...Relation of Architecture to Landscape Architecture..."(1886-93 ca.) in Olmsted Papers, Washington, D.C.p. 1.
- 62 Olmsted:Early Years, p. 70.
- 63 Ibid., pp. 70-71.

- 64 Olmsted, "Tendencies That Led F. L. O. to L. A. in Early Life," in Olmsted Papers, Washington, D.C.
- 65 Olmsted to William Hammond Hall, October 5, 1871, New York; in Olmsted Papers, Washington D.C. (In this same collection can be found the original inquiry from Hall to Olmsted, San Francisco, August 22, 1871.)
- 66 Marjorie Hope Nicolson, John Milton: A Reader's Guide to His Poetry (New York: Farrar, Straus & Giroux 1970), p. 238.
- 67 Nicolson, ed., Milton: Poems and Selected Prose (New York: Bantam Books, 1966), p. 278, lines 246-50, 257-60.
- 68 Olmsted, "Lecture to Students...", Olmsted Papers, Washington, D.C.
- 69 Ibid.
- 70 Ibid., p. 19, 22, passim. (For a more detailed discussion of Loudon about Kent, see: Loudon, A Treatise on Forming, Improving and Managing Country Residences... (London: Longman, et. al., 1806) 2 vols., Republished by Gregg Int'l, England, 1971.
- 71 Ibid., p. 21.
- 72 Olmsted, "Lecture to Students...", Olmsted Papers, Washington, D.C., pp. 22-24, passim. (Norman Newton agreed with Olmsted's conclusion about Kent: "It is reasonably clear that Kent made no great contribution toward its [English Landscape Gardening School's] development." Norman T. Newton, Design on the Land: The Development of Landscape Architecture, (Cambridge, Mass: Belknap Press of Harvard Univ. Press, 1971) p. 211.
- 73 Olmsted quoting George Mason, in Olmsted, "Lecture to Students..." Olmsted Papers, Washington, D.C., p. 22. (Mason, a Briton, wrote on landscape design.)
- 74 Olmsted: Central Park, p. 221, (ed. note).
- 75 John C. Loudon, Landscape Gardening and Landscape Architecture of the Late Humphry Repton (originally published in 4 vols., now compiled in 1; London: Longman & Co., 1840 (orig.); Westmead; England: Gregg Int'l Publishers Ltd, 1969 (rev.), pp. 520-22.
- 76 Ibid., p. 234.
- 77 John Nolen (ed.), The Art of Landscape Gardening..., (Cambridge, Mass: Riverside Press, 1907), p. 36.

- 78 Ibid., p. 9.
- 79 Ibid., p. 137.
- 80 Ibid., p. 26.
- 81 Paul Edwards, Trees and the English Landscape, (London: G. Bell and Sons, Ltd., 1962), p. 17.
- 82 Dorothy Stroud, Capability Brown (London: Country Life Limited, 1965), p. 19. (Derek Clifford claimed that the cedars were cedars of Lebanon. Derek Clifford, A History of Garden Design, (New York: Praeger, 1966), p. 164.
- 83 Nolen, The Art of Landscape Gardening, p. 235., note 25.
- 84 Loudon, Landscape Gardening..., pp. viii-ix.
- 85 Newton, Design on the Land, p. 218-19.
- 86 Rensselaer, Century Illustrated, p. 867.
- 87 Ignaz A. Pilat to Andrew H. Green, April 7, 1862, Olmsted Papers, Washington, D. C. Also, letter from Olmsted and Calvert Vaux to Pilat, New York, July 26, 1865. (Personal papers of Pilat in possession of his grandson; William J. Pilat, St. Petersburg, Florida, also published in Olmsted: Central Park, pp. 76-77.
- 88 Carl Barbier, William Gilpin, His Drawings, Teaching and Theory of the Picturesque (Oxford: Clarendon Press, 1963,) p. 102, citing: William Gilpin, Observations on the...Picturesque Beauties..., (London: Cadell and Davis, 1798), p. 328.
- 89 Uvedale Price, An Essay on the Picturesque, As Compared with the Sublime and the Beautiful, (London: J. Robeson, 1794), p. 56.
- 90 Ibid., p. 240.
- 91 Marie Luise Gotheim, A History of Garden Art, ed. by Walter P. Wright; trans by Arch-Hind (New York: Hacker Art Books: 1966), II, 344.
- 92 Pilat to Green, April 17, 1862, p. 2, Olmsted Papers, Washington, D.C.

- 93 William Gilpin, Remarks on Forest Scenery, and Other Woodland Views, (2nd ed; London: R. Blamire, 1791) I, 17.
- 94 Olmsted to Demcker (memorandum), February 27, 1872, as cited in Olmsted: Central Park, p. 354.
- 95 Gilpin, Forest Scenery, p. 15.
- 96 Ignaz Pilat, "Report of the Head Gardener of Central Park," Olmsted Papers, Washington, D.C., April 7, 1863.
- 97 Gilpin, Forest Scenery, p. 70.
- 98 Olmsted, "Report Relative to Trees," Doc. No. 11, 1857, in Olmsted: Central Park, p. 332. (Deciduous cypress is Taxodium distichum, according to Bailey, op. cit., p. 118; whitecedar or swamp arbor vitae is Chamaecyparis thyoides, according to Downing, op. cit., p. 269; red larch is Larch laricina, according to Rehder, op. cit., p. 52; and black American larch or hackmatack is Larix pendula, ibid.
- 99 Loudon, Treatise on Country Residence, II, 514., also cited in Downing, op. cit., p. 115.
- 100 Olmsted's notebook, 1863, Olmsted Papers, Washington, D.C.
- 101 Olmsted, 1822-1903: Early Years and Experiences, p. 119.

FOOTNOTES FOR CHAPTER II

- 1 For a fuller discussion of the beginning of the public park, see: Jere Stuart French, "The First 'People's Park' Movement," Landscape Architecture LXII, (October, 1971), 25-29.
- 2 Olmsted, Walks and Talks of an American Farmer in England, (2 vols.; New York: G. P. Putnam and Co., 1852), I, 79-80.
- 3 Ibid., p. 81
- 4 Frederick Law Olmsted, 1822-1903: Early Years and Experiences, Frederick Law Olmsted, Jr. and Theodora Kimball (eds.), (2 vols.; New York: G. P. Putnam's Sons, 1922-28) I, 46.
- 5 New York Herald article (no specifics given), as cited by Olmsted in Public Parks and the Enlargement of Towns, a paper read before the American Social Science Association on February 25, 1870 (Cambridge; Riverside Press, 1870), reprinted in S. B. Sutton (ed.) A Selection of Frederick Law Olmsted Writings on City Landscapes (Civilizing American Cities; Cambridge: MIT Press, 1971), p. 94. Hereafter cited as Olmsted Papers, City Landscapes.
This selection is also cited in: Henry Hope Reed and Sophia Duckworth, Central Park: A History and a Guide (New York: Clarkson N. Potter, Inc., 1967), p. 34.
- 6 Olmsted, "Preliminary Report to the Commissioners for Laying Out a Park in Brooklyn, New York... (1866) in Albert Fein, (ed.), Landscape into Cityscape: Frederick Law Olmsted's Plans for a Greater New York City (Ithaca: Cornell University Press, 1967) P. 101. Hereafter cited as Olmsted Documents for New York City.
- 7 Fein, Frederick Law Olmsted and the American Environmental Tradition (New York: George Braziller, 1972), p. 9.
- 8 William Gilpin, Remarks on Forest Scenery, and Other Woodland Views (2nd ed; London: R. Blamire, 1791) II, 71.
- 9 Fein, Olmsted and the American Environmental Tradition, p. 13, citing Calvert Vaux to Clarence Cook, June 6, 1865.
- 10 "Public Parks and the Enlargement of Towns," in Olmsted Papers: City Landscapes, p. 75.
- 11 "Preliminary Report...A Park in Brooklyn," in Olmsted Documents for New York City, p. 101.

- 12 Broadus Mitchell, Frederick Law Olmsted: A Critic of the Old South, (4 vols., Studies in Historical and Political Science: Baltimore: Hopkins Press, 1924), XLII, p. 289.
- 13 Fein, Olmsted Documents for New York City, p. 25.
- 14 Fein, Olmsted and the American Environmental Tradition, op. cit., p. 9.
- 15 Ibid., p. 39.
- 16 "Public Parks and the Enlargement of Towns" in Olmsted Papers: City Landscapes, p. 92.
- 17 Olmsted, "Parks for the People" in Hartford Courant (Connecticut), August 22, 1891, clipping found in "Frederick Law Olmsted Papers" (Library of Congress). Hereafter cited as Olmsted Papers: Washington, D.C.
- 18 Olmsted, Vaux & Co. "Observations on the Progress of Improvements in Street Plans, with Special Reference to the Parkway Proposed to Be Laid Out in Brooklyn, 1868" as cited in Olmsted Papers; City Landscapes, p. 25.
- 19 Ibid., p. 28.
- 20 "Public Parks and the Enlargement of Towns" in Olmsted Papers: City Landscapes, p. 70.
- 21 Olmsted and Calvert Vaux, "Report of the Landscape Architects...of Prospect Park, Brooklyn," in Olmsted Documents for New York City, p. 148.
- 22 Ibid., p. 147.
- 23 "Public Parks and the Enlargement of Towns" in Olmsted Papers; City Landscapes, pp. 71-77.
- 24 Olmsted & Vaux "Report of the Landscape Architects... of Prospect Park, Brooklyn," in Olmsted Documents for New York City, pp. 158-59., and Elizabeth Barlow, Frederick Law Olmsted's New York (New York: Praeger Publishers, 1972), p.148.
- 25 Olmsted, "Parks, Park-Ways and Pleasure-Grounds" Engineering Magazine (IX, April-Sept., 1895), p. 256.
- 26 Olmsted & Vaux, "Report of the Landscape Architects... of Prospect Park, Brooklyn," in Olmsted Documents for New York City, p. 161. Also see: Olmsted, ...The Park Way to Be Laid Out in Brooklyn 1868. (Brooklyn: Van Anden's Print, 1868).

- 27 Olmsted, "Parks, Park-Ways and Pleasure-Grounds," p. 256.
- 28 Olmsted & Vaux, "Report of the Landscape Architects...of Prospect Park, Brooklyn," in Olmsted Documents for New York City, p. 158.
- 29 Ibid., pp. 158-59.
- 30 Ibid., p. 161.
- 31 Ibid., p. 162.
- 32 Ibid., p. 156.
- 33 "Public Parks and the Enlargement of Towns," in Olmsted Papers: City Landscapes, p. 97.
- 34 Olmsted, Hartford Courant, op. cit.
- 35 Olmsted, "Seventh Annual Report of the Board of Commissioners of the Department of Parks for the City of Boston for the Year 1881," in Olmsted Papers; City Landscapes, p. 243.
- 36 Olmsted and Croes, "...Report of the Landscape Architect Upon the Construction of Riverside Park and Avenue, in Olmsted Documents for New York City, p. 356-58, passim. Also, Olmsted and Croes, "Report of the Landscape Architect and the Civil and Topographical Engineer, Accompanying a Plan for Laying Out...Riverside Road," in Olmsted Documents for New York City pp. 368-71, passim.
- 37 Olmsted, "Parks, Park-Ways and Pleasure-Grounds," p. 253.
- 38 Olmsted, "The Yosemite Valley and the Mariposa Big Trees: A Preliminary Report (1865)," in Laura Wood Roper (ed.) Landscape Architecture XLIII, (October, 1952), p. 17.

FOOTNOTES FOR CHAPTER III

- 1 Charles C. McLaughlin, (ed.), "Selected Letters of Frederick Law Olmsted," (unpublished Ph.D. dissertation, Department of History of American Civilization, Harvard University, 1960), p. 10.
- 2 Frederick Law Olmsted, "Queries on Sea-Coast Culture" (June 29, 1847), The Horticulturist, and Journal of Rural Art and Rural Taste, II (July 1847), 100.
- 3 McLaughlin, (ed.), op. cit., p. 12.
- 4 Olmsted, "A Note on the True Soldat Labourer Pear," (November 24, 1851), The Horticulturist, and Rural Art and Rural Taste, VII (January, 1852), 14-15.
- 5 Olmsted to Fred Kingsbury, December 21, 1850 in: Frederick Law Olmsted 1822-1903: Early Years and Experiences, Frederick Law Olmsted, Jr., and Theodora Kimball, (eds.) (2 vols., New York: G. P. Putnam's Sons, 1922-28) I, p. 81. (Hereafter cited as Olmsted, Early Years.)
- 6 Olmsted to John Hull Olmsted, November 10, 1847, in Olmsted, Early Years, p. 85. (John Hull Olmsted was Frederick's younger brother.)
- 7 Broadus Mitchell, Frederick Law Olmsted: A Critic of the Old South, (4 vols.; Johns Hopkins University Studies in Historical and Political Science; Baltimore: The Johns Hopkins Press, 1924) XLII, 210-11.
- 8 Olmsted to Charles Brace, December 8, 1860, in McLaughlin, op. cit., pp. 245-46, and in Frederick Law Olmsted: Landscape Architect, Olmsted, Jr., and Kimball (eds.) op. cit., II, "Central Park..." p. 64. (Hereafter cited as Olmsted, Central Park.)
- 9 McLaughlin, op. cit., p. 246, and Olmsted and Kimball, Olmsted, Central Park, p. 64.
- 10 Olmsted and Kimball, Olmsted, Central Park, p. 52.
- 11 Olmsted to Board of Commissioners of Central Park, June 17, 1858, in Olmsted, Central Park, p. 51, and Albert Fein, Frederick Law Olmsted and the American Environmental Tradition, (New York: George Braziller, 1972), p. 9.

- ¹² Olmsted to Vaux, in Elizabeth Barlow, Frederick Law Olmsted's New York (New York: Praeger Publishers, 1972), p. 33.
- ¹³ McLaughlin, op. cit., p. 247, and Olmsted and Kimball, Olmsted, Central Park, p. 64.
- ¹⁴ McLaughlin, op. cit., p. 95.
- ¹⁵ Letter from William J. Pilat, St. Petersburg, Florida, to the author, February 5, 1973. (Enclosures cited as Pilat Papers.) (William J. Pilat is Ignaz's grandson.) Other sources note that Pilat was born in Aschach, Austria: "Ignaz Pilat," The National Cyclopedia of American Biography, (New York: James T. White and Co., 1916) XV, 307. Also, clipping of Pilat's obituary in Staat-Zeitung (trans.), Pilat Papers.
Aschach is in north central Upper Austria, on the Danube and 13 miles west north west of Linz, Austria. Leon E. Seltzer (ed.), The Columbia Lippincott Gazetteer of the World, (New York: Columbia University Press, 1952), p. 107.
- ¹⁶ Staat-Zeitung obituary, in Pilat Papers., and The National Cyclopedia of American Biography, p. 307.
- ¹⁷ Letter to author from Wm. Pilat, February 5, 1973.
- ¹⁸ Katherine McNamara, "Ignaz Anton Pilat," Dictionary of American Biography, (New York: Charles Scribner's Sons, 1936), VII, 600.
- ¹⁹ For a fuller discussion of life in Europe, 1848, see: Hans Kohn, "Mid-Century: The Turning Point" in The European Past: Reappraisals in History Since Waterloo: ed. by S.B. Clough et. al. (2 vols.) New York: Macmillan Co., 1964), II, 32-34.
- ²⁰ National Cyclopedia of American Biography, p. 307.
- ²¹ New York Tribune, September 20, 1870, p. 5.
- ²² National Cyclopedia of American Biography, p. 307., also a small work on landscape gardening written in Linz, Austria, is mentioned in: Appleton's Cyclopedia of American Biography, ed. by James G. Wilson and John Fiske (New York: D. Appleton & Co, 1883), V, 19.
- ²³ Alice G. B. Lockwood, Gardens of Colony and State..., Garden Club of American, (New York: Charles Scribner's Sons, 1934) II, 317-18.
- ²⁴ Charles Rawolle and Ignaz Pilat, Catalogue of Plants Gathered in August and September 1857 in the Ground of Central Park, (New York: M. W. Siebert, 1857) 34pp.

- 25 Third General Report of the Board of Commissioners...From May 1, 1872 to December 31, 1873, (New York: William C. Bryant & Co., 1875), pp. 352-462.
- 26 Memories of Samuel Parsons, Landscape Architect of the Department of Public Parks, ed. by Mabel Parsons, (New York: G.P. Putnam's Sons, 1926) pp. 87-89.
- 27 "Gewerbe-Verein" (Society of Industry and Arts), Staat-Zeitung, February 10, 1863., Pilat Papers.
- 28 New York Evening Post, September 19, 1870. (The Shawangunk Range is found in Orange County, New York.) Olmsted made further reference to these mountains as part of a municipal promenade, in Olmsted, "Preliminary Report to the Commissioners for Laying Out a Park in Brooklyn, New York...(1866) in Albert Fein, (ed.), Landscape into Cityscape: Frederick Law Olmsted's Plans for a Greater New York City (Ithaca, N.Y.: Cornell University Press, 1967), p. 101. (Hereafter cited as Olmsted Documents for New York City.)
- 29 Copy of handwritten letter (draft) from Pilat, July 31, 1860, Yorkville, N. Y., Pilat Papers. William J. Pilat felt his grandfather was at great pains to ask about having landscape gardening made a department with himself as superintendent, even though Olmsted would remain his supervisor.
- 30 Letter from Pilat to Green, April 7, 1862, and Letter from Pilat to Olmsted, April 8, 1862; in "Frederick Law Olmsted Papers" (Library of Congress). (Hereafter cited as Olmsted Papers, Washington. D.C.)
- 31 Olmsted to Pilat, September 26, and October 6, 1863 in Olmsted, Central Park, pp. 343-49; and Letter from Pilat to Olmsted, January 21, 1864 in Olmsted Papers, Washington, D.C.
- 32 Letter from Olmsted and Vaux to Pilat, July 26, 1865, in Pilat Papers and Olmsted, Central Park. pp.76-77.
- 33 Olmsted and Vaux to Pilat, February 1, 1867, in Pilat Papers (copy).
- 34 Oliver R. Pilat (Ignaz's grandson) to author, December 29, 1972.
- 35 Frank Pollard, "Brooklyn Park, August 1866, Trees Marked and Noted," in Olmsted Papers, Washington, D.C. (Frank Pollard was an assistant foreman in Central Park when Ignaz was a foreman. New York Daily News, June 27, 1860, p. 5.

- 36 Olmsted to Oliver C. Bullard, September 14, 1871, Bolton, Lake George, N.Y., pp. 1-2. in Olmsted Papers, Washington, D.C.
- 37 Ibid., p. 2
- 38 Ibid.
- 39 Tilia alba pendula should be T. petiolaris: Andrew Jackson Downing, A Treatise on the Theory and Practice of Landscape Gardening... (New York: A. O. Moore & Co., 1859); Facsimile edition (New York: Funk & Wagnals, 1967) p. 468, and L. H. Bailey and Staff of the Bailey Hortorium at Cornell University, Manual of Cultivated Plants, Revised Edition, (New York: Macmillan, 1949), p.654.
- 40 Olmsted to Bullard, op. cit., p. 2. Kilmarnock willow should be Salix caprea pendula, Bailey, op. cit., p. 320.
- 41 Olmsted to Bullard, op. cit., pp. 2,4,6. (For actual materials, see "tropical effect" in chapter 3.)
- 42 Thuja sibirica should be T. occidentalis robusta (Carr.); P. japonica should be P. macrophylla var. Maki, Alfred Rehder, Manual of Cultivated Trees and Shrubs Hardy in North America... (New York; Macmillan Co., 1934), p. 2,21.
- 43 Magnolia purpurea should be M. liliflora (Desrouss.), Rehder, op. cit., pp. 256-57.
- 44 Olmsted to Bullard, op. cit., p. 6.
- 45 Abies pygmaea was probably Abies excelsa pygmaea, now known as Picea abies pygmaea, Rehder., op. cit., p. 44.
- 46 Olmsted to Bullard, op. cit., p. 6.
- 47 Olmsted to C. Ryan, Superintendent's Office, Central Park, February 27, 1872, in Olmsted Central Park, p. 351.
- 48 "Memorandum Relating to Certain Work to Be Done...Under the General Direction of Mr. Demcker," in Olmsted Central Park, pp. 352-55.
- 49 Robert Demcker proposed plantings for the arches over Transverse roads in Central Park, Olmsted Papers, Washington, D.C.
- 50 Olmsted to Fischer, August 11, 1889, pp1-2., in Olmsted Papers, Washington, D.C. Also found in the Olmsted Papers, Washington, D.C., was a Catalogue of the Horticultural Establishment of W. L. Fischer, 130th Street., Eighth Ave. Harlem, N.Y., 1868.

- 51 Olmsted to Fischer, August 11, 1889, pp. 2-4, passim.
Ampelopsis beitchii was probably A. veitchii, now known as
Parthenocissis tricuspidata Planch.
For further information, see Olmsted to Fischer, July 21,
1887 (not yet located), and letter to Fischer, August 6, 1889,
in Olmsted Papers, Washington, D.C.
- 52 Olmsted to J. C. Olmsted, November 27, 1842, in Olmsted Papers,
Washington, D.C. (John C. Olmsted was Olmsted's step-son.)
- 53 Olmsted to Gall at Biltmore, July 7, 1894, in Olmsted Papers,
Washington, D.C.
- 54 Norman T. Newton, Design on the Land: The Development of
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Harvard University Press, 1971) pp. 388-89.
- 55 "Biltmore House and Gardens" (booklet) Biltmore Estate;
Asheville, North Carolina, Biltmore Co., 1965. pp. 2,24.
- 56 Olmsted to Olmsted, Jr., December 23, 25, 26, 1894, in
Olmsted Papers, Washington, D.C. pp. 3,50.
- 57 Ibid., p. 6.
- 58 John C. Olmsted, "Frederick Law Olmsted," The Standard
Cyclopedia of Horticulture, L. H. Bailey (ed.), (3 vols.,
New York: Macmillan Co., 1900), II, 1590-91.
- 59 Rawolle and Pilat, Catalogue of Plants...of the Central Park,
p. 4.
- 60 "List of 'Hardwooded' Plants and Trees Growing on the Estate
of George W. Vanderbilt, Esq., Biltmore, N.C., as Compiled to
Date. June 13, 1890 (With Notes on Propagation for Mr. Gall)"
Found at Olmsted Associates, Landscape Architects, (Olmsted's
actual office) at 99 Warren Street, Brookline, Massachusetts.
(Hereafter cited as Olmsted Papers: Brookline.)
- 61 Olmsted to James Gall, Jr., at Biltmore, March 12, 1891, p.1
in Olmsted Papers, Washington, D.C. (Mr. Gall worked with
George Waring on the preparation of ground and tile drainage
for Central Park.) New York Tribune (Evening Ed.) July 27, 1866,
clipping found in **Pilat Papers**.
- 62 Olmsted, "Instructions to all Engaged in Moving or Planting
Trees and Shrubs" in Olmsted Papers: Washington, D.C., and
New York Daily News, June 27, 1860, p. 5.

- 63 Ibid.
- 64 Ibid.
- 65 New York Daily News, June 27, 1860, p. 5.
- 66 Ibid.
- 67 Ibid.
- 68 Olmsted to Gen. M. C. Meigs, Washington, D.C., August 2(or 22), 1870, p. 2, in Olmsted Papers, Washington.D.C.
- 69 Ibid.
- 70 Olmsted to George W. Vanderbilt, July 12, 1889, p. 35, in Olmsted Papers, Washington, D.C.
- 71 Olmsted from Chauncey Beadle, June 9, 1892, listing the plants obtained from J. Veitch and Sons, Chelsea, Eng., in Olmsted Papers, Brookline.
- 72 Olmsted from H. H. Berger & Co., January 30, 1892, in Olmsted Papers, Brookline.
- 73 Olmsted to Olmsted, Jr., (n.d.) ca. 1895, in Olmsted Papers, Washington, D.C.
- 74 "A List of Plants with the Probable Cost, the Purchase of which was Approved by Mr. Vanderbilt, June 14, 1894, for the Furnishing of the Conservatory below the Garden" July 9, 1894. Olmsted Papers, Brookline.
- 75 Olmsted to Olmsted's Partners, May 25, 1895, p. 3., Olmsted Papers, Washington, D.C.
- 76 Giant cedar of California was the Sequoia gigantea, according to Henry Sargent in Downing, Landscape Gardening, p. 534, now known as Sequoiadendron giganteum, according to Bailey, op. cit., p. 118. Clarence Cook noted that the giant cedar was thriving in Central Park in: Cook, A Description of the New York Central Park (New York: F. J. Huntington, 1869). p. 71
- 77 Ninth Annual Report of the Board of Commissioners of the Central Park for th Year Ending with December 31, 1865, (New York: Wm. C. Bryant and Co., 1866), p. 71.
- 78 Pilat, "Reports of the Head Gardener" December 1, 1862, April 24, 1863 and May 5, 1863, in Olmsted Papers, Washington, D.C.

- 79 Pilat to Green, "Informal Report on the Subject of the Planting in Central Park," April 7, 1862, pp. 3-4. Pilat Papers.
- 80 Handwritten "Report of Department of Public Parks," Office of Design and Superintendence in New York to the Honorable S. H. Wales, President of the Board, December 31, 1873, p. 34 in Olmsted Papers, Washington, D.C.
- 81 Olmsted to Meigs, August 2 (or 22), 1870, pp. 1-2.
- 82 "Report of the Engineer in Charge, Park Commission of the City of Buffalo, Engineer's Office," January 2, 1871, First Annual Report of the Buffalo Park Commissioners, January 1871 (Buffalo: Warren, Johnson & Co., Printers, 1871) p. 17.
- 83 Olmsted to Colonel Gzouski, August 15, 1887, giving advice to the Niagara Falls Commission, p. 5. Olmsted Papers, Washington, D.C.
- 84 Report to George W. Vanderbilt, July 12, 1889, p. 34, Olmsted Papers, Washington, D.C.
- 85 Letter to the Editor, Asheville Lyceum, December 1891, Olmsted's file copy p. 2, in Olmsted Papers, Washington, D.C.
Also see The Lyceum, December 1891, II, 6 (Asheville, N.C.: Tilman R. Gaines, 1891) pp. 5-7.
- 86 Ibid.
- 87 Also see John Nolen "Frederick Law Olmsted and His Work," House and Garden, IX, (February 1906), pp. 73-74.
- 88 Olmsted, Vaux & Co., "Report Accompanying Plan for Laying Out the South Park, Chicago, South Park Commission," in S. B. Sutton (ed.) A Selection of Frederick Law Olmsted's Writings in City Landscapes (Civilizing American Cities; Cambridge, Mass: MIT Press, 1971) p. 163.
- 89 Olmsted, "A Report Upon...the Columbian Exposition..." American Architect and Building News XVI (September, 1893), in S. B. Sutton (ed), A Selection of Frederick Law Olmsted's Writings...
- 90 Olmsted, "Scenery, Society, and Gardens" (n.d.), Olmsted Papers, Washington, D.C.
- 91 Downing, Landscape Gardening, p. 79. Also, Olmsted and Harrison, "Observations on the Treatment of Public Plantations, More Especially Relating to the Use of the Axe," in Olmsted, Central Park., p. 370.
- 92 Letter to the Editor, Asheville Lyceum, p. 3.

- 93 Olmsted, "A Report Upon...the Columbian Exposition....," in Sutton (ed.) A Selection of Frederick Law Olmsted's Writings, p. 182.
- 94 Rubus odorata should be Rubus odoratus, Rehder, op. cit., p. 412.
- 95 Olmsted, Memorandum to Demcker, February 27, 1872, in Olmsted, Central Park, p. 354.
- 96 For more details, see Cook, op. cit., pp. 106-07.
- 97 Olmsted, Memorandum to Demcker, February 27, 1872, in Olmsted, Central Park., p. 354.
- 98 Olmsted, "Report Upon a Plan for Montebello Park" to Richard Kimmett, Chairman of the Park Commission, St. Catherine's, Ontario, December 5, 1887, p. 4 in Olmsted Papers, Washington, D.C.
- 99 Olmsted to Vanderbilt, November 6, 1889, Olmsted Papers, Washington, D.C.
- 100 Olmsted to Gall, March 12, 1891, p. 1, in Olmsted Papers, Washington, D.C.
- 101 Ibid., pp. 1-2.
- 102 Olmsted, "Report Relative to Trees," op. cit., in Olmsted Central Park, p. 333
- 103 Ibid.
- 104 "Description of a Plan for the Improvement of the Central Park, Greensward," 1858, in Olmsted, Central Park, p. 227.
- 105 Pilat to Green, April 7, 1862, p. 1, in Olmsted Papers, Washington, D.C. and Pilat Papers, p. 1.
- 106 Olmsted, "Plan for a Small Homestead," Garden and Forest A Journal of Horticulture, Landscape Art and Forestry, (I, May 2, 1888) 112.
- 107 Pilat to Green, April 7, 1862, p. 4, in Olmsted Papers, Washington, D.C. and Pilat Papers, p. 2.
- 108 Olmsted to Vanderbilt, July 12, 1889, "The Forest" III, 15, in Olmsted Papers, Washington, D.C.
- 109 Olmsted, "Report Relative to Trees," in Olmsted, Central Park, p. 332.
- 110 Ibid.

- 111 Ibid., p. 333
- 112 Olmsted's personal notebook, ca. 1870, in Olmsted Papers, Washington, D.C. (Olmsted permanent address was listed as 110 Broadway, New York.)
- 113 Olmsted to Meigs, August 2 (or 22), 1870, p. 2, in Olmsted Papers, Washington, D.C.
- 114 Olmsted, "Project of Operations for Improving the Forest of Biltmore," ca. 1893-94, p. 7., in Olmsted Papers, Washington, D.C.
- 115 Cook, op. cit., pp. 17-18.
- 116 McCartney evergreen rose is Rosa bracteata, Bailey, op. cit. p. 537.
- 117 Andromeda was probably Pieris, Rehder, op. cit., p. 710.
- 118 Olmsted to Gall, March 12, 1891, p. 2, in Olmsted Papers, Washington, D.C.
- 119 Olmsted and Harrison, "Observations on the Treatment of Public Plantations," in Olmsted, Central Park, p. 364. Olmsted quoted Robert Douglas, described in 1887 as the oldest and most successful large planter in North America, his plantings in the arid regions of the far West alone amounting to over three million trees.
- 120 Ibid., pp. 362-75, passim.
- 121 Olmsted to Partners, May 25, 1895, p. 2., Olmsted Papers, Washington, D.C.
- 122 Olmsted, "Foreign Plants and American Scenery," (Letter to the Editor), Garden and Forest, A Journal of Horticulture, Landscape Art and Forest, I (October 24, 1888), 418.
- 123 Ibid.
- 124 Ibid.
- 125 Nelumbiums, now Nelumbo, Bailey, op. cit., p. 384.
- 126 Olmsted, Letter to the Editor, Asheville Lyceum, p. 6.
- 127 Olmsted Reports to Vanderbilt, July 12, 1889, p. 36, in Olmsted Papers, Washington, D.C.

- 128 Olmsted to Pilat, September 26, 1863, in Olmsted, Central Park, p. 344.
- 129 Ibid., p. 345.
- 130 Downing thought the oriental magnolias had great merit in pleasure grounds. See Downing, Rural Essays ed. by George Curtis (New York: R. Worthington, 1881) pp. 335-38.
- 131 Olmsted to Pilat, September 26, 1863 in Olmsted, Central Park, p. 346.
- 132 Ibid., pp. 347-48.
- 133 "Twelfth Annual Report of the Board of Commissioners of the Central Park for the Year Ending December 31, 1868," (New York: Evening Post Steam Presses, 1869) pp. 44-45.
Caladium esculentum, known as Colocasia esculenta; Melianthus majus, now known as Melianthus major, Bailey, op. cit., p.189, 642.
- 134 Olmsted, "The Spoils of the Park..." February 1882, in Olmsted Documents for New York City, p. 431.
- 135 William Robinson, The Subtropical Garden (London: John Murray, 1871) p. 67.
- 136 "Twelfth Annual Report...of the Central Park..." op. cit., p. 46, also, Gynerium argenteum, now know as Cortaderia Selloana, Bailey, op. cit., p. 159.
- 137 Olmsted and Vaux, "A Preliminary Study of the Landscape Architect(s) of a Design for Laying Out of Morningside Park" (1873) (Document No. 50 of the Board of the Department of Public Parks) in Olmsted Documents for New York City, pp. 338-39.
- 138 Olmsted to Bullard, September 14, 1871, p. 6., in Olmsted Papers, Washington, D.C.
- 139 Olmsted to Beadle, July 26, 1895, p. 1., Olmsted Papers, Washington, D.C.
- 140 Bambusa netake, now known as Arundinaria japonica; Bambusa falcata, now known as Arundinaria falcata, according to Alexander Lawson, Bamboos: A Gardener's Guide to Their Cultivation in Temperate Climates (New York: Taplinger Publishing Co., 1968), pp. 80, 91.

- 141 Notes on plants ordered through F. L. Olmsted & Co. for Biltmore, Spring, 1890. Olmsted Papers, Brookline, p. 1.
- 142 Olmsted to Olmsted, Jr., December 23, 25, 26, 1894, in Olmsted Papers, Washington, D.C., p. 3.
- 143 Ibid., p. 5.
- 144 Olmsted to Dr. Peter Collier, director of the N. Y. Agricultural Experimental Station, Geneva, N. Y., April 8, 1890, in Olmsted Associate Papers, a collection of the business correspondence of the Olmsted landscape architecture firm found in the Library of Congress, Manuscript Division, Washington, D.C.
- 145 See accompaniment to the Greensward Plan, "Particulars of Construction and Estimate for a Plan of the Central Park" (2nd section, "Descriptive Guide to the Arboretum"), 1858 in Olmsted, Central Park, pp. 335-42.
- 146 Olmsted, Description of a Plan for the Improvement of the Central Park "Greensward" 1858 in Olmsted, Central Park, pp. 230-232.
Also see: T. Addison Richards, Guide to the Central Park (New York: James Miller, 1866), pp.86-87.
- 147 Olmsted "Descriptive Guide to the Arboretum," in Olmsted, Central Park, pp. 337-42, and Arthur Henfrey, An Elementary Course of Botany, Structural, Physiological and Systematic (London: John Van Voorst, Paternoster Row: 1878) pp. 182-362.
- 148 George Lawrence, An Introduction to Plant Taxonomy (New York: Macmillan Co., 1955), p. 9; and Asa Gray, Gray's Lessons in Botany: The Elements of Botany (New York: American Book Co., 1887) pp. 182-83.
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- 153 Olmsted, Letter to the Editor, Asheville Lyceum, December 1891, Olmsted's file copy, p. 2, in Olmsted Papers, Washington, D.C.
- 154 Warren Manning, "Biltmore Arboretum: Preliminary List of Orders and Genera Now Represented in Nursery with Estimate of Space Required for Each in Biltmore Arboretum," ca. 1890-95, in Olmsted Papers, Brookline.
- 155 Ibid.
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- 157 Manning, "Biltmore Arboretum..." p. 1.
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- 159 Olmsted to Vanderbilt, December 30, 1893, p. 11 in Olmsted Papers, Washington, D.C.
- 160 Olmsted to Partners, May 25, 1895, p. 3, in Olmsted Papers, Washington, D.C.
Also in letter from Olmsted, Jr., to John Charles Olmsted (his half-brother) December 20, 1894, in Olmsted Papers, Washington, D.C., Olmsted, Jr. wrote: "He (Olmsted, Sr.) went over the road 'in detail' with Manning; there was little more than general consideration of the groups..."
- 161 Olmsted, Jr., "Memorandum of the Conclusions in the Discussion on the Arboretum," March 23, 1895, in Olmsted Papers, Brookline.
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- 163 Olmsted, Early Years, p. 17; and Julius Fabos, (et. al.) Frederick Law Olmsted, Sr: Founder of Landscape Architecture in America, (Amherst: University of Massachusetts Press, 1968), p. 111.

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APPENDIX

Plant Material for the Pseudo-Tropical Effect

<u>Sassafras albidum</u>	Sweet flag
<u>Magnolia liliflora</u>	Tiger lily
<u>Magnolia glauca</u>	Kalmia
<u>Magnolia Fraseri</u>	Forsythia
<u>Oxydendrum arboreum</u>	Wild raspberry
Catalpa	Honey locust
Ailanthus	Indian corn
Paulonia	Sorghum
<u>Morus rubra</u>	Cypress
<u>Morus alba</u>	Arundo donax
Liquidamber	Tobacco
Papaw	Wigandia
Persimmon	Bamboos
<u>Dirca palustris</u>	Castor bean
Aralia	Convolvulus
Holly-leaved barberry	Clematis
Purple barberry	Yellow jessamine
Virginia creeper	Trumpet creeper
	Cat-briar

Broad-Leaved Plants for Water's-Edge

Symplocarpus foetidus
Veratrum viride
Sarracenia purpurea

Native Plants Appearing Native
From Olmsted's Notebook, 1868

Witch hazel	Blueberry
Cornus alternifolia	Choke chery
Sweet fern	elder
Bayberry	Hop hornbeam
Alders	Dwarf aspen
Inkberry	High aspen
<u>Lyonia ligustrina</u>	White birch
<u>Rhamnus</u>	Viburnum Nannyberry
<u>Crataegas</u>	Small Kalmia
Whortleberry	

Exotic Plants Appearing Native

- Rubus fruticosus (probably R. ulmifolius)
- European and Asiatic maples, elms, ashes, lindens and beeches
- Foreign: barberry, privet sweet briar, cherokee rose, fall dandelion, buttercups, mints, hemp nettle
- Japanese honeysuckle, Japanese ivy, and Japanese box
- Ivy
- European red bud, Oriental plane, Chinese wisteria (out of bloom)
- Foreign: spirea, forsythia, diervilla, or lilac
- Timothy, red clover, canada thistle, Bermuda grass, alfalfa and Japan clover

Exotic Plants Appearing Exotic

Horse chestnut	dwarf conifers
Ginkgo	weeping beech
Japanese maple	

Native Plants Appearing Exotic

Catalpa	Angelica
Sassafras	Ceris
Liquidambar	Ptelia
Tulip tree	Sumachs
Tupelo	Flowering Dogwood
Honey locust	Pipevine
	Rhododendron

Plants for the Shore Line

Beach plum (<u>Prunus maritima</u>)	Beach pea (<u>Lathyrus maritimus</u>)
Sea buckthorn	Sea lavender (<u>Limonium</u>)
Tamarix	Sedge (<u>Carex</u>)
Asparagus	Beach grass
Rosa arcida (<u>R. virginiana</u>)	(<u>Ammophila arenaria</u>)

Plants for Meadows

Solidagos	Irises
Asters	Asclepias
Tansy	Chicory
Yarrow	Gentian
Mints	<u>Apios americana</u>
Cranberry	Hops
Hypericum	Columbine
Small sunflower	Lobelia
Large buttercups	

Plants for Ends of Lake

(Fine and grayish, glaucous foliage)

Dward aspen	<u>Spirea salicifolia</u>
Tamarix	Ashes
Smoke tree	<u>Magnolia virginiana</u>

Plants for Sandy Areas

Kalmia augustifolia
Myrica cerifera
Bearberry-Arctostaphylos Uva-ursi
Mountain cranberry-Vaccinium Vitis-idaea
Salix tristis
Running brambles
Linnaea borealis

Plants for Mountainous and Rugged Areas

Hemlock	European larch
Black spruce	Scotch fir (<u>Pinus sylvestris</u>)
Norway	American arbor-vitae (<u>Thuja occidentalis</u>)