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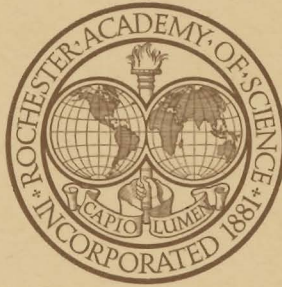
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ARBORICULTURE AT ROCHESTER, N. Y.

BY

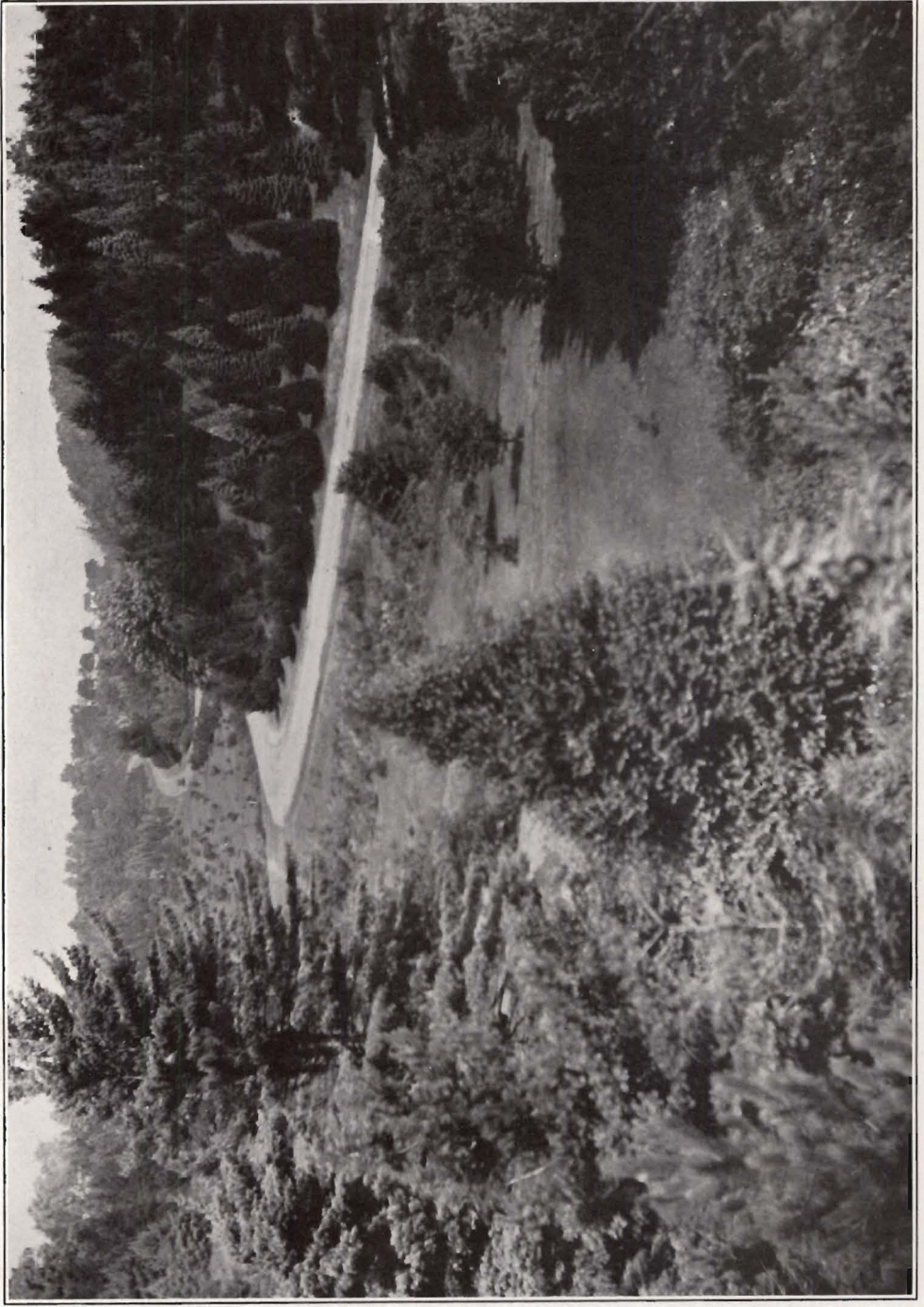
MILTON S. BAXTER AND THOMAS P. MALOY



ROCHESTER, N. Y.

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DURAND-EASTMAN PARK
View looking north along Pine Valley

ARBORICULTURE AT ROCHESTER, N. Y.

BY MILTON S. BAXTER AND THOMAS P. MALOY

CONTENTS

	PAGE
Definition; local restriction	39
Primeval forest	40
Early tree culture; nurseries	40
Ellwanger & Barry nursery	41
Development of the City Parks	43
Later administration	48
Favoring physical conditions; climate	48
Native trees and shrubs	50
Introduced trees and shrubs	53
Noteworthy trees	54
Monroe County Parks	57

DEFINITION ; LOCAL RESTRICTION

Arboriculture is the science which deals with the cultivation of trees and shrubs, especially for timber or for ornamental purposes. In this vicinity the term has been applied almost wholly to the cultivation of trees and shrubs for ornamental purposes. Land as a rule has been too valuable, and the natural woodlands too abundant, to make it feasible to do much forest planting.

Exception to this may be found in the large grove of natural hardwoods in Cobb's Hill Park within a short distance of the center of the City, and the large woods at Durand Eastman Park. The City has also established a 4000-acre forest on the lands surrounding Hemlock and Canadice Lakes. These lakes, adjacent to each other, are about forty miles from Rochester and furnish the water supply for the City. The land originally supported a good stand of white pine, some red pine, hemlock and such hardwoods as oak, maple, basswood and chestnut. The first forest plantation was set out in 1902 and consisted of 8700 spruce and 4300 white pine. Forest planting has been kept up continuously on that area until at present there are over a million trees planted on the City's forest.

PRIMEVAL FOREST

The history of the village and city of Rochester is closely interwoven with the tree and forest growth of this vicinity. The village of Rochester was indeed actually carved out of the forest and there was no need of extensive tree planting in the early days. The first engineers who surveyed the country in this section had considerable difficulty in running their survey lines because of the dense mass of trees and forest undergrowth. Abelard Reynolds, in his diary, writes about coming to Rochester from Pittsfield, Mass., in 1812, and he frequently refers to Rochester as the village of trees. Mention is also made in early histories of the long lanes of trees down which the traveler drove when coming into Rochester from the east, west or south. Soil and climatic conditions were especially adaptable to plant growth of all kinds and our ancestors were quick to see the advantage of protecting and fostering their cultivation.

EARLY TREE CULTURE; NURSERIES

As Rochester continued to grow from a struggling village to a small city, interest in tree and shrub cultivation grew with it. New homes were being constructed, which then as now required certain trees and shrubs to give them the proper setting. Various nurseries and seed firms came into existence which supplied not only the city and vicinity with their products but also carried the name of Rochester to the four corners of the earth.

Some of these early companies were the James Vick Seed Co.; the Ellwanger & Barry Nursery Co.; the Hooker Nursery Co.; the William S. Little Nursery; the Frost Nursery; the John Charlton Nursery; the Gould Bros. Nursery; and coming down to later years, Chase Bros. and Brown Bros. Nurseries. All of these above firms have in turn left their imprint upon that part of the city in which they happened to be located. Striking examples of this are Oxford, Cambridge, Wellesley and Brighton Streets, which were laid out by the Hooker Nursery Co. in the eastern part of the city, and the Browncroft subdivision, a recent development of the Brown Bros. Nursery.

In 1870 the Hooker Nursery Co. operated in the present vicinity of Oxford and adjacent streets and in their demonstration grounds, among other things, rows of European weeping white birches had been set out. These had reached a size and development where

they were objects of especial interest and beauty at the time that it was decided to subdivide the nursery proper into residential streets. This collection of white birches became one of the most picturesque of its kind in this part of the country and remained so until about fifteen years ago. Since that time the bronze birch borer has caused the death of nearly all of these trees.

The Browncroft subdivision, laid out on the grounds of Brown Bros. Nursery Co., is unique in its almost lavish display of choice trees and shrubs of all kinds. Tall, stately specimens of spruce, fir and pines can be found in front of each lot. Interspaced with these are beds of species of spirea, viburnum, roses, kerria, mock orange, forsythia and other shrubs. In back of these are rows of elms and maples and on the lamp-posts, the wisteria and trumpet vines climb to such profusion as, in many places, to completely hide the concrete poles. This subdivision is visited annually by many landscape architects and nurserymen as well as students from the various agricultural schools. It can be said of this development that it has influenced tree and shrub planting in the entire city.

ELLWANGER AND BARRY NURSERY

The Ellwanger & Barry Nursery Co. was preceded in the field by several other nurseries but carried on its work to a degree far beyond any nursery before or since. It was established in 1840 by George Ellwanger and Patrick Barry. Both of these men were trained nurserymen and were imbued with the desire to render service of the highest quality. It was a matter of personal pride with these two men that all trees and shrubs sold by them should be of the highest quality, should be true to name and should represent all that their catalogue claimed for them. In an early description of the company, the statement is found that in 1858, the season's budding numbered about 800,000 buds. To insure complete accuracy, one of the proprietors cut all of these buds himself and then passed them on to the workmen about him.

Many rare species were first propagated in these grounds and from there distributed throughout the country. Most notable of these were trees of the *Sequoia gigantea*, the big tree of California. The story is that in 1850 a miner named G. H. Woodruff came across these trees in his quest for gold. He gathered some of the seed, placed them in a snuff box and sent them by pony express to Ellwanger & Barry. They sowed the seed in their greenhouse,

raised plants and sent them all over the world. In 1856 they had succeeded in raising about 4,000 trees of which 400 were shipped to England.

A row of these big trees was set out on the nursery grounds in 1857. They grew to a considerable size but always suffered during a hard winter. They became the largest and finest specimen trees of their kind in the east however, and were visited by many people. They failed to survive the hard winter of 1917-1918 and the last of this row of big trees died that winter.

Ellwanger & Barry trees have been shipped to the four quarters of the globe, and today are growing in China, Japan, New Zealand, Australia and Arabia. The imperial gardens at Tokio, Japan were supplied with trees from this nursery.

In the early days experiment stations and agricultural colleges were not as plentiful as they are now and in order to further the interests of the nursery business and to test out new species it was necessary to devote a large part of their grounds to strictly experimental purposes. These test grounds, which were maintained for over fifty years, enabled Ellwanger & Barry to give accurate and reliable descriptions in their catalogues, and made these publications valuable guides to gardeners and planters as well as books of reference for agricultural schools. Trees grown on the nursery grounds for exhibition purposes represented almost perfect specimens of their kind. Many of these can still be found in the yards of the residences along Mt. Hope Avenue as well as on the present grounds of the Ellwanger & Barry Realty Co. This firm wished to be able to show the customers who visited them, specimen plants of everything represented in their catalogue. Their collection of trees and shrubs was famous throughout the country.

The Ellwanger & Barry Nursery Co. was spread out over about 600 acres. They employed between 400 and 500 men each year. The men employed were practically all of them drawn from the citizens of the city, and it was indeed difficult in the early days to find a man who had not at some period in his life spent some time in their nursery. The lessons learned there were carried into the home and did considerable towards spreading the name of Rochester as a flower city.

Patrick Barry and George Ellwanger were succeeded in the management of the business by William C. Barry, a son of the former. He was trained in the Universities of both this country and Ger-

many, and maintained the nursery on the same high standard as his predecessors. He went still further than they and entering into public life gave freely of his advice and assistance whenever occasion demanded. He was a leader in the Horticultural and Nursery associations of the country and was identified with the Rochester Park Board from the early days of its organization. Shortly after the death of William C. Barry, the Ellwanger & Barry Nursery Co. ceased to exist but its influence is still felt in the city.

DEVELOPMENT OF THE CITY PARKS

Most of this writing so far has dealt with the commercial side of Arboriculture since it was only in the nurseries that any systematic collection of trees and shrubs had been made. Rochester had no Park system at that time. There were, to be sure, certain small Park areas such as Wadsworth Park and Washington Park which had been given to the city at the time that some certain section was developed, but these were under the control of the Department of Public Works and were kept up by that Department. The cemeteries were the only public places of any size where grass, trees and shrubs could be found and the people were accustomed to take their lunches and visit them much as they today visit the Parks.

In 1887 the Ellwanger & Barry Nursery Co. offered twenty-two acres of land adjoining the Mount Hope Reservoir (now called Highland Reservoir) to the City of Rochester for a public park. They also agreed to furnish the trees for its planting and to construct certain new streets adjoining said Park. This offer was accepted by the city in 1888 and a Board of Park Commissioners of twenty-one men was appointed by Mayor Cornelius R. Parsons. The members of this first board were Dr. E. M. Moore, who was elected President, William C. Barry, James H. Brown, Joseph Cauffman, Richard Curran, John E. Durand, George Elliott, James G. Gillis, James G. Graham, Halbert S. Greenleaf, John Greenwood, Henry F. Huntington, William S. Kimball, Mathias Kondolf, Rev. Bernard J. McQuaid, George H. Newell, Daniel W. Powers, Mortimer F. Reynolds, William See, Hiram W. Sibley and Alfred Wright.

These men met, committees were appointed and in June 1888, Calvin C. Laney, a practising civil engineer, was employed to make a survey of the present and the proposed Parks. On April 1, 1889, Mr. Laney was appointed Superintendent of Parks. The selection of Mr. Laney as the first Park executive proved in later years to

be the most outstanding development of those early days. Mr. Laney possessed a vision far beyond that of ordinary men and from that day to this over a period of forty four years has placed the interests of the City of Rochester and the Park Department above everything else.

After consultation with various Landscape Architects, Frederick Law Olmsted was hired by the city to lay out the park system. He was at that time the most prominent Landscape Architect of the country and he and Mr. Laney laid out Highland Park, Genesee Valley, Seneca and Maplewood Parks.

On April 1, 1891, Mr. Laney, feeling the need of an assistant, employed John Dunbar, a Horticulturist, who was then working on Long Island. The employment of John Dunbar marked another milestone in the Park Department. An indefatigable worker, a great student and possessed of an almost inexhaustible knowledge of trees and shrubs, Mr. Dunbar threw himself heart and soul into the work. The remarkable combination of these two men working together, Laney the engineer and Dunbar the Horticulturist quickly brought forth results far beyond the expectation of any one.

Aided and advised by the Board of Park Commissioners, Messrs. Laney and Dunbar commenced planting operations on a large scale. At the start they used more common trees and shrubs, those which were easiest to obtain, and very soon our Parks began to lose the appearance of farm lands and to show some semblance of the beauty which they ultimately attained. In the minds of both of these men the idea was always uppermost, that eventually Rochester should have more than an ordinary Park, that it should have an arboretum second to none in the country, in which would be found specimens of all the trees and shrubs that could be grown in the climate and under the soil conditions of this section. This idea of a collection of trees and shrubs of all species and varieties was nothing new. Such collections have found a place in the botanic gardens of all countries since the physic gardens at Tokyo were first founded eight hundred years ago, and for more than three centuries individuals have made such collections for the decoration of estates or for purposes of study. The first arboretum in this country was established by John Bartram, in 1728, a Pennsylvania farmer, who purchased a piece of land about three miles from Philadelphia in which he set out his collection of trees. Various other collections were started at different times but as most of these

were the work, and followed the whim, of individuals their period of usefulness and greatest value was usually measured by the life of that individual. In 1872 about 125 acres were set aside for the Arnold Arboretum in connection with Harvard College, in which the University undertook to grow a species of every tree and shrub able to support the climate of Massachusetts. Under the leadership of Dr. Charles S. Sargent, the Arnold Arboretum quickly attained the foremost place in tree and plant work, and the identification of a tree or shrub by the Arnold Arboretum was considered as almost final. Special mention is made of the Arnold Arboretum because of the close working connection which was developed between that institution and the Rochester Park system, and because of the assistance in both plant materials and advice that was constantly received from it.

In developing their arboretum, Messrs. Laney and Dunbar first used the trees and shrubs which were on hand and were easy to obtain. They next reached out to the nurseries, and from them obtained any of the rare species which they happened to have in their collections. About the year 1900 a contact was made with the Arnold Arboretum and from that time the Rochester Parks have been the recipient of an almost endless flow of rare trees and shrubs from that institution, until today there is in the Rochester Parks a duplicate of nearly all of the trees and shrubs that can be found in the Arnold Arboretum. Dr. Sargent for years sent botanists and plant collectors to the four corners of the earth. E. H. Wilson, who succeeded Dr. Sargent as Director of the Arnold Arboretum, was the most famous of these explorers and to him we are indebted for many rare plants, especially those of Chinese origin.

Not content with merely securing rare plants by gifts and purchase, the Rochester Park Department sent out its own collectors. John Dunbar, Bernard Slavin, the present Superintendent of Parks, and Richard Horsey collected specimens in various portions of this country and in Canada. Many of the species that we have in our Parks are the product of the explorations of these men in Canada, Texas, Oklahoma, Kentucky and other sections. Closer to home, but none the less valuable, collections were made by Calvin C. Laney, Patrick Slavin, the present Director of Parks, and Henry T. Brown the Park Engineer. When the Ellwanger & Barry Nursery Co. ceased doing business in 1917, the Park Bureau secured the services of Frederick Ahrens, their chief propagator. He had a life long ex-

perience in the business and proved invaluable to the city in the work he did of raising many of the rare species. The result of the work both individually and collectively of all of these men has been to make Rochester and its Parks a by-word the world over wherever Park men and Horticulturists gather. It can truthfully be said that Rochester's Parks are better known away from home than they are by the inhabitants of this city. The arboretum which was started in a modest way on the hills and valleys composing Highland Park has long since outgrown that area and is now spread over the entire Park system of about 1800 acres with the result that today there are over 5,000 different kinds of trees, shrubs and perennials in the Park system. In Highland Park alone there are 3,931 kinds of plants. Space will not permit the separate listing of these various species and varieties, but mention will be made of a few of them. The lilac collection of which there are 363 different kinds presents one of the outstanding floral displays of the year. The plums and cherries make an especially attractive showing as do also the mock-oranges, the crab apples, the spireas, the viburnum, the deutzia, the weigelas, the dogwoods, the barberries and the cotoneasters. The Rhododendron and Azalea display, which follows closely after the lilac show, presents an array of color which would defy any artist to match. The collection of magnolias represents all of the native species which will grow in this climate and in addition there is a southern magnolia, *Magnolia grandiflora*, growing in the greenhouse. There are also twenty-one species of magnolia growing outside which are native of China and Japan, or hybrids of Chinese and Japanese species, and in addition, there is also *Magnolia Delevayi* from S. W. China growing in the greenhouses. The seven hundred different species and varieties of *Crataegus* which are in the collection at Genesee Valley Park present a beautiful display at all times of the year. The foliage and fruit of these shrubs are especially attractive and even in their dormant state in the winter time the bare twigs and branches have a natural symmetry which makes them most conspicuous.

Genesee Valley Park is the largest in area of our City Parks. It consists of rolling meadows, landscaped mostly with native trees and shrubs. This natural growth of trees has been supplemented by a planting of trees and shrubs of both native and introduced species.

The oldest collection of the conifers is in Highland Park. These trees, set out years ago along the Pinetum Road, have now grown into large specimens. Each individual variety or group is labeled so that this Park is a convenient place in which to study and to find out just what the various conifers are capable of doing. This method of labeling is used on all trees, shrubs and plants in the entire Park system. Each group has a label which bears on it both the scientific and the common name.

In the large lake shore park, the Durand Eastman, there is a much larger collection of evergreens than at Highland. While they are much younger plants, they have clothed the hillsides there to an extent which is surpassed by no other Park.

It is difficult to select any of the species of trees for special mention. The collections of Oaks, Elms, Maples, Lindens, Buckeyes, Willows, Ash and Poplars are each one of them distinctive in themselves and worthy of especial study by the individual.

The City of Rochester at present possesses as a part of its Park system, an arboretum, which started in a modest way at Highland Park, spread to Genessee Valley Park, Seneca Park and is now crowding even the vast acres of Durand Eastman Park. Utilizing the entire Park system instead of one particular Park for the arboretum has permitted wide latitude in the choice of soil conditions and surroundings. Practically every kind of soil from heavy clay to fine sand can be found in some sections so that if the plant will live at all in this locality, it is merely a question of deciding on which Park the soil and conditions are best suited for that particular species.

Rochester is today suffering the growing pains of a large and progressive city. Many trees are being cut down because of street widening and for other improvements. There is not the room now for large planting that there was fifty years ago. It is therefore even more important now than then that every encouragement be given to the practice of tree and shrub cultivation. The Park Bureau must have co-operation from the citizens as a whole if we are to keep our City from suffering the fate of other large cities of seeing the trees and shrubs disappearing from our streets and our Park areas being reduced in size. Stephen Girard once said: "If I knew I should die tomorrow, I should plant a tree today." Let us keep that statement always before us.

In order of time the principal city parks are, Highland, Genesee Valley, Seneca, Maplewood (lower and upper) Cobbs Hill, Durand-Eastman, Edgerton, Webster and Ontario Beach. Many small parks are distributed through the residential districts.

LATER ADMINISTRATION

The Board of Park Commissioners which so ably assisted in the building up of the Rochester Park system was abolished by act of legislature on March 3, 1915. Mr. A. B. Lamberton was appointed to be the first Commissioner of Parks with William S. Riley as Deputy Commissioner. Mr. Riley later succeeded Mr. Lamberton as Park Commissioner and held that position for a number of years. He was then succeeded for a brief interval by William Blackwood.

Calvin C. Laney succeeded Mr. Blackwood, with Gertrude M. Hartnett as Deputy Commissioner; and when the City Manager form of government went into effect they were appointed Director and Deputy Director. When obliged to retire because of age limit Mr. Laney was succeeded for a brief interval by Charles B. Raitt, who was followed by Patrick J. Slavin, the present Director of Parks. During the period between the resignation of Mr. Laney and the appointment of Mr. Raitt, and again between the resignation of Mr. Raitt and the appointment of Mr. Slavin, Miss Hartnett was Acting Director.

Mr. Slavin has, as his present associates, Miss Gertrude M. Hartnett, Deputy Director of Parks, Bernard H. Slavin, Superintendent, Henry T. Brown, Engineer and Thomas P. Maloy, City Forester. All of these various officials have fostered the spirit initiated by the first Board of Park Commissioners and have given their utmost assistance in keeping Rochester's Parks in the front rank where they have so long been, and in making them an object of beauty as well as a place in which to study and enjoy plant life.

FAVORING PHYSICAL CONDITIONS

The variety and excellence of the arboreal flora of Rochester is partly due to the combination of favorable conditions of climate, soils, exposure and altitudes.

For its latitude the City of Rochester claims the finest all-the-year climate of any American city; as shown by the meteorologic statistics. Its northern position relieves it from excessive and long-

continued summer heat; while the winter protection provided by Lake Ontario prevents severe cold. The moderate temperatures are well shown by the monthly normals. For the summer months these are, in Fahr. degrees, June, 66.1; July, 70.7; August, 69.2; September, 62.4. For the winter months, December 29.3; January 24.6; February, 24.6. The highest temperature ever recorded at the Rochester station is 101; and the lowest, on two rare occasions, -12, -14.

The fact that a row of *Sequoia gigantea* flourished here for sixty years, attaining a height of about seventy feet, is good evidence of a moderate northern climate.

The soil conditions provide great variety, all with excellent drainage. Directly, or indirectly all the soils are due to glaciation. Highland Park, with its great pinetum and its remarkable display of flowering shrubs, has gravel and sand soils, being part of the Albion-Rochester, or Pinnacle Range moraine, with accented topography. The Cobbs Hill Park is on the eastward extension of the glacial hills.

Maplewood Park, upper and lower, is on erosion shelves of the Genesee River canyon, west side, with soils deposited by the river and the glacial lakes which buried the area. Seneca Park is wholly on shelves and channels of the east wall of the river canyon; with varied soils that include residuals from the weathering of the sandstone and shale rocks.

The Durand-Eastman Park, facing Lake Ontario, is wholly silts and clay of the great delta built in the glacial Lake Iroquois by the Genesee River when the latter was excavating the Rochester canyon, and the Mount Morris and portage canyons on the south.

Genesee Valley Park lies on the river flood plains, on the south border of the city.

The different locations and the varied topography of the several parks provide both exposure to and shelter from the sunshine, the wind and the cold storm in any direction.

In elevation above ocean the parks range from 260 feet in Durand-Eastman Park, by Lake Ontario (246 feet), to cover 600 feet in Highland and Reservoir parks. The two high points are, the Pavilion in Highland Park, 652 feet; and the Cobbs Hill Reservoir, 636 feet. The highest point of the moraine, the "Pinnacle," rises to 748.7 feet.

NATIVE TREES AND SHRUBS OF ROCHESTER AND VICINITY¹

<i>Pinus Strobus</i> L. White Pine	<i>Salix cordata</i> Muhl. Heart-leaved Willow
<i>Pinus rigida</i> Mill. Pitch Pine	<i>Salix pedicellaris</i> Pursh. Bog Willow
<i>Larix laricina</i> Koch. Tamarack	<i>Salix discolor</i> Muhl. Glaucous Willow
<i>Picea mariana</i> B S P. Black Spruce	<i>Salix petiolaris</i> Sm. Slender Willow
<i>Tsuga canadensis</i> Carr. Hemlock	<i>Salix humilis</i> Marsh. Prairie Willow
<i>Thuja occidentalis</i> L. Arbor Vitae	<i>Salix sericea</i> Marsh. Silky Willow
<i>Juniperus communis</i> L. Juniper	<i>Salix Bebbiana</i> Sarg. Beaked Willow
<i>Juniperus virginiana</i> L. Red Cedar	<i>Salix candida</i> Fluegge. Hoary Willow
<i>Taxus canadensis</i> Marsh. American Yew	<i>Corylus americana</i> Walt. Hazelnut
<i>Smilax rotundifolia</i> L. Green-brier	<i>Corylus cornuta</i> Marsh. Beaked Hazelnut
<i>Smilax hispida</i> Muhl. Hispid Cat Brier	<i>Ostrya virginiana</i> K. Koch. Ironwood
<i>Juglans cinerea</i> L. Butternut	<i>Carpinus caroliniana</i> Walt. Blue Beech
<i>Carya ovata</i> K. Koch. Shag-Bark Hickory ²	<i>Betula lenta</i> L. Black Birch
<i>Carya glabra</i> Sweet. Pignut	<i>Betula lutea</i> Michx.f. Yellow Birch
<i>Carya cordiformis</i> K. Koch. Butternut	<i>Betula papyrifera</i> Marsh. Canoe Birch
<i>Carya ovalis</i> Sarg. Small-fruited Hickory	<i>Alnus incana</i> Moench. Speckled Alder
<i>Myrica carolinensis</i> Mill. Bayberry	<i>Alnus rugosa</i> Spreng. Smooth Alder
<i>Myrica asplenifolia</i> L. Sweet Fern	<i>Fagus grandifolia</i> Ehrh. Beech
<i>Populus tremuloides</i> Michx. American Aspen	<i>Castanea dentata</i> Borkh. Chestnut
<i>Populus grandidentata</i> Michx. Large-toothed Aspen	<i>Quercus alba</i> L. White Oak
<i>Populus balsamifera</i> L. Cottonwood	<i>Quercus macrocarpa</i> Michx. Bur Oak
<i>Populus tacamahacca</i> Mill. Balsam Poplar	<i>Quercus bicolor</i> Willd. Swamp White Oak
<i>Salix nigra</i> Marsh. Black Willow	<i>Quercus Muhlenbergii</i> Engelm. Yellow Oak
<i>Salix amygdaloides</i> Anders. Peach Willow	<i>Quercus borealis</i> Michx. f., var. maxima Sarg. Red Oak
<i>Salix lucida</i> Muhl. Shining Willow	<i>Quercus coccinea</i> Muench. Scarlet Oak
<i>Salix serissima</i> Fernald. Autumn Willow	
<i>Salix longifolia</i> Muhl. Long-leaved Willow	

¹ In former volumes of these Proceedings lists of the arboreal and arborescent flora were published that covered a much wider territory than does the present writing. Those papers are as follows:

Plants of Monroe County and Adjacent Territory; in Volume 3, 1894, pages 1-150.

Supplementary List; in Volume 5, 1910, pages 1-38.

Second Supplementary List; in Volume 5, 1917, pages 59-121.

² Additional species, varieties and hybrids of *Carya* have been described from this region.

<i>Quercus velutina</i> Lam. Black Oak	<i>Amelanchier canadensis</i> Medic. Shad Bush
<i>Ulmus fulva</i> Michx. Slippery Elm	<i>Amelanchier laevis</i> Wiegand. Shad Bush
<i>Ulmus americana</i> L. American Elm	<i>Crataegus Crus-galli</i> L. Cockspur Thorn ³
<i>Ulmus racemosa</i> Thomas. Cork Elm	<i>Crataegus punctata</i> Jacq. Large fruited Thorn
<i>Celtis occidentalis</i> L. Hackberry	<i>Crataegus macracantha</i> Lodd. Long-spurred Thorn
<i>Celtis pumila</i> Pursh. Low Hackberry	<i>Crataegus succulenta</i> Schrader. Long-spined Thorn
<i>Morus rubra</i> L. Red Mulberry	<i>Crataegus Boyntoni</i> Beadle. Boynton's Thorn
<i>Clematis virginiana</i> L. Virgin's Bower	<i>Crataegus pruinosa</i> K. Koch. Waxy-fruited Thorn
<i>Magnolia acuminata</i> L. Cucumber Tree	<i>Crataegus beata</i> Sargent. Dunbar's Thorn
<i>Liriodendron Tulipifera</i> L. Tulip Tree	<i>Crataegus macrosperma</i> Ashe. Variable Thorn
<i>Asimina triloba</i> Dunal. Papaw	<i>Crataegus Holmesiana</i> . Ashe. Thin-leaved Thorn
<i>Menispermum canadense</i> L. Moonseed	<i>Crataegus coccinea</i> L. Scarlet Thorn
<i>Sassafras officinale</i> Nees & Eb. Sassafras	<i>Potentilla fruticosa</i> L. Shrubby Cinquefoil
<i>Benzoin aestivale</i> Nees. Spice Bush	<i>Rubus odoratus</i> L. Flowering Raspberry
<i>Hamamelis virginiana</i> L. Witch Hazel	<i>Rubus idaeus</i> L., var. <i>strigosus</i> Maxim. Red Raspberry
<i>Ribes americanum</i> Mill. Wild Black Currant	<i>Rubus occidentalis</i> L. Black Raspberry
<i>Ribes cynosbati</i> L. Prickly Gooseberry	<i>Rubus pubescens</i> Raf. Dwarf Red Raspberry
<i>Ribes hirtellum</i> Michx. Smooth Gooseberry	<i>Rubus hispidus</i> L. Running Blackberry
<i>Platanus occidentalis</i> L. Buttonwood	<i>Rubus canadensis</i> L. Mountain Blackberry
<i>Spiraea latifolia</i> Borkh. Meadow Sweet	<i>Rubus allegheniensis</i> Porter. Common Blackberry
<i>Malus coronaria</i> Mill., var. <i>elongata</i> Rehd. Wild Crabapple	<i>Rubus flagellaris</i> Willd. Dewberry
<i>Malus coronaria</i> Mill., var. <i>glaucescens</i> Rehd. Wild Crabapple	<i>Rosa setigera</i> Michx. Prairie Rose
<i>Sorbus americana</i> Marsh. American Mountain Ash	<i>Rosa blanda</i> Ait. Smooth Rose
<i>Aronia arbutifolia</i> Ell., var. <i>atropurea</i> Schneider. Red Chokeberry	<i>Rosa palustris</i> Marsh. Swamp Rose
<i>Aronia melanocarpa</i> Britton. Black Chokeberry	<i>Rosa carolina</i> L. Dwarf Rose
<i>Amelanchier sanguinea</i> DC. Round-leaved June Berry	<i>Prunus americana</i> Marsh. Wild Plum
<i>Amelanchier humilis</i> Wiegand. June Berry	
<i>Amelanchier stolonifera</i> Wiegand. June Berry	

³ The species of *Crataegus* here noted are the more conspicuous forms. Over one hundred have been described by specialists from this territory.

- Prunus susquehanae* Willd. Dwarf Cherry
Prunus pennsylvanica L.f. Pin Cherry
Prunus virginiana L. Choke Cherry
Prunus serotina Ehrh. Wild Black Cherry
Zanthoxylum americanum Mill. Prickly Ash
Ptelea trifoliata L. Three-leaved Hop Tree
Rhus copallina L. Dwarf Sumach
Rhus typhina L. Staghorn Sumach
Rhus glabra L. Smooth Sumach
Rhus canadensis Marsh. Aromatic Sumach
Rhus Vernix L. Poison Sumach
Rhus Toxicodendron L. Poison Ivy
Ilex verticillata Gray. Winterberry
Nemopanthis mucronata Trel. Mountain Holly
Evonymus atropurpureus Jacq. Burning Bush
Celastrus scandens L. Bittersweet
Staphylea trifolia L. Bladdernut
Acer saccharinum L. Silver Maple
Acer rubrum L. Red Maple
Acer saccharum Marsh. Sugar Maple
Acer nigrum Michx. f. Black Sugar Maple
Acer pennsylvanicum L. Striped Maple
Acer spicatum Lam. Mountain Maple
Acer Negundo L. Box Elder
Rhamnus alnifolia L'Her. Swamp Buckthorn
Parthenocissus quinquefolia Planch. Virginia Creeper
Vitis aestivalis Michx. Summer Grape
Vitis vulpina L. Frost Grape
Tilia americana L. Basswood
Dirca palustris L. Leatherwood
Shepherdia canadensis Nutt. Canadian Buffalo Berry
Cornus rugosa Lam. Round-leaved Dogwood
Cornus Slavini Rehder. Slavin's Dogwood
Cornus Amomum Mill. Silky Cornel
Cornus Baileyi Coulter & Evans. Bailey's Cornel
Cornus stolonifera Michx. Red-osier Dogwood
Cornus candidissima Marsh. Panicle-d Dogwood
Cornus alternifolia L.f. Alternate-leaved Dogwood
Cornus florida L. Flowering Dogwood
Nyssa sylvatica Marsh. Pepperidge
Ledum groenlandicum Oeder. Labrador Tea
Rhodendron nudiflorum Torr., var. roseum Wiegand. Pink Azalea
Rhodendron maximum L. Great Laurel
Chamaedaphne calyculata Moench. Leather Leaf
Andromeda glaucophylla Link. Bog Rosemary
Gaylussacia baccata K. Koch. Black Huckleberry
Vaccinium vacillans Kalm. Late Upland Blueberry
Vaccinium pennsylvanicum Lam. Early Upland Blueberry
Vaccinium canadense Kalm. Velvet-leaf Blueberry
Vaccinium stamineum L. Deerberry
Vaccinium corymbosum L. Swamp Blueberry
Fraxinus americana L. White Ash
Fraxinus pennsylvanica Marsh. Red Ash
Fraxinus pennsylvanica Marsh., var. lanceolata Sarg. Green Ash
Fraxinus nigra Marsh. Black Ash
Cephalanthus occidentalis L. Button Bush
Diervilla Lonicera Mill. Bush Honeysuckle.
Sambucus racemosa L. Red-berried Elder
Sambucus canadensis L. Common Elder

<i>Viburnum alnifolium</i> Marsh. Hobble Bush	<i>Viburnum Lentago</i> L. Nannyberry
<i>Viburnum Opulus</i> L., var. <i>americanum</i> Ait. Highbush Cranberry	<i>Symphoricarpos albus</i> Blake. Snowberry
<i>Viburnum acerifolium</i> L. Maple-leaved Viburnum	<i>Lonicera canadensis</i> Marsh. Fly Honeysuckle
<i>Viburnum affine</i> Bush, var. <i>hypomalacum</i> Blake. Downy-leaved Arrowwood	<i>Lonicera oblongifolia</i> Hook. Swamp Fly Honeysuckle
<i>Viburnum dentatum</i> L. Arrowwood	<i>Lonicera hirsuta</i> Eaton. Hairy Honeysuckle
<i>Viburnum cassanoides</i> L. Withe-rod	<i>Lonicera dioica</i> L. Smooth-leaved Honeysuckle

INTRODUCED TREES AND SHRUBS

<i>Pinus sylvestris</i> L. Scotch Pine	<i>Sorbaria sorbifolia</i> A. Br. Meadow Sweet
<i>Populus alba</i> L. White Poplar	<i>Pyrus communis</i> L. Common Pear
<i>Populus candicans</i> Ait. Balm of Gilead	<i>Malus pumila</i> Mill. Common Apple
<i>Populus nigra</i> L. var. <i>italica</i> DuRoi. Lombardy Poplar	<i>Malus baccata</i> Boreck. Siberian Crab Apple
<i>Salix fragilis</i> L. Crack Willow	<i>Sorbus Aucuparia</i> L. European Mountain Ash
<i>Salix alba</i> L., var. <i>vitellina</i> L. White Willow	<i>Crataegus monogyna</i> Jacq. English Hawthorn
<i>Salix alba</i> L. White Willow	<i>Rubus idaeus</i> L. European Red Raspberry
<i>Salix blanda</i> Anders. Wisconsin Weeping Willow	<i>Rosa cinnamomea</i> L. Cinnamon Rose
<i>Salix Caprea</i> L. Goat Willow	<i>Rosa Eglanteria</i> L. Sweet Briar
<i>Salix purpurea</i> L. Purple Willow	<i>Prunus Persica</i> Stokes. Peach
<i>Betula alba</i> L. White Birch	<i>Prunus domestica</i> L. Garden Plum
<i>Betula populifolia</i> Marsh. Gray Birch	<i>Prunus cerasus</i> L. Sour Cherry
<i>Alnus vulgaris</i> Hill. Black Alder	<i>Prunus avium</i> L. Sweet Cherry
<i>Quercus robur</i> , var. <i>pedunculata</i> L. English Oak	<i>Prunus Mahaleb</i> L. Mahaleb Cherry
<i>Ulmus campestris</i> L. English Elm	<i>Gleditsia triacanthos</i> L. Honey Locust
<i>Ulmus glabra</i> Huds. Scotch Elm	<i>Amorpha fruticosa</i> L. False Indigo
<i>Maclura pomifera</i> Schneider. Osage Orange	<i>Robinia Pseudo-Acacia</i> L. Common Locust
<i>Morus alba</i> L. White Mulberry	<i>Ailanthus altissima</i> Swingle. Tree of Heaven
<i>Berberis vulgaris</i> L. Barberry	<i>Acer platanoides</i> L. Norway Maple
<i>Ribes nigrum</i> L. Garden Black Currant	<i>Aesculus Hippocastanum</i> L. Horse Chestnut
<i>Ribes sativum</i> Syme. Garden Red Currant	<i>Rhamnus cathartica</i> L. Common Buckthorn
<i>Ribes odoratum</i> Wend. Missouri Currant	<i>Daphne Mezereum</i> L. Spurge Laurel
<i>Physocarpus opulifolius</i> Maxim. Ninebark	<i>Syringa vulgaris</i> L. Lilac
<i>Spirea tomentosa</i> L. Hardback	
<i>Spiraea salicifolia</i> L. Meadow Sweet	

Ligustrum vulgare L. Common privet	Symphoricarpus occidentalis Hook. Wolfberry
Lycium halimifolium Mill. Matrimony Vine	Lonicera tatarica L. Tartarian Honeysuckle
Viburnum Lantana L. Wayfaring Tree	Lonicera Xylosteum L. European Fly Honeysuckle
Symphoricarpus albus Blake, var. laevigatus Blake. Snowberry	Lonicera sempervirens L. Trumpet Honeysuckle

NOTEWORTHY TREES MOSTLY OF EARLY INTRODUCTION

A survey of the rare trees of early introduction was undertaken by Mr. John Dunbar and the results were published.⁴ The summary here given is essentially correct at the present time, except for the increase in size and the changes caused by building operations and street extensions. Many of the rare species were also planted in various parts of the city and are in a flourishing condition. The measures given are girth, at four feet above ground, and the approximate height of the largest specimens, with localities and other information.

Ginkgo biloba L. Maiden-hair Tree. Circumference 8.1 feet, height 60 feet, 455 Lake Avenue, planted about 1855.

Pinus excelsa Wall. Bhotan Pine. Circum. 4.2 feet, height 40 feet, 421 East Avenue.

Pinus ponderosa Dougl. Bull Pine. Circum. 6.9 feet, height 65 feet, Ellwanger & Barry Nurseries, Mt. Hope Avenue.

Abies Nordmaniana Spach. Nordman's Fir. Circum. 4.9 feet, height 75 feet, Ellwanger & Barry vineyard, Highland Avenue, planted about 1855.

Abies pectinata DC. Silver Fir. Circum. 6.5 feet, height 75 feet, Winton Road south of Subway, planted about 1860.

Sequoia gigantea, Torr. Big Tree of California. Circum. 7.9 feet, height 70 feet, Ellwanger & Barry Nurseries, Mt. Hope Avenue.

Ulmus nitens Monch. Smooth Elm. Circum. 7.2 feet, height 60 feet, east of Avenue B, about one hundred feet from the bank of the river on the south side of the Avenue.

Ulmus americana L. American Elm. A fine example of the umbrella form grows on the state highway two miles east of the village

⁴ Proc. Roch. Acad. Sci. Vol. V. pp. 64-74, May 1917.

of Avon, 16.2 feet, 110 feet high. The "Markham Elm" on the farm of William Markham near Avon was mentioned in 1764. A large portion was destroyed by a storm in 1893. It was estimated to be six hundred years old. The girth was forty-five feet, three feet above the base.

Maclura pomifera Schneider. Osage Orange. Circum. 7 feet, height 45 feet, Merchants Road, corner of Culver Road.

Magnolia acuminata L. Cucumber Tree. Circum. 6.5 feet, height 55 feet, 455 Lake Avenue.

Magnolia macrophylla Michx. Large-leaved Cucumber Tree. Circum. 4 feet, height 25 feet, near the Ellwanger & Barry Office. Mt. Hope Avenue.

Liriodendron Tulipifera Lam. Tulip Tree. Circum. 8.3 feet, height 80 feet. 5 Livingston Park.

Asimina triloba Adans. Papaw. Circum. 1 foot, height 25 feet, one mile north of Adams Basin.

Crataegus Ellwangeriana Sargent. Ellwanger's Hawthorn. Circum. 3.7 feet, height 25 feet, Grass Walk Nursery, Mt. Hope Avenue.

Libocedrus decurrens Torr. Incense Cedar. Circum. 2.5 feet, height 35 feet, Winton Road, Old Yale Nursery grounds, planted about 1860.

Chamaecyparis Lawsoniana Parl. Lawson's Cypress. Circum. 4.9 feet, height 40 feet, Ellwanger & Barry vineyard, Highland Avenue, planted about 1855.

Juglans regia Linn. Persian or English Walnut. Circum. 7.6 feet, height 45 feet, Ridge Road, village of Greece.

Juglans regia L. + *Juglans cinerea* L. English Walnut crossed with Butternut. Circum. 8.5 feet, height 50 feet, 1210 Culver Road.

Populus nigra L., variety *betulifolia* Torr. Black Poplar. Circum. 9.4 feet, height 80 feet, Edgerton Park.

Quercus cerris L. Turkey Oak. Circum. 5 feet, height 40 feet, Edgerton Park.

Quercus alba L. + *Quercus platanooides* Sudw. White Oak crossed with Sycamore Oak. Circum. 10.6 feet, height 70 feet, Maplewood Avenue near Driving Park Avenue.

Ulmus campestris Smith. English Elm. Circum. 14.3 feet, height 102 feet, East Avenue corner Oxford Street, planted 1850.

Ulmus Hollandica, variety *vegeta* Rehder. Huntingdon Elm. Circum. 9.1 feet, height 80 feet, southeast corner of Goodman Street and Highland Avenue.

Ulmus Hollandica, variety *superba* Rehder. Huntingdon Elm. Circum. 18.35 feet, height 70 feet, in front of the Ellwanger and Barry Office, Mt. Hope Avenue.

Gymnocladus canadensis K. Koch. Kentucky Coffee-tree. Circum. 5.5 feet, height 55 feet. Genesee Hospital, Alexander Street.

Sophora Japonica L. Japanese Pagoda Tree. Circum. 7.4 feet, height 45 feet, 88 University Avenue.

Cladrastis lutea K. Koch. Yellow Wood. Circum. 6.5 feet, height 60 feet, near Ellwanger & Barry Office. Mt. Hope Avenue.

Acer campestre L. English Field Maple. Circum. 9 feet, height 40 feet. 360 West Avenue.

Acer cappadocicum Gled. Oriental Maple. Circum. 7.2 feet, height 50 feet, 973 East Avenue.

Acer opalus Mill. Italian Maple. Circum. 6.2 feet, height 35 feet, Highland Park, 200 feet east of Mt. Hope Avenue.

Acer macrophyllum Pursh. Large-leaved Maple. Circum. 9 feet, height 45 feet, Winton Road, old nursery grounds. T. B. Yale and Son.

Aesculus turbinatus Blume. Japanese Horse-chestnut. Circum. 5.5 feet—2 feet above base, height 35 feet. Ellwanger and Barry grounds, near South Avenue.

Tilia petiolaris DC. Weeping Linden. Circum. 8.3 feet, height 60 feet, Livingston Park.

Paulownia imperialis Sieb & Zucc. Paulownia Tree. Circum. 6.7 feet, height 55 feet, 66 James Street, planted in 1890.

Catalpa speciosa Engelm. Western Catalpa. Circum. 8.1 feet, height 60 feet. Highland Avenue in front of Ellwanger & Barry Vineyard, planted about 1855.

MONROE COUNTY PARKS

On October 2, 1926, interest in tree and plant life in Rochester and vicinity received a fresh impetus. On that date, the county of Monroe, by an act of legislature, was given authority to form a county Park Commission. This was done and a Board of Park Commissioners was appointed. The members of this board were: Charles J. Brown, President; Morris Clark, Vice President; J. Franklin Bonner, Alphonse Kleni, William Kittleberger and Solomon Levin. Meade B. Rappleye was appointed Secretary and George Y. Webster, Counsel. Raymond E. Phillips was later appointed Superintendent. At the present time Theron E. Bastian, Fred Gleason and George A. Johnson are members of this board and Herbert W. Pierce has succeeded Meade B. Rappleye as Secretary.

These county Parks were not created with the purpose of duplicating the City Parks either in the æsthetic or recreational sense. Their purpose is to provide large open areas with attractive scenery, places where meals can be cooked and games and sports of all kinds can be enjoyed. These Parks are to be located in various places in the county where they will be most accessible to all users and will be connected by wide parkways varying in width from 100 to 1,000 feet.

In December 1926, a detailed survey was made of the Park needs of the county by Herbert Blanche, Landscape Architect, and Carl Crandall, Engineer. The major developments proposed by them consisted of six Parks and seven connecting Parkways. At the present time the Park Commission has under its jurisdiction five of these Parks, a total of 3,357.19 acres. The sixth park at Nine Mile Point has not yet been acquired.

These County Parks have been developed and opened to the public and in 1930 a total of 726,000 people used these Parks. They have already proved their worth and are filling a need long felt by the residents of this county. Progressing as they are, it will not be long before the Monroe County Park system is on the same high plane as the City Park system.

EDITOR'S NOTE: The eminent horticulturist, Dr. Liberty Hyde Bailey, saw the proof of the above article, and made comment as follows:

"These large and well kept collections constitute a living museum of plant materials to which horticulturist, botanist, artist and nature-

lover may go for study and retreat. They are an outstanding asset to the country at large, worthy of emulation in other geographical regions. Speaking for myself, I find these parks an unending source of information and inspiration. We shall all be glad to have this new report on arboriculture in Rochester from the Academy of Science."

Proceedings of the Rochester Academy of Science

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9. Title-page, Officers of the Academy and of the Sections, Contents.
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1. New York Drumlins. By H. L. Fairchild. pp. 1-37, plates 1-20. 1929 \$1.00
2. Arboriculture at Rochester, N. Y. By Milton S. Baxter and Thomas P. Maloy. pp. 39-58, plate 21. 193250