E NEW YORK BOTANICAL GARDEN

ITS STATUS AND NEEDS

1924

THE NEW YORK BOTANICAL GARDEN

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Lake and Shelter House

THE NEW YORK BOTANICAL GARDEN

THE NEW YORK BOTANICAL GARDEN was chartered by the legislature of New York in 1891, and came into occupation of its present site in 1895. Among its founders are the names of persons prominent as leaders in the progressive life of the City, such as: Addison Brown, Andrew Carnegie, William G. Choate, W. Bayard Cutting, Charles P. Daly, Charles A. Dana, William E. Dodge, Park Godwin, Morris K. Jesup, John S. Kennedy, Seth Low, D. O. Mills, J. Pierpont Morgan, Henry C. Potter, Percy R. Pyne, William C. Schermerhorn, James A. Scrymser, Samuel Sloan and Cornelius Vanderbilt.

Founders

The Act of Incorporation of the Garden states that it is created "for the purpose of establishing and maintaining a botanical garden and museum and arboretum therein, for the collection and culture of plants, flowers, shrubs and trees, the advancement of botanical science and knowledge, and the prosecution of original researches therein and in kindred subjects, for affording instruction in the same, for the prosecution and execution of ornamental and decorative horticulture and gardening, and for the entertainment, recreation and instruction of the people." These words reveal a two-fold duty on the part of the Garden—a duty to the lay public and a duty to botanical science. Within the limit of its resources it has endeavored faithfully to carry out these purposes.

Purposes

Its present desire is to expand in these directions and to make itself, as becomes a public institution in the City of New York, a more efficient leader of American institutions in whatever pertains to the life of plants in their scientific aspects, their economic uses by man, and their esthetic value.

The Garden possesses at present nearly two thousand members, and the membership list is constantly growing.

Personnel

The Corporation comprises one hundred and three representative citizens. There is an Advisory Council of thirty-eight women. The administration is entrusted to a Board of Managers comprising at present thirty-one members, including *ex officio* the Mayor of the City, the President of the Department of Parks and the President of the Board of Education; the Scientific Directors; a Director-in-Chief and an Assistant Director. The scientific work of the Garden is carried on by the Director-in-Chief, the Assistant Director and fourteen other persons with their assistants. The chief members of this staff are recognized botanists and each has made a specialty of some one field of the science of plants. Upon these individuals rests the important duty of creating and maintaining the Garden's standing as an educational and scientific institution.

The Garden's funds are derived from two sources: an annual appropriation by the City, and contributions from

Sources of Funds

individuals providing endowment, membership fees and special gifts. In the sources of its funds and in certain other respects, it is similar to three other institutions of the City: the Metropolitan Museum of Art, the American Museum of Natural History, and the New York Zoological Society which maintains the Zoological Park and the Aquarium.

The grounds of the Garden comprise all that portion of Bronx Park which lies to the north of Pelham Parkway, about 400 acres. Topographically, the land is charmingly diversified—gentle hills alternating with narrow winding valleys, rocks outcropping as solid ledges with occasional low cliffs or as glacial boulders, and here and there level reaches. Nearly one half of the region is covered by trees, and of these a considerable proportion consists of native forest growth, especially notable in which has survived a native hemlock grove, the southernmost to be found near the sea-coast. Through the Garden, from end to end, runs the Bronx River in a succession of straight level stretches bordered by meadows, tortuous curves from which quiet coves of still water lead off, and rapids confined between the steep wooded banks of a picturesque gorge. Automobile roads and foot paths make all parts of the Garden readily accessible to visitors, to whom the grounds are open at all hours.

Grounds

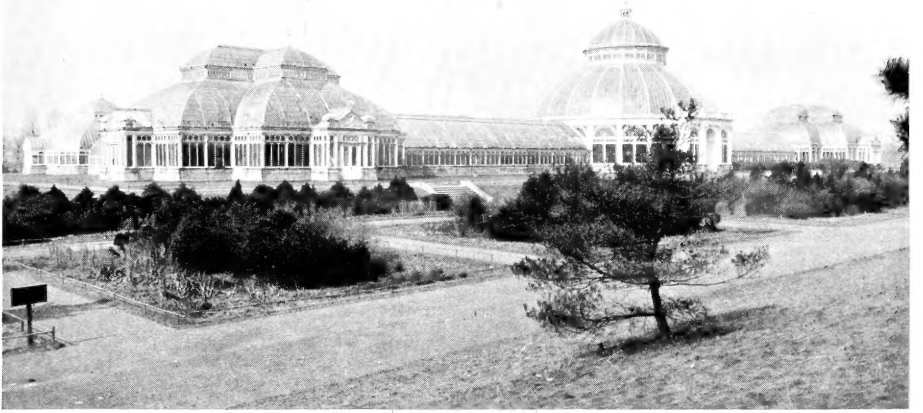
The varied topography of the Garden offers exceptional opportunities for varied plant life. In this respect the institution is unequalled by any of the botanical gardens of the old world. Besides the native species, thousands of trees, shrubs and flowering plants have been introduced. Maples, oaks, elms, beeches, birches, poplars, nut trees, Japanese cherries, magnolias, plane trees, thorns, dogwoods, willows, pines, spruces, firs and a host of less common types, provide an arboretum almost unrivalled. The collection of shrubs is almost equally varied. Numerous hardy vines are present. Wild flowers are abundant and carefully preserved. There are herbaceous gardens, flower gardens, a rose garden and a rock garden. Throughout the spring, summer and autumn months, there are exhibits of tulips, daffodils, narcissi, peonies,

Living Plants

roses, lilies, dahlias, chrysanthemums, and many other varieties of horticultural plants. The types of trees, shrubs and flowering plants that are not hardy in this climate are shown in two large greenhouses: Conservatory Range Number 1, on the western side of the Garden, covering about one acre and divided into fifteen compartments; and the somewhat smaller and still uncompleted Conservatory Range Number 2, on the northeastern side, comprising twelve compartments. These houses offer a considerable range of temperature and moisture conditions and contain large collections of temperate, desert, subtropical and tropical plants, such as orchids, ferns, cycads, pitcher plants, century plants, begonias, bananas, cactuses, palms, aroids, bromeliads, and waterlilies and other aquatic plants. Some 15,000 different species and rarities of all kinds of plants are now represented.

Museum

Near the western side of the Garden is the Museum building, which consists at present of the southern section of a projected structure of much larger size. Besides housing the administrative offices and the notable library of more than 34,000 books and numerous pamphlets, it contains the herbarium, the laboratories and the museum proper. The herbarium is one of the noteworthy collections of the world's flora, comprising more than one and one-half million specimens of American and foreign species of both flowering and flowerless plants. The museum contains three collections: fossil plants, existing plants in their systematic relations, and plant products illustrating their economic uses. The systematic collection, besides showing specimens of plants from the lowest to the highest, contains an exhibit of all plant species growing within one hundred miles of the City. The economic collection comprises nearly 10,000 speci-



Conservatory Range Number One

Central Display House of Conservatory Range Number Two

mens of crude and refined products of plants used in the arts, the sciences and the industries, such as foods, drugs, fibers, gums, resins, sugars, rubbers, spices, dye-stuffs, oils, and many others.

Exploration

The Garden conducts extensive explorations by its scientific staff and other agents. These have been confined, so far, for the most part to the western hemisphere, and especially to such parts of it as are less known botanically, including portions of the United States, the Bermuda Islands, the West Indies, especially the Bahamas, Cuba, Porto Rico, Trinidad and the Virgin Islands, and the northern countries of South America, including Brazil, Colombia, Ecuador, Guiana and Venezuela. From these explorations rich quantities of botanical material are continually flowing into the Garden for identification, description and preservation in its herbarium, its museum, its plantations and its greenhouses. Much additional material is obtained by purchase, gift and exchange. In these various ways, the collections are being enriched constantly and are growing in importance.

Education

The Garden has made itself one of the City's important educational institutions. By providing specimens it encourages the spread of information about plants in the schools. Hundreds of school children visit the Garden annually in parties, under the guidance of their teachers, and are given personal instruction by the Garden's staff. Under its system of docentry, a member of the staff escorts parties of visitors on week-day afternoons to different parts of the grounds and gives an explanatory talk on its objects of interest. On every Saturday afternoon throughout the year, and in summer every Sunday afternoon also, a free illustrated lecture is given at the Garden. These lectures cover such diverse topics as "Plant Hy-

brids: Their Production and Uses;" "Tulips;" "Our Park Flowers;" "Wild Birds of New York City;" "Shade Trees: The Companions of Man;" "Dahlias and Their Culture;" "The Geology of the New York Botanical Garden;" "Rambles Among the Mountains;" "Reef-Building and Land-Forming Sea-Weeds;" "Ethylene, or the Gas That Puts Plants and Animals to Sleep;" "Harnessing the Sun: Can Botanists Solve the Motor-Fuel Problem?" "Roses and Their Culture;" "Bolivian Roads and Trails." The members of the staff are frequently called upon to give lectures before garden clubs and other associations, and to larger audiences by radio, on horticultural and other botanical subjects. Information of all conceivable kinds regarding plants is being constantly sought from the Garden, and no such inquiry is neglected. All this educational work, in its great variety, is carried on without compensation to the Garden or the members of its staff.

Researches and Publications

The scientific researches and the publications of the Garden are an important feature of its activities. Through the extensive investigations by the members of the scientific staff, the floras of many portions of the western hemisphere are now becoming for the first time known, and in this field of research the institution has acquired a leading position in this country. Its publications are numerous and diverse. Through its Journal, its members are informed every month of its important events. In its Bulletin, Memoirs and Contributions, as well as in the pages of other scientific periodicals and books, appear the technical papers of its staff. Mycologia is a technical periodical devoted to the fungi. Addisonia is devoted exclusively to the illustration by colored plates of the plants of the United States and its territorial possessions and of other plants flowering in the Garden, with

descriptions in popular language. North American Flora ambitiously aims to present full authoritative descriptions of all existing species of plants that occur in North America, including the West Indies, Mexico and Central America, and will require many years of exploration and study for its completion.

The Present Needs

After thirty years of growth and service the Garden has now reached a stage where it feels that it ought to contemplate its own needs. If it is to continue to grow, and to render the service and maintain the leadership which its history and its location naturally suggest, additional funds are imperatively required. The Garden is unable to maintain and protect its grounds properly, much less to improve them or to forestall their deterioration. It is unable to extend its scientific investigations into many of the cardinal problems of plant life. It needs additional buildings, additional equipment, additional personnel. Its scientific staff and many subordinates are paid below the present requirements of the living to which they are entitled. Some of them, after years of loyal service, are approaching retirement and the Garden has no system or funds for the provision of pensions. Other institutions in its field of activity have arisen and surpassed it in various ways. It believes that its record has been such that it can now legitimately aspire to an improvement of its status and a broadening of its activities in harmony with present-day conditions and present-day demands.

Improvement of Site

In 1923 the Board of Managers, realizing that the grounds of the Garden ought to be made more beautiful, commissioned Mr. Frederick Law Olmsted and his associates to make a survey of the situation and submit a comprehensive plan for the future treatment of the site. Mr. Olmsted's report has now been received and, after care-

ful consideration and discussion, its major portion has been approved, in principle, as a guide for future development. It points out that the area occupied by the Garden, with its unusual natural features, some of which have been sadly mistreated or neglected in the past, can be made an area of superior beauty, superior interest to visitors and inspiring to lovers of flowers and gardens and all the amenities which living plants have to offer to the life of man. The automobile is one of the enemies of beautiful territories and—what was not foreseen when its present road-system was planned—the Garden has now become one of the great highways of motor-car through-traffic. Making the Garden merely a convenience in enabling the motorist to arrive at his destination is wholly contrary to its spirit and meaning, and through-traffic should be either excluded from it altogether or relegated to its extreme borders. Interior roads are necessary for the convenience of visitors, but certain of the existing interior roads may well be eliminated and the ground now occupied by them be restored to its original natural beauty. Some modifications and extensions in the system of paths should be made for the purpose of distributing the many visitors who come to see the Garden on foot and leading them on from one feature to another. By skilful planning and planting, the western portion of the area, lying near the entrances through which come most of its visitors but now one of its least attractive parts, should offer welcoming and enticing features. More might be made of the opportunities offered by the Water Gardens northeast of the Museum building. The great collection of shrubs near the northern end should be partly rearranged with a view to better esthetic effects without diminishing their scientific value. The Horticultural Garden in the southwestern section should be extended and intensified by

the planting on its attractive slopes of more irises, peonies, chrysanthemums, narcissi and other plants which lend themselves to mass effects, and might be the beginning of a transverse vista looking eastward across the Bronx River. The considerable area on the east side of the river at this point is now disfigured by unattractive greenhouses and associated encumbrances which are retained by the Park Department and used for the propagation of ornamental plants destined for the various public parks of the Borough of the Bronx. Nearby are the large and unkempt stables used also by the Park Department for the repair and storage of Park property. With these aberrant desecrations removed, the large area in question offers remarkable opportunities for the installation of an inviting Landscape Garden, with a long north and south vista tying in with the transverse vista above mentioned, and marked by an extended lawn and masses of flowering shrubbery and flowering herbaceous planting, bordered and backed by artistically grouped trees. At the side of this attractive feature, the gorge of the Bronx, now controlled on its eastern side by the Park Department, should be restored to its original state of rugged, picturesque beauty. Farther to the eastward, the old lake valley, now deprived of its former water supply, should be developed as a Rhododendron Glade with a rich and effective planting of varieties of rhododendrons, azaleas, ferns, heather, huckleberry, cranberry, laurel and related plants. The Cherry Garden in the northeastern section should be in part replanted to make more effectively beautiful its valuable collection of Japanese flowering and other species. In the series of open spaces in the southern section bordering Pelham Parkway, there might advantageously be placed a variety of Model Gardens, changing now and then and purposed to demonstrate to residents of cities and their

suburbs how city back-yards and small suburban places may be treated, by proper planting, to relieve their barrenness and make of them attractive homes.

Our large population lives for the most part in daily contact with ugly surroundings. In our schemes for social welfare we have devoted too little attention to beauty. To make the Botanical Garden beautiful will help to supply a need of the City that is quite as important in advancing our civilization as the City's more material needs. A beautiful Garden appeals to the eye as music does to the ear.

Future Research

Up to the present, the Garden's scientific researches have been confined chiefly to the field of systematic botany, and less attention has been given to other fields of the vast science of plants. But the problems in these other fields are so timely, so promising and so immediately connected with the welfare of mankind, that their solution should now be undertaken as additional contributions to knowledge. These problems have to do with the plant as a living organism—with its normal, healthy life-processes, its disease-processes and its processes of inheritance and the production of new and often better types. For example, the trees of our forests, our parks, our city streets and our suburban homes, afford a wide range of problems: What are the chemical requirements in the soil, of the various species of our forest and shade trees? If soils are deficient, how may trees be profitably fed? The mere presence of an essential chemical constituent in a soil does not mean that such a substance is available to the plant—how can it be made available? What are the physical requirements of the soil, as to temperature, moisture and aeration? How can the growth of the roots of trees best be promoted? What are the exact relations to the nutrition and growth of their

Entrance to the Hemlock Forest

Gorge of the Bronx River

hosts, of the fungi that are attached to the roots of many of our common forest trees? To what extent is the fertility of the soil dependent upon the microscopic organisms that occur in it, the bacteria, the fungi and other organisms? Is the pollution of the atmosphere of our cities inimical to the continued growth and life of trees? Are the gases of automobile exhausts detrimental to vegetation? To what extent can growth be accelerated by skilful hybridization and thus the production of trees economically important be quickened? To what extent can production of the sugars and starches in plants, the ultimate source of all food supplies, be controlled by standardizing the conditions of temperature, moisture and the composition of the atmosphere under which the plants are grown? The diseases of plants are an untold source of pecuniary loss to man. They offer many analogies to the diseases of human beings, but it seems probable that in the future the most economic way of dealing with them will be, not by waiting until the disease has appeared and then endeavoring to cure it, but by producing races of plants that possess inherited immunity to disease. There are, moreover, many fundamental problems of disease-processes in living beings that can probably be studied more readily in plants than in animals or man. For all these problems here mentioned and hosts of others that might be mentioned, the Garden possesses unusual facilities in its site and its large collections for the best and most fruitful types of investigation. They are problems that require the use of the experimental method, the method which more than any other has been instrumental in the phenomenal advance of science that has characterized recent years. Many of these problems require long-continued experimentation and thus can be attacked far better in an endowed institution such as the Garden, than in a state-

controlled experiment station which might be subject to political influences and changes. They require modern laboratories, adequate provision of suitable apparatus and broadly trained, original men of science. Thus equipped the Garden could afford assurance that gifts to it for research would be used with a maximum of effectiveness.

Financial Needs

The realization of the requirements for adequate maintenance, needed improvements and desired advance, would place the New York Botanical Garden in a position of leadership in this country, if not in other countries, in matters that deal with plants in their various scientific, esthetic and economic relations to man. The Garden would then stand conspicuous among the best of the public institutions of the City. To enable it to assume this rightful position, its funds must be largely increased and chiefly by private beneficence. The actual amount of money required would be approximately $7,000,000, in the form partly of monies to be directly expended, and partly of increased endowment. The more urgent needs demand the sum of $4,000,000, of which $800,000 should be expended for material improvements and equipment, and the remainder be added to the endowment. The Board of Managers is making an effort to obtain this needed $4,000,000, and confidently looks to the people of New York to contribute it.

Correspondence regarding contributions
should be addressed to President Frederic S. Lee
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