LANDSCAPE COMPOSITION PRESERVATION TREATMENT

Defining an Ethic for Designed Landscapes

by Charles A. Birnbaum, ASLA
FOREWORD

by Nicholas Quennell, ASLA, Co-Chair, National Association for Olmsted Parks

When the National Association for Olmsted Parks (NAOP) embarked upon the Workbook Series three years ago, we recognized the need for a dialogue on the challenging—and often troubling—task of renewing vegetation in America’s historic parks.

Ten years of effort in all parts of the country have seen many different approaches, as well as areas for potential conflict, among those responsible for the restoration of urban landscapes.

In an attempt to bring forth these differing approaches and allow for dialogue and debate, NAOP hosted a conference in the fall of 1991 on “Restoring Urban Woodlands.” The conference was a great success and left its participants with a better understanding of the many problems encountered by park restorers. At the same time there was inevitably some confusion about the “right” way to go about a park restoration project.

Two very different and potentially irreconcilable points of view emerged.

One, based upon a twentieth-century understanding of ecological processes, espoused a re-examination of planting plans to ensure a self-sustaining complex of trees, shrubs and groundcovers which could co-exist comfortably and (ultimately) with minimum intervention. Such a planting scheme would consist primarily of plants native to the area which, in their natural state, would reach an ecological equilibrium very different from the condition found in so many urban parks today that are overrun with invasive, exotic varieties.

The second point of view placed primary concern on the original design intention of the park’s designers and argued for a re-establishment, wherever possible, of those intentions using the same plants contained in the park’s original installation.

Rather than attempt to summarize the many fascinating presentations made at the conference, we decided to invite two distinguished professionals to address these two positions from their own perspectives. Ed Toth, Director of Landscape Management for Prospect Park, Brooklyn, New York and a horticulturist with a thorough knowledge of urban forestry and the aesthetic concerns of Olmsted, Vaux and their successors, makes a case for the ecological approach in Volume 2 of the Workbook, An Ecosystem Approach to Woodland Management.

In this publication, Volume 3, Landscape Composition Preservation Treatment: Defining a Methodology for Designed Landscapes, Charles Birnbaum presents the case (and a detailed methodology) for examining, analyzing and—within reason—restoring historic landscapes. Charles Birnbaum has broad experience in dealing with historic landscapes. From his early work on Boston’s Emerald Necklace (Walmsley & Company), recent work with Patricia M. O’Donnell (LANDSCAPES) in Newburgh, New York and Hartford, Connecticut, to his current position as historical landscape architect with the National Park Service Preservation Assistance Division in Washington, D.C., he has been dedicated to historic landscape preservation.

As it turns out, these two volumes of the Workbook do not reflect a schism between the two positions they represent. Each recognizes the importance of the other and it is clear that we should explore both positions as we work to preserve our Olmsted heritage. We welcome further discussion on the subject, and hope that future editions of the Workbook will tell more of the story.
LANDSCAPE COMPOSITION

PREVENTION TREATMENT:
Defining a Methodology for Designed Landscapes

by Charles Birnbaum, ASLA

It is quite impossible to plant a large extensive park so that it can present the same picture when fully grown as it did at the beginning, only on an altered scale, and the objects in it are for ever after in the right relation to one another, since nature cannot be calculated so accurately and it would also take too much time.¹

Across the United States, cities like New York, Boston, Hartford, Louisville, Seattle, Chicago, Denver and Baltimore are rediscovering and renewing their historic parks and parks systems. Often encompassing a comprehensive network of parks and boulevards, these systems were largely conceived and, in most cases, executed by Olmsted Vaux & Co. and the later Olmsted firm. In many cities the Olmsted firm was the initial consulting landscape architect and remained intermittently involved into the 1940s.

Unfortunately, during the period between World War II and the late 1970s many of these great public landscapes suffered from benign neglect. It was not until the last ten to fifteen years that their significance was recognized and preservation master plans developed to ensure their survival, in many cases on the eve of their centennials.

PLANT MATERIALS AND THE PREVENTION PLANNING PROCESS

The master planning process first selects an appropriate treatment. Appropriate options include: protection and stabilization, preservation, rehabilitation, restoration, and, in rare cases, reconstruction (Table 1). These treatments are described in detail in the National Park Service publication Guidelines for the Treatment of Historic Landscapes.

The selection of a treatment for the landscape determines the type and scope of work for each project, i.e., the extent of repair and replacement to historic features and materials. The type and scope of work, in turn, determine how the entire property will exist in time in relationship to the user, viewer or visitor. Decisions made at this step will determine how the history of the property will be perceived. Although the treatments are interrelated, usually one primary treatment is selected for a property.²

The Guidelines also describe individual contributing landscape features, such as vegetation. Vegetation, a character-defining feature present in most Olmsted parks, is defined as follows:

An individual plant, as in the case of a specimen oak tree, or groups of plants such as a hedge, allee, forest, agricultural field, or planting bed. Vegetation may be evergreen or deciduous trees, shrubs, or ground covers, and include both woody and herbaceous plants. Vegetation may derive its significance from historical associations, horticultural or genetic value, or aesthetic or functional values. It is the primary component of the constantly changing character of the

Fig. 1: Plan of Coniferous Plantings, Highland Park, Rochester NY, No. 68, F.L. Olmsted & Company, March 9, 1893.

National Park Service, Frederick Law Olmsted National Historic Site, Brookline, Massachusetts
landscape. The treatment of historic landscapes must recognize this continual process of growth, seasonal change, maturity, decay, death, and replacement of vegetation. Vegetation derives its character from form, color, texture, bloom, fragrance, and scale.  

This workbook describes an appropriate process in selecting a treatment option in a preservation planting planning. It will review the types of documentary information that may be available, how to use these sources, and discuss contemporary issues that must be considered. The six steps listed below will be applied and tested in two case studies, Meadowport Arch in Prospect Park, Brooklyn, New York, and the Polly Pond in Downing Park, Newburgh, New York.

- Review of historic record documentation of plant materials
- Documentation of existing plant materials
- Assessment and analysis of extant historic plant materials (including condition assessment)
- Determination of appropriate preservation treatment
- Creation of a preservation planting plan and plant list
- Location and installation of new plant materials

REVIEW OF HISTORIC RECORD DOCUMENTATION

Developing a preservation planting plan requires consulting historic plant material documentation. This documentation enables the historian and landscape architect to assess and analyze extant historic plant materials; determine what was actually executed of the planting design by the Olmsted office; or lacking this primary documentation, what was appropriate for the period in the specific geographic location. Resources can include surveys, schematic or technical plans, photographs, stereoscopic views, postcards, and related correspondence. For example, a section of the planting plan of the park’s Pinetum Drive (Fig. 1), and photographs depict the area as it looked in the early 1920s (Fig. 2). The documentation for Highland Park is located at the Frederick Law Olmsted National Historic Site (FLONHS) in Brookline, Massachusetts.

The collection at FLONHS contains over one million pieces of paper, includ-
ing approximately 150,000 drawings. Related correspondence at the Library of
Congress, Washington, D.C. contains approximately 240,000 items (including 27,000
attributed to F.L. Olmsted Sr., and 170,000 to Olmsted Associates). These resources
offer historians and landscape architects important information about a park's schematic
design, planting plan, plant list, and installation, and enables them to make responsible
treatment decisions.

The Schematic or Conceptual Plan

Often the first design produced by the Olmsted firm was a conceptual or schematic
plan for the entire park. Careful review of the plan will reveal the character of different
areas of the landscape, including woodland, parkland (broad areas of lawn with informal
trees), meadow, or formal features such as boulevards and allees. However, the
schematic plan has limitations. In most cases, if the plan shows a proposed shrub massing,
it is difficult to determine which plantings were already in place and which were
proposed. It is also difficult to tell if an understory is present in woodland or plantation
areas. Moreover, schematic plans usually omit plant names, rarely differentiate between
deciduous, coniferous or flowering trees, and have limited or no plant material information.
A preliminary plan by Olmsted, Olmsted & Eliot for laying out buildings and
grounds of the American University, Washington, D.C. (1895) reveals the limitations
of a schematic plan (Fig. 3). Formal perimeter trees, woodland, parkland, and informal
tree groupings are all discernible; however, understory and existing vegetation are not.

Existing Conditions Survey

For many Olmsted projects an existing conditions survey exists. The survey may have
been produced by the Olmsted firm or, on many occasions, by a local group. Many of
these plans can be found in the project files at FLONHS, and may even include field
annotations by the Olmsted firm. For example, the plan for South Green in Hartford
(today known as Barnard Park), includes colored pencil annotations regarding tree
genus, size, suggestions for removals, and new configurations for pedestrian walks and
perimeter fencing. Survey documentation is usually extremely accurate and can prove
invaluable in understanding a landscape that has undergone many replanting schemes
throughout its history.

Planting Plan and Plant List

The Olmsted office prepared detailed planting plans for many of its park designs. The
plans were usually drawn at a large scale, and many include plant material information
ranging from pre-existing plants to details such as ground covers or aquatic plants. For
example, the planting plan for the Brookline side of the Emerald Necklace's Muddy
River (1892), measures over eleven feet in length, and indicates all trees and understory
plant materials. The plan uses individual circles with interior numbers to represent
trees, while numbered clusters indicate groupings of shrubs and groundcovers. In some
cases, plant materials are categorized by grouped masses. In the plan for Leverett Pond,
a single number represents a vast collection of trees, shrubs, and ground covers.
Although useful, this approach has limitations. For example, what is the actual density of
a given plant or how are the plant materials grouped (e.g., are the tallest plants in
the middle, or along an interior edge)?

Plant lists, accompanying the planting plan, are either integral to the drawing or, if lengthy,
may be documented separately on firm letterhead. Plant order lists were
prepared by the Olmsted firm for a commercial grower or park nursery and represent a
relatively accurate record of what was purchased, often including specifics, such as
quantity, size, form, cost and place of purchase. An example found at FLONHS is the
plant order form for Newburgh's Downing Park, dated October 29, 1894, with plants
scheduled to arrive on April 20, 1895. This list, unlike the plant lists that appear on
associated park planting plans, shows the actual plants ordered.

In the cases where nurseries existed on site (the nursery in Prospect Park had
50,000 plants in 1868), logs or journals can be studied to understand what plants were
grown, and which were successful.

LANDSCAPE TREATMENTS

Protection and Stabilization

Provide temporary, often emergency measures to prevent deterioration or failure
without altering the landscape's historic character. These measures are generally
considered preparatory to the other treatments.

Preservation

Maintains the form, materials, and features of the landscape as it has evolved
over time, acknowledging its growth, loss, and change.

Rehabilitation

Retains the landscape as it has evolved historically by maintaining and repairing his-
toric features, while allowing additions and alterations for contemporary and
future uses.

Restoration

Depicts an appearance that existed during the landscape's most significant period by
removing later additions, and rebuilding or replanting earlier features.

Reconstruction

Re-creates a vanished or non-surviving landscape with new materials.

Table 1. Appropriate Treatment Options.

Secretary of the Interior's Standards for Historic Preservation Projects
Park Department Annual Reports

Park annual reports can be a good source for detailed plant material information. They often contain information regarding genus, species, quantity, cost and installation (e.g., soil mixture, staking). The annual reports prepared between 1890 and 1910 for park systems in New York City and Hartford detail specific quantities, genus, species, and park by park plant lists for the entire city. 5

Parks Department annual reports may also offer excellent visual documentation, especially of new construction projects. By comparing reports over several years it is possible to understand the park’s maintenance requirements, including both installation and seasonal upkeep variations.

Historic Photographs and Postcard Views

Early photographs, postcards, and stereoscopic views are extremely useful for determining what plant materials existed prior to a park’s construction. In some cases, photographs and postcard views are the only available documentation for identifying plants by genus (and if the views are very clear, by species). Photo sources include the extensive photographic collections at FLONHS; the George Eastman House International Museum of Photography in Rochester, New York, which has over 40,000 stereographs and 1,000 photographs of western landscapes; and the Curt Teich Company postcard collection at the Lake County Museum in Wauconda, Illinois, which contains over one million postcards dating from 1898 to 1975. 6

Historic photographs often illustrate gardensque and ornamental plantings added after the park’s original construction. In many cases these may have replaced original park plantings and should be verified against primary source information. For example, a stereoscopic view of Chicago’s Washington Park (Fig. 4), illustrates a Victorian embellishment, which departs from the original planting scheme. It should be remembered that photographs document a limited portion of the growing season. A bed with tulips in May or June will look very different in August, when it may contain a seasonal mixture of annual or perennial bedding plants. A preservation planting plan and plant list should consider these seasonal planting variations. Finally, when using...
postcard views as historic documentation, note that early postcards were hand tinted, often with great artistic license, and as a result they may be misleading.

**Period Nursery Catalogs**

When historic planting plans cannot be located, or when photographic records are insufficient to identify plant material or only illustrate a limited portion of the park landscape, secondary sources should be consulted. Nursery catalogs of local suppliers dating from the period of a park's construction provide excellent supplementary information about locally grown plant materials. The Massachusetts Horticultural Society in Boston and the Office of Horticulture at the Smithsonian Institution Libraries in Washington, D.C. have thousands of period plant material catalogs that are outstanding supplementary resources (Fig. 5). Although the species and cultivars that are available today may differ slightly from those used by the Olmsted firm, organizations such as the Thomas Jefferson Center for Historic Plants in Charlottesville, Virginia and the Antique Plant Newsletter in Dover, Delaware have made it easier to locate historically appropriate plant materials.

Many nursery catalogs are richly illustrated with engravings, and later, with photographs. When comparing historic photographs of the park landscape with the illustrations found in period nursery catalogs, it may be possible to identify original plant materials.

**Journals and Newspaper Accounts**

Periodicals such as newspapers, magazines and professional journals contain many articles on Olmsted landscapes. Publications worth consulting include: *Garden & Forest* (1888–1897), *Park & Cemetery* (1891–95), *Landscape Architecture Magazine* (1910–present), and *House and Garden* (1901–present), among others. The information contained in these journals ranges from detailed descriptions of new parks, to essays written by park managers with an emphasis on maintenance. Often detailed plans, plant lists, and original plantings are described in these publications.

Local newspapers are also valuable and often offer articles with photographs about opening day festivities or special events in parks. They are also useful in understanding change over time, especially later additions or removals that affect the park's vegetation.

Late nineteenth and early twentieth century popular magazines such as *The Century, Harper’s, Fortune,* and *The Saturday Evening Post* often contain illustrated essays on public parks. The articles frequently include detailed engravings. An example (Fig. 6), depicts Canal Street Park in New York City.  

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**CONTEMPORARY ISSUES TO CONSIDER**

Once the executed park plan is understood, the historic landscape architect must consider several contemporary issues. The goal of the preservation planting plan is to retain the extant historic plant materials, reflecting the original plan to the greatest extent possible. Contemporary issues such as use, interpretation, maintenance and management, fiscal responsibility, ecological value, plant material availability and appropriateness can then be addressed to "make an efficient contemporary use possible" and still maintain the park's historic character. The construction of design features that were not built as a part of the original design is never considered an appropriate preservation treatment.

Most Olmsted office planting plans for park landscapes used dense collections of trees with understory masses of shrubs and groundcovers along a park's perimeter or along the edges of naturalistic water features. The plantings created picturesque edges, controlled views in and out of the landscape along the perimeter, and controlled access to the water, creating "beach" locations in the open spaces between masses. Originally known as "plantations" the groupings were usually composed of young trees, shrubs and ground covers that were extremely densely planted, well maintained, and thinned frequently.

When rehabilitating an Olmsted park's landscape composition today, it is the "plantations" portion of the plant palette that has changed most considerably, and offers
Fig. 6: Engraving of Canal Street Park, New York NY, by V. Perard from "The Evolution of A City Square."

Scribner's Magazine, V. XII No. 1, July 1892.

the greatest challenge to the historian and landscape architect. Common issues include the following:

- What exists of the historic "plantations" today usually consists of mature trees in decline with little or no understory remaining. In these situations, large canopy trees are of a much greater scale, may "dwarf" young tree plantings in proximity, and may never recapture the original design intent. The health and vigor of understory plant materials within the mature tree canopy are threatened, with new understory plantings located within the tree "dripline" competing for the same water. Neither the mature nor the younger planting usually benefits in such situations.

- Issues of appropriate scale also arise regarding formal plantings such as tree allees. Allees were quite common along park perimeters at the city's edge, along major interior park drives, and at times were associated with park-interior formal garden features. Hartford's Pope Park General Plan by the Olmsted Brothers, 1898, includes all three types of allees: formal tree surrounds along the park perimeter, an allee along Park Street which bisects the park, and a third allee around the sunken panel flower garden at the park's highest point. Today, where there are significant gaps in the formal tree canopy, a determination should be made whether to (1) fill these in with new trees or (2) replace full linear sections of the formal allee to achieve a uniform height and the intent of the executed design. The recommended solution can be either, or a combination of both, depending on (1) the percent of tree canopy that remains or (2) length of the allee.

- When an entire tree population (e.g., Dutch Elms or more recently, sycamores, hemlocks or flowering dogwoods) has been the target of twentieth century disease or infestation, a species of a similar scale, form, and texture should be used as a replacement. In some cases genetic diversity provides another approach. For example, in the late 1970s, the city of Buffalo reinstated entire stretches of formal boulevard
plantings that were part of the original 1876 Olmsted, Vaux & Co. plan. The American Elm (*Ulmus americana*), originally used in the park, was almost eradicated by Dutch Elm disease (Fig. 7). The formal boulevard feature was replanted with the newly developed disease-resistant Liberty Elm, *Ulmus americana 'Liberty'* (Fig. 8). Other solutions include the use of Japanese Zelkova (*Zelkova serrata*) along sections of Boston’s Commonwealth Avenue. Even though it does not achieve the same mature height as the Dutch Elm, the zelkova was selected as a suitable replacement because it possesses a similar vase-like form. Another approach has been taken along parts of the upper terrace of Riverside Drive in New York City where the tree canopy consisted largely of late nineteenth-century elms and London Plane trees planted in the 1930s. Gaps which had developed in the canopy were filled in with different genus trees, including more upright or fastigate-form oaks. This selection was made for the narrow openings in the overhead tree canopy, where only a limited amount of sunlight reaches the understory. In this situation, a fastigate growing tree may have a better chance of survival, but its shape is clearly different and may not always be appropriate.\(^\text{10}\)

- Historically, to achieve an immediate effect, plant materials were planted extremely close together. This approach required substantial maintenance to assure the proper air circulation necessary to maintain healthy vegetation. Contemporary fiscal constraints render this approach impractical.

- Many of the original understory species have proven to be incompatible, competitive, or aggressive. Some invasive species, for example the River Birch (*Betula nigra*), were introduced by the Olmsted firm. Others have naturalized over time, including Phragmites (*Phragmites australis*), Common Buckthorn (*Rhamnus catharticus*), and Japanese Knotweed (*Polygonum cuspidatum*). The proliferation of invasive species results in parkland that is perceived as derelict. The goal of the preservation plan is to ultimately eliminate and control nuisance species.

- Some of the original plant materials specified may be difficult to locate commercially or may not be available today. Appropriate substitutes of similar scale, form, texture and color should be selected. A recent project for the reconstruction of Moore Road in Rochester's Seneca Park, for example, focused on the plantings associated with a historic roadway.\(^\text{11}\) The Black Walnut (*Juglans nigra*) and American Hickory (*Carya ovata*) specified in the original plan for the park were impossible to locate, even among specialty growers. The Planetree (*Platanus acerifolia*) and Horse Chestnut (*Aesculus hippocastanum*) were chosen as the most appropriate substitutes, as they possessed similar scale, form and texture. Both species appeared on the plan and original plant lists and were located sympathetically.

Fortunately, in the past decade there has been a resurgence of interest in historic plant materials and commercial growers are again making them available. *The Anderson Horticultural Library Source List of Plants and Seeds* (Chanhassen, Minnesota) and the *Source List for Historic Seeds and Plants* (Ann Arbor, Michigan) are reliable sources for locating historic plant materials.

- Originally, plantings at the parks' perimeters were designed to "keep out the city." Today, however, perimeter plantings raise issues of perceived visitor safety. In the 1970s the approach was to remove the understory entirely, often leaving steep banks exposed and vulnerable to erosion and invasive perennial weeds. This dramatic change is illustrated in the Back Bay Fens, Boston (Figs. 9 & 10), which has experienced a dramatic loss in desirable species diversity and scenic composition. A better approach is to limit the heights of understory shrub materials. A reduction to a maximum of five feet to allow views in and out of the park was the solution arrived at by preservationists and park users in Downing Park, Newburgh, New York and Washington Park, Albany, New York, among others.

- Linear parks were designed as leisure drives for slow-moving carriages that used perimeter parkways and interconnecting parkways or boulevards. Today, the automobile considerably alters the visitor's experience. Turning radii, parking, and viewing triangles have nibbled away at the edges of parkways and boulevards, thus removing formal tree elements, minimizing the depth of vegetative buffer, and threatening the stability of the slope. New vegetation proposals should recognize the altered view from the automobile and respond accordingly. Along Seattle's Lake Washington Boulevard, for example, sections of the thoroughfare in residential neighborhoods were rehabilitat-
ed to "reinstate, frame and take advantage of views and vistas." Formal tree features were reinforced with new tree plantings, including integral low shrub and ground cover materials which were proposed for their scenic, stabilizing, and maintenance benefits.

These contemporary issues present many challenges for the historic landscape architect. In each situation, the issues of use, maintenance and management should be carefully considered. Both of the case studies that follow respond to varying levels of documentation, extant fabric, and contemporary influences. The approach in each example is somewhat different, however, like the Guidelines for the Treatment of Historic Landscapes, the purpose is to illustrate and inform wide treatment decisions, in this case for park vegetation.

CASE STUDY ONE: MEADOWPORT ARCH
PROSPECT PARK, BROOKLYN, NEW YORK

Designed by Olmsted Vaux & Co. in 1869, Prospect Park is a 580-acre scenic landmark which was listed on the National Register in 1980. Meadowport Arch and the landscape associated with it (measuring about one acre) are the focus of this case study (Figs. 11 & 12). The Arch is the northernmost entrance or "gateway" into the park's Long Meadow from Grand Army Plaza. The design of the Arch is attributed to Calvert Vaux, and dates from the early 1870s, when Olmsted and Vaux were superintendents of the park's construction. Throughout the history of Prospect Park, the plantings associated with this structure have varied considerably.

**Historic Record Documentation of Plant Materials**

The surviving nineteenth century documentation for Prospect Park includes "designed" and "as-built" schematic plans. Both the 1869 "design plan" by Olmsted Vaux & Co. and the 1888 "as-built plan" by Charles Woodruff are at 1" = 400' scale. The Meadowport Arch area, looks nearly identical in both schemes. This confirms that this section of the original design was largely constructed as conceived. The two plans are useful for defining meadow areas, and individual or formal tree features. However, in densely vegetated areas, such as woodland or parkland, understory materials are not easily differentiated, or identified by genus.

Twentieth-century documentation for the area is rich and varied. The earliest published plan with plant material information is found in Louis Harmon Peet's *Trees and Shrubs of Prospect Park*, published in 1902. The thumbnail plan notes all major and minor trees, and sentinel or groups of shrubs in approximate locations. The drawing is keyed to an accompanying plant list. Unlike an actual survey, caliper size is not noted. From the same period there is also a 1909 survey.

A 1935 survey at 1" = 50' scale, the Department of Parks Topographical Map of Prospect Park, is an excellent source for identifying trees by common name, caliper, areas of woodland, young trees, and shrubs. A limited quantity of trees over 24" in caliper are present on either side of the Arch. On the north side this includes three 24" and two 42" elms. On the south, or interior side, a 38" linden, 36" sycamore, and 35" maple are noted. Broad areas labeled shrubs and/or small trees are on all sides, and along the road over the arch. Young trees are predominantly maple, elm, catalpa and beech.

In addition to these plans, two historic Prospect Park plant lists were found at the Library of Congress. Written in longhand and dated August 1866, the earliest list identifies pre-existing trees and shrubs. Although the list is short, the trees noted are assigned a "quality rating" (A, B or C). General notes are also included regarding overall quantity and frequency of species, diameter, and the presence of seedlings. Information about pre-existing plants is useful for understanding native plant communities.

A second list of trees, totaling five pages, accompanies a planting proposal entitled, Brooklyn Park Planting Map for the Southern Part of the Long Meadow, 1871. Common names are not provided in either the 1866 or the 1871 plan.

Completing the available illustrative information for the Arch area are a number of historic photographs, postcards and stereoscopic views. Photographic images in Park Annual Reports and several collections including both public (Brooklyn Picture...
Collection, Brooklyn Historical Society, Brooklyn, New York) and private (stereoscopic views in the Herbert Mitchell Collection, New York, New York) are useful in supplementing the historic plans. Engravings from the early 1870s and an abundance of photographic images from the early 1900s document the Arch in a variety of landscape settings. For example, during various periods the range of planting treatments included tall and medium shrubs, coniferous plants, bedding plants, and climbing or trailing vines.

**Documentation of Existing Plant Materials**

With the foundation of historic information is assembled, the existing conditions of the Meadowport Arch area can now be assessed.

The first complete survey for Prospect Park was conducted in 1980; a more detailed survey of the Meadowport Arch area was refined and updated in 1984. At a scale of 1" = 10', the 1984 survey demarcates "areas of trees and bushes, shrubs, groundcover, weed and brush, or bare soil." Trees were identified by Latin name, common name, caliper size, and their condition and health were assessed. In this area there were few trees over 24" in caliper. On the north side, only a 29" elm and a 46" sycamore were located, and on the south, a 34" ginkgo and 24" ailanthus. Broad areas of "trees, bushes, and shrubs" were documented throughout the Meadowport Arch area. On the south, an even age stand of ten hawthorns (predominantly 4" – 6") was the exception. Signs of deferred maintenance were obvious with multiple areas of "weed and brush" or "bare ground" noted. Mulberries, young maples, locust and ailanthus trees were present in great number. Several invasive trees had reached over 20" in caliper, and were within 18" of the bridge, which could have posed long-term threats to the structural stability of this landmark structure. Overall, a half dozen character-defining trees were present.

**Assessment and Analysis of Extant Historic Plant Materials**

A comparison of the 1984 survey with the 1935 survey, showed that most of the existing trees that surround the Arch were introduced since 1935. With five trees measuring over 24" in caliper, and only a handful of non-invasive species over 12", desirable tree species and understory materials were nearly absent. New plantings were needed not only to reinstate the character-defining landscape composition, but also to resolve environmental and functional problems. Steep, eroded slopes concealed sections of the articulated bridge foundation and undermined associated drainage structures.

Even after extensive historic research had been completed and evaluated against the existing conditions documentation, the original landscape composition and species selection remained unknown. It was determined that additional plant material information was required to make educated, site-specific treatment decisions that were sympathetic to the original construction.

**Determination of Appropriate Preservation Treatment**

Before new plant materials could be selected, additional information regarding the historic plant palette was necessary. It was clear that a number of trees that were self-sown, or planted over the last half century, had achieved a significant size and should therefore not be removed. These considerations, combined with the contemporary issues outlined earlier in this workbook, suggested rehabilitation as the most appropriate treatment.

**Creation of a Preservation Planting Plan and Plant List**

The early Prospect Park planting lists were used to select replacement canopy trees. For additional information about tree and understory plant materials, other period lists by the Olmsted office were consulted, along with historic photographic documentation. In selecting the plants, every effort was made to match the scale, form, and texture of the plant materials depicted in the historic views.

Little information was available on the types of shrubs, vines and groundcovers originally planted in the park. To fill this gap in the historic record, plans were consulted for three Buffalo, New York parks designed by Olmsted Vaux & Co. which were
executed during the same time as Prospect Park (between 1870 and 1875). The plant lists and a “List of Trees, Shrubs, etc. in Nurseries”, published in the Second Annual Report, Buffalo, New York, 1872, and a “List of the Different Kinds of Trees, Shrubs and Vines in the Park,” published in the Seventh Annual Report, Buffalo Park Commission, Buffalo, New York 1877, proved to be invaluable sources in selecting appropriate plant materials. With this information, a draft planting proposal was completed. The plants selected exist on the historic lists, met contemporary use requirements, and were determined to be available through local nurseries or specialty growers. 16

Location and Installation of Plant Materials
At the time of construction, some of the selected plants were unavailable. The landscape architect chose substitutes, approved the position of plant materials and oversaw their installation at Meadowport Arch. For a period of two years, a temporary fence remained in place to allow smaller plants to stabilize and firmly take root. The fence has since been removed, allowing park visitors to once again experience the magnificent approach into Long Meadow.

CASE STUDY TWO: POLLY POND, A. J. DOWNING MEMORIAL PARK, NEWBURGH, NEW YORK
Andrew Jackson Downing Memorial Park was designed between 1889 and 1896 by Frederick Law Olmsted and Calvert Vaux in their last collaboration. It was a gift to the City of Newburgh, New York, and designed as a tribute to Andrew Jackson Downing, the eminent horticulturist and shaper of American architectural and landscape architectural taste. The National Historic Landmark park is slightly over thirty acres and is still today the primary open space serving the city. The Polly Pond project area, approximately 9.5 acres, surrounds the park’s only water feature, and is the focus of this study. Work on the project, begun in 1991, is ongoing.

Historic Record Documentation of Plant Materials
Unlike the simple schematic plans for Prospect Park, the documentation for Downing Park and the Polly Pond area is varied and rich. Four detailed planting plans exist, generated in 1895 by Olmsted, Olmsted & Eliot with Warren Manning credited as Superintendent of Planting. At a scale of 1” = 50’, the four plans clearly show locations of individual trees, exact quantities, and outlines for bedding plants. Included are flowering trees; small, medium, and large shrubs; and ground covers. An accompanying plant list identifies all plants in the plan by genus and species. In addition, a field annotated drawing exists, which documents the plant materials that were installed in the 1890s. 17

There is also an abundance of period postcard views and historic photographs for the Polly Pond area. This visual material, together with the original planting plans, well documents the planting for the Polly Pond area.

Documentation of Existing Plant Materials
A diverse collection of plant materials exists in Downing Park today. They include sentinel specimens, some in decline; a limited quantity of remnant shrubs (none in the Polly Pond area); recently planted trees; invasive saplings; and perennial weeds.

Extensive field work was conducted to accurately document the location of all trees, as well as caliper, genus, species and health. A study was undertaken throughout the park to identify extant plant materials and determine their historical significance. In the Polly Pond Area, over twenty species of historic canopy trees were noted. They included mature beech, willow, Red Oak, Silver Maple, Sugar Maple and ginkgo, to name a few. Of this collection, nearly half were either hazardous or non-historic (e.g., Norway Maple, Norway Spruce, Crimson King Maple, cherry). A diversity of species surrounded the pond and many of the trees were mature and in decline. Along the park perimeter, there was an absence of trees, with the exception of Norway Maples on Third Street. Once all vegetation was documented, an assessment was made of the trees
that were inappropriate, or presented a safety or maintenance hazard. In all cases, unless a historic tree is in poor health or creates a hazardous condition, it should be retained and protected. All invasive or historically inappropriate trees should be removed or relocated outside the historic park.

Assessment and Analysis of Extant Historic Plant Materials

After a careful review of the historic documentation, a framework for new planting was established.

To determine which of the existing trees should be saved and which should be removed, the survey of existing trees was compared with the 1895 planting plan by Olmsted, Olmsted & Eliot. In most cases the mature trees in the park today are also found on the Olmsted plan. There are a few noteworthy exceptions. For example, an informal row of eleven Silver Maples (*Acer saccharinum*) edge the north side of the central Polly Pond path. Although they are not on the original plan, their age clearly suggests that they were planted at the time of the original scheme (perhaps a substitution due to availability).

Sixty-seven trees were proposed for removal, sixty percent were small and twenty-seven percent were medium in size. The only large trees scheduled for removal were those which were either hazardous or severely deformed. Before removing mature trees in decline, the availability of same-species replacement plant materials should be ascertained. Close study of the plan revealed that half of the trees to be removed were small or medium Norway or Sugar Maples (*Acer platanoides, Acer saccharum*) and eleven were recently planted spruces or hemlocks that were inappropriately sited.

Since this was a historic landscape rehabilitation project, contemporary or severely deformed and hazardous trees were removed to recapture the original design intent. With this task completed, a planting proposal for new trees and understory was developed.

Determination of Appropriate Preservation Treatment

As at Meadowport Arch, the goal at Polly Pond was to retain the historic character of the park landscape. Therefore, extant historic trees were to be preserved and the overall landscape composition (including walks, furnishings and the pond) rehabilitated. The preservation treatment included the removal of inappropriate plantings (both introduced and invasive) and the reinstatement of the richly articulated landscape composition that had suffered from neglect.

The tree planting proposal relied heavily on the 1895 Planting Plan. As illustrated in the 1895 plan, and reflected in many historic postcard views (Fig. 13), there were a large number of deciduous, coniferous, and flowering trees.

Next, appropriate locations were established for new trees, and genus and species were selected—pending availability, hardiness to the region and appropriateness of habit (e.g., invasiveness). Fortunately, most of the species which were required for rehabilitation are available today. Trees that proved inappropriate have acceptable substitutions that are readily available. For example, the American Chestnut (*Castanea dentata*) is not available due to blight. The Shagbark Hickory (*Carya ovata*) possesses a form and scale similar to the American Chestnut and therefore was chosen as a substitute. As a rule, the planting plan should reflect the same mix and diversity of tree species used in the historic plan. In addition, trees should be sited in historically accurate locations.

A comparison of the proposed plant list with the historic planting plans and plant lists illustrates how the historic documentation was used. Seventeen species of canopy trees were recommended in the proposed plant list. The majority were Common Horse Chestnuts (*Aesculus hippocastanum*) and Red Oaks (*Quercus rubra*), which were suggested to reinstate the formal edges along Third Street and Robinson Avenue.

The remaining proposed trees are evenly distributed and although not commonly used today, are available. They include American Yellowwood (*Cladrastis lutea*), Northern Catalpa (*Catalpa speciosa*), Panicled Goldenrain Tree (*Koelreuteria paniculata*), and English Oak (*Quercus robur*). Trees such as these were commonly used in

Fig. 12: Same view, post-rehabilitation of Meadowcourt Arch, Prospect Park, Brooklyn NY, 1990.

Charles Birnbaum
many turn-of-the-century park landscapes, and are critical elements of the landscape composition. These species may not be available from a local supplier, but they have become more readily available from specialized growers, and even from large nurseries, because of an increase in demand.

For trees that are rare and still exist in the landscape today, genetic stock regeneration was used as an ultimate means of replacement. The National Arboretum, Washington D.C. or the Arnold Arboretum in Jamaica Plains, Massachusetts can be consulted for recommended propagation methodologies.19

An approach similar to that taken with the tree plantings is encouraged for the rehabilitation of the understory plant materials at Polly Pond. Today there is virtually no extant understory as lush as the “plantation” plantings depicted in the historic documentation of the park. The “plantation” plantings surrounded the park’s perimeter and wove along the edge of Polly Pond. By today’s standards the plantings are too dense and too tall, with mature shrub heights reaching twelve to fifteen feet. Therefore new plant masses, based on the original collections, had to be developed.

Three shrub groups were assembled and categorized by size: small (under three feet), medium (under six feet) and large (over six feet). Trees that were historically integral with plant groupings were included.

New plants proposed for the understory are extensive and include over three thousand plants. The loss over time of the understory, a contributing feature to the landscape, is the greatest departure from the historic design and is key to the rehabilitation of the landscape character. A vigorous understory is critical to the landscape, because it provides fiscal, aesthetic, scenic and ecological benefits.

**Location and Installation of Plant Materials**

Unlike the Meadowport Arch project which was completed with capital funds, the work at Polly Pond is being carried out in several phases. Spearheaded by the Downing Park Planning Committee, the Polly Pond proposals are dependent on volunteer efforts and project funding. To date, through organized events such as the Arbor Day festival, where local arborists volunteer for the day, the park has begun to rehabilitate its landscape composition.

**CONCLUSION**

A rehabilitated park landscape or landscape feature requires ongoing management and maintenance. Many capital projects, executed in the early to mid-1980s, have become the victims of reduced maintenance staffing in the early 1990s, and may not stand the test of time. Today, in Central Park for example, all new capital projects have an integral ongoing maintenance component that is part of the project endowment.20 In other cases, the ongoing project maintenance can be achieved at the volunteer level. In both examples there is a sense of stewardship for the landscape, thus insuring its health and appearance.

The rehabilitation of a park’s plant materials and the reinstatement of its landscape composition require a research-driven foundation balanced with a careful understanding of contemporary design, ecology, use, and maintenance objectives. With sympathetic design, construction and proper management, the aesthetic, scenic, ecological, and interpretive benefits can be long-term and significant.
FOOTNOTES


2. The *Guidelines for the Treatment of Historic Landscapes* is available from the National Park Service Preservation Assistance Division (424), P.O. Box 37127, Washington D.C. 20013-7127.


4. See City of Hartford, *Hartford Parks Master Plan*, prepared by LANDSCAPES, Westport, CT. Patricia M. O'Donnell and Charles A. Birnbaum, Contract #1156, March 1992. The original plan for South Green was by Jacob Weidenmann. The Olmsted, Olmsted & Eliot plan clearly illustrates the proposed changes that were executed. This included landscape features such as the planting of a new Charter Memorial Oak.

5. Annual reports can be found at the Central Park Arsenal or the Municipal Archives in New York City or the City of Hartford Collection, Hartford Public Library, Hartford, CT.

6. For a list of resources for historic landscape research see *Historic Landscape Directory*, pages 75084. NPS Preservation Assistance Division, 1991.

7. This park engraving and others appeared in *Scribner's Magazine*, Vol. XII No. 1, July 1892. The article titled, “The Evolution of A City Square” by Samuel Parsons, Jr., included many designs by Calvert Vaux and Samuel Parsons.


10. Riverside Park tree replacement policies were discussed in an informal meeting between Susan Angevin and Charles Birnbaum, Fall 1990.

11. The contract between Monroe County Parks, Rochester, New York and EDR, Landscape Architects, Syracuse and LANDSCAPES, Historic Landscape Consultants, Westport, CT was completed in 1991.

12. The 9.2-mile Lake Washington Boulevard was a key feature in a fifty-mile system of parks, boulevards and playgrounds proposed by the Olmsted Brothers in 1903-08. Walmsley & Company were the historic landscape consultants to EDAW, Seattle, on this rehabilitation project.

13. The historic landscape reports for the lake and perimeter districts of Prospect Park were prepared by Walmsley & Company with David Schuyler, historian. Dr. Schuyler discovered these lists during his research in the 1980s.


15. According to Rex Wasserman, Prospect Park Landscape Architect, this is the only known detailed planting plan from this decade early in the park's evolution.

16. Finding plants from the historic lists that exist today and would survive with minimal maintenance was not as difficult as finding plants that were available through commercial growers. Fortunately since this planting plan was executed in the late 1980s, there are many more nurseries that are providing historic plant materials.

17. This drawing with color-pencil annotations was discovered by O'Donnell and Birnbaum during a 1991 visit to the Newburgh Historical Society.

18. See the publication, *Vegetation Guidelines: Management and Renewal* for a related discussion. 1990, Downing Park Planning Committee, LANDSCAPES.


Founded in 1980, the National Association for Olmsted Parks (NAOP) is a national network of volunteers and professionals, working to promote and protect the Olmsted legacy. NAOP is a non-profit membership organization.

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