

# George Barrell Emerson and the Establishment of the Arnold Arboretum

*Ida Hay*

**“When shall we be able to point to a complete, or even a respectable, American collection of our indigenous trees and shrubs?” Perhaps more than any other individual, George Barrell Emerson was responsible for filling this need in nineteenth-century New England.**

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The Arnold Arboretum was officially established in March 1872, when an indenture was signed by which trustees of a bequest of James Arnold agreed to turn the fund over to Harvard College, provided the college would use it to develop an arboretum on land bequeathed earlier by Benjamin Bussey. Mastermind of this scheme was George Barrell Emerson (1797–1881), one of the trustees of the Arnold bequest. A schoolmaster and educational reformer, he widely promoted the study of natural history and pursued an interest in trees to the extent of publishing a scholarly work on them that remains valuable today.

Raised in Wells, Maine, when that state was still part of Massachusetts, Emerson spent much of his boyhood roaming the fields, woods, and seaside and working on the family's farm. After a few years of preparation at Dummer Academy in Byfield, New Hampshire, the young Emerson entered Harvard College in 1813, concentrating in mathematics and Greek.

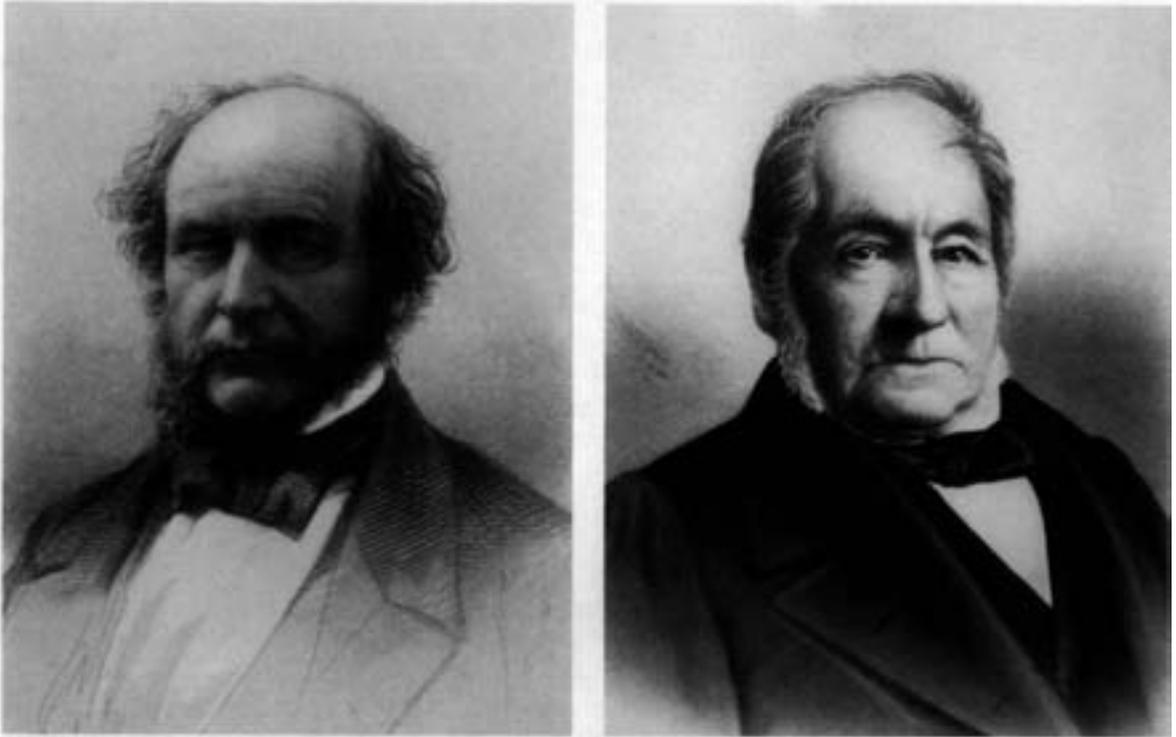
Apparently the first thing Emerson did after getting settled at college was to visit Harvard's botanic garden, hoping to learn from Professor William Peck the names of some plants he had found in Wells that he could not identify. His father, a Harvard-educated physician, had taught him the Linnaean system of classifica-

tion, and as a boy George had learned as many of the trees and plants around Wells as he could. He was pleased that Peck recognized them instantly from his descriptions.

It was an exciting time at Harvard, its Augustan age of literary achievement. Under the administration of John Thornton Kirkland, the college adopted progressive methods of education; students were being urged to think rather than recite facts by rote. Upon graduating, Emerson began a career in education himself. First as master of a private boys' school recently established in Lancaster, Massachusetts, then as the first headmaster for Boston's new English Classical School (later called English High School), he developed many of his own ideas on the best methods of education. In 1823 he opened an institution for young women in Boston.

Emerson lectured widely and published on such topics as the education of girls and women, moral education, health, home economics, and sanitation. When the Boston Society of Natural History was founded in 1830, Emerson helped to organize it. He was a very active member, holding several offices, curating one of the collections, and regularly attending meetings.

In 1832, at the beginning of Emerson's second decade as master of his school, his wife



*George Barrell Emerson (1797–1881), a leader of movements to improve natural-history education at all levels, influenced his brother-in-law James Arnold (1781–1868) to leave the bequest that was used to start the Arnold Arboretum (From, respectively, R. C. Waterston, Memoir of George Barrell Emerson, LL.D., 1884, and the Archives of the Arnold Arboretum).*

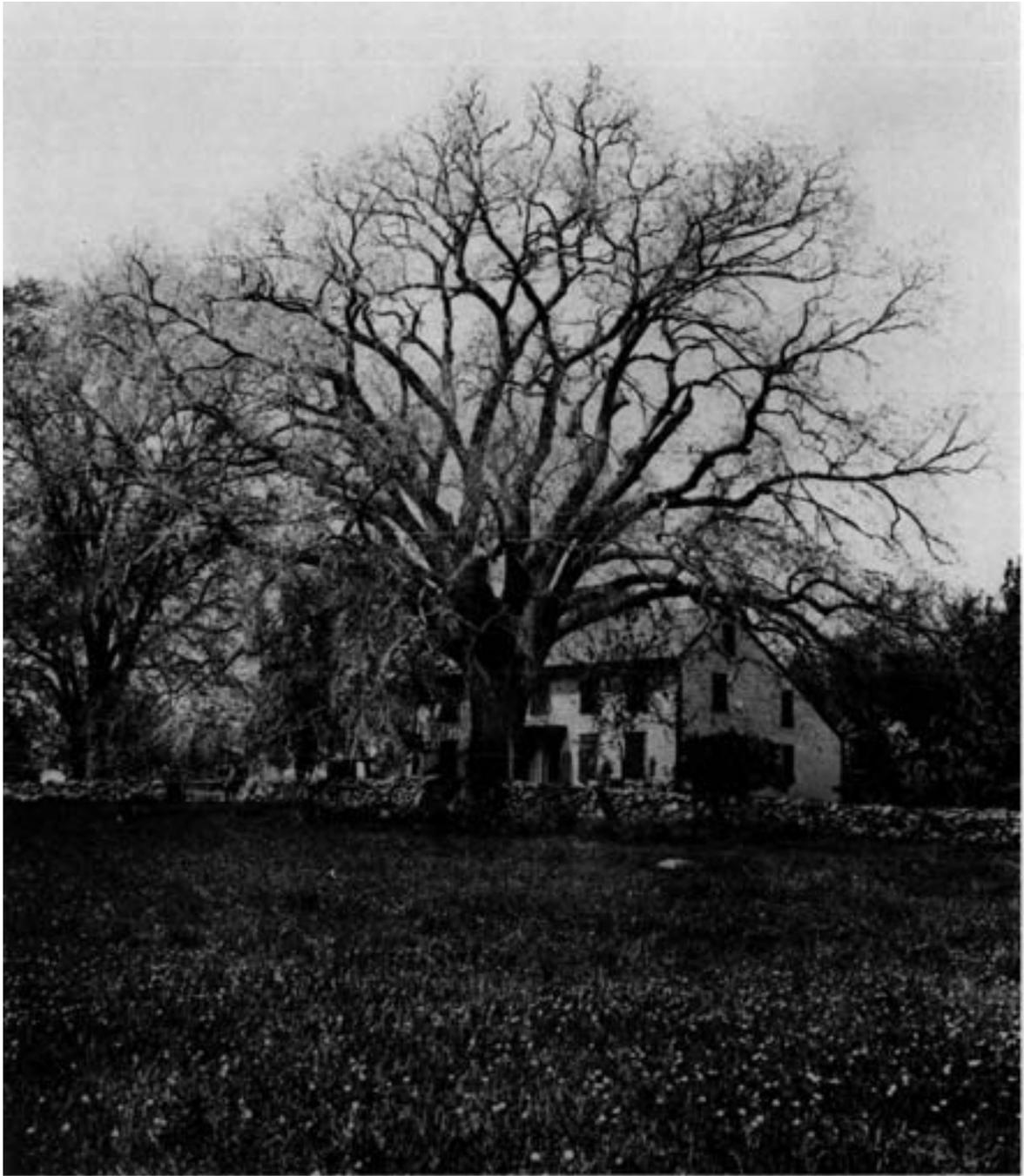
and assistant in the school became ill and died. George was left with three children, aged seven, five, and three, whose healthy and proper upbringing was a source of concern to him. After two and a half years, in late November 1834, he remarried. Emerson's second wife, Mary Rotch Fleming, was a widowed sister of Sarah Arnold, wife of James. With his second marriage, George commenced a close friendship with the Rotch family, including James and Sarah Rotch Arnold. During visits to New Bedford, George and Sarah found they shared an interest in shell collecting, and James led them to neighboring geological sites.

### **Report on Trees and Shrubs**

By 1836 Emerson had been chosen president of the Boston Society of Natural History. The following year, inspired by a recent state-funded

geological survey, BSNH members proposed to undertake botanical and zoological surveys for the Massachusetts legislature. Emerson not only acted as commissioner for the surveys but conducted the investigation of trees and shrubs himself. He worked on the project for nine summers, whenever school was not in session.

One of the goals of the surveys was to collect information on the economic importance of each subject. To find out more about how Massachusetts' trees were used and how forests or woodlots were managed, Emerson sent a circular with twenty questions to some fifty landowners in the state, and their responses provided valuable information. On his own fact-finding excursions, Emerson visited shipyards in Boston, New Bedford, and other towns, as well as numerous sawmills, machine



*George B. Emerson traveled throughout Massachusetts to observe its trees, and he noted particularly large individuals of each species. In Hingham, he admired this old American elm at Rocky Nook. Emerson reported its dimensions as thirteen feet in circumference and sixty or seventy feet in height, with a crown more than ninety feet in breadth (From L. N. Dane and H. Brooks, Typical Elms and Other Trees of Massachusetts, 1890).*

shops, and workshops for making furniture, agricultural implements, and other articles using wood.

Issued in late 1846, Emerson's *Report on the Trees and Shrubs Growing Naturally in the Forests of Massachusetts* turned out to be the most popular of the volumes published in the survey. His ability to present accurate scientific information with lucidity and contagious enthusiasm was universally praised. "It is a work that every intelligent farmer, educated at a New England School, may read and understand fully—and which is at the same time as truly (not pedantically) learned, as if it had been prepared for the Academy of Sciences," reported Andrew Downing's *Horticulturist* (Anonymous, 1847, p. 566).

The main portion of the work consisted of descriptions that, drawn as they were from firsthand observation, had a freshness and vitality that took the reader out into the woods with the observant schoolmaster. The plants were arranged according to a natural system of classification based on Lindley's interpretation of the works of the Candolles. The discussions accompanying the treatment of each species incorporated such facts as the tree's usual habitat, the uses that might be made of its wood or bark, its qualities as fuel, the size it usually attained, and the locations of particularly large examples.

The introduction presented an instructive overview of Massachusetts forests. Emerson summarized the report's chief objective:

A few generations ago, an almost unbroken forest covered the continent. The smoke from the Indian's wigwam rose only at distant intervals; and to one looking from Wachusett or Mount Washington, the small patches laid open for the cultivation of maize interrupted not perceptibly the dark green of the woods. Now, those old woods are everywhere falling. The axe has made, and is making, wanton and terrible havoc. The cunning foresight of the Yankee seems to desert him when he takes the axe in hand. The new settler clears in a year more acres than he can cultivate in ten, and destroys at a single burning many a winter's fuel, which would better be kept in reserve for his grand-

children. This profuse waste is checked, but it has not entirely ceased. It is, however, giving way to better views. Even since this survey was begun, a wiser economy shows itself. May it be universal. A brief consideration of the general use of forests on a great scale may have a tendency to produce this effect (G. B. Emerson, 1846, p. 2).

What followed was an enumeration of the benefits forests provide for man: improving and holding soil, moderating the climate, providing material for fuel and uncountable necessary objects. Emerson also discussed the nonmaterial, the aesthetic and spiritual, merits of forests and trees.

A single tree by a farmer's house protects it, and gives it a desirable air of seclusion and rest; as if it must be a residence of peace and contentment. . . . while an unprotected, solitary house seems to shiver in the north wind, and we involuntarily wish for the inhabitants a more cheerful home (G. B. Emerson, 1846, p. 9).

Massachusetts trees, he argued, could be used not just to supply timber, but, thoughtfully planted, they could beautify many a human environment—dooryards, pastures, roadsides, estates, and public grounds.

In a section entitled "Continuation and Improvement of the Forests," Emerson argued for conservation, management, and restoration of forest resources. Such ideas were just beginning to be discussed in America. There were no governmental authorities to regulate forest use nor any forestry schools, and conservation organizations did not yet exist. Emerson summarized the experience of many landowners who answered his circular on such topics as how to plant timber trees, when to thin and prune them, how many years each species required to reach suitable size for harvest, and the methods and timing of felling. On these topics, Emerson realized that his report was merely a starting point. Much more scientific study was needed, as well as further development of the fine art of "the best disposition of trees in the landscape." Emerson was sure that Americans should start to conserve forests and plant trees. Educating them to appreciate trees



*A forest of ashes (Fraxinus americana) in Maine as pictured in Emerson's Trees and Shrubs of Massachusetts. He wrote, "The ash has been called the painter's tree. It is, at least while young, remarkable for its gracefulness, for the light and easy sweep of its branches, and for the softness and mellow green of its foliage. It produces a fine effect in contrast with the darker woods, and should, on that account, always have a place where it is the object to exhibit the various beauty of the forest trees" (From Trees and Shrubs of Massachusetts, Fourth Edition).*

was a step in the right direction; founding an institution with this role would be another step that Emerson would take.

### **Natural History and Landscape Gardening**

Emerson's research into Massachusetts trees widened his contacts and fostered his reputation as a serious scholar. He was offered the Fisher Professorship in Natural History in 1838, but declined to take it. A few years later he supported the appointment of Asa Gray to the post. The two naturalists began a cordial

relationship as soon as Gray was established at the botanic garden. Emerson sought the new professor's counsel for his report and found Gray especially helpful when composing the key to identification included in the book. The two men together measured some of the state's noteworthy trees.

When Asa Gray donated his herbarium to Harvard, Emerson was instrumental in raising the fund to endow it. After its transfer to the college, Emerson served on the visiting committee for the herbarium, and Gray turned to

him when funds were needed to advance its work. This behind-the-scenes activity is typical of Emerson's ever present support of botanical research and of his interest in education.

Emerson cherished his summers working in the countryside among the trees, and he was impressed by the estates he had seen in the course of his research. In 1847 he purchased thirty acres of land on the northeastern side of Chelsea harbor, on a promontory that stretched into Boston Bay. Although the barren site had poor, sandy soil, he was determined to clothe it with trees and anticipated his family's future pleasure in watching them grow.

Emerson was one of the first clients of the newly established landscape-gardening partnership of Robert Morris Copeland and Horace William Shaler Cleveland. Cleveland, Emerson's friend and former student, credited *Trees and Shrubs of Massachusetts* with influencing his own endeavors, and the two of them shared an experimental frame of mind with regard to tree planting. On Emerson's excessively poor and exposed land they set out many European varieties of oak, beech, birch, linden, maple, elm, ash, mountain ash, and pine to find out whether they were more hardy than the corresponding American trees. Twenty years later, in the second edition of his report, Emerson stated that the European species he planted had performed better than their native American counterparts at his seaside property. George Emerson's relationship with Cleveland undoubtedly made the schoolmaster more aware of the goals of the emerging landscape profession. Certainly he kept abreast of activities such as the founding of Mount Auburn Cemetery and became a corresponding member of the Massachusetts Horticultural Society.

### **Arboretum Concept Refined**

Emerson's conception of a public tree collection grew from many sources. As early as 1844, in an essay on the longevity of trees, Gray condemned the lack of a good living collection of

trees and shrubs in America. After a discussion of the contribution of the French botanists André Michaux and his son, François André, he stated:

To these two persons, chiefly, are the French plantations indebted for their surpassingly rich collections of American trees and shrubs; which long since gave rise to the remark, as true at this day as it was twenty years ago, that an American must visit France to see the productions of his native forests. When shall it be said that this statement is no longer true? When shall we be able to point to a complete, or even a respectable, American collection of our indigenous trees and shrubs (Gray, in C. S. Sargent, 1889, vol. 2, p. 74)?

More than once Gray suggested to Harvard's administration that its botanic garden be supplemented by a collection of woody plants.

From discussions in the horticultural literature and reports of recently established arboreta in England, as well as from unexecuted American proposals, the concept of an arboretum as combining a beautiful space with a scientific function was beginning to emerge. Just as the naturalistic style of landscape design was introduced from Britain, so too was the formula for an all-inclusive garden of hardy trees and shrubs after which the Arnold Arboretum would be patterned. Most active in this field was John Claudius Loudon, who may have been the first person to use the word *arboretum* in modern times. His dual facility with botany and horticulture allowed him to develop the notion that an arboretum could serve both educational and aesthetic purposes.

In the creation of an arboretum for Derby, England, and in all his publications mentioning the arboretum idea, Loudon continually emphasized five elements that define this type of garden: it is a tree and shrub collection; it includes only plants hardy in the outdoor climate where the garden is located; of these, it is to be all inclusive, with at least "one of every kind" being grown; the plants must be arranged in some rational order, preferably according to a natural system of classification;

and the plants must be labeled. He further stressed that the educational tree collection should be accommodated in a pleasing landscape, often suggesting that the best way to achieve this would be to arrange the collections along one main path that forms a circuit, so that arrangement could be viewed in order by the visitor.

### Unexecuted American Arboreta

Americans were apprised of English arboretum activities through reports in the horticultural literature, and the ideas were given considerable discussion in American publications. Before the creation of the Arnold Arboretum there were a few proposals for such gardens in America—most notably, Andrew Jackson Downing's 1841 plan for the Boston Public Garden and Vaux and Olmsted's 1858 *Greenward* plan for Central Park—but they went unexecuted. Included in these plans were many of the suggestions put forth by Loudon.

For Central Park Vaux and Olmsted planned to include native American trees and shrubs in an arrangement that harked back to Loudon's many proposals:

The northeast section of the upper park is shown as an arboretum of American trees, so that everyone who wishes to do so may become acquainted with the trees and shrubs that will flourish in the open air in the northern and middle sections of our country. . . . The principal walk is intended to be so laid out, that while the trees and shrubs bordering it succeed one another in the natural order of families, each will be brought, as far as possible, into a position corresponding to its natural habits, and in which its distinguishing characteristics will be favorably exhibited (Olmsted and Kimball, 1973, pp. 230, 335).

Right down to the order of tree families, the full description of the proposed arboretum is prophetic of the Arnold Arboretum, with which Olmsted would be involved nearly twenty-five years later.

In the interim, there was another arboretum proposed for an urban park system by Emerson's lifelong friend, Horace W. S. Cleve-

land. In 1869 Olmsted engaged him to do some work for Prospect Park in Brooklyn. The following year Cleveland moved to Chicago, where he was placed in charge of South Park and the approach boulevards under development by Olmsted and Vaux. There Cleveland proposed that a fourteen-mile-long parkway connecting the city's three parks be treated as an arboretum on a grand scale. He thought that the usual enhancement of natural topography with plantations would not work in Chicago because the land was so flat and featureless. Instead, he suggested,

Let the avenue form in its whole extent, an arboretum, comprising every variety of tree and shrub which will thrive in this climate, each family occupying a distinct section, of greater or lesser extent, according to its importance (Cleveland, 1869, p.17).

He proposed using masses of each kind of tree in botanical sequence along the boulevard rather than individual specimens, stressing the artistic as well as the educational effect of such an arrangement. Unfortunately Chicago's political and economic situation, the latter exacerbated by the great fire of 1871, prevented Cleveland's vision from being realized.

### Emerson Masterminds the Indenture

In 1855, George Barrell Emerson turned his school over to a nephew but continued to tutor and counsel former students and stayed active in educational affairs. He began to spend more time on philanthropic activity, serving, for example, on a commission responsible for recruiting teachers for schools for freedmen in the South during the Civil War. Many affairs—the need for better natural history education, concern over man's impact on native forests, the importance of trees and naturalistic landscaping in improving public grounds, and the proposals for arboreta—were on Emerson's mind during the 1860s.

At this time James Arnold, too, was thinking of philanthropy as he revised his will after the deaths of his wife and only child in 1860. In this matter, he turned to Francis E. Parker,



*Seat of Benjamin Bussey, Esq., at Jamaica Plain* Oil on canvas by William A. Cobb, 1839. This landscape includes the areas of the Arnold Arboretum that have come to be known as Bussey Hill, Hemlock Hill, and the South Street Tract. South Street is plainly visible, and it is easy to see where Saw Mill Brook—now Bussey Brook—crosses it. The Bussey mansion, apparently surrounded by Lombardy poplars (*Populus nigra* 'Italica'), appears in the middle ground. Bussey had begun buying up farmsteads in 1805 and continued to do so over the next thirty years. Some of the hedgerows that delineated the separate parcels appear in the painting. On the south slope of the hill, a lilac hedge, still extant today, formed one of these bounds. This view of the Arboretum from Walk Hill, near the Forest Hills Station, remains virtually unchanged today (Archives of the Arnold Arboretum).

who was one of Boston's finest trust lawyers, skilled in helping others turn their good ideas into permanently funded institutions. It was through Parker's influence that, although Arnold was convinced that an arboretum was a much needed resource, he left his will sufficiently indefinite to allow his trustees flexibility to act. Arnold named another family friend, John James Dixwell, as the third trustee of what became the arboretum bequest. Dixwell was a prosperous merchant and president of

the Massachusetts Bank. He and Emerson had long been united in their support of the Boston Society of Natural History. On his Jamaica Plain estate, on Moss Hill, Dixwell grew as many kinds of trees as he could obtain, and it was this fondness for trees that formed a bond between him and the Arnold family as well.

James Arnold died in 1868. More than three years passed from the time Arnold's will was approved by the court until the trustees, Emerson, Dixwell, and Parker, signed an in-

denture with Harvard establishing the Arnold Arboretum. With an arboretum in mind, the trustees had spent the time weighing how best to carry out their duty. To turn the Arnold fund over to Harvard College, the oldest and most prestigious center of learning in New England, would be a sure way to provide for the continuance of the trust. Both Emerson and Parker were graduates, and all three had close social and professional connections with the college.

Some time was spent considering the best place to locate the hoped-for arboretum. Since the trustees knew of Asa Gray's opinion that a tree collection was needed to complement the herbaceous plantings of the Harvard Botanic Garden, they pondered two sites suggested by the professor of botany. While one, the grounds around the astronomical observatory, had the advantage of proximity to the botanic garden, its size was limited. Gray also urged the use of "Brighton Meadows," a flat parcel along the Boston side of the Charles River that Henry W. Longfellow was planning to purchase and present to the college. George Emerson and the poet discussed this possibility, but another tract showed much greater promise than the Charles floodplain, the undulating, partially wooded land in what was then West Roxbury, bequeathed to Harvard by Benjamin Bussey.

Bussey had left his farm and funds to the college stipulating they be used to start an institution for the study of agriculture, horticulture, and related subjects. After his death in 1842 the property was subject to the life tenancies of Bussey's heirs. At the time Arnold trustees were contemplating the disposition of the fund left in their care, Harvard established the Bussey Institution, having gained the approval of Bussey's granddaughter to utilize seven acres of the West Roxbury estate. Harvard's new president, Charles Eliot, consulted with Emerson on the education programs for the agricultural center in 1869, and after completion of the building for instruction in 1871 the Bussey Institution officially opened to students. George B. Emerson wisely

surmised that using land already in possession of the college would leave the entire Arnold fund available for development of the arboretum. Apparently, the parties involved agreed such use of the land would be compatible with Bussey's wishes, clearing the way for a final pact to establish the arboretum on part of the Bussey property in West Roxbury. In the indenture, signed 29 March 1872, Emerson, Dixwell, and Parker agreed to turn the Arnold fund over to the president and fellows of Harvard College, provided the college allow some 120 acres of its Bussey estate and the income of the fund to be used for:

the establishment and support of an Arboretum, to be called the Arnold Arboretum, which shall contain, as far as is practicable, all the trees, shrubs, and herbaceous plants, either indigenous or exotic, which can be raised in the open air at the said West Roxbury, all which shall be raised or collected as fast as is practicable, and each specimen thereof shall be distinctly labelled, and [for] the support of a professor, to be called the Arnold Professor, who shall have the care and management of the said Arboretum, subject to the same control by the said President and Fellows to which the professors in the Bussey Institution are now subject, and who shall teach the knowledge of trees in the University which is in the charge of the said President and Fellows, and shall give such other instruction therein as may be naturally, directly, and usefully connected therewith. And as the entire fund, increased by the accumulations above named, under the best management and with the greatest economy, is barely sufficient to accomplish the proposed object, it is expressly provided that it shall not be diminished by supplementing any other object, however meritorious or kindred in its nature.

With the site and an endowment secure, establishment of the Arnold Arboretum achieved many of Emerson's and his colleagues' objectives. Here would be a living collection to augment the "cabinet" of the Boston Society of Natural History. With one of every kind of tree and shrub, each labeled and

available for study, and arranged after Loudon's models, it would be Emerson's report come alive, a living inventory of the region's arboreal resources.

Emerson kept in touch with the Arboretum during the ensuing decade. He and director Charles Sargent shared an interest in the writings of Vermont conservationist George Perkins Marsh, and Emerson urged Sargent to educate the public on the potential effects of forest destruction. One of the first efforts in this direction was publication of *A Few Suggestions on Tree Planting* (1875) in which Sargent argued for planting trees and for halting the uncontrolled clearing of forests. George B. Emerson was so pleased with the pamphlet that he wrote Sargent, "If the Arboretum had never produced or would never produce anything else, I shall be richly paid for all I have done for it" (Arnold Arboretum Archives, G. B. Emerson correspondence, 9 March 1876). Emerson was also instrumental in Sargent's appointment as investigator on forest trees for the Department of the Interior's Tenth Census. In March 1881, when Sargent and Olmsted were at the height of their campaign to convince city officials to bring the Arboretum into the Boston park system, Emerson died at the Brookline home of his daughter, Lucy Lowell. In memorial tributes written upon his death, Emerson was remembered fondly for his inspirational leadership in the field of education and for his activities promoting the study of natural history, not the least of which was his influence on the founding of the Arnold Arboretum.

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Now an Arnold Arboretum Associate living in Northampton, MA, Ida Hay was on the staff of the Arnold Arboretum for over twenty years. This article is excerpted from her book, *Science in the Pleasure Ground*, which will be published in December by Northeastern University Press.