

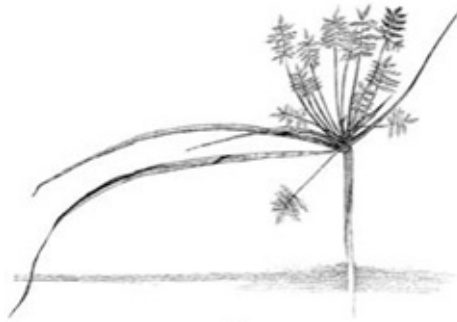


As the ice melts in the swamps I see the horn-shaped buds of the skunk cabbage, green with a bluish bloom, standing uninjured, ready to feel the influence of the sun. The most prepared for spring—to look at—of any plant.

thoreau's wildflowers

HENRY DAVID THOREAU

Illustrated by Barry Moser
Edited by Geoff Wisner



Yale

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Professor Joel Porte, *who started me on the path*



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Preface

FOR MANY YEARS, Thoreau's self-appointed task was to roam the woodlands, meadows, and marshes of his native Concord—observing plants, animals, the weather, and his neighbors, then recording his observations in his Journal.

Beginning in 1850, the year Thoreau turned thirty-three, his botanical observations became more systematic. He began carrying plants home in his straw hat and pressing them for later study. He dated his Journal entries more consistently, noting when certain plants flowered and referring to them by their Latin names. He read his way through all the available botanical authorities and made it his goal to learn botanical taxonomy and to know every plant that grew in Concord, even the inconspicuous grasses and sedges that professional botanists often overlooked.

As his botanical expertise grew, so did his artistic sensibilities. By 1850, his two-year sojourn at Walden Pond was behind him, and he was engaged in the task of shaping his experience into a classic work of American mythology, a task that required seven distinct manuscript revisions and was not completed until 1854, when *Walden; or, Life in the Woods* was published. Thoreau's concern with the flowering plants of Concord, which lasted the decade or so that was left to him, was aesthetic, philosophical, and spiritual as much as it was scientific.

Thoreau's Wildflowers offers a generous selection of some of Thoreau's most evocative writings on the hundreds of flowering trees and plants that he knew, loved, and closely observed. It includes only a fraction of the record he left in his Journal. Each observation is arranged by the day of the year and presented in the context of the day's weather, the presence of other plants and animals, and Thoreau's own mood and philosophical speculations.

The result is a panorama of the natural world that surrounded Thoreau, as it changed over the course of a year. More than an account of the natural history of Concord, this record is also an investigation of the spiritual significance of wildflowers for Thoreau, especially as they illustrate a central theme of his spiritual life: that of anticipation. The early buds Thoreau discovered in the winter were an implicit promise that spring and life would return. By attuning himself to the life around him, Thoreau found that he was able to anticipate not only the change of the seasons but the habits of the particular plants he sought.

In his consideration of wildflowers, Thoreau gave equal attention to the delicate blooms of herbaceous plants, trees, and grasses, including “ghostly” parasitic bloomers like Indian pipe and pinesap. He also recognized and responded to the flowerlike appearance of autumnal foliage, like the canopies of maples and scarlet oaks. For the purposes of this book, I have included passages that highlight both flowers and these flowerlike phenomena, with an emphasis on wild plants and on naturalized plants that, as Thoreau put it, have “strayed into the woods from the cultivated stock”—including his beloved wild apples. Keeping my focus on the flora of Concord as it changes through the year, I have omitted plants that Thoreau observed on his excursions to Cape Cod, Maine, New Hampshire, Vermont, and beyond.

The more than two hundred black-and-white drawings that appear in this book were created by the renowned artist and illustrator Barry Moser. They first appeared as illustrations in *Flowering Plants of Massachusetts* by Vernon Ahmadjian, published by the University of Massachusetts Press in 1979. This was the first of dozens of books that Moser has illustrated in a long and honored career. These include *The Pennyroyal Caxton Bible*, the Arion Press edition of *Moby-Dick*, and the biographies *Emerson: A Mind on Fire* and *Thoreau: A Life of the Mind* by Robert D. Richardson. By allowing his

work to be reprinted here, Moser has made possible an unprecedented pairing of botanical expertise with literary and artistic excellence.

Thoreau's Wildflowers will provide pleasure and insights to naturalists, gardeners, lovers of beauty, aspiring scientists, students of American literature, and Thoreau enthusiasts. Together with Thoreau's inspired yet detailed botanical observations and Barry Moser's illustrations, it offers an intimate portrait of "Thoreau as Botanist" by Ray Angelo, who is widely recognized as the leading authority on the flowering plants of Concord and on Thoreau's botanical record.

Acknowledgments

FOR THEIR HELP in the preparation of this book, I thank Gary Paul Nabhan, Marco Wilkinson, Stephen Stinehour, Kathy Crosby of the Brooklyn Botanic Garden library, and Jeffrey S. Cramer and Matthew Burne of the Thoreau Institute at Walden Woods. It has been a pleasure to work with the staff of Yale University Press, especially Jean Thomson Black, Samantha Ostrowski, and Laura Dooley.

Special thanks to Ray Angelo for allowing me to reprint his classic essay “Thoreau as Botanist” and to Barry Moser for agreeing to pair the words of Thoreau with his drawings of the flowering plants of Massachusetts. I am grateful to Cherrie Corey for an expert firsthand introduction to the plants of Great Meadows, for her helpful suggestions as the book was developing, and for her careful botanical review.

I thank Mike Frederick of the Thoreau Society for allowing me to present a preview of *Thoreau's Wildflowers* at the society's annual gathering in Concord. I am grateful for the warm welcome and offers of assistance I received from my copanelists Jym St. Pierre and Michiko Ono, and from presenters and attendees, including Mark Gallagher, Richard Higgins, Joe Moldenhauer, Nikita Pokrovsky, Audrey Raden, and Corinne Smith.

As always, many thanks to Jenn for her love and patience.

Introduction

AFTER GRADUATING FROM Harvard College in 1837, Henry David Thoreau returned to the village of Concord, where he taught school with his older brother, John. At least once a week the Thoreau brothers took the students out for a walk or a boating excursion.

On one of these walks, wrote F. B. Sanborn in his 1917 biography, Thoreau stopped, knelt down, plucked something from the ground, and asked a boy named Henry Warren if he could see it. “Drawing his microscope, Thoreau showed the boy that, thus magnified, this little thing was a perfect flower, just then in the season of its blossoming.”

Thoreau’s education in flowers began early, with childhood lessons in botany at Concord Academy and continued (somewhat casually) at Harvard. “My first botany as I remember,” Thoreau noted years later, “was Bigelow’s plants of Boston and vicinity which I began to use about twenty years ago—looking chiefly for the popular names and the short references to the localities of plants even without any regard to the plant. I also learned the names of many—but without using any system, I forgot them soon. I was not inclined to pluck flowers—preferred to leave them where they were, liked them best there.”

Thoreau’s love of flowers was noticed by those around him. Louisa May Alcott, a child when Thoreau was living at Walden Pond (1845 to 1847), wrote about that time years later: “On certain days, he made long pilgrimages to find ‘the sweet rhodora in the wood,’ welcoming the lonely flower like a long-absent friend.”

In the introduction to *Mosses from an Old Manse*, published in 1846, Nathaniel Hawthorne wrote about his friend and sometime skating companion: “The pond lily grows abundantly along the margin—that delicious flower, which, as Thoreau tells me, opens its virgin bosom to the first sunlight and perfects its being through the magic of that genial kiss. He has beheld beds of them unfolding in due succession as the sunrise stole gradually from flower to flower—a sight not to be hoped for unless when a poet adjusts his inward eye to a proper focus with the outward organ.”

Around 1850, Thoreau’s study of Concord’s flora intensified. “I found myself again attending to plants with more method—looking out the name of each one and remembering it. I began to bring them home in my hat, a straw one with a scaffold lining to it—which I called my botany box. I never used any other. And when some whom I visited were evidently surprised at its dilapidated look as I deposited it on their front entry table, I assured them it was not so much my hat as my botany box.” Thoreau pressed some flowers in the pages of *Primo Flauto*, an old music book of his father’s that he carried with him.

The observation of flowers was a very deliberate activity for Thoreau. Knowing when each one first sprouted, blossomed, set seed, and died was a key element in his grand project of creating a master “Kalendar” that would track each daily change in the natural world of Concord.

“I soon found myself observing when plants first blossomed and leafed, and I followed it up early and late—far and near several years in succession—running to different sides of the town and into the neighboring towns often between twenty and thirty miles in a day. I often visited a particular plant four or five miles distant half a dozen times within a fortnight, that I might know exactly when it opened—besides attending to a great many others in different directions and some of them equally distant, at the same time. At the same time I had an eye for birds and whatever else might offer.”

As early as 1851, he began compiling the first of what Bradley Dean called “many hundreds of phenological lists and charts on every conceivable seasonal phenomenon, such as the migration cycle

of birds or the leafing, flowering, fruiting, and seeding of plants.” From 1860 to 1862, he consolidated his seasonal observations of plants onto ledger sheets, part of a project left uncompleted with his death.

To follow in Thoreau’s footsteps through the year, beginning with snowmelt in March and the first buds of the skunk cabbage, is to witness a first-rate detective at work. But few had the opportunity to witness this in person. As Ray Angelo notes in “Thoreau as Botanist,” Edward Hoar, Minot Pratt, and his own sister Sophia were the only Concord residents who shared his botanical interests in any depth. None of these was a regular walking companion.

Thoreau’s most frequent companion was a good friend but no botanist, the ne’er-do-well son of a prominent Boston family named Ellery Channing. Channing appears a number of times in *Thoreau’s Wildflowers*, sometimes by name and sometimes as “C.” According to Walter Harding, “He dabbled in poetry but succeeded in writing few (if any) memorable lines. Eccentric and cranky, he quarreled with almost everyone he knew, including his wife and children and Thoreau’s mother who could not abide him. But for some unknown reason he and Thoreau hit it off well and once Channing moved to Concord in 1843, they took innumerable walks together.”

By his own account, Thoreau knew at least four hundred of the local flowers. (“I reckon that about nine tenths of the flowers of the year have now blossomed,” he wrote on July 26, 1853, and five days later, “I calculate that less than forty species of flowers known to me remain to blossom this year.”) He could identify these flowers not only from their blossoms but from their first shoots, their dry seedpods, and their fragrance.

One of the pleasures of Thoreau’s flower writing is his attention to scent: the “mild sweet vernal scent” of the willow catkins, the “rummy scent” of the wild cherry, and the pure, sweet, virginal fragrance of the water lily. He notes the barberry’s “sickening buttery odor—as of an underdone butter pudding” and the odor of the carrion flower, which “smells exactly like a dead rat in the wall.”

Some scents present mysteries that puzzle even a great detective. “Here on this causeway,” he writes on May 16, 1852, “is the sweetest fragrance I have perceived this season, blown from the newly flooded meadows. I cannot imagine what there is to produce it.” (Meadows, for Thoreau, generally meant wetlands that were flooded for part of the year.) The following year he smelled it again: “the first whiff of that ineffable fragrance from the Wheeler meadow.” But it was not until 1859 that he plucked a blossom of perfoliate bellwort and thought he had the solution: “Just after plucking it I perceived what I call the *meadow* fragrance though in the woods—but I afterward found that this flower was *peculiarly* fragrant, and its fragrance like *that*, so it was probably this which I had perceived.”

In May 1856, Ralph Waldo Emerson took a walk with Thoreau to Sawmill Brook. “He was in search of yellow violet (*pubescens*) and *menyanthes* which he waded into the water for & which he concluded, on examination, had been out five days. Having found his flowers, he drew out of his breast pocket his diary & read the names of all the plants that should bloom on this day, 20 May; whereof he keeps account as a banker when his notes fall due.” Remembering that pocket diary six years later, after his younger friend had died, Emerson wrote, “He honored certain plants with special regard, and, over all, the pond lily,—then, the gentian, and the *Mikania scandens*, and ‘life-everlasting,’ and a bass-tree which he visited every year when it bloomed, in the middle of July.”

As Emerson makes plain, Thoreau was not content to walk the same routes and simply note the flowers he saw. Instead he sought out the places where sun and landscape would bring them out first. Conantum Cliff was one of these places: a sunny rock face where columbines and saxifrage grew from the chinks in the stone. In 1857 he wrote, “It takes several years’ faithful search to learn where to look

for the earliest flowers.”

The word “faithful” is telling. Thoreau’s life among wildflowers and other plants had a spiritual importance. He once courted controversy by speculating that a pine tree might have a soul. In the passage that gave its name to the posthumous book *Faith in a Seed*, he wrote, “Though I do not believe a plant will spring up where no seed has been, I have great faith in a seed. Convince me that you have a seed there, and I am prepared to expect wonders.”

In his Journal, Thoreau often looked to flowers to reinforce his sometimes faltering belief that the seasons would continue to turn and that spring and new life would come once again. In January 1853 he pulled up a crowfoot and found deep inside it the tiny white bud of a blossom to come: “There it patiently sits or slumbers, how full of faith, informed of a spring which the world has never seen, the promise and prophecy of it shaped somewhat like some Eastern temples, in which a bud-shaped dome o’ertops the whole.”

Perhaps more than any of his other work, Thoreau’s writings on wildflowers bring out one of the key themes of his spiritual life: that of anticipation. As Thoreau wrote in *Walden*, “To anticipate, not the sunrise and the dawn merely, but, if possible, Nature herself!” In his 1958 book *Consciousness in Concord*, Perry Miller used this quotation as a touchstone, devoting a chapter to the theme of anticipation in Thoreau and finding it central to both *Walden* and the Journal.

Miller wrote, “The verb is ‘anticipate’: all *Walden* is an adroitly suspended anticipation of the climax of thawing sand and clay in the railroad cut; all the *Journal*—earnestly before the completion of *Walden*, more stridently thereafter—is a stratagem to anticipate, and so to survive, the winter. . . . you read the *Journal* consecutively you see that every winter is a retirement to prepared positions. At last there is only one stronghold: the mind can *anticipate* spring.”

Linked to the idea that faith requires anticipating the seasons to come is the notion that we find rare flowers only when we are prepared to find them—that is, when we anticipate them.

“I commonly observe,” Thoreau wrote, “that I make my most interesting botanical discoveries when I [am] in a thrilled and expectant mood, perhaps wading in some remote swamp where I have just found something novel and feel more than usually remote from the town. Or some rare plant which for some reason has occupied a strangely prominent place in my thoughts—for some time—will present itself. My expectation ripens to discovery. I am prepared for strange things.”

In November 1858, usually the bleakest month in Thoreau’s calendar, he found himself gazing out from Conantum Cliff. The blazing colors of the maples were gone, and asters and tansy were among handful of flowers still in bloom. But the leaves of the scarlet oaks, he noticed, still glowed here and there in the landscape. These trees, the last to lose their autumn colors, stood out like “redcoats in the forest army.”

The whole forest, he realized, was “a flower garden, in which these late roses burn, alternating with green, while the so-called ‘gardeners’ working here and there perchance beneath with spade and water pot, see only a few little asters amid withered leaves (for the shade that lurks amid their foliage does not report itself at this distance).”

In this autumnal season when flowers seemed to have nothing more to offer, he found himself in a world where “blossoms” towered over him. “This late forest flower surpasses all that spring or summer could do. Their colors were but rare and dainty specks—which made no impression on a distant eye. Now it is an extended forest or a mountainside that bursts into bloom through or along which we may journey from day to day.”

Thoreau saw the scarlet oaks because he was finally prepared to see them. “There is just as much beauty visible to us in the landscape as we are prepared to appreciate—not a grain more.” This vision, once he was ready for it, was extraordinarily powerful. Botanical knowledge and spiritual insight had

combined to offer him an expanded understanding of the landscape and its beauty.

~~“The scarlet oak must in a sense be in your eye when you go forth,” he wrote. “We cannot see anything—until we are possessed with the idea of it, and then we can hardly see anything else.”~~

“May my life be not destitute of its Indian summer,” Thoreau wrote in September 1851. “A season of fine and clear mild weather in which I may prolong my hunting before the winter comes. When I may once more lie on the ground with faith as in spring—and even with more serene confidence.” It was a wish that would not be granted.

Henry David Thoreau died in 1862, at the age of forty-four. His casket, placed in the vestibule of the First Parish Church in Concord, was covered with wildflowers. A wreath of andromeda was placed inside. Louisa May Alcott was among the mourners, and in a letter written afterward she wrote that early violets were blooming in the churchyard.

After Thoreau’s death, the Concord shopkeeper and photographer Alfred Hosmer took up the task of compiling a great Kalendar of Concord. Hosmer first recorded the flowering times of local plants in 1878, resumed his observations a decade later in 1888, and continued them regularly until 1902.

A century later, from 2003 to 2006, Professor Richard B. Primack and then-graduate student Abraham J. Miller-Rushing repeated these observations, visiting Concord two or three days a week between March and October. They observed the first flowering dates of more than five hundred species, then compared the dates of forty-three common species that Thoreau and Hosmer had also observed. On average, they wrote in *Arnoldia*, the magazine of Harvard’s Arnold Arboretum, the forty-three species were now blooming about a week earlier than they did in Thoreau’s lifetime—a difference they attributed to the warming effect of urbanization and global climate change. Some species were affected more dramatically than others. The highbush blueberry (*Vaccinium corymbosum*) was flowering twenty-one days earlier than it was when Thoreau looked for it. The yellow wood-sorrel (*Oxalis stricta*) blossomed thirty-two days before the time set out for it in Thoreau’s Kalendar.

At the end of his famous eulogy of Thoreau, Ralph Waldo Emerson offered the fanciful picture of his younger friend climbing steep mountains in Switzerland in search of the edelweiss flower—a notion that was metaphorically if not biographically apt. “Thoreau seemed to me living in the hope to gather this plant, which belonged to him of right. The scale on which his studies proceeded was so large as to require longevity, and we were the less prepared for his sudden disappearance. The country knows not yet, or in the least part, how great a son it has lost.” Even today, as we begin to recognize the beauty and significance of the botanical record he left behind, we are taking the measure of his greatness once again.

A Note on the Text

THE EARLIEST SELECTIONS in *Thoreau's Wildflowers* are from 1850, the first year in which Thoreau made regular dated observations of the flora of Concord, though he had little botanical experience at that point. This was also around the time he began to see the Journal as a work of art in its own right, not simply a quarry from which to mine other books and essays.

The text is drawn from the fourteen-volume 1906 edition of *The Journal of Henry D. Thoreau*, edited by Bradford Torrey and Francis H. Allen. Each selection for the period between May 31, 1850 and September 3, 1854, has been checked against the Princeton University Press edition of the Journal of which eight volumes have so far been published. Later selections have been checked against the unedited transcript of the Journal, made available online by the University of California Santa Barbara Library.

Bracketed text (mostly names of plants) has been added by Torrey and Allen or by me. Omitted text is indicated by ellipses without brackets. Penciled additions by Thoreau, rendered as footnotes in the 1906 edition, are included in parentheses. Words and phrases in italics were emphasized in the original.

The Princeton edition and unedited transcripts offer the most accurate available version of what Thoreau actually wrote, including his misspellings, sentence fragments, idiosyncratic capitalization, and haphazard punctuation. I have referred to these texts to correct misreadings, restore paragraph breaks, and change the spellings and punctuation used in the 1906 edition to something closer to Thoreau's original version.

In 1854, when *Walden* was published, and in 1906, when Thoreau's Journal appeared in full (or nearly so), authors and editors had definite ideas of what was required to make a manuscript fit for the public. Those ideas included an approach to punctuation that today seems overly fussy. In *The New Thoreau Handbook*, Michael Meyer mentions a single sentence in *Walden* that contains three hundred fifty words, forty commas, ten semicolons, and one dash. Many passages in the 1906 edition of the Journal are similarly equipped with commas, semicolons, or even a comma plus a dash. The result is leisurely, meditative, even sleepy pace.

Thoreau's natural style, as seen in the Princeton edition and transcripts of the Journal, was very different. Like Emily Dickinson in her verse, Thoreau's favorite punctuation mark was the dash, and he used it in lieu of a comma, semicolon, or paragraph break. As in Dickinson, the dash lends his words a tense, taut, flashing quality that in the nineteenth century was called "nervous." Thoreau often uses a dash to set off a sudden insight from the observation that prompted it. He is sparing with commas in the Journal, and rarely uses a semicolon. He is not at all averse to a sentence fragment. The style of his Journal is in fact startlingly modern.

Thoreau's spelling, though erratic, is also more modern and more American than Torrey and Allen made it appear. Where Thoreau wrote "today" and "tonight," Torrey and Allen made it "to-day" and "to-night." Where Thoreau wrote "cornfield" and "cardinal flower," Torrey and Allen made it "corn-field" and "cardinal-flower." They Britishized some spellings, changing "center" to "centre" and "gray" to "grey." They consolidated many short paragraphs and added many exclamation points, giving the text an effusive tone that is sometimes unwarranted. I have reversed these changes and chosen standard spellings where variants appear in the original (for example, "catnip" rather than "catnep").

In some cases I have preferred a reading in the 1906 edition to one in the Princeton edition. For

instance, for June 22, 1851, the 1906 editors have, “The tall buttercup stars the meadow on another side, ~~telling of the wealth of dairies.~~” The Princeton editors replace “dairies” with “daisies.” This might seem a more sensible reading, except that a year later, in a passage about cowslips, Thoreau speculates that the yellow blossom of the cowslip colors the butter of the dairy cows that eat it. If cowslips suggested dairies to Thoreau, it seems likely that buttercups (and perhaps butter-and-eggs) suggested them as well. Similarly, the 1906 edition for September 28, 1851, has this: “Though the moss is comparatively dry, I cannot walk without upsetting the numerous pitchers, which are now full of water, and so wetting my feet.” The Princeton edition makes this “the moist is comparatively dry,” a reading I find unlikely—not only because it makes for peculiar English but because in the previous sentence Thoreau mentions walking over coarse reddish moss.

Thoreau as Botanist

RAY ANGELO

Ray Angelo is widely considered the foremost authority on the historical flora of Concord. From 1971 to 1998 he was associated with Harvard University's Concord Field Station in Bedford, Massachusetts. From 1979 to 1984 he was assistant curator of vascular plants for the New England Botanical Club, and from 1984 to 2008 he served as curator. Since 1990 he has been an associate of the Harvard University Herbaria. Angelo is nearing the completion of his work with Dr. David Boufford on an atlas of the flora of New England (<http://neatlas.org/>), and he is a regional reviewer for the Flora of North America project.

Between 2012 and 2014, Angelo compiled his field and scholarly research on Concord's flora and published online "The Vascular Flora of Concord, Massachusetts," the most comprehensive floral history of Concord to date. His related publications include "Two Thoreau Letters at Harvard," "Thoreau's Climbing Fern Rediscovered," Concord Area Trees and Shrubs, the Botanical Index to the Journal of Henry David Thoreau, Edward S. Hoar Revealed, and In Memoriam: Richard Jefferson Eaton. Angelo's article documenting the recent status of 192 Concord plant species, "Review of Claims of Species Loss in the Flora of Concord, Massachusetts, Attributed to Climate Change," appeared in the online journal Phytoneuron 2014–84: 1–48.

"Thoreau as Botanist" first appeared in 1984, in both the Thoreau Quarterly, issue 15, and the Botanical Index to the Journal of Henry David Thoreau (Salt Lake City: Gibbs Smith). An online version of the Botanical Index is available at www.ray-a.com/ThoreauBotIdx/.

Thoreau was not the first to botanize in Concord, Massachusetts. Two brothers, Drs. Edward and Charles Jarvis, of the generation before him, collected many specimens in the town before Henry had graduated from Harvard. Thoreau certainly was not the last to botanize here. His writings have fueled an interest in the flora of Concord that extends uninterrupted over a century and a half to the present day. There is probably no other township in New England that has had such long-standing and continuous attention devoted to its plants. Adorned with rivers, lush meadows, ponds, bogs, and calcareous cliffs, the venerable settlement has rewarded botanists with a floral variety unmatched, perhaps, by any other area in New England of comparable size (1,190 species and counting).

The beginnings of Thoreau's exposure to the science of botany date back to his schooldays at the Concord Academy (1828–33), where botany was one of the disciplines taught by Phineas Allen. Also at this time he attended lectures at the Concord Lyceum, which included botany among other topics. When Thoreau attended Harvard (1833–37) botany was not offered as a course in itself, but was included under natural history taught by the noted entomologist Thaddeus W. Harris. About this time a boarder with the Thoreau family, Prudence Ward, shared with him her interest in botanical studies. Thoreau later recollected (Dec. 4, 1856, *Journal*) that during this period he began to use Jacob Bigelow's *Florula Bostoniensis, a Collection of Plants of Boston and Its Vicinity* (no doubt the second edition of 1824). Primarily he was looking for popular names of plants and references to localities. Since he used no system, the Latin names he learned at this time were soon forgotten.

Upon graduation from Harvard Thoreau did some schoolteaching in his native town. Natural history was one of the subjects he taught. He told his pupils that he knew the blossoming times of the local flowers well enough that he could determine what month it was by what was in flower. In 1842 he was asked to review for *The Dial* a series of natural history reports commissioned by the Commonwealth of Massachusetts. Included in the series was Rev. Chester Dewey's *Report on the*

Herbaceous Plants of Massachusetts. The ostensible review, entitled “Natural History of Massachusetts,” does not include a single Latin plant name, perhaps intentionally. Thoreau’s concern was that mere lists of plants (which Dewey’s work essentially was) were an inadequate expression of the state’s floral resources. At this time Thoreau’s botanical knowledge was insufficiently scientific for him to comment in detail on the technical merits of the report had he wanted to. Moreover, he had not traveled widely enough in Massachusetts to judge its completeness.

What survives of Thoreau’s *Journal* and correspondence from the 1840s shows little stirring in the direction of scientific botany. In a letter to his sister Sophia on May 22, 1843, from Staten Island he writes, “Tell Miss Ward I shall try to put my microscope to a good use, and if I find any new and pressible flower, will throw it into my common place book.” Thoreau’s first use of a Latin name for a plant appears to be in his *Journal* (vol. 2, p. 9, Princeton edition) where he refers to “*Mikania scandens*,” climbing hempweed, on September 12, 1842. This same passage in slightly modified form appears in Thoreau’s *A Week* in 1849 (p. 44, Princeton edition).

The first use by Thoreau of a scientific name for a native plant in his published work appears to occur in 1848. The name “*pinus nigra*” is found in the original version of the Ktaadn essay that appeared in the *Union Magazine of Literature and Art* of that year. This was the name for black spruce (*Picea mariana*) used in Bigelow’s manual. In a later version of the text Thoreau changed the name to that used in Asa Gray’s manual, namely “*Abies nigra*,” and also inserted an additional Latin name, “*Vaccinium vitis-idaea*.” Thoreau’s background in classical languages and his delight in etymology naturally attracted him to the Latin (and Greek) names of science.

Two events in the later 1840s played a major role in stimulating Thoreau’s interest in systematic natural history. The first was the arrival in 1846 of a “true giant” in the realm of science at the time—naturalist Louis Agassiz, who accepted an appointment at Harvard. As A. Hunter Dupree has noted: “Not only his attainments but his remarkable personality created a sensation among the local scientists.” The very next year Thoreau’s correspondence with Agassiz’s assistant, James Elliot Cabot, included frequent use of scientific nomenclature to discuss the collection of animal specimens.

The second event, which more directly crystallized Thoreau’s botanical inclinations, was the publication in 1848 of the first edition of Asa Gray’s *Manual of Botany*. The appearance of this work heralded the end of a long period during which New England botany had languished at a relatively rudimentary level. This manual for the identification of vascular plants, mosses, and liverworts of the northeastern United States was as dry as Dewey’s report and Bigelow’s manual, but it was far more comprehensive and accurate.

Two years earlier George B. Emerson’s *Report on Trees and Shrubs Growing Naturally in the Forests of Massachusetts* had appeared. This work, while much more limited in scope, devoted more attention to the occurrence and usefulness of each species than any previous manual, and its descriptions were more detailed. Both Gray’s manual and Emerson’s report made use of a natural system to arrange their species rather than the artificial system of Linnaeus adopted by Bigelow. The availability of these two volumes, which were unlike any that had come before in New England, could not help but encourage a more systematic study of plants by Thoreau.

Thoreau’s first work touching upon natural history after these events was *A Week on the Concord and Merrimack Rivers*, published in 1849. In this book Thoreau finally injects a measured dose of Latin nomenclature into his nature writing, particularly with respect to fishes. Agassiz is even mentioned. Thoreau’s application of scientific names to plants, however, is sparing—limited to eight plants, all of them relatively common and easy to distinguish.

In the 1906 edition of Thoreau’s *Journal* the first Latin name for a native plant occurs in an entry for May 1850—“*Prunus depressa*” (now *Prunus susquehanae*, sand cherry). From August 31 of this

year onward, the use of scientific plant names becomes a regular feature of the spring, summer, and autumn pages of the *Journal*. Thoreau recalled later (Dec. 4, 1856, *Journal*) that this was about the time he returned to the study of plants with more method. The year 1850 is also that to which the earliest specimens in his organized herbarium belong.

Over the next two or three years Thoreau undertook an intensive program to develop his mastery of Concord's flora. He read botanical works by François André Michaux, Edward Tuckerman, John Loudon, Asa Gray, and Carolus Linnaeus. In his *Journal* he noted comparisons of the artificial Linnaean ordering of plants with natural systems, but always with the comment that neither addressed the poetical aspects of plants. When he sought the literature rather than the science of plants he was told to his dismay, by naturalist and Harvard librarian Thaddeus W. Harris, that he had already read all there was.

His efforts in the field during these years produced complaints of too much observation:

I have the habit of attention to such excess that my senses get no rest, but suffer from constant strain. . . . When I have found myself ever looking down and confining my gaze to the flowers, I have thought it might be well to get into the habit of observing the clouds as a corrective; but no! that study would be just as bad. (Sept. 13, 1852, *Journal*)

I feel that I am dissipated by so many observations. . . . I have almost a slight, dry headache as the result of all this observing. (March 23, 1853, *Journal*)

In the winter of 1852, when there were no flowers to observe, he undertook the study of lichens.

Not surprisingly, the conflict between Thoreau the Artist and Thoreau the Naturalist began to surface: "What sort of science is that which enriches the understanding, but robs the imagination?" (Dec. 25, 1851, *Journal*); "I have become sadly scientific" (July 13, 1852, Letter to Sophia Thoreau).

It is somewhat startling to realize what Thoreau did *not* know at the start of his program in 1850—particularly with respect to woody plants. Thoreau, three years after his stay at Walden Pond, had never distinguished the first native tree to blossom in spring, silver maple (*Acer saccharinum*) (May 1852, *Journal*); was unaware that but one type of spruce, black spruce (*Picea mariana*), occurred in Concord (May 25, 1857, *Journal*); could not distinguish poison ivy (*Rhus radicans*) from poison sumac (*Rhus vernix*) (May 25, 1851, *Journal*); and did not know the common witheredod (*Viburnum cassinoides*) (Sept. 11, 1851, *Journal*). Thoreau later recalled this state of ignorance:

I remember gazing with interest at the swamps about those days and wondering if I could ever attain to such familiarity with plants that I should know the species of every twig and leaf in them, that I should be acquainted with every plant (excepting grasses and cryptogamous ones), summer and winter, that I saw. Though I knew most of the flowers, and there were not in any particular swamp more than half a dozen shrubs that I did not know, yet these made it seem like a maze to me, of a thousand strange species, and I even thought of commencing at one end and looking it faithfully and laboriously through till I knew it all. I little thought that in a year or two I should have attained to that knowledge without all that labor. (December 4, 1856, *Journal*)

During the early 1850s Thoreau's passion for recording flowering dates and leafing of woody plants dawned. He described the great lengths he went to at times to ascertain the exact date a particular flower opened—"running to different sides of the town and into neighboring towns, often between twenty and thirty miles in a day" (Dec. 4, 1856, *Journal*). Understandably, he noted: "One has as much as he can do to observe how flowers successively unfold" (June 15, 1852, *Journal*). His fascination for flowering dates never abated. It was always a victory to discover a new station for a plant with an earlier blossom time: "It will take you half a lifetime to find out where to look for the earliest flowering" (April 2, 1856, *Journal*). In his last years Thoreau organized this and other phenological data spanning a decade into elaborate monthly charts. These may represent the skeleton of a contemplated volume portraying a representative year in Concord.

As Thoreau's botanical acumen rapidly developed, he accepted the role of town botanist. It was important to him to know the location of plants rare in Concord. He made one of his most noteworthy finds while surveying in November 1851—the climbing fern (*Lygodium palmatum*), a peculiarly attractive fern that is regionally scarce. In May 1853 he discovered the showy painted-cup (*Castilleja coccinea*) and marveled “how long some very conspicuous ones [flowers] may escape the most diligent walker, if you do not chance to visit their localities the right week or fortnight.” In the same month he related in the *Journal* an amusing account of extracting the locality of the fragrant roseshell azalea (*Rhododendron roseum*) or pinxter-flower from a local hunter. He saw allegorical significance in the fact “that, when I thought I knew the flowers so well, the beautiful purple azalea or pinxter-flower should be shown me by the hunter who found it” (May 31, 1853, *Journal*). Part of his argument used to persuade the hunter, Melvin, was that “I was a botanist and ought to know.”

Thoreau's botanical interest in Concord naturally overflowed into his travels away from his native township. The accounts of his earliest significant trips—*Ktaadn and the Maine Woods* (1848), *A Week* (1849), and *An Excursion to Canada* (1853)—contain for the most part references only to common plants with relatively little use of Latin names. The same is essentially true for *Walden* (1854). A trip to Mt. Wachusett, Massachusetts in October 1854 is represented in his *Journal* primarily by a list of common names of trees and shrubs seen there. This is a forerunner of more extensive lists, primarily in Latin, prepared for later excursions. For example, plants collected on a journey to Vermont and New Hampshire in September 1856 were carefully listed in the *Journal*. Similarly, notes in the *Journal* on his July 1855 trip to Cape Cod are littered with the Latin names for those flowers peculiar to the coast. By contrast, his articles on Cape Cod that appeared in *Putnam's Magazine* that year contain only two scientific plant names.

By 1857 Thoreau had clearly progressed beyond the fledgling stage and was perhaps one of the more competent amateur botanists in Massachusetts. In this year he made one of the most detailed lists of plants recorded for one of his journeys—the Allegash trip to Maine. This occurs in the *Journal* (not published in the 1906 edition) and as an appendix to *Maine Woods* (1864). This list also notes species seen on his Chesuncook trip to Maine in September 1853.

In July 1858 Thoreau made possibly his most significant contribution to New England botany. That month he ascended Mt. Washington, New Hampshire—the highest peak in New England—and prepared the most detailed list of plants by zones that had ever been made for this site, one not to be surpassed until the twentieth century. The month before he had similarly listed plants found on Mt. Monadnock, New Hampshire; he supplemented this list with more botanical notes after a return visit in August 1860. The listing of plants by zones was probably inspired by Alexander von Humboldt's famous correlation of altitudinal plant zones with those of latitude.

Thoreau's journey to Minnesota in 1861 was made at a time when his botanical prowess was considerable but when his health was failing. His enthusiastic companion, Horace Mann, Jr., was a young naturalist whose promising career in botany at Harvard was cut short by tuberculosis within the decade. Thoreau's notebooks for the journey are liberally sprinkled with scientific plant names—old friends and new. Included also were the customary lists of plants seen. This was to be essentially Thoreau's last botanical foray.

Although Thoreau demonstrated much botanical curiosity on his excursions, it was always Concord's flora that was dearest to him: “Many a weed here stands for more of life to me than the big trees of California would if I should go there” (Nov. 20, 1857, *Journal*). On February 4, 1858, Thoreau was astonished to find Labrador tea (*Ledum groenlandicum*) in Concord. He had, however, anticipated the discovery a year and a half earlier: “But why should not as wild plants grow here as in Berkshire, as in Labrador? . . . I shall never find in the wilds of Labrador any greater wildness than in some

recess in Concord” (Aug. 30, 1856, *Journal*).

In the same swamp that harbored the Labrador tea, Thoreau noticed some curious growth on the black spruce there. Here he missed the opportunity to describe a plant at that time unknown to science, the locally rare parasite, dwarf mistletoe (*Arceuthobium pusillum*).

Starting about 1858 Thoreau undertook the study of grasses and sedges in earnest. These groups are relatively unfamiliar even to most modern botanists. Within two or three years he attained a substantial knowledge of those species that occur in Concord. His collections include nearly 100 species from the township (nearly half of those recorded in the town to date). Other difficult plant groups such as lichens, mosses, and fungi resisted study owing to the absence of good regional manuals. Consequently, excepting lichens, his scientific references to these plant groups are minimal. Even with lichens he never came close to acquiring expertise comparable to what he achieved with vascular plants. In a short article entitled “Thoreau, the Lichenist” lichenologist Reginald Heber Howe, Jr., commented that Thoreau’s observations of lichens showed “only a slight knowledge of species, and no technical grasp whatsoever.” But Howe, who studied lichens in Concord about sixty years after Thoreau, noted that Thoreau knew the varied morphological types and appreciated their place in Nature. (See *The Guide to Nature*, vol. 5, pp. 17–20, 1912.) Any collections he might have made of lichens, mosses, and fungi are not known to have survived.

In his day there were relatively few regional botanists for Thoreau to share his observations with. The most notable New England botanist, Asa Gray (1810–88), at Harvard, was apparently not very accessible and was known to be primarily a herbarium botanist rather than a field botanist. A. Hunter Dupree, Gray’s biographer, states that neither Ralph Waldo Emerson nor Thoreau crossed Asa Gray’s path and attributes this to the empiricist Gray’s hostility towards Transcendentalism.

Aside from Asa Gray, virtually all other botanists in New England at this time were amateurs. The most knowledgeable of these that Thoreau met was Rev. John L. Russell (1808–73) of Salem, Massachusetts. Russell, a Unitarian minister, was for forty years professor of botany and vegetable physiology at the Massachusetts Horticultural Society and became a fellow of the American Academy of Arts and Sciences. He was well acquainted with men who described new plant species and for whom species were named. Russell was particularly interested in mosses, liverworts, and lichens. Since Russell was a classmate of Ralph Waldo Emerson’s brother, Charles, at Harvard, it is likely that Thoreau first learned of Russell through Emerson. Russell visited Emerson in September 1838 at which time Emerson noted in his *Journal* that he was “A man in whose mind things stand in the order of cause & effect & not in the order of a shop or even of a cabinet.”

What may have been Thoreau’s first meeting with Russell occurred in Concord in August 1854. Thoreau’s appetite for authoritative botanical identifications is evidenced by his notes for the three days he showed Russell around the township, which included a visit to the climbing fern. Russell made a second visit on July 23, 1856, to see a small yellow pond lily (*Nuphar* spp.). Russell must have noted Thoreau’s increasing botanical proficiency and certainly was made aware of his new interest in grasses and sedges at the time of their last meeting on September 21, 1858. That day Thoreau visited Russell at Cape Ann and the Essex Institute in Salem, Massachusetts. The day was divided between a morning with the Institute’s collections and an afternoon in the field. Thoreau made the most of the opportunity to confirm identifications in difficult groups like willows (*Salix*) and lichens.

Other published botanists, such as Jacob Bigelow (1787–1879), professor of materia medica at Harvard, and George B. Emerson (1797–1881), both in the Boston area, apparently moved in social circles too rarefied ever to permit personal acquaintance with Thoreau. Schoolmaster and botanist Emerson was president of the Boston Society of Natural History of which Thoreau was elected a corresponding member in 1850 (for contributing an American goshawk). According to A. Hunter

Dupree, Emerson was dean of the scientific community in Boston and responsible for Asa Gray's appointment at Harvard in 1842. Though Thoreau made frequent visits to the collections and library of the Society, his interest there was primarily in fauna. Not being a regular member, he did not rub shoulders with members Gray, Bigelow, and Emerson. Consequently, Thoreau's meetings with Russell represent his closest contact with a botanist of professional caliber.

Although Benjamin Marston Watson (1820–96) was, strictly speaking, a horticulturist, his friendship with Thoreau provided an important opportunity to share botanical notes. Watson established his Old Colony Nurseries in Plymouth, Massachusetts in 1845. This estate became a favorite retreat for the Transcendentalists of Concord. Thoreau in the same year (and only one month after setting up at Walden Pond) forwarded to Watson some fruit and seeds from some of Concord's uncommon trees and shrubs. The evident purpose was to assist Watson in his horticultural enterprise. Watson in turn sent Thoreau unusual specimens from his nursery, hired him to survey his farm, and invited him to lecture in Plymouth. Thoreau's *Journal* records regular visits to Watson in Plymouth where he could see living examples of plants foreign to New England.

A mutual friend of Thoreau and Marston Watson was George P. Bradford (1807–90), a teacher, who for a time did some market gardening with Watson in Plymouth and had been part of the Brook Farm experiment. He had taught a class in botany at a school for girls in Plymouth in 1830. The references to Bradford in Thoreau's *Journal* are brief, touching primarily on unusual botanical finds. There is the suggestion that Bradford shared a Transcendentalist interest in botany when Thoreau notes Edward Hoar's proposal that a leaf of the climbing fern be sent to Bradford "to remind him that the sun still shone in America" (Aug. 14, 1854, *Journal*). Oddly, there is but one inconsequential reference to Bradford in Thoreau's published correspondence.

Bradford, Russell, and Austin Bacon of Natick are acknowledged in the preface to George B. Emerson's report on the trees and shrubs of Massachusetts. This preface approximates a directory of Massachusetts botanists in 1846. Austin Bacon (1813–88) was a surveyor-naturalist. Thoreau paid a visit to him on August 24, 1857, and was shown a number of Natick's botanical highlights. Thoreau's interest in Natick no doubt arose from his reading of Oliver N. Bacon's *History of Natick*, which included a list of unusual plants (Jan. 19, 1856, *Journal*).

Among Concordians there were only Edward S. Hoar, Minot Pratt, and sister Sophia with whom Thoreau spoke about botany in any depth. Edward S. Hoar (1823–93), a retired lawyer, accompanied Thoreau on his trips to the White Mountains of New Hampshire and Maine's Allegash and Penobscot Rivers. He was also Thoreau's accomplice in the accidental burning of the Fairhaven Woods in Concord in 1844. Like Thoreau, Hoar collected plant specimens and pressed them. Indeed, Hoar's collections are much superior in quality, particularly with respect to the legibility and detail of his collection data. The majority of his specimens were collected from 1857–60 and included many grasses and sedges. These were the years during which Thoreau undertook a study of the same difficult groups, but curiously the *Journal* offers no support for the idea that they studied together. The references to Hoar in the *Journal* do show that Hoar brought to Thoreau's attention various botanical curiosities that he found. It is evident that for Thoreau's northern journeys Hoar was the companion of choice because of his enthusiasm for natural history, particularly of the botanical variety.

Minot Pratt (1805–78), a farmer-horticulturist, moved to Concord after four years at the Brook Farm experiment. If there was anyone as intimately familiar with Concord's wild flowers as Thoreau it was Minot Pratt. Apparently he was just as independent since Thoreau's references to him in the *Journal* suggest only limited communication between the two about the location of Concord's rarities. On three occasions Pratt gave Thoreau a botanical tour of his neck of the woods—Punkatasset Hill and

Estabrook Woods, some of the richest areas in the town botanically (Aug. 17, 1856; May 18, 1857; and June 7, 1857, *Journal*). Pratt later engaged in a practice that has earned him a degree of notoriety among latter-day botanists, namely the establishment of alien plants in Concord. Thoreau rarely did the same, but his introduction of *Nasturtium officinale* is an example (April 26, 1859, *Journal*).

Judging from her herbarium now at the Concord Free Public Library, Sophia Thoreau (1819–76) had an interest in botany that was considerably less scientific than her brother's and more in the aesthetic vein. Many of her pressed plants consist of several species to a sheet with an eye to attractive arrangement. There is rarely any information recorded as to their identity or location. Thoreau mentions three flowers in his sister's herbarium that he had not seen in Concord—whorled pogonia (*Isotria verticillata*), painted trillium (*Trillium undulatum*), and perfoliate bellwort (*Uvularia perfoliata*) (Sept. 22, 1852, *Journal*). All are locally rare. Strangely, there is no evidence that Thoreau ever saw any of these within the bounds of Concord (where Sophia found them). This suggests a bit of sibling rivalry.

The general scarcity of botanists in New England in Thoreau's time undoubtedly arose from a virtual absence of illustrated manuals and popular field guides treating the flora of the region. These were to appear only later in the nineteenth century. Thoreau complained of this lack (compared to what the British had) indirectly: "A few pages of cuts representing the different parts of plants, with the botanical names attached, is worth volumes of explanation" (Feb. 17, 1852, *Journal*). He found the plant descriptions available unsatisfactory, and they were: "I quarrel with most botanists' description of different species, say of willows . . . No stress is laid upon the peculiarity of the species in question and it requires a very careful examination and comparison to detect any difference in the description" (May 25, 1853, *Journal*); "You cannot surely identify a plant from a scientific description until after long practice" (April 26, 1857, Letter to B. B. Wiley).

Thoreau's library (as listed by Walter Harding in 1957) reflects the relative dearth of botanical references of the time. He owned almost all the volumes that would pertain to Concord's vascular flora and a number that were only marginally relevant. Walter Harding's catalog includes the following botanical works:

Handbook of Plants & Fruits of the Vegetable Kingdom (Chapin)

Massachusetts Zoological and Botanical Survey (Dewey and Emmons)

Report on Trees and Shrubs Growing Naturally in the Forests of Massachusetts (Emerson)

Culture of the Grass (Flint)

Manual of Botany, 1st and 2nd eds. (Gray)

Popular History of British Lichens (Lindsay)

Arboretum et Fruticum Britannicum (Loudon)

Encyclopedia of Plants (Loudon)

Sive Enchiridion Botanicum, or a Complete Herbal (Lovell)

The Ferns of Great Britain (Sowerby)

A Popular History of British Mosses (Stark)

To this list should be added Jacob Bigelow's *Florula Bostoniensis* (various editions), which Thoreau must have owned judging from the frequent *Journal* references to it. Three well-known manuals that Thoreau consulted from time to time were Amos Eaton's *A Manual of Botany for the Northern and Middle States* (various editions), John Torrey's *Flora of the Northern and Middle Sections of the United States* (1826), and Torrey and Gray's *Flora of North America* (1838–43). None of these offered much more than could be found in the manuals of Bigelow and Gray. Torrey and

Gray's work was the most thorough of the three but was unfinished and covered too much geographical territory to be convenient. If modern field guides and botanical manuals had been available to Thoreau, his expertise would have developed much earlier and much more rapidly. It is surprising that he managed as well as he did.

A well-identified herbarium is the ultimate all-season botanical reference work. Unfortunately, regional herbaria were also in their infancy in Thoreau's time. It is understandable that Thoreau did not miss the opportunity to examine the meager plant collections at the Boston Society of Natural History rooms (June 19, 1856, *Journal*) and the Essex Institute (Sept. 21, 1858, *Journal*). The best collections, however, were in the custody of individuals and were private.

Thoreau's own herbarium (numbering in the end more than 900 specimens) was no doubt one of the larger collections in eastern Massachusetts at the time. Thoreau himself realized this, commenting in a letter to Mary Brown (April 23, 1858): "I should be glad to show you my Herbarium, which is very large." From a modern viewpoint the data he recorded for his collections are, on the whole, poor. Approximately one-half of the specimens note only the identity of the plant, omitting the most important bit of information—the locality. This detracts significantly from the scientific value of the collection. In the difficult groups like grasses, sedges, and willows his data are generally much better than the remainder of the collection but frequently difficult to decipher (written small, in pencil, and hurriedly or carelessly). His habit of using his straw hat as a botany box to bring home plants collected in the field tended to encourage the gathering of small, inadequate, or incomplete samples.

Thoreau evidently started his organized herbarium (as opposed to casual collections placed in commonplace books or manuals) about 1850, judging from the earliest dated specimens. This was the same period when he began to study botany with more method. Clearly Thoreau created his herbarium as an aid in sorting out the identities of plants he found in Concord and on his travels and not as a vehicle for preserving his memory among future botanists (a common purpose of private herbaria).

The disposition of his herbarium following his death was that, at his request, about 100 grasses and sedges were given to his botanical companion, Edward Hoar, and the remainder (some 800 specimens) were given to the Boston Society of Natural History. Thoreau's grasses and sedges in the possession of Hoar, along with most of Hoar's own collection, were eventually given to the New England Botanical Club by Hoar's daughter, Mrs. M. L. B. Bradford, in 1912. The Club's herbarium is presently housed at Harvard University. The Thoreau specimens have been carefully mounted on standard-sized herbarium sheets together with Thoreau's pencil-scribbled scraps of data and Hoar's transcription of them. The specimens are being cataloged and photocopied before being reincorporated into the Club's holdings. This is the most scientifically useful part of Thoreau's herbarium owing to the presence of collection data, the difficulty of the plant families involved, and the addition of annotations by later botanical experts such as M. L. Fernald.

The bulk of Thoreau's herbarium stayed with the Boston Society of Natural History until 1880 when it was given to the Concord Free Public Library. In 1959 the Library turned the collection over to Harvard University's Gray Herbarium where it resides presently separate from their main collection. Unlike Thoreau's grasses and sedges, this part of the collection appears for the most part to be in the condition in which he left it at his death. Because of its relative inaccessibility and lesser scientific value, it has received relatively little critical attention by later botanists. The specimens are somewhat insecurely attached with pieces of tape to elephant folio-sized sheets of flimsy paper. Occasionally smaller sheets of paper are used. There is usually more than one specimen to a sheet, sometimes six or more, and frequently more than one species to a page. Typically, only the Latin name for the species is written in pencil near the specimen. Locality data such as "Truro '55," "Brattleboro," or "Maine '57," are sometimes noted in pencil beside particular specimens or scribbled

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