"American Herbarium": Key to Deerfield's Historic Landscape

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The tradition of preserving plant specimens probably goes back to sixteenth-century Europe. Earlier, doctor-botanists had relied on illustrated compendiums of plant data, known as herbals. They found, however, that collections of dried, pressed plants–herbaria–were convenient means for storing their findings and were more accurate than illustrations. Herbaria were, and still are, a valuable tool used in the naming and classification of species. Individual specimens are sometimes accompanied by field notes including information on the local lore pertaining to the plant, its dietary, and medicinal uses. Date and location entries may also provide clues to a region's botanical history.

An early herbarium has recently been found in Deerfield, Massachusetts. The story of its discovery and subsequent documentation would make a mystery writer envious. "This was obviously prepared by a skilled botanist some time ago," Mrs. Burdett Poland commented as she handed me the large folio-type album. She continued, "You'll see, however, that except for a few brief references to local sites, there is no other identification. No collector's name, unfortunately." I opened the book and began leafing through the many pages of plant specimens, each mounted to the rag stock with tape and labeled with its scientific or common name.

Working on a landscape restoration project for Historic Deerfield, I had come to Mrs. Poland because of her lifelong interest in the local flora. It was during one of our many meetings that she brought out this volume which had been given to her by a member of an old Deerfield family. Botanists at the University of Massachusetts had agreed with Mrs. Poland's assessment: the herbarium was interesting, but the incomplete provenance limited its historical and scientific significance.

The type of plants and the words "American Herbarium" on the volume's cover seemed to indicate a North American origin. Three of the specimens were collected at Pine Hill, Sugar Loaf, and Northfield–all in the Deerfield area, but there was certainly no assurance that every plant in the album was from that region. There were other tantalizing clues. The Northfield plant was collected on "Sept 11, 1838," and another was the "Water Agrimony of Dr. Williams." But

did the entire volume date from 1838? Was Dr. Williams the collector, or did he merely name the water agrimony? The herbarium seemed destined to remain an enigma.

Nevertheless, this investigation began with the manuscript collections of the Pocumtuck Valley Memorial Association and Historic Deerfield. The old documents–letters, diaries, and deeds–yielded considerable insight into the period landscape of the area. One early nineteenth-century doctor had even recorded his exact vegetable garden plans for eight years![1] Finally, this researcher came to an unpublished manuscript written by Dr. Stephen West Williams in 1817. The manuscript was no secret; indeed, it had been a valued part of the Historic Deerfield collection ever since it was purchased from a California bookdealer in 1959. But there was something about the title: "Botanical Description and Medical, Culinary & other Uses of the Plants in the first Volume of my American Herbarium." Could this be related to the plant collection in Mrs. Poland's possession? Turning to the index page, the following notation was read: "The first column of figures refers to the plants in my American Herbarium. The second to the description of these plants in this volume." A phone call to Mrs. Poland confirmed that the index and the plant collection were a set. The 1838 date had been misleading. The plant collected in that year was a later addition; the majority of specimens were listed in the 1817 index. A seemingly early date, but *how* early for material of this kind?

Given favorable environmental conditions and care, herbaria may survive for hundreds of years. A number of eighteenth-century examples still exist in European repositories.[2] The Boston Medical Library has one of the oldest plant collections remaining in the United States. It was compiled by Dr. Benjamin Waterhouse during the 1780s and includes over 220 plant specimens, mostly native to North America. Several early American herbaria are also located at the Academy of Natural Sciences in Philadelphia. Perhaps the most important of the Academy's deposits is the herbarium of Henry Muhlenberg, which contains more than seven thousand specimens collected from about 1780 to 1815. Other notable collections at the Academy include those of Benjamin Smith Barton (collected about 1785 to 1815), Thomas Nuttall (deposited at the Academy in 1823, 1830, 1832), and Louis David von Schweinitz (deposited in 1835 and containing some 23,000 species).

Plant collecting became increasingly popular during the nineteenth century. Physicians, clergymen, businessmen, amateur and professional naturalists were eager to document the native flora of the vast new continent. Many were stimulated by the recent theories of evolution; others hoped to discover new types with medicinal, culinary, or even ornamental potentials. Deerfield was a center for such activity. The town, a rather affluent farming community around the turn of the nineteenth century, was also the home of the Deerfield Academy. Such an environment evidently encouraged scholarly pursuits, and a small but highly competent group of botanists converged there in 1816. Stephen West Williams (1790-1855) was one of this group. After studying medicine with his father and at Columbia College, Williams established a practice in his native Deerfield. He lectured widely and wrote on many subjects including local history, medical history, and biography. Williams moved to Laona, Illinois in the

1850s, and presumably it was then that the two volumes of his "American Herbarium" were separated.[3]

The two volumes offer a comprehensive record of early Deerfield's plant life. The manuscript volume contains an index of scientific and generic names, an outline of the Linnaean system of botany, and a discussion of the plants. More than fifty pages of illustrations were hand-painted by the author's future wife, Harriet T. Goodhue. Williams' comments on the uses of plants provide valuable information about period flower and vegetable gardens. His listing for the woodbine honeysuckle (*Lonicera Periclymenum*) is typical: "the beauty & fragrance of its variegated flowers renders this species a pleasing ornament of our gardens, hedges, & arbours."[4] Other plants which Williams specifically mentions as growing in Deerfield gardens are lavender, lilac, endive, garlic, garden saffron, garden thyme, hollyhock, pink, and the love apple (tomato).

Williams was, of course, especially interested in the therapeutic value of certain plants. In his manuscript he reports the findings of respected physicians, as well as Native American and folk practitioners. Some of his observations are still recognized. *Digitalis purpurea*, for example, is used in modern medicine to treat heart failure; Williams noted that the plant had "a very remarkable power of lowering the pulse."[5] As to be expected, not all of Williams' botanical medicines have survived the test of time, and among these is his decoction of *Scutellaria* (skull-cap or Mad-dog weed) which had "recently & deservedly come into much repute for the cure of the bite of a mad-dog, or Hydrophobia."[6]

Early written reports by themselves are sometimes confusing because of changes in botanical nomenclature. Williams' herbarium volume, therefore, assures us of correct species identification. The collection contains more than five hundred plant specimens, most of which are native and wild species. Cultivated types include roses and marigolds. All are in a remarkable state of preservation: even traces of original colors remain.

Although Williams never published his "American Herbarium," he included some of his research in "Floral Calendar kept at Deerfield, Massachusetts, with Miscellaneous Remarks" (1819) and "Report on the Indigenous Medical Botany of Massachusetts" (1849). In the latter article, he identified three companions who shared his enthusiasm for collecting plants:

> I became enamoured with the study of botany, and about the year 1816, in connection with Edward Hitchcock, now President of Amherst College, and Dr. Dennis Cooley, now of Michigan, who was then a student in the office of my father and myself. With them I examined the valleys and the mountains of my native town of Deerfield, for the purpose of discovering and investigating their vegetable and mineral productions. Our meadows, containing about two thousand acres, receive the deposit and wash of the Green Mountains in Vermont, as in a basin, as the Deerfield River in its meanderings, washes the base of those mountains for forty or fifty miles, and wafts on its tumultuous waves the seeds of various plants from those mountains, and deposits them in this fertile basin. Hence this little

> alluvial tract is peculiarly rich in botanical productions. Nearly one thousand species were found within the borders of this town in a single season, including those which were naturalized. Extensive herbariums were formed from these, and those of Dr. Cooley and Dr. Hitchcock were among the earliest and most valuable in the country. Both these gentlemen, I believe, still continue to add to their extensive collections. Dr. Hitchcock was much assisted in his early investigations upon this subject, by Miss Orra White, of Amherst, now his wife, one of our most distinguished naturalists, who, with her own hand, painted many of the plants collected with almost inimitable beauty. She still cultivates almost all the branches of natural history with great assiduity, as do the gentlemen mentioned above. President Hitchcock has long been considered the most learned geologist in America.[7]

This represented a new challenge: Could more be learned about these botanists and their collections which Williams regarded as superior to his own?

Dennis Cooley (1789-1860) studied with the Williams doctors and attended the Berkshire Medical College in 1822. He practiced medicine for five years in Monticello, Georgia, returned briefly to Deerfield, then moved permanently to Washington Township in Macomb County, Michigan. Although a physician by profession, Cooley's greatest interest seems to have been botany. Several references allude to his "large and valuable herbarium." Remarkably, Cooley's collection is also extant and is now located at Michigan State University. Donated to the State Agricultural College by his widow in 1863, it was estimated at the time to contain more than twenty thousand specimens.[8] Grass species are particularly well-represented, and there are specimens from California, Australia, and the tropics. Most were collected in Georgia and Michigan, and a large number were obtained by exchanges with celebrated botanists including Dr. John Torrey, W. S. Sullivant, and John Carey.[9] Original labels, however, indicate that the oldest specimens were collected in Deerfield between 1817 and 1821. All the plants are in generally good condition, but most are mounted on paper that has become quite brittle.

Edward and Orra White Hitchcock completed the Deerfield team. Edward (1793-1864) was principal of Deerfield Academy at the time of the group's inception; Orra White (1796-1863) was one of his assistant teachers. Following their marriage in 1821, Edward entered the ministry and served as pastor in the Congregational Church in Conway, Massachusetts for several years. He was, however, a scholar at heart and in 1825 secured a professorship in chemistry and natural history at Amherst College. He was also president of that institution for ten years. As his positions would imply, Hitchcock belonged to numerous intellectual societies, and he authored works on religion, temperance, botany, mineralogy and geology.[10] Orra was an acknowledged landscape painter and illustrator, whose work had been reproduced as early as 1818 in *Port Folio*. She assisted her husband in many of his investigations, and they seem to have been particularly devoted to botany between 1816 and 1830.


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During this period Edward Hitchcock was in regular written communication with Dr. John Torrey of New York City. His letters to Torrey, preserved at the New York Botanical Garden Library, are part of a fairly sophisticated network set up by the era's botanists. Most of them are concerned with routine verification of species' names and exchange of newly-discovered plant material. Some surprises reward the patient reader, however.

In a letter from New Haven dated November 25, 1819, Hitchcock writes:

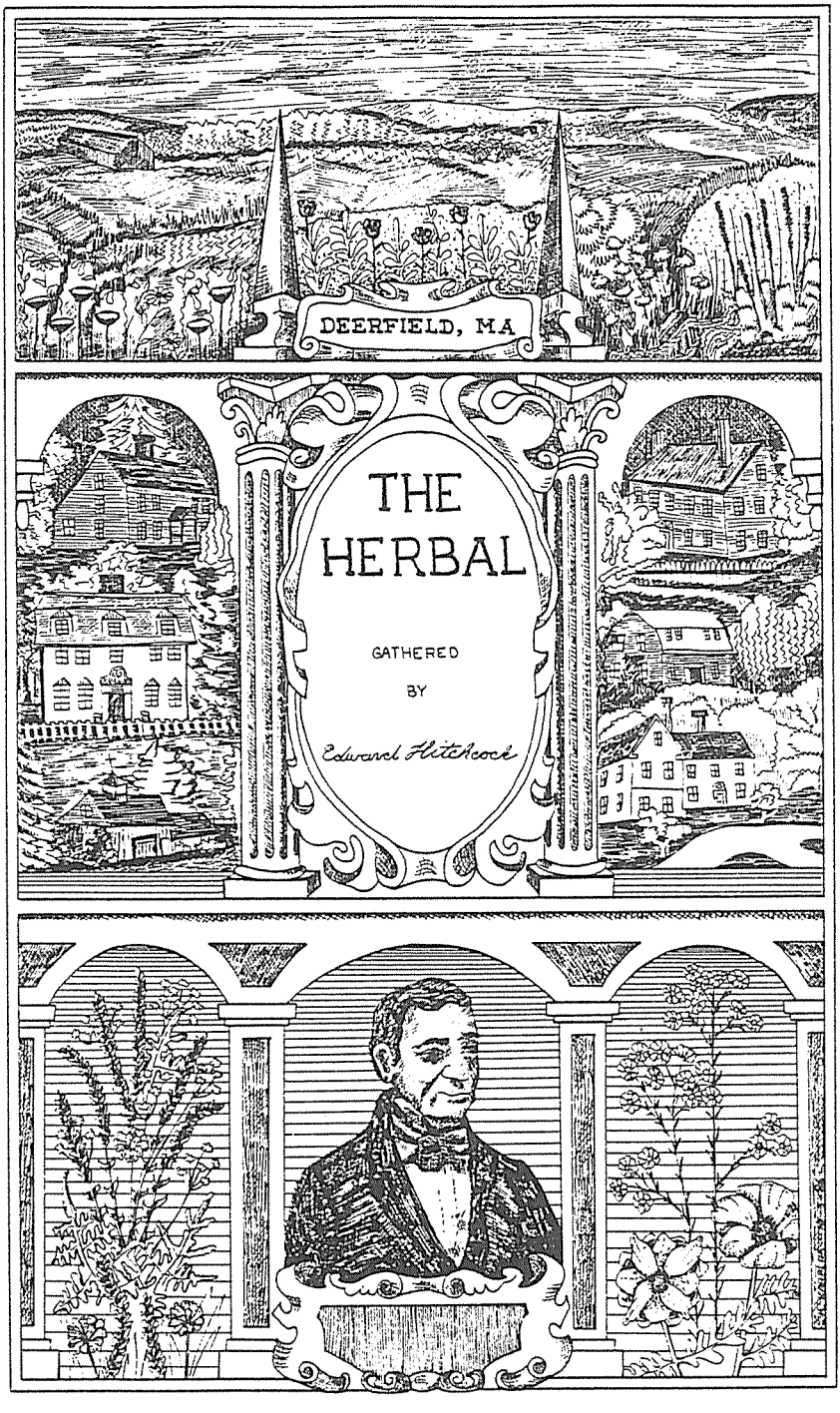
> I just returned from Deerfield and have brought along a box of plants from Dr. Cooley for you—and I shall forward it by the steam boat . . . . Dr. Cooley has made a more extensive collection of Cryptogamous plants than myself and indeed I found on my return to Deerfield that the worms had destroyed a great part of my collection so that I have left this department with Dr. Cooley and have handed to him the very few species in my collection he did not possess. Dr. C. has been indefatigable in his herborizations the past summer and is very zealous in prosecuting the science of botany. But he meets with discouragements in these researches among the people where he lives: for they generally regard his botanical exertions as labour spent in vain: and indeed they rather suspect (though I believe without any reason) that for the sake of botany he neglects his professional studies and on this account are rather backward to employ him . . . . I hope that you will pardon this digression which was made very incidentally.[11]

A digression which may explain why we now have Cooley plant specimens from Georgia and Michigan! Cooley's name reappears many times in Hitchcock's letters to Torrey, as it does in Torrey's correspondence to L. D. von Schweinitz[12] (whose herbarium, it will be remembered, is at the Academy of Natural Sciences). A careful examination of the Torrey and Schweinitz herbaria would surely reveal a number of specimens collected by the Deerfield group.

Orra White Hitchcock also figures rather prominently in all this. On several occasions her drawings were sent to Dr. Torrey to check for accuracy. In 1822, for example, 120 of her fungi illustrations were examined by the New York botanist, who in turn mentioned them in a letter to Schweinitz.[13] Orra Hitchcock's artistic ability was evidently much admired; Torrey himself wanted a copy of her enlarged botanical drawings depicting "*all* of the original classes & orders of the Linnean System."[14]

Edward Hitchcock's botanical investigations of the 1810s and 1820s eventually culminated in his *Catalogue of Plants Growing Without Cultivation in the Vicinity of Amherst College* (1829). In his preface, he acknowledges the assistance of Professor Torrey and his early coadjutors Drs. Stephen West Williams and Dennis Cooley. Cooley's herbarium, he notes, "contains nearly all the plants hitherto found in this district."[15] The catalogue lists 1,447 species.

Edward Hitchcock's plant collection is believed to be scattered in the herbaria of the University of Massachusetts and Amherst College. Only two Hitchcock


DEERFIELD, MA
THE
HERBAL
GATHERED
BY
Edward Hitchcock

specimens from the 1820s have been located to date. The worms and gift to Cooley, earlier mentioned, may partly account for this. But Hitchcock's early collection has not completely disappeared. Among the holdings of the Deerfield Academy Library is a small volume of 176 watercolor paintings. The title page reads: "Herbarium, parvum, pictum/ by Orra White/ Deerfield 1817,18." A note written by the Hitchcocks' daughter, Emily, states that living specimens, collected and named by Edward Hitchcock, were the source of the drawings by Orra. A large variety of plants are depicted and most are identified by scientific name. Penciled comments appear throughout the volume and these, according to Emily, were made at a later date by Professor Asa Gray (whose 1848 *Manual of Botany* is still a valuable reference).

The work of Orra White is obviously similar to that of Harriet Williams, illustrator of "Botanical Description . . . ." Dr. Williams admitted that his wife "drew and painted most of the plants painted by Mrs. Hitchcock . . . ."[16] Yet Orra's illustrations have greater delicacy as well as anatomical detail. Her "herbarium," with its violets, lady slippers and grasses, pleases both art connoisseur and scientist alike.

Orra White added another dimension and medium to the work of the Deerfield team. Williams wrote that paintings were "the most permanent and beautiful method of preparing what may be called a fac-similie of an herbarium. There is no danger of the destruction of the paintings from insects, and of the fading of the plants from the ravages of time."[17] Nevertheless, the actual plant collections of Williams, Cooley, and to a lesser extent Hitchcock still provide researchers with clues to the flora of the region.

Together, the four herbaria of Deerfield are a rare survival. Their early date, scope, and connection to the leading botanists of the time make them more than of local significance. We can only speculate as to why the small village of Deerfield should have such a resource. The area had, as Williams pointed out, an abundance of plant material, and its rural quality may have excited hopes of finding something really new. The interaction of four talented and intellectually curious individuals was apparently the catalyst.

The unique nature of Deerfield, itself, may account for the preservation of these herbaria. Its residents have always been interested in their heritage, evidenced by the fine manuscript collections, eighteenth-century homes, and family furnishings. Had more communities been "savers" like Deerfield, other herbaria would surely have survived. Perhaps some are still to be discovered or just need to be appreciated. The literature shows that the Deerfield botanists were not alone in their collecting passion.

NOTES

1. William Stoddard Williams, the father of Stephen West Williams. Williams Family Papers, boxes 9 & 14, Pocumtuck Valley Memorial Association.

2. The collection of the great Swedish naturalist, Linnaeus, is probably the most famous of these. Early eighteenth-century collections of North American plants, including those of John Clayton, John & William Bartram, and Peter Kalm, are also preserved in Europe.

3. Mrs. Poland has now donated the plant collection to Historic Deerfield, Inc., and the two volumes are finally reunited after 130 years.

4. Stephen W. Williams, "Botanical Description . . .", p. 68, Collection of Historic Deerfield, Inc.

5. Ibid., p. 211.

6. Williams, "Botanical Description . . .", p. 79.

7. Williams, "Report on the Indigenous . . .", pp. 865-6, published in *The Transactions of the American Medical Association*, Vol. II (Philadelphia, 1849).

8. Later accession records indicate a size of about 4,000 specimens. This discrepancy has never been explained.

9. C. A. Kenaston, *Second Annual Report of the Secretary of the State Board of Agriculture of the State of Michigan* (Lansing, 1863), p. 19.

10. Hitchcock and Williams were elected honorary members of the New York Historical Society in 1818. See: *Franklin Herald*, May 26, 1818 (Greenfield).

11. Hitchcock letter to Torrey, November 25, 1819 in New York Botanical Garden Library manuscript collection.

12. The Torrey-Schweinitz letters have been published in "The Correspondence of Schweinitz and Torrey," *Memoirs of the Torrey Botanical Club*, Vol. XVI, No. 3 (July 16, 1921).

13. Torrey letter to Schweinitz, May 3, 1822.

14. Hitchcock letter to Torrey, May 29, 1829 in New York Botanical Garden Library manuscript collection.

15. Edward Hitchcock, *Catalogue of Plants* . . . . Amherst, MA., 1829, Prefatory.

16. Williams, "Report on the Indigenous . . .", p. 866.

17. Ibid.