

Thomas Jefferson and Virginia's Natural History

Lucia Stanton

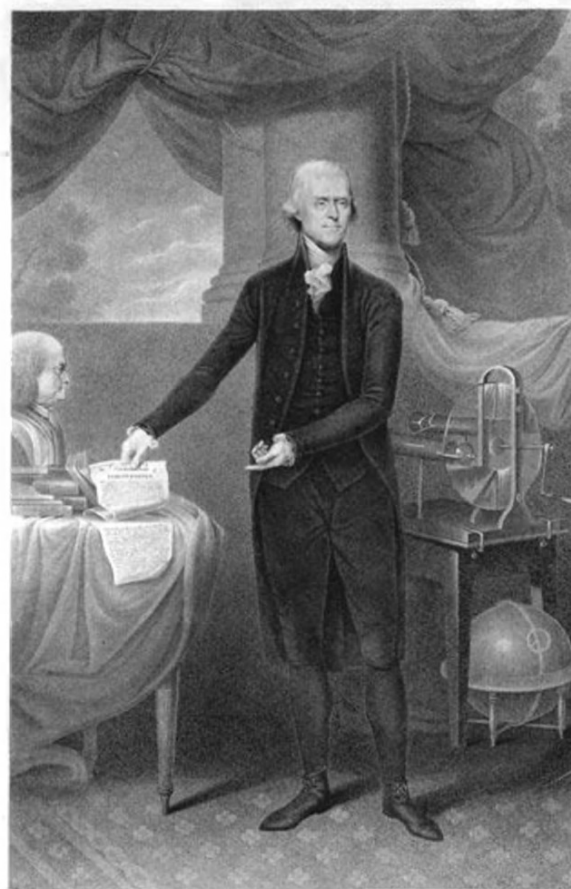
1308 Gibson Mountain Lane
Charlottesville, Virginia 22903
cstanton1811@gmail.com

ABSTRACT

In forty years as a public servant, Thomas Jefferson often lamented being a “prisoner of state.” He described natural history as his passion and, when tied to his desk by political duties, he longed to be out in the “rich fields” of nature, studying grain weevils or noting the blooming dates of flowers. Jefferson had a lifelong fascination with the flora and fauna of Virginia and a reputation for a wide knowledge of botany and zoology. This paper focuses primarily on Jefferson’s interest in and interactions with birds, insects, and plants, particularly those of his own state.

On April 16, 1803, the President of the United States was in his study in the White House, writing down these words: “3. house flies of ordinary size to-day.” Thomas Jefferson made this observation in a weather diary in which he had been recording the temperature of his nation since its birth in July 1776. Besides taking readings of his thermometer, he noted other “indexes of climate” — biological events, like the flowering of plants, falling of leaves, and the comings and goings of birds and insects, which marked the cycle of the seasons. Throughout his presidency, he jotted down more signs of spring than just house flies. Such entries included “redbreasts” (7 March 1804), “weepg. willow leafing” (9 March 1808), “frogs sing” (12 March 1807), “shad at table” (19 March 1808), “martins appear” (1 April 1806), “whippoorwill” (2 April 1805), “dogwood blossomd.” (7 April 1807), and “Magnolia glauc. blossoms” (24 May 1807).¹

Jefferson’s exercises in phenology — a word coined later in the century² — provided one way to engage with the natural world during his eight trying years as the nation’s chief executive. For the most part, however, he lamented that his public duties left no time



THOMAS JEFFERSON

President of the United States

¹ Jefferson’s weather memorandum book, p. 2 and passim, Massachusetts Historical Society (hereafter WMB); Jefferson to Lewis E. Beck, 16 July 1824, Albert Ellery Bergh, ed., *The Writings of Thomas Jefferson* (Washington, 1907) 16: 71-72.

² Belgian botanist Charles Morren first used the term about 1850 (Gaston R. Demarée and This Rutishauser, “Origins of the Word ‘Phenology,’” *Eos* 90, no. 34 [2009], 291).

President Jefferson, engraving by Cornelius Tiebout, 1801.

1805			
mar	1.	36. f. 7. N.	50. c. 7. N.
	2	35. f. 7. N.	52. f. 7. N.
	3.	38. f. 7. N.	III.
	4	32. f. 7. 25. N.	
	5	28. f. 6. 5. N.	51. f. 6. 5. S.
	6	44. c. 6. 5. N.	61. c. 6. 25. S. E.
	7	47. car. 6. N.	62. f. 6. 5.
	8	56. f. 6. 5.	71. f. 5. 75. S. III
	9	60. f. 5. 75. S.	71. f.
	10	61. c. 5. 25. S.	72. f. 5. 25. S. 1. shad
	11	51. car. 5. 25. N. 59. f. 5. N.	
	12	34. c. 5. 50. N.	
	13	30. caps. 5. 75. N.	
	14.	21. f. 6. 5.	
monticello			
	19	79. f.	
	20	54. f.	
	21	61. f.	62. f.
	22	31. 1/2. f.	
	23	32. 1/2. f.	
	24	35. f.	62. f.
	25	46. f.	68. f.
	26	62. c.	68. c.
	27	59. c.	62. c. asparagus
	28	47. r.	46. c.
	29	45. r.	45. r.
	30	40. r.	47. c. r. cygne
	31	41. c.	67. f.
Apr.			
	1.	54. f.	74. f.
	2	52. f.	74. f. shipmoorwill
	3	53. f.	76. f.
	4	56. f.	70. f. a tick
	5	52. r.	48. r.
	6	44. f.	64. f.
	7	37. f.	59. c. downood blossom.
	8	49. f.	68. f. white fruit in plate
	9	57. r.	60. f.
	10	47. f.	58. f. r. c.
	11	48. f.	58. f.
	12	75. f.	
	13	63. f.	79. f.
	14	61. f.	
Washington			
	17	78. f. III	
	18	54. f.	81. f. 6. 2.
	19	52. f. 5. 75.	80. f. 5. 75.
	20	62. f. 5. 25.	77. f. 5. 25.
	21	61. f. 5.	72. car. 5.
	22	54. c. 5.	71. f. 5. 5.
	23	55. f. 5. 5.	
	24	58. f. 5. 75.	58. r. 5. 75.
	25	48. f. 6. 5.	68. f. 6. 5. III
	26	48. car. 6. 5.	63. f. 6. 5.
	27	46. f. 6. 5.	60. f. 6. 25.
	28	47. f. 6. 5.	64. f. 6. 25.
	29	56. f. 6.	73. c. 6.
	30	55. car. 5. 75.	64. f. 5. 75.
May			
	1	40. f. 5. 75.	69. c. 5. 75. III
	2	56. f. 5. 5.	70. f. 5. 25.
	3	58. f. 5. 25.	81. f. 5.
	4	65. c. 6. 8.	
	5	59. c. 4. 5.	70. f. 4. 5.
	6	50. f. 4. 5.	68. f. 4. 25. III
	7	44. f. 4. 75.	68. c. 2. 25. peas. frost
	8	56. c. 4.	69. car. 4.
	9	62. car. 4.	74. f. 4. shawberries
	10	53. f. 4. 3.	76. f. 4.
	11	66. c. 4.	82. f. 4.
	12	65. c. 4. 8.	67. r. 3. 8.
	13	53. f. 3. 9.	74. f. 3. 8. III
	14	50. f. 3. 8.	78. f. 3. 7.
	15	63. r. 3. 8.	80. c. 3. 7.
	16	60. car. 3. 7.	68. c. 3. 5.
	17	55. f. 3. 6.	67. f. 3. 6.
	18	57. f. 3. 6.	70. f. 3.
	19	53. f. 3. 4.	76. f. 3. 11.
	20	58. f. 3.	84. f. 2. 8.
	21	56. car. 3.	75. f. 3. Magnolia blossoms
	22	52. f. 3. 2.	76. f. 3. Irish potatoes
	23	53. f. 3.	86. f. 2. 8.
	24	60. f. 2. 8.	84. f. 2. 7. III cherries.
	25	60. f. 2. 6.	83. f. 2. 6.
	26	55. f. 2. 7.	80. f. 2. 6.
	27	54. f. 2. 6.	80. f. 2. 5.
	28	54. f. 2. 7.	85. f. 2. 5.
	29	63. f. 2. 5.	83. f. 2. 5.
	30	63. car. 2. 5.	74. f. 2. 3.
	31	50. f. 2. 5.	74. f. 2. 25. III

Jefferson's notations in the spring of 1805 in his weather memorandum book, 1782-1826, p. 10 (Courtesy of the Massachusetts Historical Society).

for close study of nature. In 1802, after physician-naturalist Benjamin Smith Barton wrote of his plan to gather information on natural history and Indian languages in the southern Appalachians, Jefferson responded: "I really envy you your journey; but I am a prisoner of state." Five years later he said that his public service had prevented him from indulging "in the rich fields of nature, where alone I should have served as a volunteer, if left to my natural inclinations and partialities."³

Jefferson's broad interest in and knowledge of the field of natural history is well known, as is his extensive library on the topic. Throughout his life, he kept in touch with a worldwide network of naturalists and he was particularly fascinated by nature on his own continent. He sponsored fact-gathering expeditions across it and patriotically defended it in his one published book — *Notes on the State of Virginia* — which was, in large part, a work of natural history. Yet, even before his presidency, Jefferson had seldom been able to pay attention to a pursuit he described as "my passion."⁴ The constraints of forty years of public service meant that he was more of a lending librarian and scientific cheerleader than a contributing naturalist. He counseled and encouraged his countrymen, promoting and publicizing their collecting and publishing efforts. His own observations over the years, propelled by patriotic zeal, Enlightenment faith, and an encyclopedic curiosity, reflected his conviction that science was a tool for advancing the fortunes of the new nation as well as improving the entire human condition.

Jefferson's weather records — alas the closest thing to a diary we have from his pen — were partly motivated by his perennial combat against a "very degrading" theory of the Comte de Buffon and other European scientific authors. Their belief that animals in the New World were undersized versions of their European counterparts was underpinned by a conviction that this inferiority was the result of a humid and unhealthy American climate.⁵ Therefore, besides his

efforts to assemble proofs of the large size of American mammals, Jefferson became a one-man weather station and enlisted scientifically-minded friends and relatives in the quest to redeem the continent through comparative meteorological records. He periodically compiled observations made over a range of years into charts, to show the prevailing winds or, in the case of his phenological records, to provide an "estimate of the climate ... made from the advance of the spring, as manifested by animal & vegetable subjects."⁶

Without venturing into the American West with Lewis and Clark or treating Jefferson's role in other national enterprises of natural history, this paper focuses principally on ways in which he interacted directly with the fauna and flora of his own state. His most intense engagement with Virginia's natural history was in the early 1780s, when he was preparing what became his *Notes on Virginia*. In his zealous defense of the American continent from the European theory of degeneration of animal life, he enlisted friends to provide "the heaviest weights of our animals ... from the mouse to the mammoth" and took out his own scales on occasion, once noting: "I weighed a black squirrel 1 lb. - 2¾ oz." Americans overwhelmed the European competition in his published tables of comparative weights of quadrupeds.⁷

Birds

In July 1782, with a different aim, Jefferson weighed several birds to the nearest gram. This was part of an effort to add to the meager store of scientific descriptions of American birds and to clarify some of the confusion in nomenclature. He closely examined a few birds that did not quite match what he saw in his copies of Linnaeus's *Systema Naturae* (1758-1759) and

³ Jefferson to Benjamin S. Barton, 29 March 1802, Julian P. Boyd et al., *The Papers of Thomas Jefferson* (Princeton, 1950-) 37: 132 (hereafter PTJ); Jefferson to Casper Wistar, 21 June 1807, Bergh, *Writings*, 11: 248.

⁴ Jefferson to Harry Innes, 7 March 1791, PTJ 19: 521. In 1807 Jefferson wrote, "I view no science with more partiality than Natural history" (Jefferson to Jean de Lacoste, 24 May 1807, Bergh, *Writings*, 11: 206).

⁵ Jefferson to Ezra Stiles, 10 June 1784, PTJ 7: 304. See also Keith Thomson, "Jefferson, Buffon and the Moose," *American Scientist* 96 (2008), 200-202.

⁶ WMB; Edwin M. Betts, ed., *Thomas Jefferson's Garden Book, 1766-1824* (Philadelphia, 1944), 622-628. See also Susan Solomon, John S. Daniel, and Daniel L. Druckenbrod, "Revolutionary Minds: Thomas Jefferson and James Madison participated in a small 'revolution' against British weather-monitoring practices," *American Scientist* 95 (2007), 430-437.

⁷ Jefferson to Thomas Walker, 25 September 1783, PTJ 6:339; Jefferson's notation on Thomas Walker's "Table of American Animals," among the loose notes and memoranda related to *Notes on Virginia*, Massachusetts Historical Society: Jefferson Papers; Thomas Jefferson, *Notes on the State of Virginia*, ed. Frank Shuffelton (New York, 1999), 50-61. Mammals are given short shrift in the present paper; for Jefferson's zoology debate with Buffon, see Keith Thomson, *Jefferson's Shadow: The Story of His Science* (New Haven, 2012), 62-73.

Mark Catesby's *Natural History of Carolina, Florida, and the Bahama Islands* (1731-1743). Jefferson then drafted and re-drafted descriptions of the birds in both Latin and English. He never published them, however, evidently deciding that what he called the "yellow titmouse" and the "Star-martin" (Eastern Kingbird) were best quietly slipped into the current taxonomy. They appear in a table in the *Notes on Virginia*, an enumeration of 126 species that one authority called "the first attempt to list all Virginia birds." Jefferson provided Linnaean and popular names and cited descriptions in Buffon's *Histoire Naturelle* (1749-1788) and Catesby's work, the source for more than ninety of the species he included.⁸

On Jefferson's birthday in April 1782, four French soldiers rode up Monticello mountain, accompanied by their six servants and a dog. One of the visitors, the Chevalier (later Marquis) de Chastellux, devoted a chapter of his book of American travels to his host. He recalled sitting up late over bowls of punch, discussing Scottish poetry and thorny issues of natural history. The climate and the correct assignment of nationality to animal species particularly engaged them, as they puzzled over the deer family and wondered if the rabbit was really an American species. Chastellux, who was surprised at how ignorant most Americans were of their own natural history, included in his *Travels* a long account of the Purple Martin. He and Jefferson debated the hot topic of where martins and swallows spent their winters. The Frenchman believed in migration, but Jefferson seems to have clung to the theory of torpidity or hibernation. He told Chastellux that an eminent Virginia judge had assured him that he had seen "a great number" of martins in a torpid state in a hollow tree.⁹ A few years later, Jefferson made a list of interesting magazine articles that included Daniel Boone's journal, an English method of making cheese,

⁸ Various notes on birds, among the loose notes and memoranda related to *Notes on Virginia*, Massachusetts Historical Society: Jefferson Papers; *Notes on Virginia*, 71-77; David W. Johnston, *The History of Ornithology in Virginia* (Charlottesville, 2003), 62. The citations to Buffon did not appear in the first edition of the *Notes*. The birds weighed in 1782 were the Eastern Kingbird, Red-eyed Vireo, Yellow-breasted Chat, a "Creeper" [Brown Creeper?], and the "yellow titmouse," most likely a warbler. I wish to thank Storrs Olson and Carla Dove for their help in efforts to identify this still mysterious bird.

⁹ François Jean Chastellux, *Travels in North America in the Years 1780, 1781, and 1782*, ed. Howard C. Rice, 2: 392-396, 460-461. Chastellux wrote that "it would even now be a very useful thing to send to America a little caravan composed of naturalists, geographers, and draftsmen" (2: 458).

and "testimony that the house swallows lie in winter at the bottoms of rivers." In a letter of 1796, he spoke of "the birds issuing from their state of torpor." The Purple Martin, the most frequently noted "index of climate" in his weather diaries, always "appeared" rather than "arrived."¹⁰

For Jefferson, birds were signs of spring, markers of the spread of civilization, and, in the case of his pet mockingbirds, "the delight of every hour." He noted the expanding range of the (Eastern) Meadowlark and the Mockingbird (a wild Mockingbird was first sighted at Monticello in the spring of 1793).¹¹ Since music was another of Jefferson's passions, it is not surprising that song was at the heart of his appreciation of birds. After hearing "a double row of nightingales ... in full song" in the south of France, he wanted to "colonize" this bird in America.¹² Mockingbirds were his principal pets throughout his life. His Washington friend Margaret Bayard Smith left a famous account of Jefferson's favorite mockingbird, "the constant companion of his solitary and studious hours," that would fly about his study and "regale him with its sweetest notes."¹³ Another look into Jefferson's weather diary reveals that there was more than one mockingbird in the White

¹⁰ Notes on Affairs of State: Miscellanea, Library of Congress: Jefferson Papers (the article on swallows was from the *American Museum* 1: 358); Jefferson to Thomas Mann Randolph, 29 February 1796, PTJ 28: 625; WMB passim; James A. Bear, Jr., and Lucia C. Stanton, eds., *Thomas Jefferson's Memorandum Books 1767-1826* (Princeton, 1997), 1: 756 (21 April 1790), 773 (5 April 1784); 2: 843 (21 April 1791), 1070 (2 April 1802).

¹¹ Jefferson to Etienne Lemaire, 25 April 1809, J. Jefferson Looney et al., eds., *The Papers of Thomas Jefferson: Retirement Series* (Princeton, 2004-) 1: 162 (hereafter PTJ-R); Jefferson weather memorandum book, 30 June 1778, Library of Congress: Jefferson Papers ("a field lark at Shadwell. the first I ever saw so far Westerly"); Thomas Mann Randolph to Jefferson, 22 May 1793, and Jefferson to Martha J. Randolph, 10 June 1793, PTJ 26: 87, 250.

¹² Jefferson to William Short, 21 May 1787, PTJ 11: 372. The birds and animals Jefferson wished to introduce to the United States included the Skylark, Nightingale, Red-legged Partridge, Angora cat, and unspecified hares and rabbits. His various efforts to carry out this project were unsuccessful. For a representative sampling from the many letters on the topic, see Jefferson to Archibald Cary, 7 January 1786, James Monroe, 26 May 1795, and William Thornton, 11 October 1809, PTJ 9: 158, 28: 362, PTJ-R 1: 599-600.

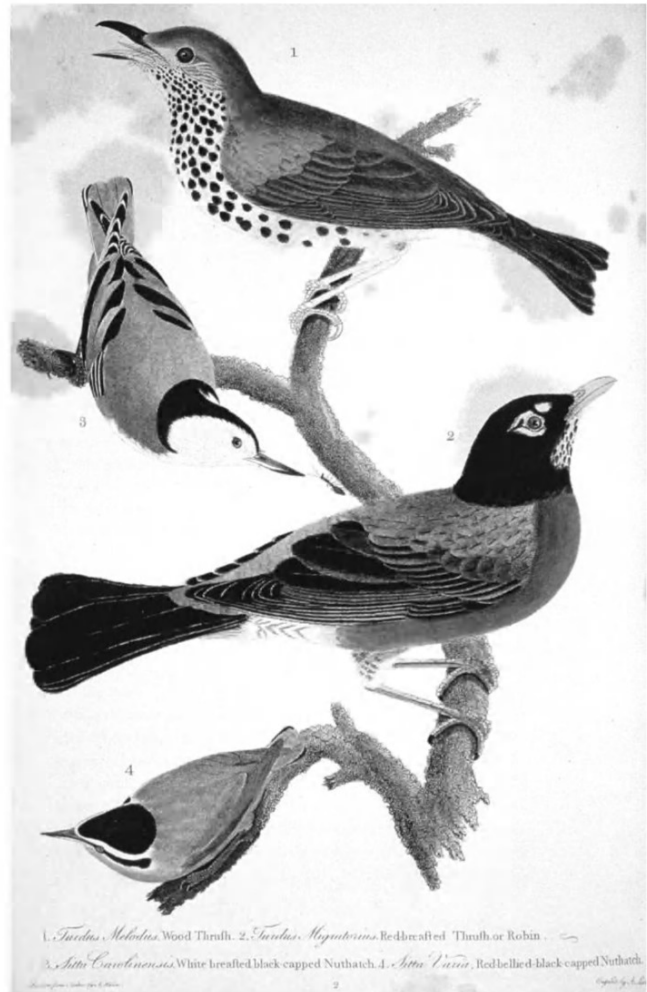
¹³ Margaret Bayard Smith, *The First Forty Years of Washington Society*, ed. Gaillard S. Hunt (New York: Scribner, 1906), 385.

House. Each year he noted their inaugural vocalizations as part of his phenological record. In 1808, for instance, the "[New] Orleans bird sings" on January 23. A week later "the old mock. bird sings." On March 2, "the middle aged bird sings," and the next day "Dick sings." The only named mockingbird in his writings, Dick was probably the favorite described by Mrs. Smith. The songs of this bird, which perched on Jefferson's writing table and hopped up the stairs after him when he retired for a nap, may have included "Willie Was a Wanton Wag." The tune of this Scottish song had been borrowed for one of the most popular patriotic songs of the day, "Jefferson and Liberty." Based on their price (the equivalent today of several hundred dollars each), two of Jefferson's birds must have received singing lessons prior to their arrival in the White House.¹⁴

At Christmastime in 1808, Alexander Wilson arrived in the federal capital, on his way down the East Coast seeking subscriptions for the monumental work that elevated the study of American birds to a science. At the White House he presumably met Dick as well as Jefferson, who had already subscribed to *American Ornithology* and was no doubt instrumental in attracting seventeen subscribers in Washington, including three members of his Cabinet. An ardent Jeffersonian, Wilson had in 1805 sent the President a watercolor of two birds he had met near Niagara Falls and which he believed were new to science. Jefferson immediately consulted his volumes of Buffon and agreed that the jay had not previously been described. The other bird, however, was not only similar to a flycatcher he found illustrated in Buffon, but greatly resembled a small corpse that a local farmer had brought him to identify, "so putrid that it could not be approached but with disgust." Jefferson enlisted Wilson's aid in identifying a mystery bird that "perpetually serenades us with some of the sweetest notes, & as clear as those of the nightingale. I have followed it miles without ever but once getting a good view of it." After searching for a summer and conferring with William Bartram, Wilson concluded that it was the "wood robin" (Wood Thrush). He published Jefferson's query letter and the first image and description of the thrush in his *American Ornithology*. Jefferson evidently accepted this judgment, because in 1807 he recorded hearing the first notes of the "Incognito, or Wood Robin" on April 26.¹⁵

¹⁴ WMB; Lucia Stanton, "Snowbirds and 'Superior Beings,'" *Fall Dinner at Monticello, November 4, 1988* (Charlottesville, 1988); Bear and Stanton, *Memorandum Books*, 2: 1101, 1112. Alexander Wilson wrote the words to "Jefferson and Liberty."

¹⁵ Wilson to William Bartram, 4 March 1805, 2 July 1805; Wilson to Jefferson, 18 March 1805, 30 September 1805; Jefferson to Wilson, 7 April 1805, Clark Hunter, ed., *The Life*



Wood Thrush, White-breasted Nuthatch, American Robin, and Red-breasted Nuthatch (Alexander Wilson, *American Ornithology*, volume 1, 1808).

Insects

Other than the house flies in the White House and notes of occasional ticks and fireflies at Monticello, the record of Jefferson's interest in insects relates mainly to economic pests. While serving in Philadelphia as Secretary of State in the spring of 1791, he urged his son-in-law in Virginia to take up the study of the grain

and *Letters of Alexander Wilson* (Philadelphia, 1983), 232, 233, 236-238, 244-246; WMB. Catesby's *Natural History* included only the Gray-cheeked Thrush. Neither the watercolor of the two Niagara birds, nor a second one Wilson sent to Jefferson of four of "our most capital Songsters" (Mockingbird, Brown Thrasher, Catbird, and Wood Thrush) have survived; the second was burned or lost in Louisiana during the Civil War.

weevil (*Sitophilus granarius*), then the principal enemy of their main cash crop, wheat. Jefferson also discussed the weevil with William Bartram, who believed it was the same pest that attacked plums, peaches, and apricots. Bartram promised “to shew me the insect this summer. — I long to be free for pursuits of this kind instead of the detestable ones in which I am now labouring without pleasure to myself, or profit to others.”¹⁶

In mid-May, weary of the contentious climate in George Washington’s cabinet, Jefferson left his desk to become a tourist, making a month-long journey with James Madison through upstate New York and New England. Even on vacation, Jefferson needed a public purpose. He was on the trail of the infamous Hessian fly (*Mayetiola destructor*), then working its way up and down the coast from its point of introduction on Long Island. He was chairman of a new committee of the American Philosophical Society, its mission to collect materials for “forming the Natural History” of the insect and finding “the best means of preventing or destroying” it.” Jefferson filled six pages with notes on the fly’s habits and depredations, based on interviews with farmers, tavern-keepers, and blacksmiths along his route. At the end of the journey, he and Madison reached the very spot (now part of Brooklyn) where American farmers had first watched their wheat stalks shrivel and break in 1777.¹⁷

Early in 1792, again “shut up drudging within four walls,” Jefferson got to take a closer look at the enemy. He received some stalks of wheat containing pupae of the Hessian fly and, over the next two weeks, made detailed notes on the minute body parts of each adult fly, as it emerged from its “chrysalis.” He watched one lay eggs and thought about the usual question, Was it a native or an immigrant? As he wrote his son-in-law, “the examination of a single one which hatched a week ago, gives me reason to suspect they are non-descript, and consequently aboriginal here.” In the first years of its ravages, the insect was viewed as an alien, a stowaway in the straw for the Hessian troops that disembarked at Flatbush in 1776. George Morgan of Princeton claimed the honor of providing the sobriquet “Hessian.” By linking the marauding gall midge to the

German mercenaries, he believed he had furnished a “useful National Prejudice.” Hessian flies reached Virginia during Jefferson’s presidency. In 1817 he wrote from Monticello, “We, of this state, must ... be contented with so much [bread] as a miserable insect will leave us.”¹⁸

Some of Jefferson’s fellow Americans — his political opponents — were offended by the sight of a politician peering into the secrets of Nature. From the 1790s through his presidency, Federalist satirists had a heyday. In 1797, he was depicted “weighing the rats and mice of the two worlds to prove that those of the new are not exceeded by those of the Old.” William Cobbett, in his fictitious will as Peter Porcupine, bequeathed to Jefferson “a curious Norway spider, with a hundred legs and nine pair of eyes.” In 1804, another Federalist author imagined finding a fragment of Jefferson’s diary on the banks of the Potomac. In it Jefferson cursed the irritating public business that interrupted his composition of a “dissertation on cockroaches.” Three years later a youthful Washington Irving evoked a president who “amuses himself with impaling butterflies and pickling tadpoles.”¹⁹

Plants

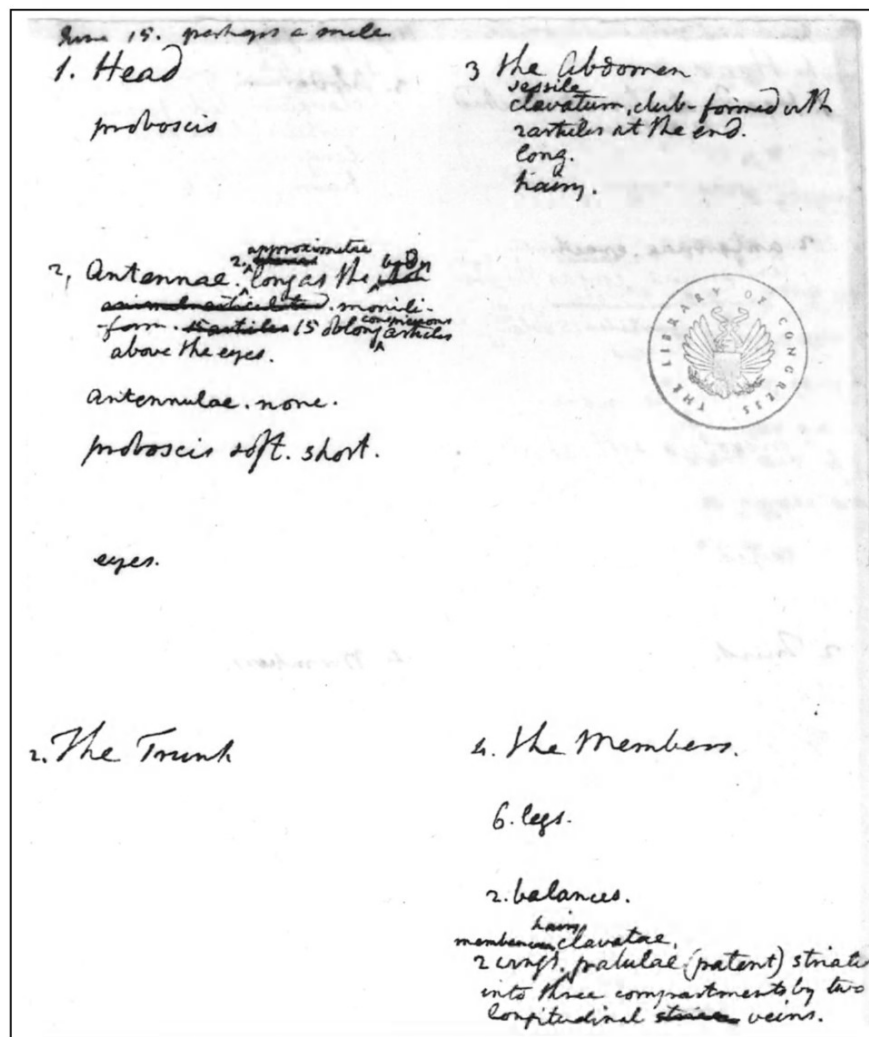
Jefferson was a passionate gardener and energetic proponent of botanical exchange, in accordance with one of his best-known sayings: “The greatest service which can be rendered any country is to add an useful plant to it’s culture.” In his five-year stint as minister to France, he acted on this belief by taking measures to introduce economic plants like upland rice and the olive tree to the southern United States. Ornamental plants were not neglected. Plant material crossed the Atlantic in both directions, as Jefferson gathered up European

¹⁶ Jefferson to Thomas Mann Randolph, 1 May 1791, PTJ 20: 341. In fact, the “greater part” of Jefferson’s 1791 wheat crop was lost to the weevil (Jefferson to James Lyle, 29 July 1792, PTJ 24: 266). See also Jefferson’s Notes on Insects, 9 May 1798, PTJ 30: 340.

¹⁷ American Philosophical Society Circular, 17 April 1792, PTJ 23:430, 432; Jefferson’s Notes on Hessian Fly, [24 May–18 June 1791], PTJ 20: 456–461.

¹⁸ Jefferson to Martha J. Randolph, 26 February 1792, PTJ 23: 159; Jefferson’s Notes on Hessian Fly, [1–15 June 1792], PTJ 24: 11–14; Jefferson to Thomas Mann Randolph, PTJ 24: 83; George Morgan to Sir John Temple, 26 August 1788, Library of Congress: Jefferson Papers; Jefferson to William Johnson, 10 May 1817, Betts, *Garden Book*, 572. See also Brooke Hunter, “Creative Destruction: The Forgotten Legacy of the Hessian Fly,” *The Economy of Early America: Historical Perspectives and New Directions*, ed. Cathy Matson (University Park, PA, 2006), 236–262, and Lucia C. Stanton, “Analyzing ‘Atoms of Life’” (1991), <http://www.monticello.org/site/house-and-gardens/hessian-fly>.

¹⁹ *Littell’s Living Age* 87 (1865): 253; William Cobbett, *Porcupine’s Works* (London, 1801), 5: 199; Harold Milton Ellis, *Joseph Dennie and His Circle* (Austin, 1915), 182; Linda K. Kerber, *Federalists in Dissent: Imagery and Ideology in Jeffersonian America* (Ithaca, 1980), 71.



Jefferson's notes on examining a Hessian fly (*Mayetiola destructor*) in June 1792 (Library of Congress: Jefferson Papers).

species for American gardens and badgered his friends back home to ship seeds of native trees and shrubs to Paris for avid gardeners there. One of the most eager collectors of American species was the Comtesse de Tessé, a relative of the Marquis de Lafayette. Jefferson struggled for years to fulfill her long wish-list, which included rarities like *Stewartia* and a plant that all his Parisian friends yearned to possess — the Venus flytrap (*Dionaea muscipula*).²⁰

Jefferson welcomed and faithfully used what he called the "universal language" of the Linnaean binomial system. For a long time, however, he resisted attempts to modify it and, as late as 1814, described Jussieu's new natural system as a subject of "regret."

Jefferson has been credited with the first scientific description of the pecan tree (*Carya illinoensis*), published in his *Notes on Virginia* (Paris, 1785) a few months before Humphrey Marshall's *Arbustum Americanum* (Philadelphia, 1785). Writing in Paris, Jefferson began this last-minute addition to his *Notes*: "Were I to venture to describe this, speaking of the fruit from memory, and of the leaf from plants of two years growth, I should specify it as the *Juglans alba, foliolis lanceolatis, acuminatis, serratis, tomentosis, fructu minore, ovato, compresso, vix insculpto, dulci, putamine, tenerrimo....*"²¹

²⁰ Jefferson Summary of Public Service, after 2 September 1800, PTJ 32: 124; Betts, *Garden Book*, 117, 122, 131, 138-140, 149-150.

²¹ Jefferson to John Manners, 22 February 1814, PTJ-R 7: 209-211; *Notes on Virginia*, 40; Rodney True, *Thomas Jefferson in Relation to Botany* (Lancaster, PA, 1916), 349-350. Jefferson left preparatory notes for a scientific description of sweet-shrub (*Calycanthus floridus*) among the loose memoranda related to *Notes on Virginia*, Massachusetts Historical Society: Jefferson Papers.

As a field botanist, a twenty-three-year-old Jefferson made a shaky start in the spring of 1766. On the first page of his best known book of record, his Garden Book, he made brief notes of the succession of blooming wildflowers along the banks of the Rivanna River — bloodroot (*Sanguinaria canadensis*), Virginia bluebells (*Mertensia virginica*), wild iris (*Iris virginica*), and wild azalea (*Rhododendron periclymenoides*): “Puckoon open” (April 6); “Puckoon flowers fallen” (April 13); “a bluish colored, funnel-formed flower in lowgrounds in bloom” (April 16); “purple flag blooms” (April 30); “Wild honeysuckle in our woods open” (May 4). A week later he wrote, “Went journey to Maryland, Pennsylv., New York. so observations cease.” And they ceased forever. These were Jefferson’s first and last recorded notations on his native flora in any systematic way. He saved his methodical recordkeeping for his vegetables.²²

In 1778, Jefferson confessed that he was “acquainted with nothing more than the first principles” of botany. Although he never became a scientific botanist, he always remained a plant lover. In 1791, on the northeastern journey with James Madison, new botanical objects provided the greatest enjoyment of the trip. After his return to Philadelphia, Jefferson made an effort to identify the unfamiliar trees and shrubs they had seen by consulting his memory and the short descriptive epithets he had written in his journal of the tour. As he wrote to Madison: “I am sorry we did not bring with us some leaves of the different plants which struck our attention, as it is the leaf which principally decides specific differences.” He was baffled by the identity of a fragrant azalea he saw in the Hudson Valley and described as “wild honeysuckle rose-coloured, on stems 4. f. high loaded richly with large flowers of a strong, pink fragrance.” He doubted that it was the familiar wild azalea (now *Rhododendron periclymenoides*), but could not find the species in any books in his library. In fact, it took botanists another century to decide on a name for what was probably *R. prinophyllum*.²³ President Jefferson’s plant-focused escapes from the White House a decade later were described by his friend Margaret Bayard Smith:

When he took his daily ride, it was always on horseback and alone. It was then he enjoyed solitude, surrounded only by the works of nature of which he was a fond lover and great admirer. He used to

explore the most lonely paths, the wildest scenes among the hills and woods of the surrounding country, and along the high and wooded banks of the Potomac. He was passionately fond of botany, not a plant from the lowliest weed to the loftiest tree escaped his notice, dismounting from his horse he would climb rocks, or wade through swamps to obtain any plant he discovered or desired.²⁴

Since Jefferson never went south of Norfolk or west of Hot Springs, his botanizing in the nation at large was mostly vicarious. He knew the leading nurserymen and plant collectors and influenced the travels of some of the latter. He tried to divert André Michaux from a collecting trip by tapping him to lead a transcontinental exploring expedition. Political developments derailed this plan and the Frenchman continued on his intended route southward. For Michaux, Virginia was always more of a way station than a destination, as he usually made a beeline to the highest peaks of the Appalachians or the Carolina low country. He did, however, make a stop to botanize in the Blue Ridge in Wythe County in 1789, where he collected the plant that became Jefferson’s botanical namesake. Michaux dug the roots of twinleaf (*Jeffersonia diphylla*) on July 4, and carried them back to William Bartram’s garden in Philadelphia. Almost two years later, Bartram and Benjamin Smith Barton observed the plant in bloom. They jointly made the first drawing of a flowering twinleaf and realized that it was not a *Podophyllum*, as Linnaeus had classified it. In 1792, Dr. Barton announced to the American Philosophical Society that he gave it the name *Jeffersonia binata* in honor of the man whose knowledge of natural history, “especially in botany and in zoology ... is equalled by that of few persons in the United-States.”²⁵

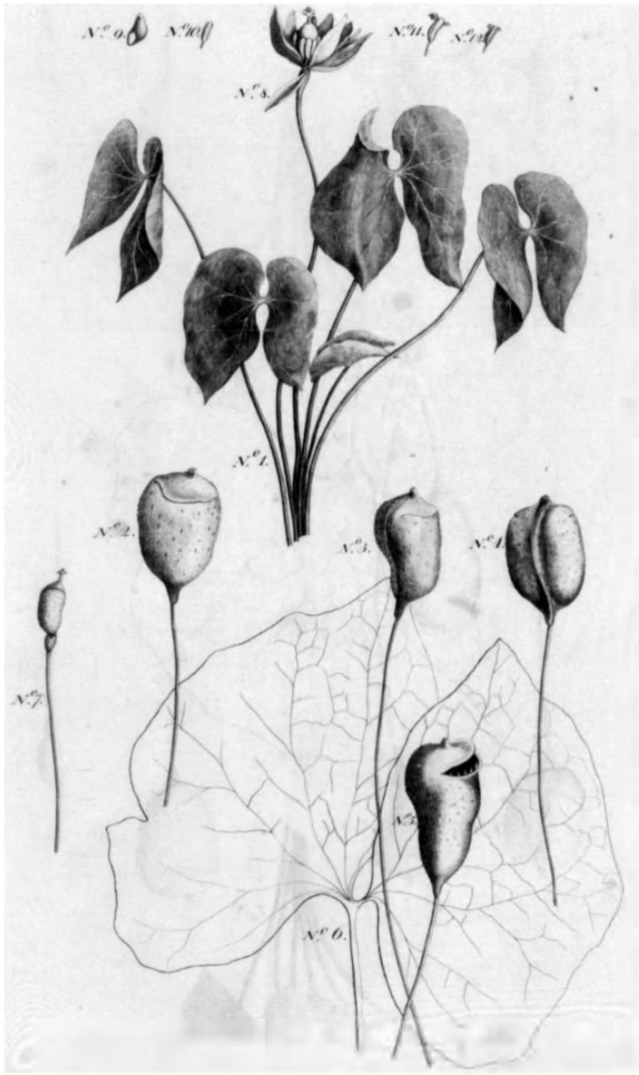
While most of the plant collectors of Jefferson’s time passed quickly through the Shenandoah Valley enroute to the Carolina mountains and Coastal Plain, Jefferson succeeded in persuading some of them to linger a bit longer in Virginia. He had first met Scottish linen draper turned plant hunter John Fraser in Paris in the 1780s. A skillful marketer, Fraser promoted a fairly common American bent grass (*Agrostis perennans*) as a

²⁴ Smith, *Washington Society*, 393.

²⁵ C. S. Sargent, “Portions of the Journal of André Michaux,” *Proceedings of the American Philosophical Society* 26 (1889): 55, 136; [Benjamin Smith Barton,] “A Botanical description of the *Podophyllum diphyllum* of Linnaeus,” *Transactions of the American Philosophical Society* 3 (1793): 337-338, 342. See also Lucia Stanton, “Jefferson’s Namesake” (1992), <http://www.monticello.org/site/house-and-gardens/twinleaf>.

²² Betts, *Garden Book*, 1.

²³ Jefferson to Giovanni Fabbroni, 8 June 1778, PTJ 2: 196; Jefferson to James Madison, 21 June 1791, PTJ 20: 560; Jefferson Journal of a Tour, [21 May-10 June 1791], 20: 453.



Jeffersonia diphylla, engraved from a drawing by William Bartram and Benjamin Smith Barton of a plant collected by André Michaux in 1789 (*Transactions of the American Philosophical Society*, vol. 3, 1793).

forage plant of extraordinary value. He sold to Jefferson (and a long list of aristocrats that included the Marquis de Lafayette) a quart of the seed for the equivalent today of three hundred dollars.²⁶

In 1800, on one of several collecting trips to the United States, Fraser and his son spent two summer days at Monticello. They enjoyed the views as well as the hospitality and conversation of their host. John Fraser, Jr., wrote that "Mr. Jefferson possesses a most comprehensive genius; he seems to be acquainted with

the theory of every science, and is quite an adept at mechanism. He tells us he has given up paying attention to *Botany*, of which he was once so fond; his public duty, and the intricacies of politics, requiring all his time." The Frasers had been planning to visit Washington, DC, but Jefferson, then Vice President, told them that the federal capital was "not worth the trouble." They should instead cross the Blue Ridge Mountains to see the Natural Bridge in Rockbridge County. Jefferson urged every foreign traveler who stopped at Monticello to see the natural wonder that he had owned since 1774. The Frasers journeyed from Monticello to the Natural Bridge, on to White Sulphur Springs, and back to Botetourt County, from where young John Fraser wrote of their eight-hundred-mile tour from their base in South Carolina, "We have hitherto travelled thro' a country very destitute of botanical subjects."²⁷

In 1802, Jefferson's great white hope arrived at Monticello. Determined that native-born Americans should be the discoverers and describers of America's flora and fauna, he put his faith in Benjamin Smith Barton to lead the American scientific team to eminence. When Dr. Barton was working on his flora of Virginia, he needed to return Henry Ernest Muhlenberg's copy of C. H. Persoon's *Synopsis Plantarum* and asked to borrow Jefferson's, with the comment: "I know of no other copy in the country, that at Monticello excepted."²⁸ Jefferson welcomed the first American botanical textbook, Barton's *Elements of Botany* (1803), and recommended it widely, but he so lamented the absence of an index that he spent hours making one himself. In 1813, Jefferson asked Barton, "When shall we have your book on American botany, and when the 1st volume of Lewis & Clarke's travels?" But the learned doctor died in 1815, leaving much of his work incomplete.²⁹

²⁷ John Fraser, Jr., to unidentified recipient, 1800 (Charleston *City-Gazette and Daily Advertiser*, 17 October 1800).

²⁸ Benjamin Smith Barton to Jefferson, 16 October 1810; Jefferson to Barton, 22 October 1810, PTJ-R 3: 167, 181. When Jefferson sold his library to Congress in 1815, he requested the return of the volumes (Jefferson to Barton, 26 February 1815, Barton to Jefferson, 6 March 1815, PTJ-R 8: 284, 319).

²⁹ Joseph Ewan and Nesta Dunn Ewan, *Benjamin Smith Barton: Naturalist and Physician in Jeffersonian America* (St. Louis, 2007), 413; Jack McLaughlin, "The Organized President," *American Heritage* 42 (1991), 86-89; Jefferson to Benjamin Smith Barton, 3 April 1813, PTJ-R 6: 46.

²⁶ David H. Rembert, "Thomas Walter Carolina Botanist," *South Carolina Museum Bulletin*, no. 5 (1980), 18-19; John Fraser, *A Short History of the Agrostis Cornucopiae; or, the new American Grass* (London, 1789).

Barton's notes on his rambles through Virginia are a fascinating compendium of information about the names, uses, and origins of plants, gleaned from conversations with Virginians he encountered as well as his own observations. He learned how to cure gout and rheumatism with tulip poplar leaves, how to save the lives of turkeys who had ingested Jimsonweed, how to mend china with puttyroot, and he described the use of dried pods of unicorn plants (*Proboscidea louisianica*) as coat hangers. As he neared Monticello on a late August afternoon he noted pawpaw (*Asimina triloba*), horsemint (*Monarda punctata*), "and some *Ricinus communis* [castor bean], which, however, is hardly indigenous in this spot." Then Barton turned into, from the perspective of those of us who thirst for details of Jefferson's mountain home, one of most disappointing of all visitors to Monticello. After writing that he arrived on the mountaintop about two o'clock, he penned a title for the page ("Monticello") with a flourish and began, "Monticello is the beautiful seat of Mr. Jefferson." The rest of the page is blank, awaiting impressions that Barton never got around to transcribing. On other pages in his notes he revealed that he talked to Jefferson about fireflies, hummingbirds, strawberry-bush (*Euonymus americanus*), umbrella magnolia (*Magnolia tripetala*), and honey locust (*Gleditsia triacanthos*). Jefferson informed his guest that insects, and therefore insect-eating birds like swallows, were rare on the mountaintop. According to Barton, Jefferson "cannot prevail upon the martins (*Hirundo purpurea*) to stay, but the Chimney-birds (*Hirundo Pelasgia*) do."³⁰

Although there is no record of a visit to Monticello, Jefferson no doubt met John Lyon, who made ten journeys to collect American plants for his London nursery; one of his auction sales was reckoned to include "the greatest collection of American trees and shrubs ever brought to England at one time, by one individual." Lyon is said to have been the last person to have seen *Franklinia alatomaha* in the wild. His botanical journal provides a record of his observations as he hurried through Virginia on his way to richer pastures. At Harper's Ferry in May 1804 he gathered two hundred roots of *Jeffersonia*. In 1807, traveling through Richmond and Petersburg, he was struck by meeting a number of southern plants at their northern limits. A year later he made a two-day detour from the

Valley road to view the Natural Bridge and climb the Peaks of Otter, "from which is a most extensive and varied view." There he "observed a number of uncommon plants," among them Catawba rhododendron (*Rhododendron catawbiense*), Michaux's saxifrage (*Hydaticea petiolaris*), and one of the more than thirty American plants he first introduced to England, bleeding heart (*Dicentra eximia*).³¹

Another English botanist paid Jefferson a visit in August 1809. John Bradbury, seeking new and unusual plants for the Liverpool Botanic Garden, headed directly to Monticello soon after his arrival in the United States. He spent almost two weeks there and, according to his host, passed "every day in the woods from morning to night. he found, even on this mountain, many inedited articles."³² Bradbury reported to his sponsors in Liverpool that he had found at Monticello a number of new ladyslippers and "Heleborines," plus "two new *Cacaliae* a new & most Odorous *Coreopsis* a new *Talinum* a beautiful Rock Plant and many others of which I am doubtful." He also noted that he had "the advantage of a very good Botanic Library," where, among other works, he consulted Jefferson's Persoon. The evenings were evidently filled with discussions of the discoveries in natural history of the Lewis and Clark expedition. Bradbury reported that Jefferson wished to send to Liverpool seeds of a fast-ripening maize — a variety grown by the Mandan tribe in present North Dakota that Jefferson thought would be "an Immense acquisition to Britain."³³

Many of the "inedited" plants Bradbury found at Monticello defy certain identification today. Some were removed to Jefferson's garden and others were marked in the woods, to await arrangements for transport to Liverpool. Bradbury apparently never reclaimed them. On Jefferson's advice, he abandoned his plans to make the already well-combed region from Kentucky to New Orleans the center of his operations. Not content "with gleaning when by a little more exertion I may become a first Reaper," he proceeded instead to St. Louis and

³⁰ W. L. McAtee, ed., "Journal of Benjamin Smith Barton on a Visit to Virginia, 1802," *Castanea* 3 (1938), 86-117; Barton's additional manuscript notes of his 1802 journey, American Philosophical Society: Barton Papers, 8: 32-40. These notes were kindly shared by the late Joseph Ewan in 1980.

³¹ J. C. Loudon, *Arboretum et Fruticetum Britannicum* (London, 1838) 1: 122; Joseph and Nesta Ewan, "John Lyon, Nurseryman and Plant Hunter, and His Journal 1799-1814," *Transactions of the American Philosophical Society*, n. s., 53 (1963): 5-12, 22-23, 26, 32, 37.

³² Jefferson to Benjamin Smith Barton, 11 September 1811, PTJ-R 4: 147.

³³ John Bradbury to William Roscoe, 12 August 1809, PTJ-R 1: 436-437; Bradbury to James Edward Smith, Linnean Society, London: Smith Manuscripts; partially printed in PTJ-R 1: 437.

eventually up the Missouri River, the first botanist to follow in the steps of Lewis and Clark. Unfortunately, Bradbury did not reap any rewards for his harvest of botanical novelties. Many of his new American species were described and published by Frederick Pursh in his *Flora Americae septentrionalis* (1814), “depriving me,” as Bradbury bitterly wrote, “both of the credit and profit of what was justly due to me.” His herbarium specimens had a checkered career and, at one point, were found being used by the gardeners at the Liverpool Botanic Garden as spills for their tobacco pipes.³⁴

By the time of Bradbury’s visit, Jefferson had finally retired to Monticello, where botany was “but an object of amusement, a great one indeed and in which all our family mingles more or less.” And soon another European botanist became a regular participant in the household’s botanical amusements. José Corrêa da Serra, a Portuguese abbot known for his universal learning and epigrammatic wit, first arrived at the mountain in the summer of 1813. Jefferson was captivated by the worldly abbé, calling him “the greatest collection, and best digest of science in books, men, and things that I have ever met with.” A mutual friend reported that Corrêa “was enchanted with Monticello and delighted with its owner.” He made what he called his “annual pilgrimage to the Holy Land” six more times before returning to Europe in 1820.³⁵

Corrêa’s curiosity about American natural history caused him to travel north to the Canadian border, west to Kentucky, and south to Georgia. He was particularly drawn to the Dismal Swamp and its environs, which he noted as “the point of contact of the southern and northern systems of vegetation of the United States.” The abbé, who incorporated Jussieu’s classification method into the botany classes he taught in Philadelphia, finally convinced Jefferson to relent in his opposition to the new natural system. He advised Jefferson on a botanical curriculum and prepared a plan for a botanic garden for the University of Virginia. In the last weeks of his life, Jefferson selected a site for the six-acre garden, which was to be “restrained

altogether to objects of use, and indulging not at all in things of mere curiosity.” Despite his strong support for its immediate construction, the botanic garden was never built.³⁶

In September 1815, Corrêa and the young Virginian Francis Walker Gilmer stopped to visit Jefferson at his Bedford County retreat, Poplar Forest, before making a tour of the Deep South. The three men headed into the Blue Ridge, where the seventy-two-year-old Jefferson and his friends passed two days “taking the elevation of the Peaks of Otter and then exploring the sides of them for subjects botanical.”³⁷ They traveled farther west to view the Natural Bridge and then parted, saying their farewells actually “on” the bridge. Corrêa and Gilmer turned south while Jefferson went back to Poplar Forest and wrote to the governor of Georgia. He introduced the two travelers and noted that, “as every plant of any singularity stays them, their progress will be slow.”³⁸

While Corrêa and Gilmer made their long journey, Jefferson returned to the Blue Ridge for further measurements and spent five days making geometrical computations to determine the elevation of the Peaks of Otter.³⁹ Such astronomical and mathematical exercises, rather than biological observations, were the favorite pastime of his retirement. Jefferson had, however, another botanical role to play. In 1821, he was offered a manuscript written by the late Dr. James Greenway of Dinwiddie County, the only known flora of the state between John Clayton and J. F. Gronovius’ *Flora Virginica* (1739-1743; 2nd edition 1762) and the

³⁴ John Bradbury to William Roscoe, 12 August 1809; Bradbury, *Travels in the Interior of America, in the Years 1809, 1810 and 1811* (London, 1817), 79.

³⁵ Jefferson to Benjamin Smith Barton, 22 October 1810, PTJ-R 3: 181; Jefferson to Caspar Wistar, 17 August 1813, PTJ-R 6: 415; William Short to Jefferson, 18 January 1814, PTJ-R 7: 139; Corrêa to Francis W. Gilmer, 30 April 1818, Richard Beale Davis, *The Abbé Correa in America, 1812-1820* (Providence, 1993), 237.

³⁶ Corrêa to Francis W. Gilmer, 30 April 1818, Davis, *The Abbé Correa*, 238-239; Lily Fox-Bruguiere, “An Uncultivated Legacy: Jefferson’s Botanical Garden at the University of Virginia,” M.A. thesis, University of Virginia, 2010.

³⁷ Peachy Gilmer to Francis W. Gilmer, 3 October 1815, Richard Beale Davis, *Francis Walker Gilmer: Life and Learning in Jefferson’s Virginia* (Richmond, 1939), 90. In the 1780s, Jefferson had supposed that the Peaks of Otter were the highest mountains in Virginia and perhaps all of North America, “measured from their base” (*Notes on Virginia*, 22, 293).

³⁸ Jefferson to Corrêa, 1 January 1816, PTJ-R 9: 308; Jefferson to John Milledge, 22 September 1815, PTJ-R 9: 38-39. A souvenir of their trip survives in the library of the University of Virginia, a copy of André Michaux’s *Flora Boreali-Americana* given to Gilmer by Charleston physician and botanist James McBride. It contains marginalia about plant uses and common names by both Gilmer and McBride.

³⁹ For Jefferson’s field notes and calculations, see PTJ-R 9: 153-174 and *Notes on Virginia*, 293.

monumental manual published last year.⁴⁰ Jefferson would probably have sympathized with Greenway's regret that Clayton, by sending his dried Virginia plants to Holland for publication, had "deprived his Country of the Honour" of describing and publishing them. In accepting Greenway's manuscript, Jefferson said that he wanted to honor its author and "give benefit to the world." He had it bound in Richmond and placed with books destined for the University of Virginia, then under construction. He told Greenway's son that he had looked over the flora "with sufficient attention to satisfy myself of it's merit and that it's matter should not be lost to the world." But it was lost. Greenway's manuscript, lying unpublished in the University's Rotunda library for the rest of the century, was apparently burned in the fire of 1895.⁴¹

Although Jefferson was never a full-fledged practicing naturalist, he unquestionably contributed to the expansion of knowledge of his nation's natural history, especially as sponsor of the Lewis and Clark expedition, which yielded several hundred plants and

animals new to science. Jefferson's own knowledge is reflected in his choice of its leader. Although he was subsequently criticized for not assigning a trained naturalist to the Corps of Discovery, Jefferson knew that Meriwether Lewis had a "talent for observation, which had led him to an accurate knowledge of the plants & animals of his own country." Lewis could thus distinguish new from known species, accurately recalling the precise color of the speckles of the Brook Trout and number of feathers in the tail of the Ruffed Grouse. Jefferson's instructions to his fellow Virginian, besides enjoining attention to new or rare animals and "vegetable productions" along the route, were to make careful observations of the climate and, of course, "the dates at which particular plants put forth or lose their flower, or leaf, times of appearance of particular birds, reptiles or insects." It is fitting that Jefferson seems to have taken up his pen for the very last time after consulting his rain gauge. He made this final notation in his weather diary five days before his death on July 4, 1826: " $r = 0.95$."⁴²

⁴⁰ Alan S. Weakley, J. Christopher Ludwig, and John F. Townsend, *Flora of Virginia* (Fort Worth, 2012).

⁴¹ Jefferson to Robert Bolling Stark, 7 October 1818, Huntington Library, San Marino, CA; Jefferson to Robert Greenway, 17 April 1821, 12 December 1822, Library of Congress; James Greenway to Benjamin Smith Barton, 17 October 1791, Ewan and Ewan, *Benjamin Smith Barton*, 595.

⁴² Jefferson to Paul Allen, 18 August 1813, PTJ-R 6: 419; Paul Russell Cutright, *Lewis and Clark: Pioneering Naturalists* (Lincoln, NE, 1989), 15, 397-398; Jefferson to Meriwether Lewis, 20 June 1803, Donald Jackson, ed., *Letters of the Lewis and Clark Expedition* (Urbana, 1978), 63; WMB, 29 June 1826. Jefferson's last known letter was to George P. Stevenson, 25 June 1826 (J. Jefferson Looney, "Thomas Jefferson's Last Letter," *Virginia Magazine of History and Biography* 112 [2004]: 179-184).



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