

Dennis Beesley

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Dr. Daniel Kerr

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The Environmental Impact on the Life and Philosophies of Thomas Jefferson

Thomas Jefferson is perhaps one of the most influential statesmen in American history, having penned the Declaration of Independence and given much of his life in service to the newly formed United States. Notably, many of Jefferson's policies while in the presidency were tied to the land; he believed that democracy and independence from tyrannical government relied on a specific set of land policies.¹ Given his ideas about the land and its importance to American democracy, as well as his invocation of "nature" in the Declaration of Independence, it seems pertinent to investigate the influence of the natural environment on Jefferson's life and politics. To understand the role of the natural world in Jefferson's life, it is important to research the physical environment in which he lived, how he interacted with and used the land, and eventually how Jefferson viewed and interpreted his natural surroundings.² In searching for an environmental history in the life of Thomas Jefferson, we find that he was influenced by the

¹ For Jefferson's influence on America's earliest land policies, see Steward L. Udall, *The Quiet Crisis and the Next Generation* (Salt Lake City: Peregrine Smith Books, 1988), 13-20; in terms of Jefferson's connection of democracy and independence to the land, see Lynton Keith Caldwell and Kristin Shrader-Frechette, *Policy for Land: Law and Ethics* (Lanham, MD: Rowman & Littlefield Publishers, 1993), 229-230.

² In this way, this paper includes all three levels of analysis in environmental history; including the natural world, modes of production, and ideologies connected to the land. See Donald Worster, "Transformations of the Earth: Toward an Agroecological Perspective in History," *The Journal of American History*, Vol. 76, No. 4 (Mar., 1990): 1087-1106.

myths of abundance, wilderness, and definite progress. His relationship to the land also shaped two of his desires which guided his own conservation efforts: preserving his own wealth and perpetuating the new nation. The question is, whether the conservation ideology of Thomas Jefferson is any different from twenty-first century conservation.

Albemarle's Native American Social and Natural Environment

Biographies of Jefferson often begin with stories about his parents and their ancestral roots. Understanding the beliefs and practices of Peter and Jane Jefferson helps scholars identify the ways in which his parents influenced young Thomas. Scholars also discuss the impact of Thomas' instructors in his youthful education. Studying those individuals whose lives interacted with Thomas Jefferson from his earliest years is important, but in order to examine every aspect of influence on the young man's life we must consider not only his social but his physical environment. In order to identify those factors in the natural world that might have influenced Jefferson, we must first examine the roots of that environment, which requires looking both at the natural world before his family lived in Albemarle County and also how peoples in that area interacted with that world.

While changes in the land are often attributed to Anglo-European settlement, the native inhabitants that lived in and around present-day Albemarle County also left their own ecological footprints. Traditionally, native groups engaged in hunting and gathering, though their economy was based on subsistence rather than commercial exchange. Animal populations remained significantly copious until the late seventeenth century when, as Shepard Krech explains in regard to deer, "great numbers soon showed the effects of escalating consumer demand, and concentrated market hunting from winter skin-processing camps. ... In Virginia, the colonists

closed the season on white-tails—so ominously had deer populations plunged.”³ Despite the threat of the depletion of certain species due to the introduction of European commercial practices, by the time Jefferson’s father entered the Piedmont, the colonists still maintained a view of an abundance of resources throughout the American continent.

Even Jefferson himself found it difficult to conceive of species becoming extinct. Although he purchased and owned various fossils of extinct animals, Jefferson still believed strongly that it was likely those animals still inhabited unexplored portions of their continent. In his *Notes on the State of Virginia*, Jefferson wrote, “Those parts still remain in their aboriginal state, unexplored and undisturbed by us, or by others for us. He,” speaking of the mammoth, “may as well exist there now, as he did formerly where we find his bones.”⁴ If mammoths were extinct, Jefferson attributed this destruction to Native Americans in their pursuit of wild game. Either way, according to Jefferson, “there remain then the buffalo, red deer, fallow deer, wolf, roe, glutton, wild cat, monax, vison, hedge-hog, martin, and water rat.”⁵ With so many animals in Virginia, and the possibility of more to be found westward, either Native American modes of hunting were not overly aggressive or the myth of abundance was strong enough to blind colonists from any such effects.

By the time European colonists arrived, however, Native American modes of production expanded to include agriculture. According to the Albemarle County Historic Preservation Committee, “the 600-year period prior to the founding of a permanent European settlement at Jamestown in 1607 witnessed dramatic and relatively sudden cultural changes in the Native

³ Shepard Krech, *The Ecological Indian: Myth and History* (New York: W.W. Norton & Co., 1999), 161.

⁴ Thomas Jefferson, *Notes on the State of Virginia*, reprinted in *Thomas Jefferson: Writings*, ed. Merrill Peterson (New York: Library of America, 1984), 176-177. Jefferson’s belief in the possibility of finding extinct animals elsewhere in the continent can be found in various other writings. See “Species Extinction,” Thomas Jefferson’s Monticello, <http://www.monticello.org/site/research-and-collections/species-extinction>.

⁵ *Ibid.*, 177.

American population in the Albemarle County area. Among the recognizable changes were an increase in population, an increase in the size and permanence of villages, and the growth of an agricultural economy to augment traditional hunting and gathering.”⁶ It is difficult to assess the extent to which Native Americans in the Virginia Piedmont structured their own physical landscape according to these changes. It is worthy to note that agriculture required a more permanent residence, thus altering the landscape of Native populations. According to Jeffrey Hantman, there is some evidence to suggest that between 800 C.E. and 1000 C.E. the Monacan tribes shifted their settlements from an even distribution across the land to more localized villages along main rivers and floodplains.⁷ Perhaps more significant, agriculture required additional practices, including burning underbrush and clearing trees.

Native Americans regularly interacted with the land and their ecology, whether by hunting, gathering, or agriculture, but despite these multiple modes of production and consumption, the greatest impact Native American land practices might have had on Jefferson and his colonial contemporaries may be found in what they left untouched. Unlike future European colonizers, the Natives did not clear forests to the extent of European commercial agriculture; their economy was based primarily on subsistence agriculture, which required clearing fewer trees. When discussing Avery Odell Craven’s *Soil Exhaustion as a Factor in the Agricultural History of Virginia and Maryland*, Lynn Nelson points to Craven’s explanation for Virginia’s enticement: “Settlers were lured past the Fall Line by the Piedmont’s hardwood forest,

⁶ Albemarle County Historic Preservation Committee, *County of Albemarle Historic Preservation Plan* (Charlottesville, VA, 2000), 9
<http://albemarle.org/upload/images/forms_center/departments/community_development/forms/ARB_Applications/Historic_Preservation_Plan.pdf>.

⁷ Jeffrey L. Hantman, “Between Powhatan and Quirank: Reconstructing Monacan Culture and History in the Context of Jamestown,” *American Anthropologist*, Vol. 92, No. 3 (1990), 682.

which farmers at that time saw as the sign of fertile land underneath.”⁸ Although Hu Maxwell argued in 1910 that Virginia’s Native Americans were more destructive of the land than commonly believed, and “that if the discovery of America had been postponed five hundred years, Virginia would have been pasture land or desert,” these views were without evidence.⁹ In addition, Europeans visiting the New World often wrote of the abundance of trees, suggesting that, even with cleared lands, Native American invasive practices were minimal. It is possible that native modes of production were less intrusive on the physical landscape in ways that made it look more fertile and attractive to European colonizers. Nevertheless, from the moment Europeans traversed the land, they perpetuated certain myths of an untouched and uncultivated soil, and it is this myth which likely had the strongest influence on Jefferson’s ideas of wilderness.

One of the latest Native groups to have lived around Albemarle prior to Jefferson’s family was the Monacan tribe, who may have lived in the area as late as 1730. The Powhatan tribe to the east was one of the nearest people to the Monacans, and some evidence suggests that these two groups maintained similar economies. According to Martin Gullivan, “macrobotanical and bioarchaeological evidence indicates that late precontact Indians of the Piedmont subsisted on a mixed horticultural economy similar to the Powhatans’.” Archaeological digs have discovered the planting of squash as well as maize, their chief staple, though this may have accounted for less than half of the Monacan diet. Plant cultivation played an important role in

⁸ Lynn A. Nelson, *Pharsalia: An Environmental Biography of a Southern Plantation, 1780-1880* (Athens, GA: University of Georgia Press, 2007), 10.

⁹ Hu Maxwell, “The Use and Abuse of Forests by the Virginia Indians,” *The William and Mary Quarterly* 19.2 (Oct. 1910), 103.

Native American foodstuffs, but it did not fully replace hunting.¹⁰ Nor was Monacan agriculture dedicated solely to food production. In addition to maize they also grew tobacco, and European colonizers adopted these choices in agriculture.

Although the earliest Europeans followed the example of Native Americans in planting corn and tobacco, they did not follow the same modes of production. Whereas native groups practiced polyculture, or planting multiple crops in a single field, Europeans engaged in monoculture, or planting a single crop per field. Another important difference was the size of crops, since Europeans grew crops largely for commercial export whereas Native Americans primarily practiced a subsistence-based agriculture, which required smaller fields.¹¹

Understanding these distinctions between Native and European modes of production is important in recognizing differences in their ecological footprints. While tobacco is a demanding crop both on labor and the land, its use under a polyculture system likely lessened the negative impact of Native American agriculture, but this also may have kept the land in a fertile state that whetted European appetites. Also, had European methods of farming mirrored native techniques, Jefferson may not have shifted his own crops in 1793 from tobacco to wheat, thus pointing to the effects both of the choice of Native American crops and European modes of production on Jefferson's farming.

These differences in Native and European modes of production in agriculture cannot be viewed as the only impacts these groups had on the Virginian ecology. Agriculture and hunting

¹⁰ Martin D. Gallivan, *James River Chiefdoms: The Rise of Social Inequality in the Chesapeake* (Lincoln: University of Nebraska Press, 2003), 32-33. See also Jeffrey L. Hantman, "Between Powhatan and Quirank," 682-683.

¹¹ For differences in European and Native American agriculture, see William Cronon, *Changes in the Land: Indians, Colonists, and the Ecology of New England* (New York: Hill and Wang, 1983); and, for different effects in monoculture versus polyculture farming, see Charles A Francis, et al., *Sustainable Agriculture in Temperate Zones* (New York: John Wiley & Sons, 1990).

were not the only modes of production Monacans employed which impacted the land. In *Monacans and Miners*, Samuel Cook tells how “archaeologist David Bushnell found evidence that many Monacans mined significant quantities of minerals such as schist, sandstone, soapstone, steatite, and quartz.”¹² Europeans noticed native groups trading these minerals and, although the colonists did not explore their own mining commercial ventures, this addition to extractable commodities gave Europeans additional incentives to expand westward in pursuit of the land’s wealth. When Jefferson sent Meriwether Lewis and William Clark to explore the west, he included in his list of items for them to document the various minerals they might encounter. This expedition is important in understanding American ideas about expansion and the west, and will be discussed later in this paper. Nevertheless, understanding similarities in Native and European extractions of the land’s commodities helps our understanding of the various influences the natural and social environment before Jefferson’s time had on its later inhabitants.

European Myths and the Drive toward Westward Expansion

In our discussion of the social and natural environment that existed among Native Americans in Virginia prior to Jefferson’s family, we find various instances where myths of abundance and fertility emerge upon European settlement. Whether Jefferson’s father chose his land with the belief that the trees signified fertility is difficult to discover, but there is little reason to believe that Peter Jefferson did not move his family into Virginia’s frontier without being influenced by various myths about the land. Once European settlement began in Virginia, early colonists began to survey the land. Peter Jefferson himself was a land surveyor and speculator, who chose specifically to move his family to the frontier. Before examining his

¹² Samuel R. Cook, *Monacans and Miners: Native American and Coal Mining Communities in Appalachia* (Lincoln: University of Nebraska Press, 2000), 33.

influence on Thomas Jefferson, however, it is important to study how Europeans as a whole imagined the Virginia frontier.





From the moment of colonization, Europeans spread the myth of abundance in the American frontier. After twenty years of governing Virginia, William Berkeley, who replaced Francis Wyatt as governor in 1641, sent a company of men, British and Indians, to explore Virginia's western frontier. Leaving from Appomattox, they reached some mountains after seven days of travel. This is the record of what they encountered, according to Robert Beverley:

The mountains they first arrived at, were not extraordinary high or steep; but, after they had passed the first ridge, they encountered others that seemed to reach the clouds, and were so perpendicular and full of precipices, that sometimes in a whole day's march, they could not travel three miles in a direct line. In other places they found large level plains and fine savannas, three or four miles wide, in which were an infinite quantity of turkies, deer, elks and buffaloes, so gentle and undisturbed that they had no fear at the appearance of the men, but would suffer them to come almost within reach of their hands.¹³

This description by Beverley gives us more understanding of how Anglo-Europeans viewed the land in 1705 when he published his work than what the group actually encountered in 1671. This view of "an infinite quantity" of game in a land seemingly untouched by man created a myth of wilderness with plenty for British settlers to claim for their own. As we have seen, however, the quantity of game and the fertility of the soil were, in large measure, due to Native American land use practices which minimized their ecological footprint.

¹³ Robert Beverley, *The History and Present State of Virginia*, ed. Charles Campbell (Richmond, VA: J.W. Randolph, 1855 [originally published 1705]), 59.

Beverley's *History and Present State of Virginia* is an important window into the mind of Virginia's surveyors and settlers, but it also gives us an idea of how Anglo-Europeans first impacted the physical environment. We can imagine Peter Jefferson surveying the land in the mid-eighteenth century with Beverley's *History* in mind. According to Beverley, "it is the business of the surveyor also to take care that the bounds of his survey be plainly marked, either by natural boundaries, or else by chopping notches in the trees, that happen in the lines of his courses."¹⁴ Before Anglo settlers even began to make "improvements" on the land, the surveying of land itself demanded that they place physical marks upon the natural environment. It is difficult to assess what these notches meant to Virginia's native inhabitants but, with foreign peoples marking trees, they could have suspected that their lives were about to change.¹⁵ Regardless of how native responded, surveyors and explorers commonly marked trees without considering what the native inhabitants felt about the land. In the 1671 expedition sent by Governor Berkeley mentioned above, the following was recorded:

Went to the first tree which we marked thus  with a pair of marking irons for his sacred majesty. The next then  for the right honourable Governor Sir William Berkley, the third thus  for the honourable Major General Wood. The last thus: : RE. P. for Perceute who said he would learn Englishman. And on another tree hard by stand these letters one under another TT. NP. VE. R. After we had done we went ourselves down to the river side; but not without great difficulty it being a piece of very

¹⁴ Ibid., 226.

¹⁵ See Karl Jacoby, *Crimes Against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley: University of California Press, 2001), 171. In this book, Jacoby discusses signs that were posted at the forest reserve at the Grand Canyon, indicating that "irate locals tore down these newly erected signs, but whether the Havasupai acted in such a manner is uncertain."

rich ground where the Mocketans had formerly lived, and grown up with weeds and small prickly Locusts and Thistles to a very great height that it was almost impossible to pass.¹⁶

While it was common for surveyors to make markings as part of the process of surveying the land, the use of individual's initials indicates their claim to property. In addition, not only is it indicated that the Mocketans deserted the land, this report also depicts a wild environment of weeds, locusts, and thistles, thus supporting Melanie Perreault's suggestion that "European accounts figuratively emptied the lands of its native inhabitants."¹⁷

Marking the land only foreshadowed the great divisions that were to come by way of land management. The reason for surveying the land was not merely for maps, but to establish new boundaries of British-claimed land. These boundaries would ultimately favor rich and powerful men, as opposed to making the land accessible in some democratic form. As Rhys Isaac profoundly notes, "the establishment and maintenance of lines of property in land not only marked a fundamental distinction between English and Indian ways of life but also inscribed upon the landscape the gradations and divisions that were developing within the expanding colonial society."¹⁸ This class division would be created on the frontier by the system of "head rights" that granted fifty acres of land "for each man, woman, child, servant or slave, whom the claimant was considered to have imported."¹⁹ The more servants and slaves one could afford, the larger the tract of land one could claim. As such, the rich soil of the Piedmont region in Virginia

¹⁶ "The Expedition of Batts and Fallam: A Journey from Virginia to beyond the Appalachian Mountains, September, 1671," in *Annals of Southwest Virginia, 1769-1800* (Abingdon, VA: Lewis Preston Summers, 1929), TNGenWeb Project, <http://www.tngenweb.org/pre1796/batts-1671.html>.

¹⁷ Melanie Perreault, "American Wilderness and First Contact," in *American Wilderness: A New History*, ed. Michael Lewis (New York: Oxford University Press, 2007), 23.

¹⁸ Rhys Isaac, *The Transformation of Virginia 1740-1790* (New York: W.W. Norton & Co., 1988 [originally published 1982]), 20.

¹⁹ *Ibid.*, 20.

would be monopolized in the eighteenth century by a single dominant mode of production: plantation agriculture.

These systematic delineations of the land were conducted by surveyors and mapmakers, which profoundly influenced Jefferson himself; since his own father was a surveyor. Jefferson himself systematized westward expansion further in his proposal of the Federal Rectangular Land Survey. This plan eventually sent surveyors dividing the land into squares and, according to Ted Steinberg, this “checkerboard pattern was etched across the West—one of the most far-reaching attempts at rationalizing a landscape in world history.”²⁰

Not only was Jefferson influenced by his father’s profession, but he also exhibited a similar spirit of westward expansion. His father, Peter Jefferson, along with three of his friends, was part of a “land company” that regularly sought the patents for new tracts of land. He gambled with real estate and was engaged in enough applications for land grants to rival modern land speculators.²¹ We may not know how his constant interest in frontier lands impacted his son, but it does not seem unreasonable to attribute Thomas Jefferson’s involvement in one of the largest land purchases in American history as an extension of his father’s influence. Indeed, Virginians, like many colonists in North America, kept their eyes westward coveting any land in their view.

²⁰ Ted Steinberg, *Down to Earth: Nature’s Role in American History* (New York: Oxford University Press, 2002), 60.

²¹ Peter Jefferson was involved in multiple land requests and purchases. See Cumberland County Records, Deed Book, I, 22 (Deed dated July 24, 1749); Albemarle County Records, Surveyor’s Plat Book, I, 41, 117, 181, & 305; Albemarle County Records, Surveyor’s Plat Book, II, 2 & 15; Albemarle County Records, Deed Book, I, 231, 233, 354, & 484; Albemarle County Records, Deed Book, II, 20; Buckingham County Records, Surveyor’s Plat Book, I, 120; Land Patent Book, XXIX, 311; Land Patent Book, XXXI, 11, 544, & 718; Land Patent Book, XXXII, 714; Land Patent Book, XXXIV, 134.

Perhaps no map illustrates the expansionist motives of the Anglo-Europeans better than John Mitchell's "Map of the British and French Dominions in North America with the Roads, Distances, Limits and Extent of the Settlements" published in 1755, just four years after the Fry-Jefferson map, when young Thomas Jefferson was twelve years of age.²²

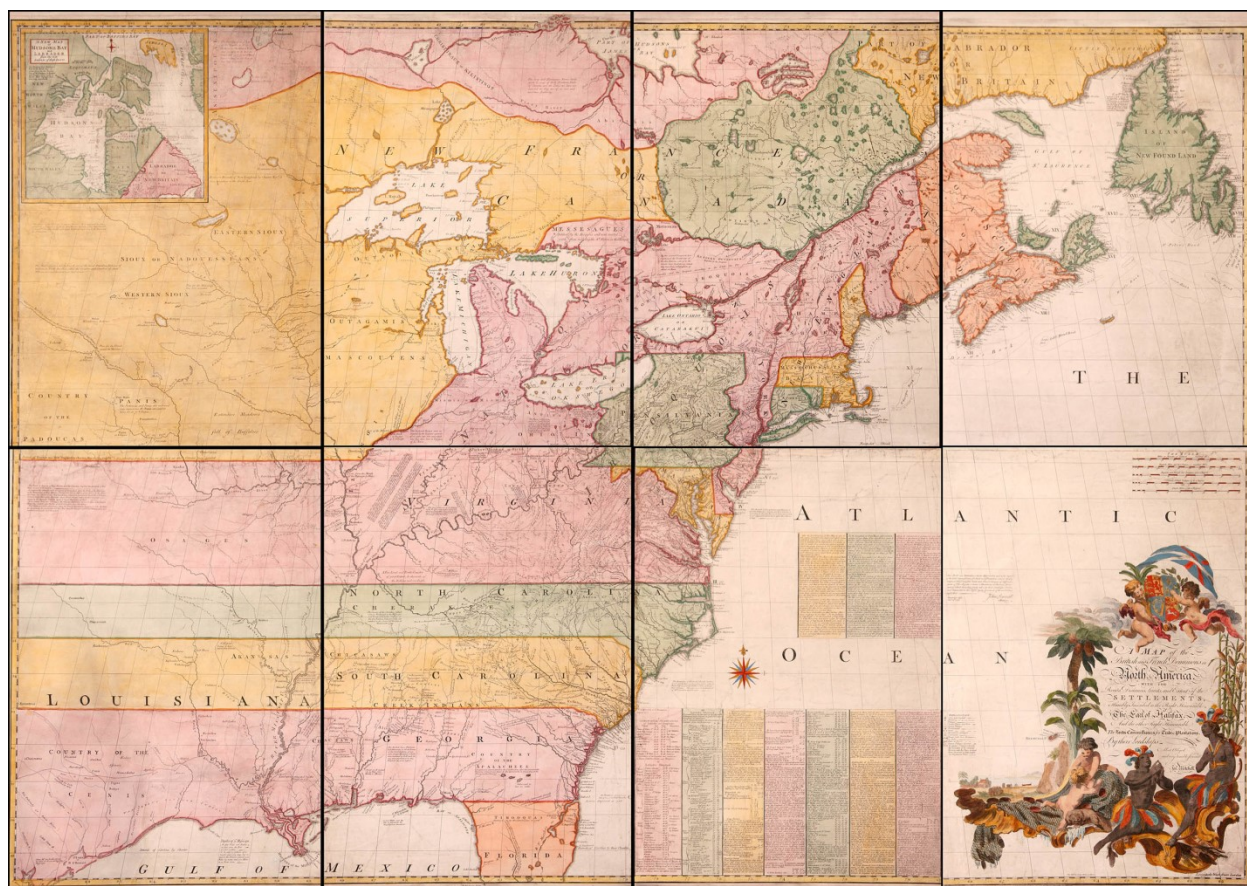


Figure 1. John Mitchell's Map of the British and French Dominions in North America

Mitchell had lived in Virginia for some time but was back in England when he was commissioned by the Board of Trade and Plantations to provide a single map detailing all of England's possessions. The result, as shown in Figure 1 above, illustrates Britain's colonial

²² For the Fry-Jefferson Map, see Joshua Fry and Peter Jefferson, *A map of the most inhabited part of Virginia containing the whole province of Maryland with part of Pensilvania, New Jersey and North Carolina* (London, Thos. Jefferys, 1751), Library of Congress, <http://hdl.loc.gov/loc.gmd/g3880.ct000370>.

claims with boundaries extending as far west as the mind could envision.²³ No British settler or surveyor had yet traveled across the entire continent to view the physical and natural environment with its inhabitants, but that did not prevent any from laying claim to unexplored territories. In his *Notes on the State of Virginia*, Jefferson wrote with anticipation of America's future settlements. "The Mississippi," he prophesied, "will be one of the principal channels of future commerce for the country westward of the Alleghany."²⁴ The Mississippi, as well as much of the land on Mitchell's map, fell under the control of the newly formed United States only after Jefferson, as President, nearly doubled the size of the nation with the Louisiana Purchase in 1803.

When Jefferson purchased the Louisiana Territory, he subsequently sent fellow Virginians Lewis and Clark to document the physical and natural landscape, including plants, animals, native tribes, and the geography itself. In his instructions for the expedition, Jefferson placed commerce as the primary object, hoping that Lewis and Clark could discover "the most direct & practicable water communication across this continent for the purposes of commerce." He also asked that they become acquainted with the native inhabitants for the purpose of establishing commercial relations. Jefferson hoped they would gain knowledge of "their ordinary occupations in agriculture, fishing, hunting, war, arts & the implements for these," and especially knowledge regarding their belief systems so as to "better enable those who may endeavor to

²³ John Mitchell, *A map of the British and French dominions in North America, with the roads, distances, limits, and extent of the settlements, humbly inscribed to the Right Honourable the Earl of Halifax, and the other Right Honourable the Lords Commissioners for Trade & Plantations, by their Lordships most obliged and very humble servant, Jno. Mitchell* (London: Millar, 1755), Library of Congress <<http://hdl.loc.gov/loc.gmd/g3300.np000009>>.

²⁴ Thomas Jefferson, *Notes on the State of Virginia*, reprinted in *Thomas Jefferson: Writings*, ed. Merrill Peterson, 131.

civilize & instruct them.”²⁵ While many of Jefferson’s instructions can be seen as guided by commercial and expansionist motives, his desire to “civilize” the Native Americans (before even learning about their customs) follows the Enlightenment ideas that guided much of his philosophy. The Enlightenment also inspired many men like Jefferson to seek increased knowledge of science and nature. However, given his father’s occupation, his land speculation, and raising his family in Virginia’s frontier, it is possible that Jefferson’s interest in science and nature were inspired not by Enlightenment philosophies but the social and natural environment he enjoyed while growing up.

Regardless of the influences of his father, or even those of the Enlightenment, we should also consider the impact of the myth of abundance. In addition to writing in his *Notes* about the possibility of the mammoth’s continued existence, Jefferson also included in his instructions to Lewis and Clark that they should be watchful for any such extinct animals. He requested that they document everything about the natural environment, and most of what he desired was linked in some way to uncovering the land’s potential for agriculture and commodities:

Other objects worthy of notice will be the soil & face of the country it's growth & vegetable productions, especially those not of the US; the animals of the country generally, & especially those not known in the US; the remains & accounts of any which may be deemed rare or extinct; the mineral productions of every kind; but more particularly metals; limestone, pit-coal, & salt-petre; salines & mineral waters, noting the temperature of the last & such circumstances as may indicate their character; volcanic appearances; climate, as characterized by the thermometer, by the proportion of rainy,

²⁵ Thomas Jefferson, “To Meriwether Lewis esquire, Captain of the 1st. regiment of Infantry of the United States of America,” June 20 1803, Transcribed and Edited by Gerard W. Gawalt, Manuscript Division, Library of Congress <<http://www.loc.gov/exhibits/lewisandclark/transcript57.html>>.

cloudy, & clear days, by lightening, hail, snow, ice, by the access & recess of frost, by the winds prevailing at different seasons, the dates at which particular plants put forth or lose their flower, or leaf, times of appearance of particular birds, reptiles or insects.²⁶

Jefferson's public commission for Lewis and Clark to record these details, including the timeline of plant growth in the various regions of the west, reflects his private record of environmental documentation. As Merrill Peterson notes, Jefferson's "personal records—Account Book, Garden Book, Farm Book, and so on—exhibit a profusion of minutiae. He recorded from year to year, for instance, the exact time and place of planting a given vegetable, when it sprouted, when it ripened and came to the table."²⁷

Conservation and Wealth Preservation

Thomas Jefferson has, at times, been regarded as a soil conservationist. As Lucia Stanton explains, various scholars in the early twentieth century "published works extolling Jefferson's role as a scientific farmer and 'pioneer' soil conservationist. This view of Jefferson and other elite agricultural reformers of his time," Stanton notes, "is contested in the current lively debate in the works of agricultural and environmental historians such as Carville Earle, Jack Temple Kirby, Lynn A. Nelson, and Steven Stoll."²⁸ On an individual level, there is little reason to doubt that Jefferson sought to conserve his own soil, especially given his experimentation with crop rotations, cover crops, and various methods of fertilization. In his *Farm Book*, editor Edwin Morris Betts notes that "under 'preparation of ground' Jefferson lists Fallow; Green Dressings—

²⁶ Ibid.

²⁷ Merrill Peterson, *Thomas Jefferson and the New Nation: A Biography* (Oxford: Oxford University Press, 1970), 30.

²⁸ Lucia Stanton, "Thomas Jefferson: Planter and Farmer," in *A Companion to Thomas Jefferson*, ed. Francis D. Cogliano (New York: John Wiley & Sons, 2012), 254.

vetch, buckwheat, turnips; and Manure—folding, long dung, rotted dung, marl, and gypsum.”²⁹ By consistently looking for different methods to improve the health of his own soil, in addition to recording the effects of every technique in his Farm Book (as well as his Garden Book), Jefferson’s actions are evidence that he subscribed to some ideal of soil conservation.

Despite his usage of manure and other fertilizers, as well as his attention to detail in agriculture, some of Jefferson’s writings are inconsistent with a conservation ethic. In his letter to George Washington on June 28, 1793, Jefferson explained, “My object was to state the produce of a *good* farm, under *good* husbandry as practiced in my part of the country. Manure does not enter into this, because we can buy an acre of new land cheaper than we can manure an old acre. Good husbandry with us consists in abandoning Indian corn and tobacco, tending small grain, some red clover following, and endeavoring to have, while the lands are at rest, a spontaneous cover of white clover.”³⁰ Here we find Jefferson’s acceptance of an agriculture based not on soil conservation but on economic discretion, which could lead to soil exhaustion because of the availability of cheap land to purchase.

One rational explanation of this paradox in Jefferson’s writings between soil conservation and exhaustion may simply be that Jefferson sought to maximize and perpetuate profits on his own plantations. Yet, it is reasonable to question why Jefferson did not simply exhaust the land’s resources at Monticello and move on to another location. Perhaps we should consider the land itself, and what it required of Jefferson. Albemarle County is an area made up of red clay with mountains, hills, rivers, streams, and valleys. When introducing this region, Frasier Neiman and other Monticello archaeologists start with the impact of nature itself on determining the

²⁹ Edwin Morris Betts, *Thomas Jefferson’s Farm Book* (Thomas Jefferson Memorial Foundation, 1999), 188.

³⁰ Thomas Jefferson to George Washington, June 28, 1793, reprinted in *The Writings of Thomas Jefferson*, 9 volumes, ed. H.A. Washington (Washington, DC: Taylor & Maury, 1853-1854), 4:4.

landscape. “Monticello,” Neiman and his colleagues explain, “like the rest of Virginia’s Southwest Mountains, is underlain by the Catoctin formation, a mass of basalt metamorphosed to green stone. Over hundreds of millions of years, weathering of this formation has produced clay-rich soils.”³¹ Knowing the type of soil where Jefferson and his father lived is important, especially since clay soil can be very difficult to cultivate. As Stephen Ellis and Anthony Mellor explain, “clay soils display relatively good water and nutrient retention but are often characterized by poor drainage and aeration.”³² While clay soils also manifest strong resistance to erosion, they require significant tillage, composting, and fertilization in order to maintain agricultural fecundity. The challenges clay presents in agriculture explains Jefferson’s preoccupation with the soil and his proclivity toward progressive farming methods.

While Jefferson exercised prudence in maintaining the health of his soil, his own agricultural practices required him to explore innovative techniques. Despite clay’s resistance to erosion, Monticello archaeologists argue that “erosion during the last two and a half centuries has had a major influence in the area.”³³ Archaeological digs at Monticello confirm that the most extensive erosion occurred as plant cultivation became more intense with crop diversification from the late eighteenth- to early nineteenth centuries. This is likely due to the intensive and deeper plowing required of wheat production, since Jefferson shifted his crops from tobacco to wheat upon his return from France in 1793; this shift to wheat also required crop rotations.³⁴ The fact that Jefferson’s choices in plantation agriculture led to modes of production which increased the land’s vulnerability to erosion should be considered when examining those methods he

³¹ Fraser Neiman, et al, “Landscape Dynamics at Monticello: A Geoarchaeological Perspective,” Scientific Poster Presented at 2003 Society for American Archaeology Conference
<<http://www2.monticello.org/archaeology/Poster/index.html>>.

³² Stephen Ellis & Anthony Mellor, *Soils and Environment* (New York: Routledge, 1995), 200.

³³ Fraser Neiman, et al, “Landscape Dynamics at Monticello.”

³⁴ Ibid.

utilized to conserve the land. As an article on “The Transition from Tobacco to Wheat” located on Monticello’s website notes, “The cultivation of grain required permanent, plowed fields, and plowing entailed the removal of stumps and a schedule of manuring and crop rotation to maintain soil fertility.”³⁵ In other words, soil conservation was made necessary by Jefferson’s own destructive hand if he were to maintain a profitable business.

Profit and efficiency seem to be significant motivations for Jefferson, though many of his advances in agricultural techniques were made necessary by his employment of a monoculture system. Throughout his *Farm Book*, he writes the effects of various “experiments” in cultivation, with specific notes regarding expected future yields. He also includes estimates comparing the threshing machine to what horses accomplished without the new machinery.³⁶ While the threshing machine helped improve efficiency in Jefferson’s wheat production, it also eradicated one of the negative effects of having a single-crop plantation: crop-specific pests. As notes, “monoculture reduces ecological diversity, and pest outbreaks were a common attribute of Euro-American agriculture.”³⁷ Fortunately, the use of machinery made the process of wheat threshing quicker, which eliminated its pests before significant damage could be done. In a letter to Thomas Pinckney on April 12, 1793, after having recently switched from tobacco to wheat, Jefferson writes, “I shall thank you most sincerely for the model of the threshing machine, besides replacing the expence of it. The threshing out our wheat immediately after harvest being the only preservation against the weevil in Virginia, the service you will thereby render that state

³⁵ “Trading Hoes for Plows: The Transition from Tobacco to Wheat,” Thomas Jefferson’s Monticello, accessed December 9, 2011, <http://www.monticello.org/site/plantation-and-slavery/trading-hoes-plows-transition-tobacco-to-wheat>.

³⁶ Thomas Jefferson, *Farm Book*, Thomas Jefferson Papers, Massachusetts Historical Society, <http://www.masshist.org/thomasjeffersonpapers/farm/>.

³⁷ George W. Bird, et al., “Design of Pest Management Systems for Sustainable Agriculture,” in *Sustainable Agriculture in Temperate Zones*, Charles A Francis, et al., eds., 63.

will make you to them a second Triptolemus.”³⁸ Had Jefferson employed a polyculture system of agriculture, not only could the soil have been better conserved but the impact of pests could also have lessened, even without the aid of additional technologies. To Jefferson and his contemporaries, damage to the land coupled with innovation to address those threats meant progress, so long as profits remained strong.

This view of modern practices as progress indicates another myth that Jefferson seemingly accepted. We already discussed his letter to Washington, wherein he attributes good husbandry to abandoning the Native American crops of tobacco and corn for wheat production. This myth of progression based on time was perpetuated in a *Farmer's Register* article published in 1834 on “A Glance at the Farming of Albemarle.” Although it was published eight years after Jefferson's death, this article gives us a further glance into the natural landscape during and after his life and how modes of production became increasingly structured. According to this particular article, “there is no part of Virginia which presents to the eye of a stranger such a combination of beauty, fertility, and peculiar qualities, as the range of ‘red land.’” The author then goes on to explain the soil's productive qualities: “the red clay soil of Albemarle, is (for a clay soil) remarkable for its being permeable by rain, produces fine corn, (a crop to which stiff soils are so unfriendly,) and is not difficult to plough, if taken in a proper state as to moisture.”³⁹ The author here is clearly propping up the land around Albemarle County, but the article goes on to warn of the possibility of soil dilapidation. “But rich as were the red lands originally,” the *Farmer's Register* continued, “their general steepness, aided by tobacco culture, shallow and bad ploughing, had caused a general and great deterioration of the old cleared lands, by exhausting,

³⁸ Thomas Jefferson to Thomas Pinckney, Apr. 12, 1793, reprinted in Edwin Morris Betts, *Thomas Jefferson's Farm Book*, ed. Edwin Morris Betts, 70.

³⁹ Edmund Ruffin, ed., *The Farmers' Register*, Volume II (Shellbanks, VA: Edmund Ruffin, 1835) 233-234.

and still more by washing away the soil.” Nevertheless, potential planters could find hope in the progress of innovation:

Fortunately, some judicious agriculturalists commenced a reformation which has gradually extended through this neighborhood; and wherever it has operated fully, has served to restore richness to the surface, and to exhibit the most beautiful country that I have ever seen. The use of clover and gypsum is the main, indeed almost the sole means for this renovation—for without them, the benefits of collected manures and improved tillage would avail but little.⁴⁰

The myth of abundance returned with the help of a little clover and gypsum; aided by the myth of future progress.

Conservation and Perpetuating the Nation

Jefferson often looked to the future and the improvement of his land, though any claim that he was motivated solely by individual profit is spurious. Indeed, some of his statements support soil conservation while others focus on the economic value of limitless land. Any paradox in conservation versus economic discretion, however, is complicated further when we find that Jefferson did not exploit every land that he purchased. Earlier, we discussed the European view of the land’s fertility as evidenced by an abundance of large trees. There is one particular plot of land wherein Jefferson found that its “thickness is constituted by a coat of earth, which gives growth to many large trees.”⁴¹ It was not the fertility of the land with which Jefferson was interested here, however, for this excerpt refers to the Natural Bridge over Cedar

⁴⁰ Ibid., 234.

⁴¹ Thomas Jefferson, *Notes on the State of Virginia*, reprinted in *Thomas Jefferson: Writings*, ed. Merrill Peterson, 148.

Creek. Jefferson purchased this land himself after having viewed its beauty, though he did not try to cultivate any of the surrounding soil of the 157 acres he purchased. He considered selling it at one point but, in a letter to William Caruthers on March 15, 1815, Jefferson wrote, “I have no idea of selling the land. I view it in some degree as a public trust, and would on no consideration permit the bridge to be injured, defaced or masked from public view.”⁴² Perhaps Jefferson was not only a pioneer in soil conservation but in landmark preservation as well.

While Jefferson viewed some land as a scenic gift from God not to be disturbed, he saw most of the nation’s land as an opportunity to secure a virtuous citizenry and perpetuate the Union. In a letter to John Jay on August 23, 1785, Jefferson wrote, “Cultivators of the earth are the most valuable citizens. They are the most vigorous, the most independant, the most virtuous, & they are tied to their country & wedded to it’s liberty & interests by the most lasting bonds. As long therefore as they can find employment in this line, I would not convert them into mariners, artisans or anything else.”⁴³ Often, scholars point to this statement as further evidence of Jefferson’s belief in the connection between agrarianism and democracy. Ted Steinberg argues, for instance, “Jefferson believed that small freeholding farmers ... formed the basis of a democratic society.”⁴⁴ While Jefferson placed significant emphasis on agricultural occupations in various writings, he did not believe that democracy relied on agriculture; only that farmers were desirable as, allegedly, the most virtuous citizens. Continuing in his letter to Jay, Jefferson argued that when “their numbers, & of course their productions, become too great for the demand both internal & foreign ... the surplus of hands must be turned to something else. I

⁴² Thomas Jefferson to William Caruthers, March 15, 1815. Thomas Jefferson Papers. The Library of Congress. <http://memory.loc.gov/master/mss/mtj/mtj1/047/1200/1237.jpg>.

⁴³ Thomas Jefferson to John Jay, Aug. 23, 1785, reprinted in *Thomas Jefferson: Writings*, ed. Merrill Peterson (New York: Library of America, 1984), 818.

⁴⁴ Ted Steinberg, *Down to Earth: Nature’s Role in American History* (New York: Oxford University Press, 2002), 59.

should then perhaps wish to turn them to the sea in preference to manufactures,” he continued, “because comparing the characters of the two classes I find the former the most valuable citizens. I consider the class of artificers as the panders of vice & the instruments by which the liberties of a country are generally overturned.”⁴⁵

Jefferson shared these same insights regarding agriculture and virtuous citizenry in his *Notes on the State of Virginia*, though here he also addresses agriculture’s relationship to commerce. “Cultivators of the earth are the most virtuous and independant citizens,” he argued. “It might be time enough to seek employment for them at sea, when the land no longer offers it. But the actual habits of our countrymen attach them to commerce. They will exercise it for themselves.”⁴⁶ To Jefferson, the availability of land in America was less a guarantee of a nation’s liberty than it was the means of securing an independent citizenry; making possible “the pursuit of happiness” that he extolled in the Declaration of Independence. Agriculture ensured that individuals had means “for their subsistence,” Jefferson noted, rather than depending “on the casualties and caprice of customers. Dependence begets subservience and venality,” he claimed, “suffocates the germ of virtue, and prepares fit tools for the designs of ambition.”⁴⁷ Jefferson feared the ill effects of dependence on the market and, although men would habitually pursue commercial ventures, if the nation’s economy focused primarily on the production of raw materials, as opposed to manufacturing and selling finished goods, Jefferson argued that “the loss by the transportation of commodities across the Atlantic will be made up in happiness and permanence of government.”⁴⁸

⁴⁵ Jefferson to Jay, Aug. 23, 1785, reprinted in *Thomas Jefferson: Writings*, ed. Merrill Peterson, 818.

⁴⁶ Thomas Jefferson, *Notes on the State of Virginia*, reprinted in *Thomas Jefferson: Writings*, ed. Merrill Peterson, 301.

⁴⁷ *Ibid.*, 290-291.

⁴⁸ *Ibid.*, 291.

Jefferson's eulogies to agriculture as the wellspring of happiness and perpetual government also included diatribes against urban as opposed to rural societies. Jefferson was in France in 1787 when the Constitutional Convention was deciding upon a new form of government for the young United States, and he wrote a letter to James Madison explaining his reaction to the proposed constitution. Toward the end of the letter, Jefferson reiterated his support of an agricultural economy. "I think our governments will remain virtuous for many centuries," he wrote, "as long as they are chiefly agricultural; and this will be as long as there shall be vacant lands in any part of America. When they get piled upon one another in large cities, as in Europe, they will become corrupt as in Europe."⁴⁹

Conclusion

We may wonder how Jefferson would view the nation as it is today, with the majority of our population living in cities "piled upon one another," an agricultural economy dwarfed by a consumer culture, and a land ethic tied to the extraction of commodities. In studying Jefferson's life from an environmental history perspective, it appears that he would worry only about urbanization and consumerism. What remains, however, is the question as to whether these are the natural outcomes of the latter—a society built on extracting commodities from the land; a society not altogether different from Jefferson's America. Arguably, Americans today also maintain a certain belief in soil conservation; one similar to Jefferson's. Conservation in America is likely dependent on the preservation of individual wealth and the perpetuation of the nation. As such, Jefferson's legacies may be felt not only in modern politics and philosophy but in our inherited environmental history; and perhaps even in our ecological future.

⁴⁹ Thomas Jefferson to James Madison, December 20, 1787, reprinted in *Thomas Jefferson: Writings*, ed. Merrill Peterson, 918.

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