

*“So Many Things for His Profit
and for His Pleasure”:
British and Colonial Naturalists
Respond to an Enlightenment
Creed, 1727–1777*

IN MAY OF 1773 the Pennsylvania farmer and naturalist John Bartram (1699–1777) wrote to the son of his old colleague Peter Collinson (1694–1768), the London-based merchant, botanist, and seed trader who had passed away nearly five years earlier, to communicate his worry over the “extirpation of the native inhabitants” living within American forests.¹ Michael Collinson returned Bartram’s letter in July of that same year and was stirred by the “striking and curious” observations made by his deceased father’s friend and trusted natural historian from across the Atlantic. The relative threat to humanity posed by the extinction of species generally remained an unresolved issue in the minds of most eighteenth-century naturalists, but the younger Collinson was evidently troubled by the force of Bartram’s remarks. Your comments “carry Conviction along with them,” he wrote, “and indeed I cannot help thinking but that in the period you mention notwithstanding the amazing Recesses your prodigious Continent affords many of the present Species will become extinct.” Both Bartram and Collinson were anxious about certain changes to the environment engendered by more than a century of vigorous Atlantic trade in the colonies’ indigenous flora and fauna. Collinson

¹ The terms botanist and naturalist carry different connotations, but are generally used interchangeably here. Botanists were essentially those men that used Linnaeus’s classification to characterize plant life. They were part of the growing cadre of professional scientists in the eighteenth century who endeavored to efface irrational forms of natural knowledge, i.e., those grounded in folk traditions rather than empirical data. Naturalist is a rather general designation and can be applied to both botanists and amateur observers of nature who did not have knowledge of the Latin system. In order for an amateur naturalist to be accepted by the professionals, however, he had to show exceptional skill and originality in describing and observing the natural world.

lamented to the seventy-four-year-old Bartram that he “[felt] most for the poor ingenious Beaver and read with Indignation and concern the many many thousands of their Furs imported from America annually.” Anthropomorphizing aside, he recognized the “Tenderness” of the “Sentiments” offered by his father’s esteemed associate and expressed to him how closely “correspondent” they were “with [his] own Feelings.”² The emotive language that Collinson chose to characterize the sense of loss he experienced in learning of the destruction of the American beaver population called human conduct toward nature directly into question.

It is indeed tempting to see the communication between Bartram and the younger Collinson in terms of the conservationist impulse that their exchange implies. Collinson’s empathy for the beaver, however, was not entirely consonant with a biocentric perspective. Just months earlier, in January 1773, he had written Bartram and confessed to him that “I much fear that the Extirpation of that dreadful Animal the Rattle Snake will never be accomplished notwithstanding the perpetual war against the Race.”³ An animal that served human progress, such as the beaver, merited Collinson’s concern, but the eminently unserviceable and downright “noxious” rattlesnake held considerably less value to him, and its extermination seemed a worthwhile pursuit. Such thinking coincided with the eighteenth-century axiom that animals were subordinate to humans and affirmed the idea of ordered hierarchy and disparity among all natural species. Naturalists were resolute in their belief that God had designed a complex universe in order to allow for a full flowering of humans’ critical faculties and that he had decreed their governance over nature a logical outgrowth of their rational powers. Bartram’s contemporary Thomas Short, for example, underscored this point in 1751 in his widely read *Medicina Britannica*, noting rhetorically that had “the Deity” not “crowd the Earth with such a Number of Different sorts of Plants . . . What Room [would] there been for human Judgment, Invention, and Reasoning?”⁴ The early modern naturalist appeared secure in his religiously inspired and homocentric outlook on the world. Yet how should we account for his astute observations regarding purpose and change in the plant and animal kingdoms—as with respect to the rattlesnake, who

² Michael Collinson to John Bartram, July 21, 1773, in *The Correspondence of John Bartram, 1734–1777*, ed. Edmund Berkeley and Dorothy Smith Berkeley (Gainesville, FL, 1992), 760.

³ Collinson to Bartram, Jan. 8, 1773, *Correspondence of John Bartram*, 755.

⁴ Thomas Short, *Medicina Britannica*, 3rd ed. (Philadelphia, 1751), xvi.

was kept in "Ballance," according to Bartram, by other predators such as eagles, vultures, and deer? Naturalists' sophisticated ruminations suggest a level of introspection that belied a predominantly human-centered interpretation of nature.⁵

This philosophical and ethical tension at the core of eighteenth-century natural history emerges quite fully in the written correspondence of a preeminent group of British and colonial American botanists. The letters of John Bartram and Peter Collinson, along with those of a coterie of fellow naturalists—including native Britons Sir Hans Sloane (1660–1753), John Fothergill (1712–1780), and Mark Catesby (1682–1749), Cadwallader Colden (1688–1776) of New York, John Custis of Virginia (1678–1745), and Alexander Garden (1730–1791), a Scottish physician who resided in South Carolina—reveal a deep engagement with natural processes and an understanding of the earth as a dynamic and interconnected place. Despite their reading of nature as separate and secondary to the realm of humans, they did not see it merely as a static "system" that functioned according to clearly defined laws. Embracing what Donald Worster has appropriately, if anachronistically, called an "ecological mechanism," naturalists tried to square their understanding of nature as machine with a recognition that reality did not always match this signification.⁶ For instance, when Cadwallader Colden told Peter Collinson that "there is something in cold and in frost that we do not understand," he anticipated Collinson's awareness of the many concealed aspects and causes of natural occurrences that were determined by contextual factors. Colden went on to speculate that mutually constitutive environmental conditions produced frost, asserting that "different soil and situation," as well as location and climate, were instrumental in the process.⁷ A subtle holism embedded in the naturalists' correspondences adumbrated a view of nature that stressed its interdependent, changeable, and impermanent qualities, even as they employed God's handiwork to explain a fixed or mechanical ordering of the universe.

Perhaps because of these contradictory inclinations, historians have

⁵ Bartram to Collinson, Feb. 27, 1737, *Correspondence of John Bartram*, 38–41.

⁶ Donald Worster, *Nature's Economy: A History of Ecological Ideas*, 2nd ed. (Cambridge, 1994), 33–44.

⁷ Asa Gray, arr., "Selections from the Scientific Correspondence of Cadwallader Colden with Gronovius, Linnaeus, Collinson, and other Naturalists," *American Journal of Science and Arts* 44, no. 1 (1842): 127.

generally treated the naturalists as peripheral figures in shaping early modern thought on the environment.⁸ For good reason, they have largely avoided the kind of Whig history that would link the naturalists to a progressive tradition of environmentalism in the United States and Britain. Nevertheless, it is difficult to ignore the naturalists' struggle to construct a philosophy of nature that was at once sensitive to developments in human *and* nonhuman nature and to see how their ideas anticipated the sympathetic portrait of nature crafted by Romantics and Transcendentalists in the first half of the nineteenth century. Men like Bartram, Colden, and Collinson, though beholden to the intellectual and scientific trends of their era, frequently interpreted the natural world in terms of the connections they saw between nature's individual functions and a larger, more purposeful whole. As Bartram told Mark Catesby in March 1741, "when I am a traveling sometimes on ye mountains or in ye valies . . . I chiefly search out . . . ye wonderfull production in nature of transformations & transmutations & by observing ye rocks & mountains . . . we may in some measure guess how thay was once wound up."⁹ This relational understanding of nature implied a dynamic and interconnected cosmos at odds with the contemporary wisdom that affirmed nature's essentially immutable characteristics.

From Bacon to Bartram: Experimentalism and Natural History

In his posthumously published *New Atlantis* (1627), an imaginative seventeenth-century rendering of an archetypal scientific community, Francis Bacon described the intentions of his fellows of Salomon's House thus: "The End of our Foundation is the Knowledge of Causes, and secret motions of things; and the enlarging of the bounds of Human Empire, to the effecting of all things possible."¹⁰ Bacon's "scientists" were interested in harnessing the power of nature to meet human needs. Practical "experiments," including the "inclosures of all sorts of beasts and birds . . . for dissections and trials," defined nature's role narrowly in terms of its capacity

⁸ Important exceptions include Keith Thomas's *Man and the Natural World: Changing Attitudes in England, 1500–1800* (New York, 1983), esp. chap. 2, and more recently, Richard W. Judd's "'A Wonderfull Order and Ballance': Natural History and the Beginnings of Forest Conservation in America, 1730–1830," *Environmental History* 11 (2006): 8–36.

⁹ John Bartram to Mark Catesby, Mar. 1741, *Correspondence of John Bartram*, 152. (No date listed, according to the editors.)

¹⁰ Francis Bacon, *New Atlantis*, in *Francis Bacon*, ed. Brian Vickers (Oxford, 1996), 480.

to uncover "what may be wrought upon the body of man."¹¹ Bacon's essay baldly sanctioned humans' exploitation of nature. In the decades that followed his death in 1626, enlightened scientists transformed this axiom into hardened dogma and used it to create their own scientific salon dedicated to the experimental principles prescribed in the *New Atlantis*. Bacon's essay inspired the creation of the Royal Society of London in 1662—"a work well becoming the largeness of his Wit to devise," wrote Thomas Sprat in 1667—and his program for conquering nature through the promotion of experimental knowledge acquired a formal institutional basis.¹²

In concert with Christian teleology, the legitimization of experimental science produced a psychic shift in the way that humans related to nature. Summing up the effect that this intellectual revolution had on Western attitudes toward the environment, the historian Lynn White Jr. noted famously that, "formerly man had been part of nature; now he was the exploiter of nature."¹³ Most naturalists and botanists of the middle decades of the eighteenth century, save the unreconstructed holists who invoked pre-Enlightenment intellectual traditions in interpreting their environmental surroundings, subscribed to a version of the utilitarian-experimentalist perspective posited by Bacon and his disciples at the Royal Society. Eighteenth-century naturalists were unequivocal inheritors of the human-centered ethics codified by their predecessors, and they were, no doubt, partially motivated by a desire to restrain nature in the name of unfettered human advancement. What distinguished them from exponents of a Baconian rationalism, however, was their unwillingness to accept the notion that an artificial or human-imposed system of ordering the world necessarily meant that nature herself was irrefutably invariable.

The "new science" endorsed by the Royal Society in the seventeenth century brought forth an emphasis on observation and quantification, a disinterested commitment to "facts," and a desire to forge scientific consensus through rigorous empirical documentation. Botanists and natural historians of the eighteenth century were expected to conform to the protocols of investigation and inquiry devised by the community of

¹¹ Bacon in Vickers, ed., *Francis Bacon*, 482.

¹² Thomas Sprat, *The History of the Royal-Society of London, For the Improving of Natural Knowledge* (London, 1667), 144.

¹³ Lynn White Jr., "The Historic Roots of Our Ecological Crisis," in *Machina Ex Deo: Essays in the Dynamism of Western Culture* (Cambridge, MA, 1968), 84.

scientists associated with the early Royal Society.¹⁴ The English naturalist John Ray (1627–1705), in his three-volume *Historia Plantarum* (1686–1704) and other works, initiated the long process of liberating naturalists from older taxonomies that were based on subjective renderings of the external appearances and behavior patterns of plants and animals. Ray's experiments with specimens, his research on the structural components of plants, and his rudimentary nomenclature blazed a path for eighteenth-century botanists such as the Swedish-born Carolus Linnaeus (1707–1778). Through the creation of a "natural" classification system, that is, one that effectively matched nature's true organizational composition, Linnaeus attempted to substantiate the mechanical functioning of the earth and link its flawlessness to a higher power. His *Systema Naturae* (1735) presented a theory of plant taxonomy that validated his confidence in both the human capacity for rational experimentation and the presence of divine intervention in the natural world. His early quantitative focus on the sex characteristics of plants—in which he argued that plants had to be grouped according to the similarities found in the number and arrangement of their reproductive parts—led him initially to assert that uniformity in organisms existed without exception and that such uniformity was a fundamental precondition for a hierarchically ordered universe conceived by the Creator.

As the leading botanist of the eighteenth century, Linnaeus had a considerable impact on the intellectual and scientific development of his British and colonial counterparts. Like Linnaeus, these men were steadfastly committed to the empirical study of natural phenomena and to celebrating the genius behind the divine plan. However, prior to the late 1750s, before he began to discard some of his previous arguments regarding the fixity of plant life, Linnaeus's system of classification faced frequent criticism and was openly disputed by his British and American contemporaries. While praising Linnaeus as an "Ingenious Man & a great naturalist," Peter Collinson condemned the *Systema Naturae* shortly after its debut, declaring that it "tends but to Embarrass & perplex the study of Botany" and that "Botanists are not agreed about it" and "very few like it."¹⁵ Although Cadwallader Colden generally supported Linnaeus's findings

¹⁴ The definitive account on the institutionalization of experimental knowledge remains Steven Shapin and Simon Schaffer's *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, NJ, 1985), see esp. chaps. 1, 2, and 8.

¹⁵ Collinson to Bartram, Dec. 14, 1737, *Correspondence of John Bartram*, 72.

and marveled at the complexity of his work, he highlighted anomalies in the "natural" system devised by the Swedish botanist. Colden wrote to Linnaeus's acquaintance, the Dutch botanist J. F. Gronovius (1690–1762), that the former had erred in "establishing so many classes" of plants and ignored a basic gradation that accounted for differences between trees and herbs. "This is a distinction that all mankind make," Colden insisted, "and therefore I cannot doubt of its being a natural distinction; and certainly an obvious natural distinction is to be preferred to one more obscure."¹⁶ Consistent disagreements over the methods and conclusions used to justify a "natural" arrangement of plant and animal life in turn cast a shadow of doubt over botanists' understanding of the processes that ultimately governed stability and order in nature.

The naturalists were, perhaps, more prone to acknowledging irregularities and aberrations in nature, a nuance in their philosophy that set them apart from those who avowed an unyielding commitment to both a mechanical philosophy and rational science. We might apply the term "ecological" to describe their way of seeing the world, but with the qualification that they did not make the same distinctions regarding environmental interdependence that we do today. Naturalists perceived the remarkable ability of plants and animals to survive amid constantly changing environmental conditions, just as they observed humans adapting to a variety of social, political, and economic conditions, but only occasionally did they link the effects of human behavior to changes occurring in biotic communities. They regularly described, however, what appeared to be strange occurrences—things that did not quite "fit" an anthropocentric worldview—that stimulated conversation about how various plants and animals survived. In a letter to Cadwallader Colden, for instance, Bartram offered an explanation of the ritual hibernation of bears. He wrote that,

I have in my journey to Susquehana heard surprising discourses about the retreat of the bears in winter in to dark Caverns in the mountains I am tould they purge themselves until their guts is wholly clean from any excrements after which their fundeament is naturally stoped up & that they then repose in these caverns in A sort of Lethargik state during the winter season & are as fat at spring as in the fall.¹⁷

¹⁶ Gray, arr., "Selections from the Scientific Correspondence of Cadwallader Colden," 93.

¹⁷ John Bartram to Cadwallader Colden, Oct. 23, 1742, in *Letters and Papers of Cadwallader Colden*, 9 vols. (New York, 1918–1937), 2:276.

The fact that bears could acclimatize in order to survive the cold winter months in the northern colonies astonished Bartram. Although he did not refute the plausibility of the story, he hoped to resolve the discrepancy that it raised in his mind. Writing later in the letter, he asked Colden to “oblige” him and “inform [him] in this knotty point” that made him “uneasy under these doubtfull ruminations.”¹⁸

The application of the experimental method to botany allowed naturalists to concentrate on defining nature’s constituent parts and to devise precise scientific frameworks for categorizing flora and fauna. The bigger picture, however, remained rather cloudy and, it appeared, a matter that only God had the ability to clear up. But because experimental practices among botanists were largely unsettled during the mid-eighteenth century, nature interpreters often strayed from the boundaries that would have hemmed in more controversial ideas about the origins of the earth and the contingent relationships between human and nonhuman nature. Cadwallader Colden, for example, set forth an early theory of evolutionary change in a letter to Collinson:

shells, and many other marine things found far within land and on the top of mountains, I think prove that those parts where these shells, and &c. are found were once under water; but it does not prove that the face of the earth was at that time the same as it is now. I think the contrary, that it must be different now from what it was then, and that this difference probably has happened by great general earthquakes.¹⁹

Colden, Bartram, and their naturalist colleagues did not disprove the idea of an immutable natural world, but they began questioning its validity by intimating that if one accounted for the vast change that occurred since the time of creation, then nature surely could not be invariable.

*“We Brothers of the Spade”: Nature and Commercial Exchange*²⁰

While British and American naturalists were attentive to purpose, change, and balance in nature, it is hard to deny that they were also

¹⁸ Ibid.

¹⁹ Gray, arr., “Selections from the Scientific Correspondence of Cadwallader Colden,” 128.

²⁰ E. G. Swem, “Brothers of the Spade: The Correspondence of Peter Collinson, of London, and John Custis, of Williamsburgh, Virginia, 1734–1746,” *Proceedings of the American Antiquarian Society* 58 (1948): 47.

acquisitive. Naturalists in the Old and New Worlds were deeply affected by the knowledge they acquired from observing, recording, and preserving natural phenomena, but they also hoped to enrich themselves materially. Still, their correspondences illustrate that their very involvement in the commodification of the natural world in some measure enhanced their sensitivity to it. While respect for nature most often took the form of homage to an omnipotent creator, collecting and trading nature required the naturalist to furnish a constant supply of new "curiosities," making the process of hunting and gathering natural rarities a consistently revelatory endeavor that worked as much to enrich colony and country as it did to heighten individual aesthetic awareness. Hence, the colonial trade in scientific ideas, seeds, and specimens shaped the early modern naturalist's perception of his environment as a fantastically interrelated and purposeful place.

An increased demand in the eighteenth century for knowledge of a diverse range of natural "rarities" provoked exploratory missions into the hinterlands of the North American continent, while the growth of botany as a professional scientific field and a boon to contemporary medical practice helped to spur international competition among naturalists. Passionately engaged in classifying nature and decoding its myriad complexities, naturalists were still attentive to the fact that their findings were contingent upon a consistent flow of capital. Without such monies to defray the onerous costs of exploration in substantial stretches of indigenously occupied and untamed land, many exploratory missions would likely have stalled in the preliminary stages of planning. No one played a more valuable role than Peter Collinson in enlisting the labors of the most gifted naturalists in the New World and in securing financial backing for them. From the early 1720s until his death in 1768, Collinson kept up a prolific correspondence with a variety of North American naturalists, the most notable of whom was John Bartram. He organized a large share of the financial transactions between New and Old World naturalists and distributed seeds, specimens, and observation reports accordingly to a variety of wealthy patrons who pursued natural history as a leisurely activity.

Collinson went to great lengths to keep his clients satisfied, to ensure a smooth flow of commerce across borders, and, most importantly, to make sure that the natural explorers financed by wealthier benefactors produced finished products. Because of a loan advanced from Collinson, for example, Mark Catesby was able to publish the second volume of his

Natural History of Carolina, Florida and the Bahama Islands in 1743 without soliciting his subscribers. Collinson wrote in his personal copy of Catesby's *Natural History* that "this copy of this work is very valuable; as it was highly finished by this ingenious author, who, in gratitude, made me this present for the considerable sums of money I lent him without interest, to enable him to publish it for the benefit of himself and his family: else it would have fallen prey to the booksellers."²¹ Collinson recalled that he kept accounts, wrote letters, received and paid collectors' money, handled the procurement of goods at the London customhouse, and dispersed packages to their appropriate owners. "I willingly undertook it," he wrote in his personal diary, and "without the least gain of profit to myself in hope to improve or at least to adorn my country."²²

Collinson's activities corresponded with several important historical developments in Britain in the early to middle decades of the eighteenth century, each of which helped to generate fortuitous conditions for practitioners of natural history. The year 1727 was significant for British science in that it was the year of Newton's death and the accession of Hans Sloane, head of the Royal College of Physicians since 1719, to the presidency of the Royal Society.²³ More famously, in June of that year the English celebrated the coronation of George II as monarch, marking the beginning of a thirty-three-year reign. Historians generally treat both leaders' transition to power as uneventful. As Paul Langford has noted of the ascendancy of George II, it was "more important for what it failed to change than for what it changed."²⁴ For Sloane, replacing the man who united the heavens and the earth was no easy task, and his historical reputation has suffered because of a perceived failure to live up to the Newtonian legacy. Sloane's scientific emphasis—botany—was different from that of Newton's—physics—and he wanted the Royal Society now to reflect his interest as it had earlier reflected Newton's. Under Sloane's direction, the Royal Society strengthened its ties with urban English naturalists and botanists, as well as with provincial colonial naturalists.

²¹ Quoted in David R. Brigham, "Mark Catesby and the Patronage of Natural History in the First Half of the Eighteenth Century," in *Empire's Nature: Mark Catesby's New World Vision*, ed. Amy R. W. Meyers and Margaret Beck Pritchard (Chapel Hill, NC, 1998), 113.

²² Norman Brett-James, *The Life of Peter Collinson* (London, 1925), 53.

²³ Sloane served as Royal Society president from 1727 to 1741 when he was replaced by Martin Folkes, another botanist-friendly president, who served until 1753. Sloane died in 1753 at the age of ninety-three.

²⁴ Paul Langford, *A Polite and Commercial People: England, 1727–1783* (1989; Oxford, 1992), 11.

North American naturalists provided the Royal Society with a plethora of new observations and specimens, which in turn bolstered English prestige and commercial superiority on the European continent. Sloane recruited a number of prominent English merchants and Royal Society members, including Collinson, to help him in this endeavor. In turn, they developed a system of patronage that fueled the commercial seed trade and created long-lasting and intimate correspondences with fellow naturalists across the Atlantic.

Like Sloane, Collinson hoped to engender a society of gentlemen working in harmony in a way that would replicate the synergistic natural world that so captivated his cohort of naturalists. On December 15, 1735, he wrote to John Custis to emphasize the naturalist's obligation to publicize his critical findings, declaring in the letter that,

Wee Brothers of the Spade find it necessary to share amongst us the seeds that come annually from Abroad It not only preserves a Friendly Society but secures our Collections, for if one doues not raise a seed perhaps another does & if one Looses a plant another can Supply him by this Means our Gardens are wonderfully Inproved In Variety to what they was Twenty Years agon.²⁵

Collinson's remarks are instructive in two important respects. First, they speak to the naturalist's desire to fit himself within the larger framework of Britain's growing empire in the eighteenth century. The naturalist had a role to play in the imperial project as both scientist and businessman, and in fulfilling each role communication became critical. Secondly, Collinson's comments were representative of the growing sense of cooperation among natural historians in the Old and New Worlds. As "Brothers of the Spade," Anglo-Americans were clearly as much a part of the system of colonial enterprise—in trading ideas and commodities within the "Friendly Society"—as native-born Englishmen. Colonial naturalists thus played a crucial role in solidifying the British monopoly on North America's natural resources and in supplying a form of cultural capital—new scientific discoveries—that equally enriched the empire.

Letters served as the primary mode of communication for Anglo-American naturalists wishing to express their observations and disseminate empirical data among colleagues across the Atlantic. Written correspon-

²⁵ Swem, "Brothers of the Spade," 47.

dence allowed them to delineate the scope of their particular travels. For example, Bartram, in a letter to Collinson dated December 10, 1738, noted that,

I having performed my journey thorow maryland & virginia as far as Williams burgh so up james river to ye mountains so over & between ye mountains in many very crooked turnings & windings in which according to ye nearest computation I can make betwixt my setting out & and returning home I traveled 1100 miles in 5 weeks time.²⁶

He carefully described both the length of the trip and its considerable perils, two critical factors influencing the explorer's ability to record observations, to collect and preserve specimens, and to deliver the compiled results overseas in a timely manner. Secondly, letters allowed colonial naturalists such as Bartram to reflect upon their findings and to voice their opinions of the North American landscape to their British counterparts. In the same letter to Collinson, Bartram wrote that,

I think to be diligent in my observation on ye flower of our sweet gum to gratifie thee & thy curious friends it seems strange that some accurate botanist hath not allready taken notice of it but I suppose ye difficulty of procuring ye flowers hath been some reason of ye neglect for the tree generally groweth straight & tall & seldom bears seed before ye tree is 40 or 50 feet high.²⁷

Bartram consistently pleased members of the Royal Society with his original findings and, as a result, was frequently rewarded with additional capital to pursue new explorations. In 1765, just shy of sixty-sixth birthday, he was bestowed the prestigious honor of serving as the "King's Botanist," which carried with it an annual commission of fifty pounds.²⁸ As Collinson told Cadwallader Colden in 1742, Bartram's "observations and accounts of all Natural productions that happened in his Way (& I believd few Escape Him)—are much Esteem'd Here for their Truth."²⁹

Bartram's resourcefulness was also a direct challenge to the other botanists in the New World, many of whom were searching for similar

²⁶ Bartram to Collinson, Dec. 10, 1738, *Correspondence of John Bartram*, 104.

²⁷ *Ibid.*, 105.

²⁸ On his being named the "King's Botanist," see Collinson to Bartram, Apr. 9, 1765, *Correspondence of John Bartram*, 644.

²⁹ Collinson to Colden, Mar. 7, 1742, *Letters and Papers of Cadwallader Colden*, 2:247.

natural treasures to please their patrons. A rivalry sprouted between Bartram and Mark Catesby as both naturalists vied for the attention of their mutual supporters. Collinson made his preference for Bartram's work known in a January 16, 1744, letter to him: "Mr. Catesby admires so many of these sorts [turtles] Escaped Him but it is next to impossible that He could as a Sojourner make such Discoveries as a Curious Man that is a Native It is really True what my frd Sam Chew said (who recommended Thee to Mee) that nothing can well Escape thee."³⁰ The community of naturalists was meant to be "friendly," but it was also competitive, and, like any commercial enterprise, ruthless when it came to meeting a bottom line. Bartram, too, played on Collinson's favoritism, occasionally distinguishing his work from Catesby's by noting the variety and originality of his local and regional observations. Bartram told Collinson, for example, that "Our pheasant was I believe wholly unknown to Catesby, it being more northern than Carolina, they have been Common (in Pensilvania) but now most of them are destroyed in lower settlements."³¹ Bartram had a vested interest in securing future patronage, and so he clearly marked off the American territories in which he was known to have expertise.

The third and preeminent task of the letters written by Anglo-American naturalists was to convey important empirical findings. Bartram and other naturalists were careful to articulate the distinctiveness of their specimens and to provide explanations for their observations, paying particular attention to geographic and environmental conditions. Bartram let Collinson know in 1738 that he had "sent a box of insects & a jar of papaw flowers & fruite," which "hath been but a scarce year for." He went on to note that "next year there may be more plenty of several kind which you want so pleas let mee know what sort may be acceptable & if you pleas to order me to new england next fall I am not much against it haveing health & prosperity."³² Meticulous collection and thorough analysis of plant and animal samples, such as seeds, cones, berries, leaves, eggs, skins, and fur, were crucial to the imperial scientific project. New classifications and discoveries provided the justification for continued patronage—the steady capital required to subsidize the procurement of species—and for

³⁰ Collinson to Bartram, Jan. 16, 1744, *Correspondence of John Bartram*, 229.

³¹ Bartram to Collinson, date unknown, *Correspondence of John Bartram*, 316. The Berkeleys estimate that the letter was probably written sometime in early 1751. They base their estimate on a response from Collinson that makes direct reference to the pheasant discussion alluded to above.

³² Bartram to Collinson, Dec. 10, 1738, *Correspondence of John Bartram*, 104.

further exploration of natural phenomena. The letters of the prominent Anglo-American naturalists took on a familiar pattern, in which chronological descriptions of travels, reflections, and results dominated the discourse. A utilitarian impulse driven by market obligations and acquisitive appetites frequently permeated the correspondences. On the fringe of the British Empire, the colonial naturalists were eager to share in the experiences of the exceptional gentlemen in London and to reap what they could in terms of respect and remunerative reward.

Membership in the international community of naturalists was, in the main, exclusive and typically included only noblemen and certain segments of the English and colonial American gentry. In a different but important way, however, the community functioned as a rather informal cooperative of gentlemen. Not all who participated in this cooperative were official members of the Royal Society, nor were they all professional scientists. The air of conceit that accompanied rational, Enlightenment thinking burned brightly among the eighteenth-century naturalists, but their equal emphasis on their pursuit as both an intellectual and commercial endeavor helped to open the door for some men of inferior status, especially in North America. Alan W. Armstrong has commented that during this period there was “a democracy about science, and on the docks and in the coffee houses where the latest cargos of rarities were displayed, commoner met gentry and nobility on level ground as they exchanged observations, information, and specimens.”³³ Paul Langford has similarly contended that a mediocre class of intellectuals after Newton helped to focus all of England’s energies toward what it did best—trade. He notes that the Enlightenment in England “was remarkably unfettered and potentially profitable, as much in terms of the interest it aroused as the technological progress that made it possible. This, no doubt, was why Continental scientists came to England to achieve recognition . . . seeking a land of opportunity, not a realm of superior genius.”³⁴ Although Langford devalued the scientific aptitude of the eighteenth-century naturalists, his point is nevertheless significant. Continuous commercial expansion engendered hope for social mobility.

The culture of commercial openness and the spread of knowledge and information across vast geographical spaces certainly affected the

³³ Alan W. Armstrong, “John Bartram and Peter Collinson: A Correspondence of Science and Friendship,” in *America’s Curious Botanist: A Tercentennial Reappraisal of John Bartram, 1699–1777*, ed. Nancy E. Hoffmann and John C. Van Horne (Philadelphia, 2004), 26.

³⁴ Langford, *Polite and Commercial People*, 663–64.

community of eighteenth-century naturalists, but there were nevertheless real restrictions as to who could gain entry to the playing field. Bartram's outstanding abilities secured his place among the best botanists in the world, but he occasionally clashed with Collinson over matters of money and prestige. Collinson gently reminded Bartram to mind his social position and occasionally warned him not to complain about their arrangement. Shortly after his appointment as the "King's Botanist," Bartram was disgruntled with the fact that Collinson was slated to receive a share of his stipend. Collinson's impatience with his friend's persistent questioning as to why this was so spilled over into a letter in November 1765: "pray you make no more remonstrances on that head for I am tired with a repetition of them in every letter. Thou knows the length of the chain of 50 links, go as far as that goes—when that's at an end cease to go any farther." Among the wealthiest and most established botanists, bitter rivalries sprouted and often shattered the picture of the organic society that Collinson painted. Indeed, even Hans Sloane could not escape the criticism of his associates, as the comments of the Linnaean disciple and colonial planter Alexander Garden confirmed. In a letter to Colden in 1756, Garden referred to the head of the Royal Society as "that Most pompous, confused, & illiterate Botanist Sir Hans Sloane."³⁵ Commerce paved the way for a broader cross section of the public to participate in various aspects of the nature trade, but it did not make it any easier for an amateur naturalist to break into the elite community of scientists, nor did it mitigate the class pretensions among both the higher and lower orders.

As Peter Collinson's closest contact in the New World, John Bartram enjoyed a privileged status among the English gentry despite being a mere colonial husbandman. Both Bartram and Collinson were Quakers and were in agreement on matters of faith, but more than anything else Bartram's extraordinary skills as an observer of nature propelled his work into the highest echelons of the Royal Society. Collinson wrote Bartram in 1737 to inform him that one of his letters "contained so many fine Remarks, that it Deserved to be read before the Royal Society." The Royal Society advised Bartram to "Continue thy observations & Communicate them, pray make no apology, for thy style is much beyond what one might

³⁵ Alexander Garden to Cadwallader Colden, Aug. 14, 1756, *Letters and Papers of Cadwallader Colden*, 5:90–91.

expect from a Man of thy Education.”³⁶ Still, his position as the “King’s Botanist” notwithstanding, Bartram was expected to show deference to those that he served in his investigation of the natural world. Whereas a gentleman botanist and a native Englishman like Catesby—who was bound, like Bartram, to fulfilling patrons’ requests—could assert himself and defend his findings in debate, Bartram was expected to show humility and to remember his good fortune.

Despite varying levels of deference, Bartram and Catesby were able to surmount the limitations of social class and harmonize their interests in both nature and commerce. Both men enjoyed the privilege of participating in the community of naturalists, but they detested those who collected natural specimens for purely material aggrandizement. In the preface to his *Natural History*, Catesby regretted that barely any of South Carolina’s natural phenomena were known, “except what barely [merely] related to Commerce.”³⁷ And Bartram had designs on starting a uniquely American Philosophical Society, which, removed from the pressures of the Royal Society’s demands, could be dedicated explicitly to the study of the natural world. He wrote to Colden in October 1745 that we “talks of carrying it on with more diligence then ever which we may very easily do if we could but exchange ye time that is spent in ye Club, Chess & Coffee House for the Curious amusements of natural observations.”³⁸ Bartram’s frustration with the dilatory lifestyle of “gentlemen,” in which idle pleasures tended to obstruct the view of more weighty matters, led him to yearn for more serious study of the natural world.

*“A Confused Heap of Broken Links”? The Naturalists in Perspective*³⁹

In Collinson, Bartram had a friend who shared his infectious enthusiasm for nature and a curiosity about its infinite complexities. As the prime mover of this international community of naturalists, Collinson’s unambiguous aim was to heap material prosperity upon England. But this was not his only aim. He reaped a pleasure from examining the world’s natural processes that was independent of the glory he derived from business.

³⁶ Collinson to Bartram, Dec. 10, 1737, *Correspondence of John Bartram*, 68.

³⁷ Mark Catesby, *Natural History of Carolina, Florida and the Bahama Islands*, 2 vols. (London, 1731–1743), 1:vi.

³⁸ Bartram to Colden, Oct. 4, 1745, *Correspondence of John Bartram*, 261. The American Philosophical Society was officially established in 1743, but initially struggled to get off the ground.

³⁹ Collinson to Bartram Apr. 27, 1755, *Correspondence of John Bartram*, 384.

Naturalists' commercial interactions led them to see that humans held responsibilities to their nonhuman surroundings that extended beyond mere self-interest. Collinson and his colleagues reinterpreted the interrelationship between science and commerce first propounded by Bacon to emphasize both the beauty of progress and the striking interdependence of both the human and natural worlds. Just as the human world was transformed by mercantile exchange, they noted, plants and animals were transformed by organic growth; each environment was characterized by a continuous or "natural" development. Natural history fieldwork, though part of a greater imperial project, was in tension with the same aggressive economic forces that made it possible. Naturalists operated within an imperial framework but their ideas about nature cannot be reduced to imperial ideology alone.

In a letter to his friend Jared Eliot (1685–1763), an agricultural writer from Connecticut, Bartram described changes occurring in the Pennsylvania woodlands. He hinted at damage done to the land that, before human infringement, had produced fertile soil.

I have observed that in Pensilvania East Jersey & York government their rich low lands before thay was cleared: produced abundance of hasels, weeds & vines which entangled ye trash which ye floods brought there; & in time rotting kept it very rich: but when cleared & plowed thay had A contrary effect upon it instead of bringing A rich supply & leaving it thay often bore away some of ye best soil.⁴⁰

Writing in 1751, Bartram was aware that things were not the same as they were "above 20 years past." Human and animal encroachment on the land had changed both its physical layout and its ability to yield an appropriate level of agricultural output. Practical concerns were, however, only one part of the equation for Bartram. As he told Collinson in 1737, there is a "Ballance" that nature keeps.⁴¹ Collinson wrote back shocked at Bartram's astuteness: "The ballance kept between the Vegitable & Animal productions is really a fine Thought & what I never met with before, but it is more remarkable with you [in the colonies] than with us for you have more Wild animals & mast in greater plenty than Wee have."⁴² While he

⁴⁰ John Bartram to Jared Eliot, spring 1751, *Correspondence of John Bartram*, 322. (This date reflects an estimate by the editors.)

⁴¹ Bartram to Collinson, Feb. 27, 1737, *Correspondence of John Bartram*, 40.

⁴² Collinson to Bartram, Dec. 10, 1737, *Correspondence of John Bartram*, 67.

was most certainly not saying that human beings were wrong to cultivate God's "gifts," Bartram did acknowledge that there could be unfavorable repercussions to excessive use of his natural stores and that good stewardship was required to ensure harmonious interactions between humans and the land that they cultivated.

The naturalists' transatlantic correspondences exhibit a multifaceted understanding of nature's related parts, and they also bring to light their spiritual appreciation for nature. The naturalists' spiritualism, in addition to reinforcing a homocentric outlook on the world, informed an aesthetic consciousness that commingled with their practical understanding of nature. John Bartram, perhaps more so than any British or colonial naturalist, embodied this meditative outlook. He revealed to Alexander Garden of South Carolina that his passion for nature extended beyond an essential admiration for God's magnificent performance in organizing the world's flora and fauna.

I dont in dwelling so long in ye vegitable kingdom, as though I thought ye wisdom & power of God was onely manifested therein . . . but what amaising distant glories is disclosed in A mid night scene: Vast are ye bodies which role in ye imence expanse orbs beyond orbs without number suns beyond suns sistems beyond sistems with thair proper inhabitants of ye great Jehovahs Empire how can we look at these without amaisement, or contemplate ye divine Majesty that rules them without ye most humble adoration Esteeming our selves with all our wisdom but as one of ye smallest atoms of dust prasing ye living God, the great I am.⁴³

The unmistakable pagan overtones in Bartram's reflections suggest his desire to reinsert humans into a living, breathing cosmos. While mechanistic philosophy and scientific experimentalism conceived of nature as more or less inert, passive matter to be shaped by human hands, Bartram's subjective, sympathetic deliberations departed from the established model. In a rudimentary way, Bartram wrestled with the question of human dominance over nature and attempted to come to terms with the wholeness of God's creation.

This aesthetic impulse led the naturalists to construct a philosophy of nature that allowed them to see deeper meaning in their own existence as well as a profound sense of unity and purpose in God's plan in the natural world. Hence, early modern naturalists saw plants and animals both as

⁴³ Bartram to Garden, Mar. 26, 1762, *Correspondence of John Bartram*, 552.

commodities—that flowed from the beneficence of the Creator—and important pieces of what we might call an organic puzzle, the interconnectedness of which they vaguely began to comprehend. A 1741 correspondence between Collinson and John Custis of Virginia is emblematic of this kind of recognition. Collinson sent to Custis a broken seashell from the English coast, and in the attached letter he commented that it is “one I have not seen,” but “Perhaps if it is sent to your people on the island they may find some of the same sort.”⁴⁴ A Darwinian, Collinson was not. But an analysis of his many shells’ physical characteristics indicated to him that there were tangible links between certain forms of aquatic life in North America and Europe even though thousands of miles separated the two continents. Of course, to arrest any sense that Collinson was working on a primitive theory of descent, he wrote to Custis with unequivocal awe that the diversity of species “surprises us with wonder and Raises Adoration in Our Minds as to the Great Author of them.”⁴⁵ Collinson’s remarks demonstrate the importance of theological explanations in accounting for the intricacies of natural phenomena, but they also suggest an unusual concern for the nonhuman relationships of the natural world.

The naturalists of the eighteenth century stand in contrast to Bacon’s futuristic scientists in the *New Atlantis*—the molders and shapers of a submissive natural world. Botanists such as Catesby, Bartram, Collinson, and Sloane were participants in an imperial project that treated nature as a commodity to be used for human gain, but their reverence for nature, as a reflection of the Almighty Creator, told them that something else was at play that ardent proponents of a mechanistic universe missed. Such reverence allowed naturalists to carefully address the most basic questions about nature facing man: did it exist solely for his needs, or did it have other purposes? While they were often reluctant to offer any conclusive answers, there was a kind of underlying implication in the experiments and the observations that they rendered. Naturalists questioned the “order of things” and the “systems” that appeared to govern human, plant, and animal life with the intent of finding an integrated purpose in nature. A letter from the London-based naturalist John Fothergill to Bartram in 1743 is representative of this way of thinking:

⁴⁴ Swem, “Brothers of the Spade,” 71. Collinson refers to Smith’s Island in Northampton County, Virginia.

⁴⁵ *Ibid.*, 71.

I don't so much collect with a view to have a great number of odd things together, as to have so many productions of different kinds, natures, compositions, figures &c as when laid together may assist me in forming some general Idea of the production of several of these kinds of substances, more consistent with the nature of things than I have yet met with from others. This is the entertainment of leisure hours, and is a structure which can only be erected from a multitude of materials, which time may supply me with, and the kindness of my friends.⁴⁶

The interests of British and North American naturalists were grounded in their unique understanding of their environment as a pastiche, a complex and diverse jumble of "so many productions" that they were attempting to make sense of. The goal was not simply to make the world fit their preconceived sense of order, but to determine how seemingly unarranged parts fit together and for what purpose. There can be no denying that acquisitive impulses drove these men, but it should also be said that commerce served as a mechanism to satisfy their developing aesthetic concerns for nature.

The eighteenth-century naturalists at once embodied a utilitarian attitude toward nature, which aspired to use plants and animals for human advantage, and a nonutilitarian attitude, which looked at nature as an aesthetically gratifying and elaborate system of interrelated components. These two approaches, needless to say, were in constant competition with one another. The historian Keith Thomas has written that during the eighteenth century, feelings were spawned that made it "increasingly hard for men to come to terms with the uncompromising methods by which the dominance of their species had been secured. On the one hand they saw an incalculable increase in the comfort and physical well-being or welfare of human beings; on the other they perceived a ruthless exploitation of other forms of animate life."⁴⁷ And yet commerce, or the process of commodifying nature, helped naturalists see balance in nature, an organic unity that was perhaps a primitive precursor to the modern ecosystem. Empire fed a deeper yearning for knowledge and an understanding and concern for the natural world even as its tentacles reached out and plucked the land of many of its most precious "gifts." This tension would manifest itself even more glaringly in the nineteenth century as an ever-expanding capitalist system, a highly rational but unfeeling and

⁴⁶ John Fothergill to John Bartram, Dec. 22, 1743, *Correspondence of John Bartram*, 230.

⁴⁷ Thomas, *Man and the Natural World*, 302.

ecologically unfriendly mode of production, wreaked intense havoc on the earth's resources.

In the decades before 1780, naturalists ordinarily saw their most pressing problem as the "great Increase of people animals & Traffick," not profit making at the expense of the earth—which God had made for man—but they nevertheless sought a harmonization of man's commercial and aesthetic interests and were often troubled by their contradictory views.⁴⁸ They wondered whether nature would always produce a bounty and at the same time retain its integrity as a complex living organism. Perhaps it is in this struggle that we have the naturalists' most important contribution to Western ethics and natural philosophy: they were much less sanguine than their predecessors, as well as many of their contemporaries, about dominating and controlling nature for strictly material purposes. Within an imperial framework they managed to intimate a strong connection between humans, plants, and animals and helped to lay the foundation for new ethical and philosophical approaches—such as ecology and conservation—that assumed mutual interaction between human and nonhuman nature.

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⁴⁸ Collinson to Bartram, summer 1751, *Correspondence of John Bartram*, 327.