

Mark Catesby: Pioneering Naturalist, Artist, and Horticulturist

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This April marks the 301st anniversary of naturalist Mark Catesby's arrival in Williamsburg, Virginia, to begin the first of two exploratory sojourns he would make in the American colonies. A dabbler in watercolors from a family of provincial English lawyers, Catesby was twenty-nine when he stepped off the ship to begin the adventure that would determine the course of his life and culminate in his monumental work on North American flora and fauna, *The Natural History of Carolina, Florida, and the Bahama Islands*. The lavishly illustrated work would be hailed in the *Philosophical Transactions* of the Royal Society of London as "the most magnificent work ... since the art of printing has been discovered" (Mortimer 1748). It would stand as a benchmark in American natural history throughout the eighteenth century and be deemed "the most splendid of its kind that England had ever produced" (Pulteney 1790).

Though little documentation of Catesby's early life exists, it is generally supposed that his interest in the natural world had been stimulated by his uncle Nicholas Jekyll, an avid gardener who introduced the young man to John Ray, "the foremost English naturalist of the late seventeenth century ... whose systems would dominate English natural history until the adoption of Linnaean classification" (Frick 1974). The best glimpse into Catesby's preoccupations as he first arrived in America to visit his sister's family and have a look around comes in his own words:

"... my Curiosity was such, that not being content with contemplating the Products of our own Country, I soon imbibed a passionate Desire of viewing as well the Animal as Vegetable Productions in their Native Countries; which were Strangers to England. Virginia was the Place (I having Relations there) suited most with my

Convenience to go to, where I arriv'd the 23d. of April 1712. I thought then so little of prosecuting a Design of the Nature of this Work, that in the Seven Years I resided in that Country, (I am ashamed to own it) I chiefly gratified my Inclination in observing and admiring the various Productions of those Countries, only sending from thence some dried Specimens of Plants and some of the most Specious of them in Tubs of Earth, at the Request of some curious Friends ..." (Catesby 1731)

Perhaps Catesby could afford to be a bit modest by the time he wrote these prefatory words of his celebrated magnum opus. In reality, when he returned to England after seven years in the colonies, he "brought with him an extensive knowledge of New World flora and fauna as well as an impressive cache of drawings of animals and plants never before seen by English naturalists" (Meyers and Pritchard 1998). These were sufficient to attract the interest of the eminent English botanist William Sherard, who happened to be in the process of organizing sponsors to send a naturalist across the Atlantic to explore and document the living wonders of America, especially those that might have scientific, economic, ornamental, or curative value. Whom to send on this mission was an issue yet to be resolved. But an ability to render accurate images of the new finds would be a significant qualification. Impressed by Catesby's work, Sherard wrote to an acquaintance, "He designs and paints in water colours to perfection."

Catesby got the job, and with the support of a dozen backers—including a number of aristocrats as well as the President and several members of the Royal Society—set out on his second journey, arriving in Charleston, South Carolina, in 1722. With the funds and trust that were now invested in him, he threw himself into



The Mock-Bird and Dogwood Tree
Northern mockingbird (*Mimus polyglottos*) and flowering dogwood (*Cornus florida*)

A Note About the Images

THE IMAGES in this article were scanned from the Arnold Arboretum's copy of Catesby's *Natural History of Carolina, Florida, and the Bahama Islands*. Our copy is the revised edition published in 1754. It was purchased for \$50.00 in February 1912 with funds provided by Francis Skinner, a friend and neighbor of Charles Sprague Sargent. This copy had previously been in the library of Venetian botanist Francesco Rizzo Patarol.

Catesby's book used Latin polynomials (multi-word descriptive phrases) to identify the plants and animals, the accepted practice before Linnaeus's system of binomial plant names became widely established. Linnaean binomials were added to the third edition (1771), and over the years researchers have provided more accurate identification and nomenclature. For the images that appear in this article, the first line of each caption gives the common names (or the first part of the Latin polynomial if listed only that way) as they appear in Catesby. The second line provides the modern common and scientific names from Reveal (2012).

his work, resolving never to visit the same area twice during the same season. The frequent clamoring of his impatient backers for specimens sometimes hampered his efforts at what he saw as the main thing to be accomplished: an illustrated record of the plants and wildlife of America. But he persevered and for four years ranged from coastal plains to Appalachians and from the Carolinas south through Georgia, Florida, and the Bahamas, collecting, documenting, and painting as he went.

Upon his return to England in 1726, Catesby took a job as a nursery horticulturist and began work on the great book he envisioned. The project would take more than twenty years to complete. And he would have to publish

it himself. In a practice common at the time, Catesby solicited subscribers by issuing a prospectus describing the proposed publication and his qualifications for undertaking it. Subscribers would make advance payments, and these would help defray the costs of producing the books. Catesby gave persuasive evidence of the worthiness of his project by listing in the prospectus the names of the twelve eminent men who had sponsored his second trip and by publicly exhibiting the drawings and watercolors he had brought with him from the colonies. Ultimately, 155 persons and institutions signed on, enough to set the project in motion.

In order for the illustrations to be printed, they would have to be engraved into copper



The Blue Bird and *Smilax non spinosa, humilis*
Eastern bluebird (*Sialia sialis*) and sarsaparilla vine (*Smilax pumila*)



The Globe-Fish and *Cornus, foliis Salicis Laureae acuminatis* (upper) and *Phaseolus minor lactescens flore purpureo* (lower)

Checkedred pufferfish (*Sphoeroides testudineus*), lancewood (*Nectandra coriacea*), and red milk-pea (*Galactia rudolphioides*)

plates. Catesby had hoped to have the work done by the expert engravers of Amsterdam or Paris, but given the number of plates involved—220 would grace the finished work—the expense proved prohibitive. Undeterred, he studied the technique of etching with Joseph Goupy, a French print-maker and art instructor then living in England, and proceeded to etch all of the plates himself. He published the work in installments of twenty plates with accompanying bilingual English–French text. Sherard supplied the Latin polynomials, which were the brief descriptive phrases used as species names before Linnaeus’ binomial (genus + specific epithet) system came into general use. Upon the completion of each new segment, Catesby presented it to the Royal Society, which was, itself, a subscriber. When he presented the fifth installment in 1732, the one hundred plates that would comprise the first volume of the two-volume work were finished. Within a few months, Catesby was formally nominated and duly elected a Fellow of the Royal Society.

The publication of Catesby’s *Natural History*, the first illustrated account of North American flora and fauna, was ultimately completed in 1747 with the addition of the twenty-plate appendix to the second volume. (The title page of the first edition gives the publication date as 1731, so citations often indicate that year rather than 1747.) The first volume had been dedicated to the wife of England’s King George II, Queen Caroline, for whom Carolina was named. Queen Caroline having now died, Catesby dedicated Volume II to another avid gardener and patroness, Princess Augusta, wife of Frederick, Prince of Wales. The gardens at the couple’s country retreat would later form the basis of the Royal Botanic Gardens at Kew, founded in 1760. Catesby himself survived



The Pigeon of Passage and the Red Oak
 Passenger pigeon (*Ectopistes migratorius*) and turkey oak (*Quercus laevis*)

the completion of his *Natural History* by only two years. A revised edition was published posthumously, in 1754, and a third edition, providing Linnaean binomials for the species, came out in 1771.

As set forth on its title page, the *Natural History* presents examples of “... *Birds, Beasts, Fishes, Insects, and Plants: Particularly the Forest-Trees, Shrubs, and Other Plants, Not Hitherto Described, or Very Incorrectly Figured by Authors ...*” The first known depictions of a succession of eels, butterflies, and frogs leap, flutter, and writhe from the pages, together with snakes of all stripes and birds of all feathers. The ghost of the passenger pigeon looks out from its page. The species was still so numerous when Catesby encountered it that flocks would “break down the limbs of Oaks with their weight” (they were prodigious consumers of acorns, he notes) “and leave their Dung some Inches thick under the Trees they roost on.” (Catesby 1731) Catesby’s 111 bird images have led to a perception of him as a kind of overshadowed precursor of Audubon, yet the bulk of what is portrayed in the work belongs to the plant kingdom: 171 species. Richard Howard (director of the Arnold Arboretum from 1954 to 1977) and George Staples were able to



The Cacao Tree
Cacao (*Theobroma cacao*)

match modern scientific names to all but two species (Howard and Staples 1983). They also noted that "Catesby's plates appear to be the types of twenty-five recognized [plant] taxa, of which twenty-one were described by Linnaeus and four by subsequent authors." (A "type" is one particular exemplar that embodies the defining characteristics of a taxon and is permanently associated with it; in botany, a type may consist of either an herbarium specimen or an illustration.)

Specimens of several taxa on Catesby's type list currently grow in the Arnold Arboretum's collections, including pawpaw (*Asimina tri-*

loba), cucumbertree magnolia (*Magnolia acuminata*), umbrella magnolia (*Magnolia tripetala*), sourwood (*Oxydendrum arbo-reum*), blackjack oak (*Quercus marilandica*), and water tupelo (*Nyssa aquatica*). Though not cold-hardy enough to be grown in New England, another plant having a Catesby illustration as its type deserves mention: the cacao tree (*Theobroma cacao*), whose seeds are the source of chocolate.

As if attempting an accounting of the flora and fauna of a large swath of the continent were not enough, Catesby includes in the *Natural History* a lengthy essay, "An Account of Carolina and the Bahama Islands," in which he discusses the region's climate, soils, habitats, hydrology and geology—including notable fossil finds—as well as Native American culture. He also enumerates the crops grown in the colonial southeast, assessing their suitability and economic potential there, and provides extensively annotated lists of many wild species not illustrated. For good measure, Catesby records recipes for making caviar and pickled sturgeon and describes the process of making tar from pine trees.

Later critics have found flaws in Catesby's work. He sometimes interpreted the differing appearances of juvenile and adult birds as representing members of different species. And though his depictions were broadly accurate, they lacked accuracy in finer details. The work of G. D. Ehret, the botanical illustrator who contributed three illustrations to the *Natural History*, shows a greater attention to details such as venation, as compared with Catesby's relatively stylized renditions. In addition, some inaccuracies resulted from the direct transfer of drawings onto the copper plates. Because printing reverses the image engraved on the plate, creating a mirror image,



The Painted Finch and the Loblolly Tree
Painted bunting (*Passerina ciris*) and loblolly bay (*Gordonia lasianthus*)



The Blue Gros-beak and the Sweet Flowering Bay
Blue grosbeak (*Passerina caerulea*) and sweetbay magnolia (*Magnolia virginiana*)

the direction of twist shown in the twining of Catesby's sweet potato plant (*Ipomoea batatas*) is incorrect. Catesby himself recognized that his artistic skills were limited by his lack of expertise in perspective but felt that his flat depictions were sufficient for the purpose of delineating species.

In time, his work was superseded by the achievements of later generations, and Catesby's renown faded. "After the American Revolution, interest in Catesby's work, as with most things American, waned in England. And as the scientific community became increasingly specialized, ... Catesby's generalist approach fell into disfavor. By the time John James Audubon set off to paint in South Carolina nearly a century later, Catesby had been almost forgotten." (Amacker)

In recent decades, however, a new appreciation of Catesby's contribution has emerged. With the perspective of two-and-a-half centuries, it has become clear that Catesby's work was innovative and ahead of its time. He broke from the stilted bird profiles typical of the times to include dynamic images of birds in motion. The bald eagle in full swoop, bearing down upon its prey in the very first plate is an example. He was the first to depict birds against botanical backgrounds. More importantly, in choosing these backgrounds, he made a conscious effort to depict ecological relationships, frequently showing birds with the plants on which they feed or in which they nest. His texts go beyond describing morphology to reveal behavioral and eco-

logical characteristics. In the case of birds, he often commented on aspects of nest-building, feeding, and migratory behaviors. He authored the first scientific paper (Catesby 1746-7) to accurately address the phenomenon of bird migration (earlier theories had birds hibernating in caves or under water during the winter months). For these reasons, and in consideration of the many new bird species he brought to light, Catesby has been called the founder of American ornithology (Frick 1974).



The Blueish Green Snake and *Frutex baccifer, verticillatus*
Rough green snake (*Opheodrys aestivus*) and American beautyberry
(*Callicarpa americana*)

Apart from his contributions to natural history, Catesby, throughout his career, maintained an active presence in transatlantic horticultural affairs, participating not only in the importing of interesting American plants into Europe, but in the adoption of useful exotic crops in the colonies, and the transfer of plants among the colonies. His last work, the *Hortus Britanno-Americanus*, published posthumously in 1763, became part of a movement embraced

by British gardeners who planted “American gardens”—naturalistic “wilderness” plantings designed to evoke, albeit in a carefully controlled manner, the wildness of the American continent. “Catesby himself ... asserted that, in the half-century in which he was active, more plants were imported into England from the British colonies in North America than during the previous one thousand years from all other parts of the world.” (O’Malley 1998)

In the course of his transatlantic horticultural activities, Catesby may have had a hand in the naming of a genus with which the Arnold Arboretum has a special relationship, *Stewartia*. (The *Stewartia* collection is one of six that the Arboretum curates as a member of the North American Plant Collections Consortium, with the goal of broad acquisition and long-term preservation of *Stewartia* germplasm.) Upon receiving specimens of a new shrub from a correspondent in Virginia, Catesby planted them at the nursery where he worked in Fulham, England. As Spongberg and Fordham (1975) relate, “The plants flowered in May of 1742, and it is suspected that Catesby, recognizing their ornamental value and botanical interest, gave plants of the new shrub to John Stuart, the third Earl of Bute, for the botanical garden he was helping to establish at Kew.” Subsequently, Linnaeus named the genus in honor of Stuart in 1746.

It is a telling testament to the importance of Catesby’s work that scholars and scientists continued to acknowledge his pioneering efforts



The Yellow Breasted Chat and *Solanum triphyllon flore hexapetalo*
Yellow-breasted chat (*Icteria virens*) and spotted wakerobin
(*Trillium maculatum*)



Steuartia

Silky camellia (*Steuartia malacodendron*) [Ed. note: Though he named the genus in honor of John Stuart, Linnaeus spelled it as *Stewartia*. This is still the generally accepted spelling, though some taxonomists spell it as *Stuartia*. Catesby's spelling seems to split the difference.]

long after his death. In his *Species Plantarum* (1753), Linnaeus cited Catesby ninety-five times (Ewan 1974). Thomas Jefferson cited Catesby in the table of North American birds he included in his *Notes on the State of Virginia* (1785) to contest a French naturalist's assertion that American species lacked variety. Lewis and Clark studied the *Natural History* in preparation for their explorations, as did Alexander von Humboldt. And Catesby has been immortalized in the scientific names of many American organisms. Our bullfrog was named *Rana catesbeiana*, in 1802. Catesby has four reptiles named for him and a number of plants, including (with the naming botanist's name appended) *Lilium catesbaei* Walter, *Gentiana catesbaei* Walter, *Quercus catesbaei* Michaux (a synonym of *Q. laevis*), *Clematis catesbyana* Pursh, *Trillium catesbaei* Elliott, and *Leucothoë catesbaei* (Walter) A. Gray (a synonym of *L. axillaris*).

A few genera also bear Catesby's name. The Dutch botanist Gronovius had already named the lily-thorn genus, *Catesbaea*, for Catesby during his lifetime. In 1968, the monospecific genus *Catesbya* was erected by J. E. Böhlke and D. G. Smith for *Catesbya pseudomuraena*, an eel inhabiting the reefs of the Bahamas. In naming the new genus the authors explicitly paid tribute to "Mark Catesby, whose [work] marks the beginning of our knowledge of Bahaman fishes" (Böhlke & Smith 1968).

In the end, Catesby's artwork had a new triumph. Purchased by George III in 1768, the original watercolors and drawings that were the basis for Catesby's *Natural History* etchings were placed into books and shelved in the Royal Library at Windsor Castle. There they remained, all but forgotten, for well over two centuries. In 1997, they were at last unbound for conservation work. A new book of reproductions was published, and selections were assembled into two international traveling exhibitions. One went to the United States, where it was displayed at a succession of four museums before finishing its tour back in the United Kingdom at the Queen's Gallery in London; the other visited four sites in Japan. For the first time since the 1720s, the public could view and appreciate the original images Catesby had trekked through the wilds of America to bring home.

SOURCES CITED

- Amacker, Kristy. Preface: Reception. <http://xroads.virginia.edu/~ma02/amacker/etext/home.htm>
- Böhlke, J. E. and D. G. Smith. 1968. A New Xenocoeloid Eel from the Bahamas, with Notes on Other Species in the Family. *Proceedings of the Academy of Natural Sciences of Philadelphia* 120(2): 25–43.
- Catesby, M. 1731. *The Natural History of Carolina, Florida, and the Bahama Islands*. London.
- Catesby, M. 1746-7. Of Birds of Passage. *Philosophical Transactions* 44: 435–444.
- Ewan, J. 1974. Notes. Reprint from the 1771 edition of Catesby's *The Natural History of Carolina, Florida, and the Bahama Islands*. Savannah: Beehive Press.
- Frick, G. 1974. Introduction. Reprint from the 1771 edition of Catesby's *The Natural History of Carolina, Florida, and the Bahama Islands*. Savannah: Beehive Press.
- Howard, R. A. and G. W. Staples. 1983. The Modern Names for Catesby's Plants. *Journal of the Arnold Arboretum* 64: 511–546.
- Meyers, A. R. W. and M. B. Pritchard. 1998. Introduction: Toward an Understanding of Catesby. In Meyers and Pritchard, eds. *Empire's Nature: Mark Catesby's New World Vision*. Chapel Hill: University of North Carolina Press.
- Mortimer, C. 1748. A Continuation of an Account of an Essay towards a Natural History of Carolina, and the Bahama Islands; By Mark Catesby, F. R. S. with Some Extracts out of the Appendix. *Philosophical Transactions* 45: 157–173.
- O'Malley, T. 1998. Mark Catesby and the Culture of Gardens. In Meyers and Pritchard, eds. *Empire's Nature: Mark Catesby's New World Vision*. Chapel Hill: University of North Carolina Press.
- Pulteney, R. 1790. *Historical and Biographical Sketches of the Progress of Botany in England*, II. London.
- Reveal, J. L. 2012. A nomenclatural summary of the plant and animal names based on images in Mark Catesby's *Natural History* (1729–1747). *Phytoneuron* 2012-11: 1–32 (<http://www.phytoneuron.net/>).
- Spongberg, S. A. and A. J. Fordham. 1975. Stewartias—Small Trees and Shrubs for All Seasons. *Arnoldia* 35(4): 165–180.

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