EXHIBIT REVIEW

"Stuffing Birds, Pressing Plants, Shaping Knowledge: Natural History in North America, 1730–1860." An exhibition by the American Philosophical Society, in Philosophical Hall on South Fifth Street adjacent to Independence Hall, Philadelphia, PA. On exhibit from June 2003 through December 2004. Website: www.amphilsoc.org/.

Philadelphia was the center of American science in the eighteenth and early-nineteenth centuries, and the city remains today a treasure trove for the history of the natural sciences. This fascinating exhibition explored the early history of the natural sciences in America in a stunning display of rare books, manuscripts, original drawings, and museum specimens (both moldy and magnificent), from the 1700s and early 1800s. The American Philosophical Society is itself an integral part of that history; this exhibition was a most appropriate subject for the Society's revival of the display rooms in Philosophical Hall, where Charles Willson Peale's stuffed birds and mastodon bones once

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resided. They were there again, amidst a wealth of other material, for this exhibit, which now continues online (www.amphilsoc.org/exhibitions/nh).

To set the stage, in brief: Through the 1700s the Age of Exploration was reaching its peak. The British, French, Dutch, Germans, and others were voyaging all over the world and bringing home exotic plants and animals never before seen or studied in Europe. Naturalists in universities, academies, and private studies produced an explosion of publications describing new species.

North Americans themselves also explored the vast forests, rivers, and prairies beyond the scattered towns and homesteads hugging the continent's eastern shore. These men (for they were almost exclusively males) wished to demonstrate the robust individuality of American nature and, in doing so, to establish their own intellectual parity with the Europeans. Although many specimens were still sent to European scholars, others became part of collections here in North America and provided the raw materials for publications by home-grown—or at least newly immigrated and now American-based—naturalists. (The term "scientist" did not exist back then; such people were called "naturalists" who studied "natural philosophy.") In Philadelphia a community began to coalesce around this work, and in 1743 Benjamin Franklin founded the American Philosophical Society, the first scientific (as we would now say) organization in North America.

The exhibition documented these pioneering American efforts in glorious abundance. The names and works of Charles Willson Peale and his son Titian Ramsay Peale, John Bartram and his son William Bartram, Alexander Wilson, Benjamin Smith Barton, and many others recurred repeatedly throughout the displays and deserve to be as well known as those of Lewis and Clark, Thomas Jefferson, and John James Audubon (all of whom are also represented).

The array of materials on display, drawn from the collections of several Philadelphia institutions, was astounding. There were famous and scarce books, from the first edition of Carl Linnaeus's *Systema naturae* (Leiden, 1735), so rare that it survives in only thirty copies worldwide but which introduced the system of binomial nomenclature for plants and animals that we still use today, to Edgar Allen Poe's *Conchologist's first book . . . for the use of schools* (Philadelphia, 1840), ironically his only book to go into more than one edition in his lifetime yet one that engendered charges of hackwork and plagiarism. There were manuscript text and letters by Jefferson, Darwin, Catesby, Rafinesque, Jussieu, and Peale. There were overwhelming numbers of original drawings of plants and animals by the younger Peale and Bartram, by Barton,

Wilson, Audubon, Latrobe, LeConte, and many others. And there were the actual preserved specimens of plants and animals that these and other prominent naturalists collected and studied: bird specimens from Audubon, Wilson, and George Washington; Peale's mastodon bones and Jefferson's Megalonyx (a giant ground sloth), both of them sensations when first discovered; fishes in jars of alcohol, including "type specimens" used to describe new species, from Charles Lucien Bonaparte, nephew of the Emperor Napoleon and a respected naturalist; dried plants and seeds collected by Lewis and Clark, Henry David Thoreau, Barton, Michaux . . . even a specimen sent to Linnaeus by an unknown collector. The rare treasures seemed endless.

The scientific story was told on the ground floor, starting to the right of the entry and progressing counter-clockwise around the room. The first thematic section focused on the raw materials of natural-history research: "Shaping Knowledge through Display" provided a revealing look at instructions for collecting and methods of preservation that attempted to guard specimens against the ravenous insects and organic deterioration that were a constant threat. Original specimens prepared in a range of techniques – from stuffing with straw to immersion in alcohol – embodied the successes and failures of those early experiments. Charles Willson Peale was the first in the U.S. to learn of the French technique of treating skins with arsenic soap, and his golden pheasants in the center of the room, gifts from George Washington and still bright after two hundred years, testified to the breakthrough technique's effectiveness.

Next, "Information Systems" (an unfortunate choice of jargon), presented the primary intellectual assumptions and cultural attitudes that shaped eighteenth- and nineteenth-century natural-history studies; it reviewed in brief the Linnean system of scientific classification and its leading European practitioners and opponents, along with more extended displays of American contributions to systematics and the cataloging of nature. We were shown additional kinds of raw materials—field sketches and collegial correspondence—as well as the published books embodying hard-earned new knowledge

Upstairs the exhibition explored several disparate aspects of "Shaping Knowledge through Cultural Traditions," including material illustrating encounters between Native and Euro-Americans and, in another case, works of literature inspired by natural history. On the opposite side of the room was a section on "Popularizing Natural History," which presented an intriguing array of books for children, artistic contributions of women, and broadsides

advertising the public entertainments that catered to widespread curiosity and excitement about the wonders of the natural world. The central area of the room was devoted to art: original drawings by William Bartram, Titian Peale, Frederick Pursh, and many others. These cases were a cornucopia of unique treasures whose abundance was all the more remarkable in that the drawings were replaced by different ones every several months to protect the paper and coloring from prolonged exposure to light.

As this summary suggests, the exhibition rewarded the viewer with an appreciation for both the products of science—books and maps and ever-expanding knowledge—and, even more, for the process of natural-history research itself. Examples of how specimens were prepared in the field and then preserved and studied in museums, and of the way in which scientific drawings were transformed into engravings for reproduction as plates in books, demonstrated the hard work and ingenuity that went into a museum display or a published book, both then and now. Such behind-the-scenes views of natural history are uncommon in exhibitions and little understood by non-scientists, yet these activities are not only crucial to science but also fascinating in their own right, and it was a pleasure to see them incorporated into the story of American natural history.

Admirably mounted in new, conservation-quality display cases, the exhibition was dense with information and visual delights, set against the beautiful simplicity and harmonious colors of the rooms. All in all, it was an impressive achievement, providing a tantalizing introduction to a scientific heritage of which the American Philosophical Society and, indeed, the whole country can be proud.

The exhibition catalogue includes scholarly essays by Robert McCracken Peck, Michael Gaudio, and Joyce Elizabeth Chaplin, under the general editorship of Sue Ann Prince, curator of the exhibition. These valuable essays expand significantly on the exhibition's themes.

Peck's two essays on "Preserving nature for study and display" using "Alcohol and arsenic, pepper and pitch" provide both a historical overview and specific information on the natural-history preservation techniques of the seventeenth and eighteenth centuries, crucial matters in a science based to this day on the study of preserved specimens. The interest and energies devoted to the subject in the breakthrough period of the early 1800s are illustrated in a discussion of Charles Willson Peale's innovations in specimen preservation and museum display techniques, and Peck's essays add most usefully to a scant body of literature on this important topic.

Gaudio discusses qualities of "Surface and depth" in the art of early American natural history, most especially the work of Mark Catesby and William Bartram. Drawing on those naturalists' (and self-taught artists') writings and contemporary commentary about visual representation in the natural sciences, his essay investigates some of the implications and reverberations of differing approaches to natural-history illustration. Chaplin's essay on "Nature and nation" examines American natural history in the context of European science, culture, and empire. The natural sciences' complex role in the formation of national identities and international relations during the politically charged period of the late 1700s and early 1800s is fruitfully explored.

The catalogue also includes a checklist of the exhibition and a selected bibliography. Officially published as v.93 no.4 of the *Transactions of the American Philosophical Society* (ISBM 0–87169–934–6), it is available for $20.00 at the Society's website http://www.aps-pub.com/.

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