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Feature
Book Review

Probing the Origins of British Romantic Science

Review of: *The Age of Wonder: How the Romantic Generation Discovered the Beauty and Terror of Science*, by Richard Holmes; 2008; 552 pp; Vintage Books (New York, NY); ISBN 978-1-4000-3187-0

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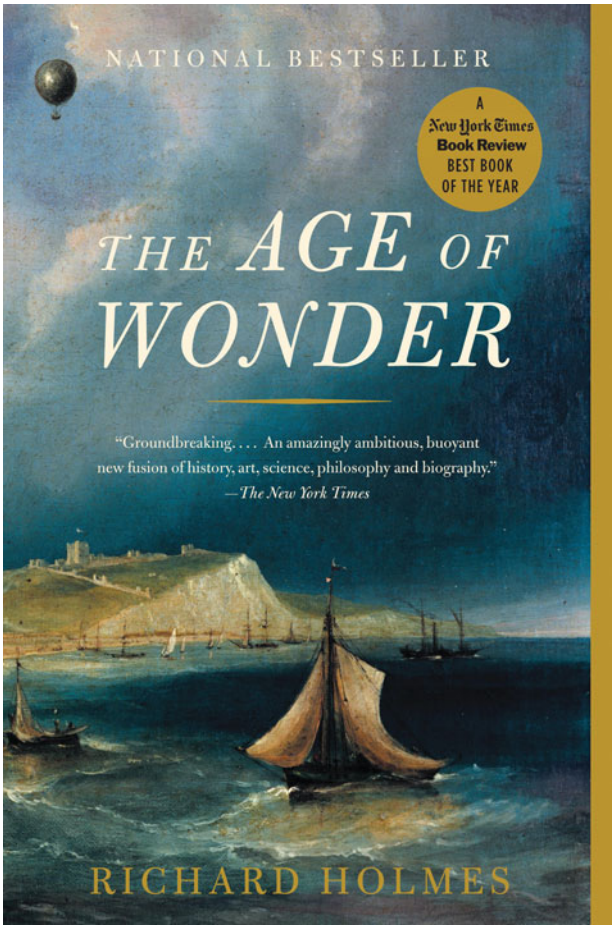
Richard Holmes produces in this engaging book a vivid description of the Wild West nature of scientific knowledge at the end of the eighteenth century and the beginning of the nineteenth century, a period usefully described by Holmes as a time of "romantic science." While romanticism is familiar to students of literature and art history, it is less well established as a helpful way of periodizing the history of science. Holmes demonstrates the virtue of the label, and he usefully argues for a history of science that views scientists as creative thinkers immersed in a cultural and historical context.

As romanticism produced a type of counter-Enlightenment way of thinking—steeped in emotion, intuition, feeling, sympathy, affinity—a new type of scientific imagination was liberated and given form. Holmes's book provides a lively account of the ways these new habits of mind and the gentlemanly spirit of science, especially in its nonprofessional guise, produced a social and cultural space that was remarkably innovative, productive, and creative. "Romantic science," once stripped of aspects of its instrumentality, could aspire to something more profound. Would Thomas Kuhn call this a period of "revolutionary science?" Maybe. But what I think is more interesting is the way that Holmes subtly argues that romanticism provided a type of mental template, almost a form of what Ludwik Fleck called a "thought style," that proved to be remarkably creative and egalitarian, elastic and utilitarian.

The book is organized around a series of central figures whose intellectual accomplishments and *joie de vivre* are palpable. The text opens with Holmes's account of Joseph Banks—later the president of the Royal Society—and his biological and anthropological studies of Tahiti while in the company of Captain James Cook during Cook's expedition of 1768–1771. This moment of cross-cultural exchange between the British explorers and the residents of Otaheite is rendered delightful in Holmes's account, and the darker hints that Holmes provides—a gesture toward the sad story of European imperialism and the reduction of non-Europeans



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to the status of biologically determined inferiors—correctly suggests that even the liberal dreams of romantic science contained a bad seed.

Assuming the presidency of the Royal Society in 1778, Banks then encouraged a range of curious intellectuals to produce knowledge about the natural world. One of these—the Hanoverian refugee William Herschel—not only built his own telescopes (including a 40-ft monster scope that could penetrate both outer space and deep time), but he also used them to discover Uranus, as well as infrared radiation. Holmes does not forget to include the social context, and the chapters on Herschel offer a spate of welcome information on how he produced his knowledge, most importantly by relying on the assistance of his younger sister Caroline, who also should receive credit for many of the discoveries of natural phenomena attributed to her brother. Holmes's description of the gender inequalities incorporated into the developing professional sciences also succeeds in highlighting the ways that scientific inquiry—at least when it fell under the sway of official sponsorship by the Royal Society—was to some degree blind to class distinctions. Science was a social space in which different sorts of men—aristocrats and commoners alike—met and exchanged ideas on the basis of equality and merit. That gender was the cause of a heightened logic of marginalization, while rank was in some ways diminished in its power to exclude, perhaps foretells some of the larger historical transformations of the nineteenth century.

Banks also facilitated a series of explorations. One set of experiments involving balloon travel tested the bounds not only of Anglo-French competition but also of the physiological and psychological limits of those brave souls exploring the inner spaces of the atmosphere. Banks pushed for the exploration of territories farther afield too, most importantly of Africa and most notably by the young Scotsman Mungo Park, whose accounts of his travels have provided world historians with important sources of information about precolonial Africa.

Banks's most important protégé, however, might in fact be the most elusive: Sir Humphry Davy, who even Holmes concedes was a "very unusual young man." The polymath Davy performed a set of auto-experiments on the chemistry of human respiration (and famously worked out some of the benefits of inhaling nitrous oxide: ". . .highly pleasurable thrilling. . ."; Davy found less pleasurable, but no less informative, the dangers of inhaling carbon monoxide). Davy followed this up by working on more instrumental topics, even as the surgical benefits of laughing gas eluded him. Davy constructed a miner's lamp that would not explode in the presence of methane, much to the delight of British miners and mine owners alike.

Davy is also significant for his contributions to the "vitalism debate" of the early nineteenth century. Vitalism, a scientific search for the organizing principles of life, which sought to discover the sympathies, affinities, urges, and teleologies of biological matter and development, excited a transnational constellation of scholars and intellectuals. While Holmes succeeds in situating vitalism within the context of British arts and letters (for instance, giving readers a great chapter on *Frankenstein*), he only hints at this larger continental environment. Building upon the work of other historians, like Robert J. Richards's *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe* (2002), which describes the contributions of the Jena Circle to the debates about life and its organization, or Peter Hanns Reill's *Vitalizing Nature in the Enlightenment* (2005), a book that takes up these questions in relation to the Humboldts, as well as French scholars such as Buffon, would certainly have offered a richer set of comparisons, thereby allowing readers to better see the unique qualities of the British scene.

If Holmes's discussion of vitalism is incompletely developed, so too are the theoretical claims about "generation" announced in his subtitle. There is little in Holmes's book to suggest that this particular constellation of thinkers saw themselves as a "generation," or even as a "circle," as was the case at Jena. Indeed, the birth dates of the principal figures of the text range across four decades (for example: Herschel was born in 1738; Banks in 1743; Park in 1771; Davy not until 1778). While these scientists were certainly contemporaries of one another and their life spans overlapped, to claim that they possessed a generational status flattens the historical record and collapses important historical differences among people whose cultural and social contexts were in fact quite different.

Even if Holmes might be guilty of overpromising with the title and subtitle of his book, it remains a highly readable and engaging text, and Holmes possesses a gift for producing quality historical narrative. The book, which might be irksome to professional historians of science because it favors readability rather than the traditional academic apparatus, will appeal to students. Few undergraduates will wish to plow through the entire text, but select chapters will engage and delight. Graduate students will also enjoy the text for its argument and its readability but may find the citation structure frustrating. Biologists—whether by profession, training, or avocation—will enjoy the wealth of information about key figures and the amusing anecdotes, but may discover that the more subtle arguments about romanticism or about the "dead ends" of scientific research, like vitalism, are opaque. Sadly, no text can appeal to all academic audiences, and this is where Holmes's book does something important: he has written a book that is attractive to a wide popular audience newly exposed to the history of science, and that—perhaps more than anything—is the most valuable contribution of the text.