What do historians refer to when they invoke the Scientific Revolution? Does it indicate the emergence of a particular set of ideas, perhaps even an entire new “worldview”? Or perhaps a clear sequence of events leading to some distinctively modern practice called “science” carried out by historical actors called “scientists”? David Knight’s *Voyaging in Strange Seas* offers a *longue durée* approach to the Scientific Revolution, the transformation of natural knowledge and the ascent of scientific authority from the early sixteenth century until the late eighteenth century. Knight challenges older temporal and geographic boundaries to present a story that begins in the late medieval period and expands what counts as scientific knowledge and activity from laboratories to craft workshops, print culture, religious networks, and global collecting expeditions. The long Scientific Revolution Knight maps took place both in European learned societies—traditionally imagined as the “center” of scientific production—and far afield in colonial outposts across the Atlantic and Pacific worlds, which have often been cast as the “peripheries” of knowledge making. Knight includes not merely observation and experiment in natural philosophy but also the technical crafts and trades of brewers, silversmiths, and glassmakers. Those engaged in these labors sought “a programme and a method for acquiring and ordering natural knowledge so that it could be not only contemplated but also used for what was called the improvement of man’s estate” (p. 34). His book offers a useful, if somewhat limited, synthesis of the historiography of the Scientific Revolution—both as an event and an analytic category—that should encourage historians of science to reflect on its tenacious appeal and its increasingly questioned shortcomings.

After an introductory chapter that sets out Knight’s long Scientific Revolution, *Voyaging in Strange Seas* opens with a discussion of the preservation of Greco-Roman sciences by Islamic scholars in late antiquity and the Middle Ages. In chapter 2, he underscores that Islamic mathematicians, astronomers, alchemists, and physicians translated and modified ancient and medieval sci-
ence from the ninth to the twelfth centuries by preserving and innovating from the Aristotelian corpus. Knight incorporates medieval European intellectual schools, such as the Oxford Calculators, as important thinkers of the long Scientific Revolution. These chapters defy the traditional medieval-modern analytical bifurcation that so many studies of the Scientific Revolution rely on. Knight forces us to recognize important continuities. The mechanical philosophy of the seventeenth century, for example, synthesized many of the ideas in fourteenth-century work on motion and falling bodies done by mathematicians like Richard Swineshead and John Dumbleton.

Knight proceeds in chapter 3 to analyze the philosophical origins of the Scientific Revolution, the “New Philosophy” of the seventeenth century, from such intellectual strands as Baconian humanism, Cartesianism, the mechanical philosophy, and skepticism. Along the way, he is careful to juxtapose learned knowledge with the tacit knowledge of craftsmen and technicians, including midwives, printers, miners, and artillery and fortification engineers.

Chapters 4 and 5 round out the first half of the book with a focus on mathematics and experiments. The demands of the seaborne empires of early modern Europe for navigational precision gave rise to the authority and prestige of mixed mathematics, particularly in determining latitude and longitude across the Atlantic Ocean and the American continent. Astrological and astronomical techniques of observation proved critical to this endeavor. Examining developments in physics, such as the air-pump experiments conducted at the Royal Society in the late seventeenth century, Knight charts the rise of experimental laboratory science in consolidating scientific practice and authority.

Chapters 6 through 12 move out from the traditional core practices of Scientific Revolution narratives (mathematics, physics, and astronomy) to the broader social and economic spheres of the early modern world. Chapter 6 tracks the connected histories of the long Scientific Revolution and the long Reformation, challenging the nineteenth-century conflict thesis that pit science against religion by demonstrating the long-held and shared faith in God’s two books—the Bible and the Book of Nature—between natural philosophers and clergy. Natural theology and theologies of nature, in the form of Catholic and Protestant scientific networks and publications, flourished alongside the tremendous growth of scientific activity. Here Knight reflects on the career of the Jesuit polymath Athanasius Kircher as well as the biblical chronology executed by natural philosophers, including James Ussher, Isaac Newton, and Thomas Burnet.

Chapter 7 maps the network of scientific societies and academies that fostered scientific activity, such as the Royal Society and the Académie Royale des Sciences in Paris, showing how patrons from noble lords to monarchs financed or lent their prestige to the efforts of such organizations. Chapter 8 engages the healing arts, ranging from anatomy to midwifery, surgery, medicine, and early forms of statistical public health. Chapter 9 examines practical science, especially useful inventions and techniques, a subject that Knight crystallizes in Humphrey Davy’s mining safety lamp. Improving people’s lives, whether through medicine or technology, was a core value of the long Scientific Revolution. Knight picks up the thread of craft knowledge by pointing toward the common quest of natural philosophers and craftspeople to unlock the “mystery” of natural phenomena, for example, dyestuffs, plants, or metals.

Chapter 10 follows the global career of natural history in the eighteenth century. Naturalists Carolus Linnaeus, Joseph Banks, and their agents scoured the planet for plant and animal specimens of potential commercial and imperial value. Plants, Knight shows, particularly medicines and agricultural commodities, became the foundations
of European imperial networks of ecological expertise and exchange (although by focusing on late eighteenth-century botany, his account neglects over two centuries of Iberian, Dutch, and French colonial natural history, ranging from East Asia to the West Indies, which Richard H. Grove analyzed twenty years ago in *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860*, first published in 1995). Moreover, while Knight does track natural history in the Pacific world, he almost entirely ignores related collecting and exploration missions in South America and Southeast Asia.

Chapter 11 continues with the theme of science and empire by following the development of maritime navigation alongside “big science” projects, such as the measurement of Earth’s surface and the observations on the transit of Venus. These projects drew scientists closer to systematically understanding not only the planet—climate science observations were recorded throughout these expeditions—but also the diversity of the globe’s population. The late eighteenth-century “science of man” and racial difference emerged out of European naturalists’ encounters with indigenous American and Pacific ethnic groups (although, again, it should be noted that Europeans had gathered intelligence about foreign peoples as part of natural history since the sixteenth century and had begun to taxonomize them by the seventeenth). Chapter 12 bookends this half of Knight’s study, concluding with science’s role in Enlightenment culture and the early nineteenth century, and the emergence of a distinctly Romantic science shot through with notions of the natural sublime. We reach the end of Knight’s long Scientific Revolution as “science” comes of age, “confident and well prepared for the cultural and economic dominance that was its destiny” (p. 283).

Knight concludes his survey by arguing that historians should not privilege any particular model of change as the central framework for understanding this more than three-hundred-year period, “No model will fit the facts...: revolution is too sudden and political, Fortune’s Wheel too mechanical, growth too teleological, searching for truth too naive, mythmaking too fuzzy, social construction too reductive, Marxism too schematic, opportunistic muddling along too vague.” Nevertheless, the Scientific Revolution is “as good as any thread to hold on to” to make sense of this long and tangled history (p. 291). But is it? Such a thread is surely not the only one available to historians today and others are surely in need of trying out. One might, for example, tell a rather different story about early modern science by emphasizing space, networks, and cross-cultural interaction, rather than retaining the traditional narrative of revolution. Following and mapping networks of practice, exchange, and cultural encounter might reorganize similar events and sources into a story about competing and indeed intersecting systems of knowledge production on the global stage, as Grove and subsequent scholars of colonial sciences, including Kapil Raj in *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900* (2010), have amply suggested.

Knight’s book is an impressive synthesis of much of the literature on the Scientific Revolution that raises important questions, particularly through its *longue durée* approach, which bring antiquity and the medieval world into the story. Its narrative structure does, however, tend to marginalize science and medicine in the early modern world beyond Europe. This may be inevitable in any narrative structured this way. And it must be pointed out that Knight does draw attention to non-European traditions and practices, such as the case of Polynesian navigation, although such coverage is somewhat selective, passing over the recent literature on the contribution of Amerindians and enslaved Africans to natural history in the Atlantic world as studied by Judith Carney in *Black Rice: The African Origins of Rice Cultivation in the Americas* (2002) and *In the Shadow of Slavery:...*
Africa’s Botanical Legacy in the Atlantic World (2010) and Londa Schiebinger in Plants and Empire: Colonial Bioprospecting in the Atlantic World (2004). Indeed, Africa and the Americas are largely side stories in what remains a Europe-centered history. Voyaging in Strange Seas may well make for a very useful textbook for undergraduate survey courses, but perhaps its greatest value might lie in combining it with a range of readings about non-European early modern sciences that suggest ways of imagining alternative narratives.

If there is additional discussion of this review, you may access it through the network, at https://networks.h-net.org/h-war


URL: https://www.h-net.org/reviews/showrev.php?id=44540

This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 United States License.