

These new methods are the topic of the third chapter. Here the author scrutinizes the actual activities connected to the university's botanical garden, the practice of field trips, and the use of herbaria and illustrations as means of teaching and elucidates how these activities show that plants were becoming subjects of study in their own right. The chapter also draws attention to the relation between early modern art and science, referring to the importance of "naturalistic illustrations" and the contemporaneous debate on images.

Chapter 4 further elaborates on how plants became a focus of study and looks at the introduction of new plants from the New World, taking a variety of sources into account. Many of these new species were integrated into herbal books, while medical texts and pharmaceutical recipe books mentioned only a few species. The New World flora was thus studied and documented for reasons of economy, curiosity, and delight rather than for medicinal purposes.

But for other plants the connection with medicine remained strong. Bellorini considers the various editions of the *Nuovo ricettario fiorentino* (first published in 1498) and some other medicinal and pharmacological texts in the fifth chapter, where she elaborates on the different views on the use of medicinal plants in Tuscany. Paracelsian ideas coincided with Galenic theories, the practice of herbal distillation with the doctrine of signatures—all without apparent controversy.

Bellorini moves on to highlight differences between "practical medicine" and the "practice of medicine" in the sixth chapter, with reference to a multitude of sources like various texts by the Medicean physicians and the account books of an important Florentine apothecary. Here it becomes clear that the complex theories of therapy in medical books reflected the traditional knowledge and prestige of medical men, while everyday practice was much simpler and more flexible.

With *The World of Plants in Renaissance Tuscany* Bellorini achieves her aim of throwing light on the increasing interest in the study of plants in the sixteenth century and underlining the interrelation between medicine and botany, albeit in a geographically and chronologically limited but literally "fruitful" area: Tuscany under the first three Medicean grand dukes. This well-written, thoroughly researched, and much-needed microhistory fits into a range of studies on the cultural, artistic, and scientific policy of the Medici as well as into the vast field of research on the relationship between art and science.

It would have been interesting to compare the situation in the grand duchy with similar advances elsewhere, and in order to understand fully the emergence of botany as a new discipline there also needs to be reference to contemporaneous developments within the fields of art, gardening (which the author refers to), and agriculture. Bellorini is aware of such limitations; according to the book jacket, she will be publishing the results of her ongoing project, "a study of sixteenth-century agrarian and horticultural history in Italy."

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Early Modern

Samir Boumediene. *La colonisation du savoir: Une histoire de plantes médicinales du "Nouveau Monde" (1492–1750)*. 477 pp., figs., glossary, notes. Vaulx-en-Velin: Éditions des Mondes à Faire, 2016. €24 (paper).

La colonisation du savoir offers a detailed introduction to the use of medicinal plant knowledge from early modern Spanish America. The book relates to some important research trends in the past few decades,

notably the relationship between natural knowledge and power in the early modern world. Samir Boumediene defends his choice of the rather provocative notion of colonization in the title by referring to the differences between the East and West Indies. In the East, the exchange of knowledge has been regarded as more dynamic than in the West, which justifies the claim for the existence of a “global early modernity” as exemplified, for instance, by Anna Winterbottom’s *Hybrid Knowledge in the Early East India Company World* (Palgrave Macmillan, 2016). Boumediene’s book, however, deals with Spanish America, where the highly unequal power relationships between natives and Europeans defined the ways in which natural resources were exploited. Euphemisms like “*connexion*” or “*rencontre*” do not apply here, as the author claims (p. 29). What happened in the New World was colonization: the deliberate effort of Spanish authorities to dominate knowledge about American plants. In this way, plants were not only politicized but also commercialized. The colonizers carefully shielded medicinal uses from possible competitors. Many plants, however, gradually experienced a process (*réduction*) of moving from unknown to known in European medicine.

The book consists of three parts, with two interspersed “pauses,” which dwell on the visual dimension of the colonization of knowledge. The first part of the book discusses the beginnings of European interaction with American plants, from the time of Columbus up to the first half of the seventeenth century. Initially, efforts were made to fit new plants into European schemes of interpretation, especially Galenic humoralism. Although much knowledge traveled freely within the Republic of Letters (as exemplified by the works of Nicolás Monardes), Spain tried hard to protect the political interests involved in the trade of its colonial natural resources. This ambivalent attitude culminated in Francisco Hernández’s expedition of 1571–1577, many of the goals of which were frustrated by the different objectives of the Crown and of Hernández himself.

The first part fuses into the second part, which discusses the history of the febrifuge Peruvian bark from the mid-seventeenth to the late eighteenth century. This part analyzes in detail the Jesuits’, and later the Spanish state’s, strong grip on knowledge and trade of this substance, generally referred to as “the bitter gold” (*l’or amer*) of South America; the European quarrels about the properties, applicability, availability, and adulterations of the remedy; and the efforts of states and scholars to find solutions for these “instabilities,” as the author calls them—that is, the conditions that impeded the successful appropriation of Peruvian bark in Europe.

Finally, the third part discusses the tensions caused by the indigenous meanings of medicinal plants in Spanish America and the ambivalent reactions of the colonizers. Native uses were strongly embedded in local culture (*manières de vivre*) but were regarded as idolatry by the Spanish. On the one hand they strove to exterminate all native connotations, while on the other they tried hard to commercialize these plants—in part on the basis of knowledge about their properties that was adopted from the natives themselves.

La colonisation du savoir is a very welcome study of the history of exotic medicinal plants, the importance of which is often much less appreciated than that of colonial products with other uses. The book is sensitive about the original Indian meanings of plants, but the social, public dimension in Europe is missing here; this is curious, given the centrality of concepts like commercialization and appropriation. The author shows an excellent mastery of printed and, especially, unexplored manuscript sources, pieced together from archives on both sides of the Atlantic. As such, the middle part, about Peruvian bark, matches, perhaps for the first time, the quality of Saul Jarcho’s classic *Quinine’s Predecessor: Francesco Torti and the Early History of Cinchona* (Johns Hopkins, 1993). At the same time, the comparison raises the question: Why Peruvian bark again? Indeed, it represents the most famous success story of an exotic drug in early modern Europe and has been the subject of many studies, although it has not given up anything like all of its secrets. Still, the use of Peruvian bark as the exemplary case study of “une histoire des plantes médicinales du ‘Nouveau Monde’” is not yet fully tested. Boumediene provides ample opportunity to expand the horizon further: the book features dozens of other drug components, many of which have never received much attention from historians. It is hard to track these references down, however: an index is

sorely missed. Neither is there a bibliography, although the endnotes show the author's extensive reading of relevant secondary literature. In fact, the global nature of the subject merits an English version of the book.

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William M. Cavert. *The Smoke of London: Energy and Environment in the Early Modern City.* xx + 274 pp., figs., bibl., index. Cambridge: Cambridge University Press, 2016. £64.99 (cloth).

London's smoke has long been a backdrop to the city. *Smook of London* is in the subtitle of John Evelyn's *Fumifugium* of 1661; by the eighteenth century London was known as the Big Smoke, persisting such that the twenty-first century finds *Big Smoke* as the title of Gareth Joseph's gritty novel set in South London. Although coal became an objectionable fuel in the thirteenth century, it gained dominance from 1600 onward; the smoke it created was well described and resulted in numerous books and papers on the history of London's air, both from historians and from scientists. As a historian, William M. Cavert is interested in the approaches that have been used to interpret air pollution history and singles out three themes: that humans have always been ruining the environment, so parallels are important; that in the past everyone was poor and dirty, so pollution didn't matter much; or that pollution is a novel occurrence of the modern era. He suggests that there is merit in all these views, but I suspect that many of his readers may give weight to the parallels we can see in the past. *The Smoke of London* focuses on the seventeenth and eighteenth centuries—which makes this book unique, as previous authors have given much attention to the nineteenth century. The nineteenth century was a time of urban industrialization, with growing interest in public health and increasing professionalism in government, along with key developments in the concept of smoke abatement.

Anyone interested in pollution history confronts John Evelyn and his *Fumifugium*. Obviously Cavert has much to say about Evelyn in a number of chapters, and although much has already been written about Evelyn's environmental thinking we find new perspectives here. In particular, we are encouraged to consider how others saw *Fumifugium*, as well as Evelyn's views in old age. Evelyn regretted that little had really happened with respect to rebuilding a cleaner city, despite initial interest in abating smoke through legislation and urban redesign after the Great Fire. Cavert is also able to examine parallels to *Fumifugium*, such as the anonymous *Orvietan; or, A Counter=Poison against the Infectious Ayr of London*. Although *Orvietan's* opinions on the source of London's air pollution differ from those of Evelyn, its author recognizes the widespread objections to smoke among London's citizens that hint at environmental concern long before the Industrial Revolution. Additionally, *Orvietan* adopts the word "pollute," a term typically seen as originating in the nineteenth century.

The chapters of the book take us through a range of themes, perhaps familiar to historians who know the period, but nicely detailed here. The coal trade was often disrupted as shipping fleets were attacked on their voyage south from Newcastle. War and piracy could affect London coal prices. The coal trade was important to the British Navy as a source of trained seaman; in times of war sailors from colliers were pressed to serve in the Navy, further disrupting London's supply.

A number of industries in London were especially polluting. Since Elizabethan times brewers had shifted to coal, but there were many attempts to curb their use of the fuel. Cavert shows how these continued through the 1600s. Brewing, like soap making, required heating large quantities of water, so coal was successfully adopted as a fuel; it was more difficult to use in producing glass or iron. The use of nui-