
H-France Review Vol. 20 (May 2020), No. 85

Bruno Belhoste, *Paris Savant: Capital of Science in the Age of Enlightenment*. Trans. Susan Emanuel. New York and Oxford: Oxford University Press, 2019. xx + 306 pp. Figures, maps, notes, bibliography, and index. \$34.95 U.S. (hb). ISBN: 9780199382545.

Review by Larrie D. Ferreiro, George Mason University.

Paris Savant is a long-overdue and much-needed work about the French Academy of Sciences and its ecosystem in eighteenth-century Paris. The Academy and its appurtenant bodies were the primary engines for the blossoming of medicine, astronomy, engineering, biology, and much else in what is often referred to as the Age of Enlightenment. Despite the importance of the sciences to the cultural life of Enlightenment France, surprisingly little has been published about it in the past fifty years. The author, Bruno Belhoste, a well-known scholar of the history of science, paints a vivid picture of the Parisian scientific landscape in that transformational era, but with one surprising blank space in the canvas.

Roger Hahn's 1971 book *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666-1803* was the first full-length work in almost 100 years to focus on the Académie royale des sciences.^[1] It was established by Colbert in 1666 as a government-backed counterpoint to England's Royal Society, which was a privately funded (but royally sanctioned) body of natural philosophers. Hahn's "biography" of the Paris Academy, tracing its vicissitudes throughout the ancien régime and through the aftermath of the French Revolution, was followed in 1980 by Charles Coulston Gillispie's *Science and Polity in France: The End of the Old Regime*,^[2] which explored the dynamic between the sciences and their political, industrial, and military applications ("science is the continuation of politics by other means," Clausewitz never said but should have). In 1995, David J. Sturdy published his study of the practitioners within the Academy, *Science and Social Status: The Members of the Académie des Sciences 1666-1750*.^[3]

Twenty-four years is a long time for the appearance for another book on the subject, but it has been worth the wait, and I recommend you savor it the way Dena Goodman suggests in her foreword: "in a comfortable chair but with a laptop or tablet nearby so that you can locate the places to which Belhoste takes you on a map of Paris" (p. xii). *Paris Savant* (the phrase was coined by Honoré de Balzac in 1841) is indeed a tour of the old capital, but from the points of view of the academicians, their scientific colleagues, the publishers of their works, the users of their inventions, and the public that admired their spectacles. Several of the ten chapters have wonderfully illustrative maps that guide the reader to the physical locations where scientists (as we call them today) lived, met, worked, and played. Even longtime Parisians and well-travelled

tourists should consider carrying the book—or its electronic file—around the city to better appreciate how deeply the scientific Enlightenment was intertwined with the City of Light.

Chapter one, “The Gentlemen of the Academy of Sciences,” begins the story at the center of scientific power—the Louvre. Louis XIV, who had authorized the creation of the Academy of Sciences, had decamped from the Louvre to Versailles in 1682, and within the former royal apartments were now a variety of academies, institutions, and lodgings. As Belhoste notes, “The Louvre remained a place of power, but it had passed from the purely political to the cultural sphere” (p. 3). Not only the Academy of Sciences, but also the Académie française, the Academy of Architecture, and the Academy of Painting and Sculpture were arrayed around the Cour Carrée. Belhoste’s narrative puts you right at the scene; one can almost smell the paint and marble dust that must have wafted from artists’ workshops into the adjacent Academy of Sciences. But the power of the Académie royale des sciences arose not just from its official imprimatur; it exerted influence in other areas as well, from the publication of the *Encyclopédie*, journals, and newspapers, to affairs of state and diplomacy. The chapter details how academicians spoke, how they dressed, how their academy ranking dictated their social status, and even how meetings were held. (As it turns out, they were hardly organized affairs—members often got up and walked around or chatted among themselves while presentations were given.)

Chapter two, “Capital of the Sciences,” provides further details of the various academies (including a particularly useful map of the Louvre on p. 25), and dives into the roles and functions of each one. Together they formed a web of power in the cultural sphere, at once removed from the royal palace at Versailles, and also deeply connected to it through court patronage. “Web” is not too strong a word, nor is it anachronistic; the Academy of Sciences shared some members with the Académie française (with which readers of H-France will be well acquainted as the sentinel of the French language), while the Academy of Inscriptions and Belles-Lettres often provided the wording for commemorative plaques and steles erected by academicians on their global voyages. The chapter takes leave of the Louvre palace to tour the related institutions like the Paris Observatory (then outside the city walls) and the Royal Botanical Gardens. Science also had its industrial side; the Royal Mint, School of Mines, School of Bridges and Roads (Ponts et Chaussées), and royal manufactures of gunpowder, porcelain, and tapestry all owed their prominence, in part, to the efforts of the academicians, who bridged the worlds of science and business.

Chapter three, “Fields of Knowledge in the City,” is the Fodor’s Guide to the Paris of eighteenth-century *savants*. It explores the geography the academicians would have traversed by foot day to day. Their residences were evenly split between the Right Bank and the Left Bank, but all were within a short distance of the Louvre. The Latin Quarter was a natural focal point for knowledge, then as now (Faculty of Medicine, University of Paris). The Île de la Cité, Les Halles, and Le Marais were the centers for industry (metalworking, glass, jewelers, locksmiths, clockmakers, and even granaries). The outskirts of the city were frequented by academicians to botanize (collect plants), conduct geological surveys, and study agriculture.

Chapter four, “The *Encyclopédie*,” is a deep dive into the publication of the first Encyclopedia (1751-1772), interrupted a decade after its start by censure, accusations of plagiarism, and interdiction by the Vatican. Like the academies, publishers were strictly controlled by the government. They were kept small in number and allowed only limited scope for their printings, so there was more collaboration than competition between publishers. The *Encyclopédie* was

created more as an association of publishers than as a single entity. Its editors, the philosopher Denis Diderot and mathematician Jean le Rond d'Alembert, were hard pressed to keep the 140-plus authors on time and on track, as anyone who has edited a multiauthor volume would understand. On p. 81 is a particularly enlightening (sorry. . .) three-dimensional map showing the network required to produce the 28-volume publication: residences of the editors, printing houses, workshops of the engravers, and bookshops where the volumes were distributed. The map demonstrates why Voltaire told Diderot, "It is only in Paris that you can finish your great project" (p. 80). Despite royal and Vatican interdictions, subscriptions grew, and the *Encyclopédie* proved to be a great success. It was surprisingly affordable even for mid-tier bourgeois; the complete set sold for 280 *livres*, about \$1500 in today's currency—the same price as the final printed set of the *Encyclopedia Britannica* sold for in 2010, before it went all-digital.

Chapter five, "The Court and the Town," begins with an exploration of Freemasonry in the intellectual life of Paris. The Lodge of the Nine Sisters (*La Loge des Neuf Sœurs*), which counted the American statesman Benjamin Franklin among its members, was instrumental in drumming up aristocratic support for the French crown to ally with the American revolutionaries in 1778. Belhoste then takes us inside the salons and cabinets of natural history arrayed around the city, with a series of helpful maps that provide a guide to its intellectual landscape. Salon society receives a fair amount of press nowadays,^[4] but the book pays little attention to analyzing the role of science in these gatherings or explaining how salons in turn shaped scientific thought. Some scientists, like d'Alembert, were engaged in the Republic of Letters, while others were content to work at a remove from the world where wit was more valued than intellect. For their part, aristocrats who frequented the salons and visited the cabinets of natural history were rarely interested in the profound elements of science. They preferred amateur collections of curios rather than curated collections of artifacts, and flocked to displays of ballooning, electricity, and Mesmerism (the theory that animal magnetism could cure diseases, a notion debunked even at the time). The latter were treated more like modern rock concerts than actual experiments.

Chapter six, "Spectacle and Marvels," continues this theme by exploring the world of the amateur spectacle. It found its apotheosis in the Palais-Royal (whose outlines still exist today), which at the time combined fashion, shopping, cafés, cuisine, and theatre with cabinets of natural history; there, as the writer Louis-Sébastien Mercier remarked, "the art of making a ragout . . . could be found right next to the most advanced sciences" (p. 129). The most visible spectacle in Paris at the time (during the 1780s and 1790s) was ballooning; the Montgolfier brothers, of course, put on quite a show, but so too did their rival Jacques Charles. Paris was alive with public demonstrations of physics, electricity, chemistry, surgery, and even baking—thus predating by two centuries the hit cable TV shows *The Great British Bake Off* and *Le Meilleur Pâtissier*.

Chapter seven, "Inventions," shows that science was not just about spectacles; it made ordinary things spectacular. Novel methods of lighting, developed by the chemist Antoine Lavoisier and the inventors Quinquet and Lange, greatly improved the quality of performance at the Théâtre français, which also allowed audience members to see each other as well as the stage. But stage lighting was not just the subject of scientific curiosity; it was also the battleground for what we would call today "intellectual property rights." Inventors were, in theory, granted *privilèges* (i.e., royal monopolies) to protect their production, but enforcement was almost nonexistent and intellectual theft was rampant. Even the redoubtable British firm of Watt and Boulton saw their steam engines usurped by the Péreir brothers, whose contract was supposedly to market the engines for the Parisian water company, but who ended up building and selling the engines

themselves. The new products of bleach (*eau de Javel*) and fabric dyes at Gobelins suffered the same fate.

Chapter eight, “Public Hygiene,” explores how science attempted to relieve human suffering. The 1777 fire at Hôtel-Dieu, one of Paris’s largest hospitals, underscored the need to focus on the burgeoning and ever more densely packed population. Not only the Academy of Sciences but also the Society of Medicine and the Faculty of Medicine were called into service. One of their most famous undertakings was to direct the exhumation of bodies from the overflowing cemeteries (literally overflowing, as torrential rains washed corpses onto the streets of Paris) and to reinter them in the limestone quarries then outside the city walls (today’s famous Catacombs). Plans for pumping in fresh water, removing sewage, and disposing of waste (notably offal and noxious gases) were the subject of both experiments and large-scale engineering efforts by the scientific elite.

Chapter nine, “Severe Science,” details how, in 1785, Lavoisier conducted one of the first large-scale controlled public experiments to demonstrate that water was composed of hydrogen and oxygen. Each step in the process came under close scientific and public scrutiny: decompose water into the two gases; collect and measure the gases; recombine them to create water; and finally, analyze and measure the water produced. These and other experiments took place at the Gunpowder Arsenal, near the Bastille, far removed from the center of scientific authority at the Louvre but close to the center of military application of such experimentation. In the same manner, carefully controlled experiments debunked mesmerism and phlogiston (the substance that was hypothesized, incorrectly, to be the source of fire—which as we now understand is a process and not a material).

Chapter ten, “Revolution!,” together with the Epilogue, brings to a close the age of *Paris Savant*. The *savants* were at the heads of lists to be guillotined, as many were in the aristocratic class—Lavoisier and the astronomer Jean-Sylvain Bailly were only the most famous of those condemned to death during the Terror. But the oft-quoted line that “the revolution has no need of savants” was patently false. Even as the Academy of Sciences was abolished in 1793 and restructured under the National Institute, new volunteer societies sprang up, including the Linnean Society, the Society for Natural History, etc. The foundations of the metric system were laid at this time, with the great survey of France by Joseph Delambre and Pierre Méchain. The Royal Botanical Garden became a museum, and new schools of science were formed, as science became part of the public discourse. The geography of Paris Savant began to take the form we know today.

As broad a picture as Belhoste paints of the Paris scientific landscape, even spending several pages on the Masonic connection, he barely touches on the crucial role that the military and the navy played in that development. This is surprising, given Belhoste’s previous work on the École Polytechnique, which owed its existence to the military.^[5] Martial concerns weighed heavily on the research carried out under the sponsorship of the Academy of Sciences. For example, it gave pride of place to astronomy, which far outstripped the British Royal Academy in terms of number and range of astronomical publications.^[6] Positional navigation depended upon an accurate knowledge of the sky, and the enormous investments that the Académie des sciences made in this field were directly tied to the navigational exigencies of the army, navy, and overseas colonies. It was no coincidence that one of the Academy’s most ardent supporters, the Comte de Maurepas, was also the Minister of the Navy and Colonies. The great geodesic missions to Peru and Lapland in the 1730s and 1740s, ostensibly under the aegis of the Academy, were actually

funded by the Navy. Not only were Lavoisier's chemical experiments carried out in the Arsenal, but experiments on air resistance were also done at the behest of the army, looking to improve its ballistics, while naval hydrodynamics was the subject of Academy prize competitions.[7] Even the Royal Botanical Gardens were supplied by botanizing expeditions carried out by the *officiers-savants* of La Royale (the French Royal Navy).

However, this lacuna should not dissuade a potential reader from immediately obtaining this book. It is lively and enjoyable, and will provide the encouragement to further explore the hidden side of scientific Paris.

NOTES

[1] Roger Hahn, *The Anatomy of a Scientific Institution: The Paris Academy of Sciences, 1666-1803* (Berkeley: University of California Press, 1971).

[2] Charles Coulston Gillispie, *Science and Polity in France: The End of the Old Regime* (Princeton: Princeton University Press, 1980).

[3] David J. Sturdy, *Science and Social Status: The Members of the Académie des Sciences 1666-1750* (Rochester, NY: Boydell Press, 1995).

[4] Antoine Lilti, *The World of the Salons: Sociability and Worldliness in Eighteenth-Century Paris* (New York: Oxford University Press, 2015).

[5] Bruno Belhoste, *La formation d'une technocratie: L'École polytechnique et ses élèves de la Révolution au Second Empire* (Paris: Belin, 2003).

[6] Robert Halleux, et al, *Les publications de l'Académie Royale des Sciences de Paris (1666-1793), Tome II: Étude statistique, index généraux* (Turnhout, Belgium: Brepols, 2001).

[7] Bernard Delaunay, *Penser la technique à l'Académie royale des sciences, 1699-1750* (Paris: Honoré Champion, 2018).

Larrie D. Ferreiro
George Mason University
lferreir@gmu.edu

Copyright © 2020 by the Society for French Historical Studies, all rights reserved. The Society for French Historical Studies permits the electronic distribution of individual reviews for nonprofit educational purposes, provided that full and accurate credit is given to the author, the date of publication, and the location of the review on the H-France website. The Society for French Historical Studies reserves the right to withdraw the license for redistribution/republication of individual reviews at any time and for any specific case. Neither bulk redistribution/republication in electronic form of more than five percent of the contents of *H-France Review* nor republication of any amount in print form will be permitted without permission. For any other proposed uses, contact the Editor-in-Chief of H-France. The views posted on *H-France Review* are not necessarily the views of the Society for French Historical Studies.

