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Michael Lynn, *Popular Science and Public Opinion in Eighteenth-Century France*. Manchester and New York: Manchester University Press, 2006. ix + 177 pp. Notes, select bibliography, and index. \$80.00 U.S. (cl). ISBN 9780719073731.

Review by Matthew Ramsey, Vanderbilt University.

Forty years ago, in his classic study of French mesmerism, Robert Darnton wrote of “the golden age of popular science [that] occurred in prerevolutionary France.”^[1] He described the balloon craze of the 1780s and mentioned some of the same figures who appear among the *dramatis personae* of Michael Lynn’s study (though Lynn gives Mesmer himself only a cameo role): Jean-Antoine Nollet, known as abbé Nollet—he held a degree in theology from the University of Paris—experimental physicist, member of the Académie Royale des Sciences, professor of physics, and an immensely popular public lecturer; Henri Decremps, jurist, mathematician, magician, and author of how-to books on performing magic tricks for entertainment, who, like an eighteenth-century James Randi, delighted in exposing the subterfuges used by those who claimed to work miraculous feats beyond the ken of ordinary science; Nicolas-Philippe Ledru, physicist, prestidigitator, and medical electrician (Louis XVI authorized him to practice at his new Hospice Médico-Électrique), who styled himself “Comus,” after the Roman god of mirth and revelry, and entertained royalty, aristocrats, and the general public with his scientific experiments; Joseph Pinetti, “professor of natural magic,” who often performed at the royal Théâtre des Menus-Plaisirs; Jean-François Pilâtre de Rozier, probably best remembered as an early balloonist and one of the first two fatalities caused by an aviation accident (in 1785 the balloon in which he and a companion were riding crashed in flames), but also a successful lecturer on chemistry and physics; and Barthélemy Bléton, a celebrated dowser who performed demonstrations of water witching before large audiences. By citing these examples, sometimes only in passing, Darnton conveyed the remarkable variety of practices that could be grouped under the rubric of popular science and the ways in which they linked instruction and entertainment. He did not, however, situate the popularizers within the larger social and cultural space in which they competed for audiences and recognition.

Despite the interest and importance of the topic, popular science in eighteenth-century France received limited attention in the decades that followed, perhaps because it seemed to occupy a no-man’s-land between history of science and cultural history. The most innovative scholarship in English dealt with Britain rather than France. ^[2] On the French case, Charles Gillispie’s study of the Montgolfier brothers primarily concerned the scientific and technical aspects of early ballooning. ^[3] Two books published in the 1990s explored aspects of popular science in the *ancien régime*, but as part of different research agendas. Dena Goodman’s study of the eighteenth-century Republic of Letters had a chapter on *musées*, *lycées*, and clubs, which, she argued, “challenged the salon as the center of the Republic of Letters.” ^[4] Like Lynn, she devoted a subchapter to the Musée de Monsieur, founded by Pilâtre de Rozier in 1781. (82-90) ^[5] Abbé Nollet figured prominently in Geoffrey Sutton’s study of “the demonstration of Enlightenment” in seventeenth- and eighteenth-century France—he merited two subchapters—and Sutton duly noted the commercial success of his public lectures. The emphasis, however, was on “science for a polite society.”^[6] The literature in French included some specialized and often antiquarian studies of individual figures such as Pilâtre de Rozier, but no synthetic work that dealt with the general topic and engaged with broader developments in intellectual and cultural history

and the history of science. [7] It is revealing that a newly-published study with the ambitious goal of linking the history of politics, science, and literature in France around the turn of the nineteenth century cites only the French translation of Darnton on the subject of popular science. [8]

Lynn's carefully-researched and lucidly-written book finally meets the need for a synoptic study that places popular science in the broader social and cultural history of the ancien regime. It focuses on experimental physics in Paris, from the 1730s to the early years of the Revolution, a period when, Lynn argues, "science formed a mainstay of French popular culture" (p. 149). In his introductory chapter, he contrasts his approach with earlier work on the dissemination of "enlightened ideas," which dealt with "the readership of books and affiliation with enlightened institutions." His own central subject, he writes, is "the appropriation of science" through public lectures, club memberships and other activities that made science accessible to a large part of urban society (p. 4).

Lynn devotes chapter 2 to the popularizers who practiced what became a recognized occupation, mixing experimentation and spectacle; they turned to the public as patron when elite patronage was hard to come by. Their activities reached a peak during the period from about 1775 through the first years of the Revolution. Chapter 3 is entitled "the audience, economics, and geography of popular science. Like Robert Isherwood in his study of popular entertainments in Paris, Lynn finds that individuals from all walks of life--women as well as men--attended the lectures, though a subscription to a series was too expensive for people of modest means and attracted mainly a "middling audience" (p. 46). [9] Unfortunately no information survives on enrollments or the identity of audience members; nor is it possible to document exchanges between the popularizers and their clientele, in the way that James Smith Allen was able to do for ten nineteenth-century French writers, using the correspondence they received from their readers. [10] Lynn, however, makes effective use of the indirect evidence that does survive, including publicity that specifically targeted certain segments of the population. There is more solid information on the prices paid by "consumers" of popular science for courses and club membership, and on the venues used by popularizers, whose movements around Paris sometimes reflected a change in status. Chapter 4 examines *musées*, *lycées*, and other institutions of popular science. Once again Lynn finds a significant level of participation by women, especially at the Musée de Monsieur, although some institutions were not fully open to them (pp. 79, 88-89).

The last two chapters deal with special topics: rhabdomancy (the use of divining rods) and ballooning. Lynn's account of ballooning treats it as a commercial enterprise linked to popular science, mixing entertainment with instruction for a wide public. It took place on a grander scale than lecture series or clubs. His discussion of rhabdomancy focuses on two celebrated cases, both involving peasants from Dauphiné: in the late seventeenth century, Jacques Aymar, a dowser who in addition to locating water was purportedly able to track down criminals, and in the 1770s and 1780s, the aforementioned Barthélemy Bléton, who reputedly could find coal as well as water. The activities of both were highly controversial; for Lynn, they illustrate the role of public opinion in deciding the validity of such claims to special powers. Aymar's credibility was challenged by opponents ranging from the Académie Royale des Sciences to theologians who feared that his feats might depend on demonic forces. Other learned observers were persuaded by the public demonstrations of his skills and developed theories to explain the phenomenon in natural terms. In the end, Lynn writes, "it was the scientifically unfounded opinions of the popular classes that carried the day," and the services of dowsers continued to be widely used (p. 108). Nearly a century later, a much larger public participated in the debates over Bléton's powers. He found an active defender in the physician Pierre Thouvenel, whose 1781 book on Bléton included testimonials from clients and thereby "put the question into the hands of the general public" (p. 111). An interesting figure in his own right, Thouvenel became a proselytizer for dowsing and later traveled to Italy to promote his theory of rhabdomancy. [11] The Bléton affair coincided with the controversy over Mesmer and animal magnetism, and his reputation and Thouvenel's, like Mesmer's, sank within the "scientific community." The elite, however, could not control the debates over his work: "The state, savants, and public all participated on relatively equal terms" (p. 118).

Lynn brings his narrative to a close at the end of the eighteenth century, where he locates the beginnings of a divide that separated popular from “elite” science, “for reasons not necessarily connected to the Revolution.” Starting before the Revolution, in the mid-1780s, “some savants began to attack science in the public sphere ... [and] denigrated the role popular science had played during the Enlightenment” (p. 149). Popular science continued to flourish into the nineteenth century, but in a different space than the “real” science of the “elite savants” (p. 152).

The framework for the study brings together three clusters of concepts: public opinion, highlighted in the book’s title, and the Habermasian public sphere; the market, consumerism, and commodification; and popular science, popular culture and popularization. The public sphere—in some places “the enlightened public sphere”—is where scientific ideas competed for recognition, bestowed by public opinion rather than patrons and experts (p. 5). In “the market in popular science,” popularizers competed to sell their product to consumers (p. 53). Lynn draws here on the work of Daniel Roche and Colin Jones, among others, on the development of consumerism in eighteenth-century France. [12] Science is an object of “consumption,” and “enlightened ideas” are subject to “commercialization” (pp. 51-52). Indeed, “the Enlightenment itself was commodified and packaged for consumption by the general Parisian public” (p. 90). In other publications, Lynn has analyzed the commodification of fireworks and ballooning. [13]

The public sphere and the market are common coin among historians of the ancien regime. The concepts of the popular and popularization are more problematic and have been widely contested. The terms “popular” and “elite” are notoriously polysemous—they can refer to a social hierarchy of consumers and producers of cultural objects or to a hierarchy of cultural goods—and have long been criticized for suggesting the existence of separate cultural arenas completely isolated from each other. [14] The history of science introduces another hierarchy, of expertise within a discipline; a highly-educated member of the upper classes may still be a mere amateur in matters scientific. Lynn at one point recognizes this distinction, writing of “the social and scientific elites” (p. 7). In general, he applies both “popular” and “elite” mainly to science, though he occasionally employs the terms in other senses: “popular classes,” “the more elite parts of Paris,” an audience consisting of “the educated and the elite,” and “noblemen and the social elite” (pp. 108, 46, 56, 79). Traditional accounts of “popularization” have been criticized for assuming a one-way transmission of information from experts to the public and ignoring the active role of the latter in the construction of scientific knowledge. [15] Lynn wholeheartedly embraces what has become the standard model, in which consumers appropriate and transform cultural goods, while producers respond to feedback from consumers. He treats his popularizers as “cultural intermediaries between multiple aspects of scientific life,” who had to please their audience but also, if they aspired to a higher status in the scientific world, “their more elite brethren” (p. 8). The most successful of these popularizers linked the public to the Academy of Sciences and the University of Paris (p. 19). As for the audiences, although direct evidence is hard to come by, it is plausible that “people actively appropriated science in general and even demanded specific kinds of science to meet their own cultural needs” (p. 7).

Lynn applies the flexible term *savant* rather than “scientist” to persons engaged in scientific activities. He does not explain this choice of vocabulary, but it works well, both because science was not a well-defined profession in the ancien regime and because it avoids anachronism. (The first use of *scientifique* in this sense in the *Trésor de la langue française* is from 1791, and the first example of “scientist” in the *Oxford English Dictionary* from 1840—though it should be added that the term “popular science,” which is crucial to Lynn’s account, also dates from the nineteenth century.) [16] He positions the savants in a status hierarchy with permeable boundaries, with “elite savants” at the top (pp. 1, 7, 16, 151). Next come the “mid-level” or “middling” savants, who made up the rank and file of the popularizers (pp. 15, 17). The key relationships are those between the elite and middling savants, on the one hand, and between the latter and the public, on the other. The lowest rung appears only rarely—Thouvenel, for example, is characterized as a “minor savant”—and plays no role in the argument (p. 110). A second

hierarchy applies to the savant's activities: research, instruction, and entertainment. Members of the Academy of Sciences and other elite savants could, if they chose, engage in full-time research. The middling savants were obliged to offer public courses combining instruction and entertainment, and were often employed in other occupations as well. The ratio between instruction and entertainment seems to be another marker of status in Lynn's hierarchy, with the lowest of the popularizers offering nothing more than an amusing show (pp. 43-44). Lynn adds a normative judgment, writing that the classes of a certain Perrin, for example, "bordered on the charlatanesque and hovered near the ever-shifting line between science and pseudosciences" (the last term was also employed by Darnton) (p. 50). [17] But the boundaries were fluid, and popularizers, Lynn suggests, linked even charlatanry to elite science (p. 36).

One can imagine categories other than the ones used here—public science rather than popular science, for example. [18] Some readers may wish for clear definitions of popular, popularization, and other terms, which are lacking in these pages. But on the whole Lynn's categories are more helpful than not for the purposes of his analysis, except for pseudoscience and charlatanry, which appear only in passing and should either have been omitted or subjected to more careful scrutiny than they receive here.

Lynn's work will be a fruitful starting point not only for additional research on the ancien regime but also for studies that extend the inquiry in time and space. The shift in attitudes toward popularization around the time of the Revolution deserves further attention. The parallel shift in the medical elite's views of popularization in medicine may reflect in part bitter memories of "medical anarchy" following the Revolution's deregulation of the medical field. [19] In the case of science, Lynn points to "the professionalization of science education, a new focus on the utility of science for the state, and the emphasis on savants working directly for the nation," but it is not clear exactly how those things closed doors that had once been open (p. 148). Much work remains to be done on the history of popular science in nineteenth-century France, when popular science flourished as never before and the boundaries between the different forms or levels of scientific activity were more porous than Lynn's account might lead one to expect. [20] Provincial studies would be welcome, too, along the lines of Lauren Clay's recent work on provincial theaters. [21] Lynn notes that some of the announcements of public lectures specifically targeted visitors from the provinces, but the inhabitants of the larger provincial towns had options at home as well (pp. 45-46). And as the case of Thouvenel suggests, the international connections and travels of the French popularizers deserve to be explored. One of the great merits of this relatively short but conceptually rich study is that it not only fills a gap in the historiography but also points to such promising avenues for future research.

NOTES

[1] Robert Darnton, *Mesmerism and the End of the Enlightenment in France* (Cambridge, MA: Harvard University Press, 1968), chap. 1, "Mesmerism and Popular Science"; quotation, 29.

[2] See, for example, Jan Golinski, *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760-1820* (Cambridge: Cambridge University Press, 1992), and Larry Stewart, *The Rise of Public Science: Rhetoric, Technology, and Natural Philosophy in Newtonian Britain, 1660-1750* (Cambridge: Cambridge University Press, 1992).

[3] Charles Coulton Gillispie, *The Montgolfier Brothers and the Invention of Aviation, 1783-1784* (Princeton, NJ: Princeton University Press, 1983).

[4] Dena Goodman, *The Republic of Letters: A Cultural History of the French Enlightenment* (Ithaca, NY: Cornell University Press, 1994), chap. 6, "Masculine Self-Governance and the End of Salon Culture"; quotation, 233.

[5] *Ibid.*, 259-276.

[6] Geoffrey V. Sutton, *Science for a Polite Society: Gender, Culture, and the Demonstration of Enlightenment* (Boulder, CO.: Westview Press, 1995), 223-240, 300-319, and *passim*.

[7] One filiopietistic example is Philippe Buron Pilâtre, *Pilâtre de Rozier: un Lorrain d'exception, 1754-1785* (Metz : Éditions. Serpenoise, 2006).

[8] Joël Castonguay-Bélanger, *Les écarts de l'imagination: Pratiques et représentations de la science dans le roman au tournant des Lumières* (Montreal: Presses de l'Université de Montréal, 2008), 12, citing Robert Darnton, *La Fin des Lumières: le mesmérisme et la Révolution* (Paris: O. Jacob, 1995).

[9] Robert M. Isherwood, *Farce and Fantasy: Popular Entertainment in Eighteenth-Century Paris* (New York: Oxford University Press, 1986).

[10] James Smith Allen, *In the Public Eye: A History of Reading in Modern France, 1800-1940* (Princeton, NJ: Princeton University Press, 1991), 70-92.

[11] Lucia De Frenza, *I Sonnambuli delle miniere, Amoretti, Fortis, Spallanzani e il dibattito sull'elettrometria organica minerale in Italia (1790-1816)* (Florence: Leo S. Olschki, 2005).

[12] Daniel Roche, *A History of Everyday Things: The Birth of Consumption in France, 1600-1800*, translated by Brian Pearce (Cambridge: Cambridge University Press, 2000); Colin Jones, "The Great Chain of Buying: Medical Advertisement, the Bourgeois Public Sphere and the Origins of the French Revolution," *American Historical Review* 101 (1996), 13-40.

[13] Michael R. Lynn, "Sparks for Sale: The Culture and Commerce of Fireworks in Early Modern France," *Eighteenth-Century Life* 30 (2006), 74-97, and "Consumerism and the Rise of Balloons in Europe at the End of the Eighteenth Century," *Science in Context* 21 (2008), 73-98.

[14] See, for example, Roger Chartier, "Culture as Appropriation: Popular Cultural Uses in Early Modern France" in Steven L. Kaplan, ed., *Understanding Popular Culture: Europe from the Middle Ages to the Nineteenth Century* (Berlin: Mouton Publishers, 1984), 175-191, and Natalie Zemon Davis, "Toward Mixtures and Margins," *The American Historical Review* 97 (1992), 1409-1416.

[15] See, for example, Richard Whitley, "Knowledge Producers and Knowledge Acquirers: Popularisation as a Relation Between Scientific Fields and Their Publics," in Terry Sinn and Richard Whitley eds., *Expository Science: Forms and Functions of Popularisation, Sociology of Science Yearbook 9* (Dordrecht: D. Reidel Publishing Company, 1985), 3-28, and Roger Cooter and Stephen Pumfrey, "Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture," *History of Science* 32 (1994), 237-67.

[16] *Trésor de la langue française*, <http://atilf.atilf.fr/tlf.htm>; *The Oxford English Dictionary*, 2d ed. (Oxford: Oxford University Press, 1989).

[17] Darnton, *Mesmerism*, 33.

[18] See, for example, Stewart, *Rise of Public Science*; here the category embraces the application of science to technology as well as public lectures and the like.

[19] See Matthew Ramsey, "The Popularization of Medicine in France, 1650-1900," in Roy Porter, ed., *The Popularization of Medicine, 1650-1850* (London: Routledge), 112-113.

[20] See, for example, Bernadette Bensaude-Vincent, "A Public for Science: The Rapid Growth of Popularization in Nineteenth-Century France," *Persée*, 3 (1995), 75-92.

[21] Lauren Clay, "Patronage, Profits, and Public Theaters: Rethinking Cultural Unification in Ancien Régime France," *The Journal of Modern History* 79 (2007), 729-771.

Matthew Ramsey
Vanderbilt University
matthew.ramsey@vanderbilt.edu

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