

BOOK REVIEWS

Diarmid A. Finnegan, *The Voice of Science: British Scientists on the Lecture Circuit in Gilded Age America*. By James A. Secord

Jennifer M. Rampling, *The Experimental Fire: Inventing English Alchemy, 1300–1700*. By Richard Dunn.

William Beinart and Saul Dubow, *The Scientific Imagination in South Africa: 1700 to the Present*. By Gianamar Giovannetti-Singh

Mark A. Waddell, *Magic, Science and Religion in Early Modern Europe*. By Neil Tarrant

Elena Aronova, *Scientific History: Experiments in History and Politics from the Bolshevik Revolution to the End of the Cold War*. By Alex Langstaff.

Diarmid A. Finnegan, *The Voice of Science: British Scientists on the Lecture Circuit in Gilded Age America*

Pittsburgh: University of Pittsburgh Press, 2021. Pp. xiii + 286. ISBN 978-0-8229-4681-6. \$60.00 (hardback).

James A. Secord

University of Cambridge

Some eminent Victorians were just not cut out for lecturing. In 1881, an ailing Charles Darwin, invited to speak on evolution by the Lichfield Church of England Temperance Society, explained, 'I never gave a *lecture* in my life & I am too old to begin ...' (Darwin to T. D. Spain, 23 April 1881, forthcoming in F. Burkhardt *et al.*, eds, *The Correspondence of Charles Darwin* (Cambridge: Cambridge University Press, 2021), 29). For most of Darwin's contemporaries, however, lecturing was central to what it meant to be a public man of science. One sign of the increasing authority of science in nineteenth-century society was the emergence of scientists as international celebrities, whose discoveries were seen to be shaping not only new disciplines, but the very foundations of industrial and imperial civilization.

Nowhere was the fascination with witnessing heroic men of science in action more apparent than in the United States during the closing decades of the nineteenth century. Lecturing mattered in the American context to an extent not paralleled even in Britain. As that pre-eminently successful lecturer Oscar Wilde had a character say in one of his plays, 'All Americans lecture, I believe. I suppose it is something in their climate.' Seeing an important thinker in person, onstage, enabled listeners to judge truth and authenticity directly as expressed in character, rather than through the opinions of others or second-hand through books. Words on the page could conceal as much as they revealed. Individual citizens were expected to assess character first-hand as part of what it meant to participate in a democratic society.

This superb study by Diarmid Finnegan focuses on British contributors to what was by the 1870s a well-developed lecture circuit in the United States, with a network of agents, advertisements, auditoriums and newspaper reports that supported talks on just about any subject one could imagine. Finnegan provides an illuminating guide to this vital arena for promoting the natural sciences. After an opening chapter surveying the significance of public oratory and the place of science within it, *The Voice of Science* follows five lecturers through the circuit: the natural philosopher John Tyndall, the biologist Thomas Henry Huxley, the astronomer Richard Proctor, the naturalist Alfred Russel Wallace and the evangelist and evolutionist Henry Drummond. Their experiences not only give a vivid impression of what it was like to be on tour, but also open up important questions about public science in the Atlantic world of the nineteenth century.

American audiences were eager to hear from leading scientific celebrities, particularly those whose books they had read or seen discussed in the newspapers. For the lecturers themselves, the process of turning readers into listeners was fraught with uncertainties. Some, like Huxley, renowned for their stylish prose, found their lectures criticized for being too dry and matter-of-fact. As Finnegan shows, however, for Huxley this was a carefully considered rhetorical strategy that distanced science from violent emotion and demagoguery. Others, like Proctor, who had a troubled reputation as a popularizer within the British astronomical community, found the rapid-fire delivery of the latest science praised on the other side of the Atlantic for its democratic anti-authoritarianism. Many listeners came to see Wallace as the famous co-discoverer of evolution by natural selection, but were disappointed by his ineffectual speaking style and awkward choice of topics. Only towards the end of the trip, in San Francisco, did Wallace begin to attract positive attention, and that is because he turned to lecturing about spiritualism and the future life.

As 'evangelists for science', all the lecturers faced challenges in dealing with religion. This was how modern science most deeply challenged the thousands of men and women who flocked to hear these talks. Finnegan is especially good on the subtle ways in which lecturers managed what were widely seen as the secular implications of scientific advance. Tyndall, for example, chose his venues for more controversial statements through an assessment of 'a geography of provocation' (p. 36). What might work at the Royal Institution in London was not appropriate for an after-dinner talk in Brooklyn. Throughout his American tour Tyndall avoided offending religious sensibilities, but his views (e.g. on the efficacy of prayer) were well enough known that both supporters and detractors could weaponize his performances towards their own ends. Commenting on a banquet held in Tyndall's honour, the physician Oliver Wendell Holmes Sr praised Tyndall as a representative of the scientific men who were destroying superstition and demonstrating the bankruptcy of faith. Tyndall's presence on the platform as a man of science made an important statement, even if he was speaking about optics or the physics of sound. Tensions were never far below the surface.

Finnegan's strategy of focusing each chapter on an individual lecturer has many advantages; the cases are well chosen and include frequent comparisons with others who do not receive sustained attention. It does mean, however, that important questions remain for future research. There is some discussion of audience reactions, but a connected account of what it was like to attend such lectures on a regular basis is not provided. There is clearly more to be said about the organization of the lecture circuit. What would the story look like if more consistently seen from the perspectives of editors, impresarios, agents and promoters? How did interviews, advertisements, transcripts and the provision of supplements of science lectures fit in with other newspaper practices?

I would also have liked more in-depth analysis of how particular pieces of scientific work were presented to different audiences. What made some topics 'dry' and others

‘entertaining’? How were visual effects, particularly those involved in experimental work, made available to thousands in a lecture theatre? The maps, charts and some of the portraits are useful, but in a book stressing the multi-sensory nature of science, it would have been helpful to have more illustrations – for example of lantern slides, projection equipment, lectures in progress or the *Angelus* by the French painter Jean-François Millet that is discussed over several paragraphs.

Among the many strengths of the *Voice of Science* is the attention devoted to what Finnegan terms the ‘intimate ecology that bound together success in print and on the platform’ (p. 173). Connections between the written and the oral worked at many levels in the making of celebrity. Most lecturers came to cash in on the success of their books, which although widely read in the United States had often been pirated and hence brought limited royalties. Lectures were usually reported in newspapers and other periodicals, sparking further controversy and conversation among a wider range of readers, who might go on to purchase new works informed by the lectures they had just heard. Celebrity was never preordained – and certainly not through original discovery alone – but was forged through relations with the mass-circulation press. This was particularly true for visitors who offered the attraction of being familiar through their writings but entirely unknown in their persons. It is no accident that Huxley noticed on his arrival that the Manhattan skyline was dominated by the towers of the *New York Tribune* and Western Union Telegraph Office rather than the steeples of churches. There could be no better omen for a consummate communicator and ‘apostle of science’.

doi:10.1017/S000708742200005X

Jennifer M. Rampling, *The Experimental Fire: Inventing English Alchemy, 1300–1700*

**Chicago and London: The University of Chicago Press, 2020.
Pp. 416. ISBN 978-0-2267-1070-9. £28.00/\$35.00 (hardback).**

Richard Dunn

Science Museum, London

The history of alchemy offers huge challenges to any researcher, not least due to the deliberate obfuscation of authors who considered the quest for the philosophers’ stone – or rather a trinity of animal, vegetable and mineral stones – to be a secret art. What Jennifer Rampling shows in *The Experimental Fire*, however, is that the best historians can overcome these challenges and tell us something genuinely new and refreshing.

Rampling’s book tells the story of alchemy in England from the fourteenth century to the late seventeenth. Or, rather, it tells the story of a distinctively English form of alchemy, which she calls ‘sericonian’ after its prime matter, sericon, a mercurial substance somehow drawn from base metals. The narrative is in three sections (each comprising three chapters) that look in turn at the tradition’s medieval origins during the reign of Edward III, its golden age in the sixteenth century and the legacy still evident through the seventeenth century. What interests Rampling is how textual learning interacted with practical experience and the extent to which practitioners sought either to