

As Golinski convincingly demonstrates, while Davy would have resented being dubbed a dandy, he would have welcomed (even aspired to) the stamp of genius and discoverer, and would have likely admitted to being somewhat of an enthusiast. But he mainly saw himself as a chemist, and on his view of chemistry as the ultimate science of matter and life he saw himself as a philosopher – a chemical philosopher. Like other Romantics and contemporaries, Davy was preoccupied by nature's harmony and its underlying unifying principles, and he was drawn to considerations we would identify as vitalistic (but which were more anti- or non-mechanistic). Even Davy's contributions to applied science – like his successful *Elements of Agricultural Chemistry* (1813) and the development of the safety lamp for miners in 1815 – were undergirded by 'philosophical' concerns. In the former, he was espousing a 'model of the gentleman farmer who was open to enlightened scientific improvement' (p. 136); in the design of the latter, he emphasized having been 'guided by scientific knowledge and an elevated philosophical viewpoint' (p. 143). The last chapter is dedicated to Davy the 'traveler'. It is centred on a contextual reading of his *Consolations in Travel*, which he composed towards the end of his life and which appeared in 1830, a year after his death. In this highly personal blend of autobiography, philosophy, travel literature and science, Golinski finds further (perhaps final) support for his thesis: 'Davy's lifelong trials of identities, his multiple experiments in selfhood, reach their culmination – but not their resolution – in this extraordinary and mysterious work' (p. 158).

Golinski's Davy is wonderfully and frustratingly elusive. Golinski dives deep, plunging into Davy's subtle reflections about matter and life, nature and selfhood. The result is a multilayered biography that reads like fiction, and is teeming with surprising insights. The tone is well modulated, knowledgeable yet adequately intimate. Examining Davy and the science of his day through a group portrait of his shifting identities is a potent idea but the account is more evocative than indicative. It may subsequently carry important historiographical lessons about the limits of contextual historical reading and the historian's capacity to bridge the private and the public, the individual actor and the sociocultural circumstances in which they are embedded. This book should be of interest to historians of science, students of Romanticism, and scholars of literary studies and British history more generally.

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HANNAH GAY and WILLIAM P. GRIFFITH, *The Chemistry Department at Imperial College: A History, 1845–2000*. London: World Scientific Publishing, 2017. Pp. xi + 569 + illus. ISBN 978-1-78326-973-0. £56.00 (hardcover).  
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Histories of chemistry departments are a relatively rare genre in the history of chemistry. Looking at my bookcase, three examples stand out: Aaron Ihde's *Chemistry as Viewed from Bascom's Hill* (1990) (which at 688 pages is probably the longest history of a chemistry department ever written, although it was published privately by the department), Brook and McBride's *Historical Distillates: Chemistry at the University of Toronto since 1843* (2007) and the history of the chemistry department of the University of Melbourne (Radford, *The Chemistry Department of the University of Melbourne* (1978)). In Britain, the two pre-eminent histories of chemistry departments have been the multi-authored histories of the departments at Cambridge (Archer and Haley, *The 1702 Chair of Chemistry at Cambridge* (2005), cast as a history of the 1702 chair in chemistry) and Oxford (Williams, Chapman and Rowlinson, eds., *Chemistry at Oxford* (2009), produced as a direct response to the publication of the Cambridge history). If one aims to produce such a history, several issues immediately arise. Is it an institutional history of the department, a history of the buildings, a history of its laboratories, an account of the teaching and research carried out within its walls or a collective biography of the chemists who have

worked in the department? If one says 'all of the above', the question remains of the balance between these different approaches and their interconnections (quite apart from the length of the final product). There is also the fundamental question of the benefit to be gained from such an enterprise. Doubtlessly such a history is of interest to the current and retired staff of the department and their students, although the degree of their interest could be easily overestimated, which perhaps explains why such histories are often easily obtained relatively cheaply second-hand in excellent condition. But what is the benefit of such works for the broader history-of-science community? There are two possible approaches one could take (among many others). The book could show the major contribution that the department made to the development of chemistry in its country and how chemistry has benefited from the existence of that department. Such an approach is flattering to the department (if it can be sustained) and perhaps sheds some light on the nooks and crannies of this localized history of chemistry, but it is hardly likely to bring about a major shift in our understanding of the history of chemistry. The other approach is to use the history of the department as raw material to make generalizations about the institutional and intellectual development of chemistry, showing how the micro-analysis of a particular department can give us more general insights about the way chemistry has grown.

Turning to the book under review, it follows in the footsteps of the superb history of Imperial College by one of the authors of the current volume, Hannah Gay (*The History of Imperial College London, 1907–2007* (2007)). While that history does cover the history of the chemistry department (as one would expect from a graduate of that department), it only comprises some thirty or so pages in total. Clearly there was an opportunity for a more exhaustive history of the department and Gay joined forces with Bill Griffith, an emeritus professor of inorganic chemistry at Imperial (and like Gay a graduate of the department) who has published several historical papers. The result is certainly thorough, going up to the year 2000, and well researched, with a lengthy bibliography of some forty-eight pages, but what is it mostly about? The institutional history of the department is covered but it is scattered throughout the book and it is difficult to gain a clear picture of how the department evolved. Personally I would like to have had more discussion of the social structure of the department, for example the role of laboratory technicians. The chemical research carried out at Imperial is also covered, but unlike in some histories of chemistry departments it is not the main focus (perhaps fortunately). Again, some attention is given to teaching but changes in teaching over time are not analysed in detail, something else that I would have welcomed. Nor, perhaps surprisingly, is there much space given to the department's buildings and laboratories despite their importance in the history of British laboratories. In short, this volume is mainly about people: what they were like, what they did (and not just their research), how they tried to improve the department and in the later period how they interacted with the college's administration. There are many interesting anecdotes and personal reminiscences by the authors. Given that people are usually interested in (other) people, this is perhaps a wise choice, but it does shape what the book discusses. It is in its treatment of people that the book suffers its major weakness. Personally I would have put all the information in the main text, but Gay and Griffith, realizing that some of the information was marginal to the main theme, put some of this personal information in footnotes. In the final published version they have become endnotes, which means that the reader is always going forwards to the notes and back to the main text, or they just give up and risk missing interesting material in the endnotes. As there is very interesting material in the notes, this is unfortunate. In terms of its overall approach, this book is in the 'great chemistry carried out here' camp, although the authors take care never to overstate the importance of Imperial's chemistry. It is striking that in the very period when the department moved from being a department of national importance to an international leader with the award of two Nobel Prizes in 1969 (to Derek Barton) and 1973 (to Geoffrey Wilkinson), there were concerns within the department that it was losing ground relative to the rest of the college.

There is a good selection of photographs at the back (it is a pity that they could not have been dispersed throughout the text), although the group photographs are inevitably cramped, and there is a valuable appendix of staff members over the years. There is an excellent name index but no general index. The general production values of the book are excellent. It will be very useful for historians of chemistry and it is good that the history of a leading chemistry department has been recorded for posterity. However, at a cost of more than fifty pounds it is sadly too expensive for the interested general reader or historians of science in other fields.

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COURTNEY FULLILOVE, *The Profit of the Earth: The Global Seeds of American Agriculture*. Chicago: The University of Chicago Press, 2017. Pp. 288. ISBN 978-0-226-45486-3. \$40.00 (hardback). doi:10.1017/S0007087418000341

Farmers have created collective systems of conservation and innovation of crops and of seed sharing since the earliest plant domestications. The early spread of agriculture, but also modern imperialism, colonialism, trade and development assistance, have been accompanied by a relatively open flow of germ plasm. Limitations to this open flow have arrived in the course of the twentieth century in several guises. Hybrids offer a kind of biological property protection if the parental lines are not made available. Proprietary claims over plant varieties have become more and more common, through either patents or plant variety rights. In order to counter this privatization of plant varieties, politics fashioned its own set of limitations: the Convention on Biological Diversity (1992) recognizes that countries have sovereign rights over genetic resources on their territory and that access to genetic resources should occur on mutually agreed terms and never without prior consent. However, ensuing policy debates have emphasized again that plant genetic resources rather ought to be treated as a 'common heritage of mankind'. This debate culminated in the adoption of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) in 2001, which established a freely accessible common global pool of plant genetic material and mechanisms for financial and non-financial benefit sharing with developing countries.

Courtney Fullilove's book recounts how the stage was set for these contemporary developments. She shows how seeds and knowledge about them were acquired, traded and exchanged within the context of the flourishing economy of the nineteenth-century United States. The first part looks at the natural-science collections of the museum in the US Patent Office in Washington, a precursor to the Smithsonian Institution, as well as the US National Herbarium and US Department of Agriculture, describing how seeds were variously understood as objects of global nature, diplomatic gift or private property. The collections of James Morrow, the agriculturalist of the US Expedition to Japan, provide a case study of the making of scientific and market values, in which the concepts of Euro-American property forms influenced the classification and institutional ownership of plants, seeds and tools. Next the author tells the story of failed public and private efforts to make tea a worthwhile cash crop in the American South, focusing on the efforts of the entrepreneur Junius Smith and the US Patent Office's agricultural department. Fullilove identifies a number of reasons for this failure, in particular the narrow-minded focus on the acquisition and distribution of seeds. Missing were visions of how to link imported seeds to the systems of labour required to cultivate and maintain them.

The second part describes the arrival of Turkish wheat in the Midwest – the famous 'amber waves of grain', iconic of the midwestern landscape, were maybe not more than twenty years old when Katharine Lee Bates penned her poem in 1893. Fullilove traces the arrival of the hardy wheat back to Mennonite immigrants from the Crimea. Southern Russia was home to a large number of Mennonite communities from Germany who were promised substantial privileges