BOOK REVIEW

Cradle of Chemistry: The Early Years of Chemistry at the University of Edinburgh, Robert G. W. Anderson, Ed., John Donald, Edinburgh, Scotland, UK, 2015, 198 + xviii pp, ISBN 978 1 906566 86 9, £25.

This volume collects the contributions of a 2013 symposium on the 300th anniversary of chemistry at the University of Edinburgh. In December 1713, James Crawford was appointed the university's first professor of physick and chymistry. Later in the 18th century, a faculty of medicine was established at the university, and chemistry was taught by such luminaries as William Cullen and Joseph Black.

Overviews of the book can be found in both its first and last chapters, an introduction by editor Robert Anderson and an afterword by Hasok Chang. Anderson notes Edinburgh's pre-eminence for the study of chemistry in the later 18th century, although other nations and institutions would catch up and surpass it in the 19th. Chang looks back at the chapters that precede his, looking for clues on what facilitated the flourishing of chemistry at Edinburgh particularly at the time of Black.

The remaining chapters are arranged chronologically by their main subject. John Henry's chapter on "Science in the Athens of the North" traces the influence of Newtonian ideas via Scots sources not only to continental Europe but even to England. Among the key figures in the chapter are David Gregory, professor of mathematics at Edinburgh, and Gregory's Edinburgh friend Archibald Pitcairne. Gregory became the first Newtonian professor at Oxford. Pitcairne brought a Newtonian conception of medicine to the University of Leiden where he briefly taught.

The influence of Leiden on chemistry at Edinburgh is the subject of John Powers's chapter. Powers describes the chemistry of Herman Boerhaave and examines the courses of the first two Edinburgh chemists, both of whom had studied under Boerhaave at Leiden. Boerhaave's chemistry course was more theoretical than what preceded it, expanding it from a predominant emphasis on medical preparations to a conceptual framework of chemical "instruments" (namely fire, air, water, earth, *menstrua* (essentially solvents), and vessels). Edinburgh's first chemist, Crawford, appears to have modeled his course after Boerhaave's. Andrew Plummer, the member of the founding medical faculty who did most of the teaching of chemistry, appears to have taught a more preparations-focused course; however, Plummer's research in chemistry shows interest in Boerhaave's theory.

Georgette Taylor takes up the pedagogy of Plummer and his much better known successor, Cullen. The latter has a reputation as an effective and innovative teacher. That reputation is amply supported by copious historical evidence in the form of lecture notes, letters, and diaries of students preserved in various archives. Historical evidence about Plummer's teaching is much scarcer. Much less of the sort of evidence that establishes Cullen's reputation survives in Plummer's case. And on the basis of much more limited evidence, Plummer's reputation as an instructor—deservedly or not—is much worse. Taylor's paper raises fascinating questions of historiography: how to treat scarce evidence? what if anything can be read into its very scarcity?

The next five chapters touch on aspects of Joseph Black's time at Edinburgh, the last four decades of the 18th century. John Christie noted that students at the

Edinburgh school of medicine were not just passive recipients of their professors' professions. The student Medical Society (Royal Medical Society after it gained a royal charter in 1779) was just the most prominent forum for student papers and debates. Both phlogistic and antiphlogistic chemistry found student champions there. Matthew Eddy treats diagrams and tables Black used in teaching. They were visually simple but not self-evident, and this combination made them pedagogically effective.

The next three chapters deal more with artifacts than documents. Tom Addyman describes an archeological investigation in the Old College quadrangle of the University. Apparatus and chemical samples, likely dating to the time of Black and his successor Thomas Charles Hope, were found. Some of the glassware resembles the work of Archibald Geddes of Leigh Glassworks, a likely supplier to Black. A. D. Morrison-Low's chapter treats 18th-century chemical apparatus in a better state of preservation, namely pieces in the collections of the National Museums of Scotland. Items donated by Lyon Playfair during his tenure as Professor of Chemistry at Edinburgh include materials associated with Black and Hope. Peter Morris's chapter is on the location of Black's last home in Edinburgh and his place of death. In addition to an interesting piece of historical detective work, Morris observes that the dwellings of historical figures are not always noted or protected.

Anderson's own chapter focuses on Black's successor as professor of medicine and chemistry, Thomas Charles Hope. A comparison of Hope's career to Black's can hardly come out in Hope's favor. Still, Anderson notes that Hope was conscientious and his course rigorous and highly enrolled.

Andrew Alexander treats several important figures of the later 19th century story of chemistry in Edinburgh. These include the next three professors after Hope, a notable assistant, and a famous student. William Gregory was Hope's successor, but as professor of chemistry rather than chemistry and medicine. He published his own textbook. Lyon Playfair became the next professor of chemistry in 1858 after Gregory's death. Playfair was already a public figure at this time, and he returned to public life in London in 1869. Playfair appointed Archibald Scott Couper as one of his assistants to start in early 1859. Couper had left the laboratory of Charles-Adolphe Wurtz in 1858 amid recriminations over a delayed publication: Couper's recognition of the tetravalence of carbon got into print only after one by August Kekulé. Couper had a mental breakdown in May 1859 and was institutionalized in Glasgow. Playfair's successor as professor was Alexander Crum Brown, who also worked in structural chemistry. One of Brown's chemistry students was Arthur Conan Doyle, a medical graduate of Edinburgh. Doyle's literary creation, Sherlock Holmes, made considerable use of chemistry.

Carmen J. Giunta, Le Moyne College; giunta@lemoyne.edu

ESHS London 2018

The eighth Biennial Conference of the European Society for the History of Science (ESHS) will be held in London, 14-17 September 2018 in conjunction with the British Society for the History of Science. For further information on the conference, whose theme is Unity and Disunity, see http://www.eshs.org