

Chemistry_of_the_Christmas_Candle_Part_2.html; and http://www.chemistryviews.org/details/ezone/1406001/Chemistry_of_the_Christmas_Candle_Part_3.html

3. "What Makes a Candle Flame?" ChemViews, December 6, 2011, 10.1002/chemv.201000145; http://www.chemistryviews.org/details/ezone/1393243/What_Makes_a_Candle_Flame.html.

European Women in Chemistry, Jan Apotheker and Livia Simon Sarkadi, Editors, Wiley-VCH, Weinheim, Germany, 2011, 256 pp, ISBN 978-3-527-32956-4, \$29.95.

European Women in Chemistry was developed in an effort to document women's careers and inspire young women. Part of the International Year of Chemistry 2011 and its efforts to celebrate the centennial of Marie Curie's 1911 Nobel Prize in Chemistry was the concerted effort to promote the cause of women in chemistry and *European Women in Chemistry* conforms nicely to that stated aim. With the purpose of motivating and inspiring younger women through life experiences described as "difficult or extraordinary," the book consists of over fifty short biographical entries of European women who pursued careers in the chemical sciences.

Arranged chronologically, the biographical entries begin with Maria the Jewess, an alchemist who lived in first or third century, and end with Katharina Landfester, the current director of the Max Planck Institute for Polymer Research in Mainz, Germany. In between are biographical entries of women likely unfamiliar to young, aspiring chemists today. Some of the earliest entries offer little in the way of either inspiration or even information about the woman and her role in relationship to chemistry. Cleopatra the alchemist, like Maria the Jewess, is shrouded in mystery. Unlike Maria the Jewess, Cleopatra the Alchemist does have an extant document. However, we know nothing about her at all; the details of her life and the majority of her work remain hidden.

One of the most interesting early women in the book is Anna, Princess of Denmark and Norway, Electress of Saxony. Having never heard of her, I assume that young women, the intended audience, will likewise be unfa-

miliar with this remarkable woman. An early example of how class and birth status provide a distinct advantage in chemical pursuits, Anna sponsored and pursued pharmaceutical sciences. Additionally, the biographical entry claims Anna and her husband were interested in alchemy and not just medical chemistry. Unfortunately, the biographical entry format of the book does not allow space to explore one of the most interesting aspects of Anna's life and career—possible implications of witchcraft. The last sentence simply states that "Anna's high social status as a Princess may have saved her from being suspected of witchcraft and being sentenced to the stake." Understanding more about the threat of a witchcraft accusation in the sixteenth century would not only have been interesting but it could have been truly inspirational to understand the ways in which Anna's pursuits placed her in mortal danger.

In the middle of the book, when the biographical entries reach the eighteenth century, it becomes more likely that young women reading the book will have a level of familiarity with some of the women highlighted. While most will have heard of Lavoisier, they will be familiar with Antoine Lavoisier and not his wife Marie. However, the biographical story of Marie Lavoisier with the backdrop of the French Revolution and a subsequent marriage to Count Rumford of Bavaria offers little in the way of inspiration to a modern young woman in chemistry. Instead what Madame Marie Lavoisier's biographical entry does do is highlight the ways in which intelligent young women were steered. As her husband's laboratory assistant and research partner, Marie Lavoisier was instrumental in the work her husband receives most of the credit for. Indeed Marie was the author of all the hand engravings featured in *Traité élémentaire de chimie*, Antoine Lavoisier's seminal chemistry publication in 1789.

Her biographical entry celebrates the work that she did, and it remains unclear how she viewed her contributions to science and the roles for women within chemistry.

Similar to Madame Marie Lavoisier, Jane Haldimand Marcet had a privileged upbringing showing interests in art and botany. Similar to Madame Lavoisier, Jane married a chemist, though not one on equal footing with Antoine Lavoisier. However, it was her husband's chemical interests that sparked Jane to begin writing introductory science texts. With twenty-three printings in the fifty years after its original 1806 publication, Jane's *Conversations on Chemistry* was an enormous success influencing countless chemistry students.

The women of the twentieth century represent the most diverse biographical entries in the book. For example, Martha Annie Whiteley, the first female professor at Royal College of Science, worked tirelessly in pursuit of her chemical research, her teaching, and expanded rights for female scientists in the first half of the twentieth century. Lina Shtern, a Russian Jew, became leader of the Institute for Physiology in the Soviet Union in the 1930s. Irén Júlia Götz-Dienes, was the first female chemistry Ph.D. in Hungary, worked with Marie Curie, and later became head of the Nitrogen Research Institute in Moscow. Kathleen Lonsdale, a pioneer in X-ray crystallography became one of the first two women elected as Fellows of the Royal Society.

The twentieth-century women have more complete biographical entries than the earlier women in the book; however, their lives, struggles, and accomplishments are naturally condensed due to the book's format. A reader

does not get to explore the horrors some of these women faced, including religious and political persecution. The notion that the difficulties women have faced are multifaceted is touched upon in *European Women in Chemistry* but not explored in any detail; for example the reasons why many female chemists at the turn of the twentieth century remained unmarried as well as the dearth of women winning prestigious awards are only given the most cursory of sentences.

While the book and its biographical entries are intended to provide a historical overview of European women in chemistry, perhaps it would have been more inspirational if it had selected a few women for longer biographical entries. For example, perhaps an exploration of the influence politics had on Lina Shtern's science and how her resulting arrest and "rehabilitation" in 1953 affected her career would have been more meaningful to a young person today. Women today face pressures and expectations that they often do not want to admit are similar to the ones faced by women of earlier generations. Questions about balancing career and family, femininity and science, political beliefs and government-funded research are only some of the ways in which women today could have benefitted from longer-form biographical entries. Despite what could have been, *European Women in Chemistry* offers an informative historical overview giving women reason to be curious about the lives and careers about many remarkable women.

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Radioactivity: A History of a Mysterious Science, Marjorie C. Malley, Oxford University Press, Oxford & New York, 2011, xxi + 267 pp, ISBN 978-0-19-976641-3, \$21.95.

The subtitle of Marjorie C. Malley's new book *Radioactivity* is "A History of a Mysterious Science." That is a very apt and concise indication of what this 214-page account offers. The first of the three parts that the work is divided into is the history of the new science, commencing in 1896 and continuing through the first

decade of the 1900s. To this reviewer, these roughly one hundred pages were the most fascinating part of the text, providing in a easy, flowing writing style some insight into the confusion and almost disorientation experienced by the large cast of players groping with the strange behavior of the first new elements to emerge from Marie Curie's well-known prodigious efforts as well as from others. New measurement techniques, such as spectroscopy based on physical properties, were emerging and, in retrospect, it was not surprising that chemists were mostly