

Materials and Expertise in Early Modern Europe, Ursula Klein and E. C. Spary, Eds., University of Chicago Press, Chicago, IL, 2010, 408 pp, ISBN 978-0-226-43968-6, \$50.

This interesting collection of papers, from two workshops held in Berlin in 2004 and 2006, is edited by Ursula Klein, a researcher in the history and philosophy of chemistry at the Max Planck Institute for History of Science in Berlin, and Emma Spary, a lecturer in the history of science at Cambridge University. The book includes twelve contributions from twelve different authors, which are divided into three parts, “The Production of Materials,” “Materials in the Market Sphere,” and “State Interventions.” The editors have provided a general introduction to the volume and a separate introduction for each individual part, offering themes that unite an otherwise quite diverse group of papers. While each contribution treats a different material—or group of materials—they do so in very different ways. In favor of the coherence of the whole, most of the contributions do have something to say about the relationship between craft skills and academic science in the period from 1600-1800, which the editors propose as the overarching *leitmotif* for the book.

Following an introduction that offers an interesting perspective on the long-running historical debate over the origins of modern science in the head (the history of science as the history of ideas) or in the hand (a history of science as the formalization of mechanical and chemical knowledge), the book opens with a chapter on vermilion by Pamela Smith. This historian of the commerce of alchemy presents a number of interesting reflections on this red pigment and its association with other alchemically significant objects such as mercury, blood, and lizards. The next paper, by Hanna Rose Shell is more biographical, exploring the work of Bernard Palissy in the 16th century. This extraordinary artist and natural philosopher is best known for his ceramic reproductions of amphibians, fish, seashells, and fossils in elaborate basins and platters. As the aptly named author explains, Palissy’s casting and creations—his ‘biomorphic earthenware’—were linked to a profound interest in natural history and the nature of life. Christoph Bartels next offers a chapter on early mining and metallurgy in the Harz Mountains, focusing in on a 17th-century debate about the use of gunpowder for rock-blasting, showing the increasing significance of scientifically trained administrators like Heinrich Albert von dem Busch. Adrian Johns’ chapter on ink is the most literary in the book; and in it he rightly points out that while there has been a great deal of inter-

est in the history of printing technology, there has been little study of the technology of ink. Nevertheless, he offers only very general indications as to what such a history would look like. Ursula Klein’s own paper on ethers closes the first part, and she traces the interest that 18th-century pharmacists displayed in this innovative and evocative substance, both as a medicine and as a subject of experimental investigation.

The second part opens with Barbara Orlan’s essay on milk in 18th-century France. Here the author shows how chemists such as Parmentier and Déyeux took an interest in the chemical analysis of milk in a context where milk was both commercially and culturally important. While the results of the analyses were far from decisive, they still enabled the two to offer chemical reflections on the relationship between milk, butter, and cheese. The following paper on the virtues of the spa water at Peterhead in Scotland is more oriented towards an investigation of the status of the experts promoting the therapeutic qualities of spa water at the end of the 18th century. Here, Matthew Eddy focuses on Rev. William Laing, a keen amateur in chemistry and medicine, who earned an M.D. without attending medical school and became a diligent promoter of the therapeutic virtues of Peterhead water. In Chapter 9, Emma Spary takes us into the world of liqueurs in 18th-century Paris. She places this luxury good at the heart of competing guilds—apothecaries, *limonadiers*, and distillers—and brings to light a debate over the status of liqueurs as medicines or intoxicating drugs.

The last part of this collection titled “State Interventions” covers agriculture, gunpowder, and dyeing. Marcus Poppow proposes an analysis of agriculture in 18th-century Germany with a marked orientation toward economic theory. He is particularly interested in the strategies of “economic improvers” in the agricultural sphere who attempted to amass useful natural, historical, meteorological, and other relevant information in order to improve the agricultural economies of the German lands. In the next chapter Seymour Mauskopf treats the quality of gunpowder in 18th-century England, presenting an outline of how it was manufactured and how this manufacture was organized between public and private powder mills at the time. He is especially interested in the efforts of William Congreve to improve the quality of gunpowder at the end of the 18th century, and in particular to make the testing of gunpowder more reliable. The message conveyed by Mauskopf is that the domain of ballistics, artillery, and gunpowder was much more complex than one might suppose and that relevant ad-

vances in the chemistry involved (the chemistry of gases) contributed much less than empirical trial and error to the improvement of this military resource.

The book closes with a chapter by Augustí Nieto-Galan on the art of dyeing in France, which underlines the importance of a move in the 18th century from domestic production in small workshops to the large “manufactures” that implied a more stringent division of labor and a consequent multiplication of specialists within the industry. Dyeing and printing were complex crafts involving the use of many chemical agents, and like most crafts they were perpetuated by oral traditions within guild structures. The author closes the chapter with the example of Berthollet’s introduction of chlorine bleaching, showing how rather than being held up as a triumph of the new chemistry, it was simply integrated into the range of practical techniques already available to the dyers for achieving the same end. Here, Nieto-Galan challenges the gloss that the editors want to give

to these histories. In the general introduction, the editors suggest that the whole book consists of an “inquiry into the interconnectedness of the sciences, technology, and society in the early modern period, through particular sorts of material objects and practices;” but their particular approach is to stress the importance of “experts” who move between the world of “learned inquiry” and the nonacademic world of the arts and crafts. While it is a good idea to have a central theme around which to unite the diverse contributions to a collected volume, I am not sure that this one is the best one for examining the place of materials in 18th-century culture. Be that as it may, I suspect that most readers will search out the chapter on the material that is of particular interest to them rather than reading the whole for a coherent sustained argument that they would be more likely to find in a monograph.

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Sites of Chemistry, 1600-2000

The Sites of Chemistry, 1600-2000 is a four-year project to investigate the multitude of sites, spaces and places where chemistry has been practiced since 1600. These will be explored over the next four years in a series of annual conferences, each devoted to a particular century. A final conference in early 2015 will explore themes and developments over the whole period and on a broader comparative scale. The first conference, on the “Sites of Chemistry in the 18th Century,” will be held in Oxford at the Maison Française on 4-5 July 2011 and proposals for papers are invited.

For further details on the project, topics and themes, programme, planned publications, funding, and organization, see <http://www.sitesofchemistry.org>.

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