

studios. A plumber-like figure at the beginning of the century, the ‘recorder’ eventually morphed into the ‘sound engineer’, the real artist and innovator in recording studios. Aptly, Schmidt Horning draws on recent work in the history of technology and recalls the importance of interpretative categories such as tacit knowledge and amateurism to explain the rise of sound technicians. Even after professionalization, they sought to innovate the field by learning how to play with studio equipment rather than through specific training. She also investigates the social and cultural milieu in which these experts operated, analysing, for instance, how race and gender divides informed their work.

Schmidt Horning thus emphasizes the empowering role of technology within and outside recording studios, but also the power struggle that ensued because of the introduction of new sound equipment. By the time *Sgt. Pepper* was released, the sound engineer was the man in control and would even ‘get the musicians out of the way’ (p. 171) if need be. Jazzman Thelonius Monk, for instance, had a serious altercation with one technician who, by mistake, did not record his last performance. As one swearing Monk fumed and paced around the recording room before the next take, the engineer calmly revealed his newly acquired powers by using three apparently innocuous words: ‘stand by, please’ (p. 196).

SIMONE TURCHETTI  
*University of Manchester*

THOMAS KAISERFELD and TOM O'DELL (eds.), **Legitimizing ESS: Big Science as a Collaboration across Boundaries**. Lund: Nordic Academic Press, 2013. Pp. 240. ISBN 978-91-87351-10-5. £30.95 (hardback).  
doi:10.1017/S0007087414001046

The history of science has long engaged with the field of big science: with its planning stages, the operation of its facilities, and the way it has subsequently been interpreted. Usually focused on the changes that occurred in industrial nations after the Second World War, written accounts have both traced specific laboratories and offered extensive overviews: e.g. Derek J. de Solla Price's *Little Science, Big Science* (1963), John Krige's edited volume *History of CERN I-III* (1996) and Robert P. Crease's *Making Physics: A Biography of Brookhaven National Laboratory* (1999). However, many of these earlier big-science accounts have sidestepped the political in their conclusions. The same cannot be said of Kaiserfeld and O'Dell's edited volume about the European Spallation Source (ESS), a million-pound project located in the Swedish university town of Lund which will use neutron scattering to provide unique information about the structure and properties of materials to be used across the sciences. From the introduction to the chapter headings – ‘Myths and realities of the ESS project’, ‘Social media and research practices in Big Science’, ‘Believing in the ESS’ etc. – questions of purpose, branding, funding and strategy are emphasized alongside the more traditional overview of the project's technological narrative. Furthermore, CERN is mentioned throughout the volume, appearing in fact in the very first sentence, and is used successfully to contrast and compare the highs and lows of the ESS enterprise. Like CERN, the ESS is set in a neutral, peaceful country, in a privileged part of the world with vast resources for initiating and excelling at blue-sky research. Like CERN, the ESS seeks to be a European project, where countries can meet in blissful scientific utopia when recessions and war usually set them against one other. And like CERN again, there is a fanatical rhetoric of ‘awesomeness’ and ‘exceptionalism’, hinting at a large ego and enormous goals. The likenesses of the two are fascinating, as we know how CERN's media image and work have broadened in recent years. Is ESS trying to follow in its footsteps or do something new?

Kaiserfeld and O'Dell are joined by nine other scholars as they focus not on the science per se, but on the complexity of big science as manifested in the ESS. It is a joy to see that half of these contributors are women, a fact seldom seen in big-science literature, but perhaps expected from

a country with an active and successful feminist party. Although readers may not be familiar with the ESS, the book's interdisciplinary character and broad scope make it a fascinating read for anyone working on any aspect of big science. The editors focus on the impact of the ESS on the small Swedish host town currently preparing for the start of the project. Research policy scholar Olof Hallonsten looks at the myths and realities of the project, providing a 'systematic scrutiny of readily accepted "truths"' (p. 43). Sociologist Tobias Linné provides an interesting and slightly worrying overview of the local news media interest and the expectations that the ESS will have to try to fulfil. Josephine V. Rekers looks at the geography of innovation from an economist's perspective, whereas Sara von Platen, an assistant professor in strategic communication, focuses on member identification and auto-communication during organizational transition. Birgitta G. Olander, associate professor of library and information science, offers an account of the social-media context, which provides a refreshing review of the research practices of big science, and Kerstin Sandell, associate professor of gender studies, makes use of her fascinating interviews with scientists in similar international laboratories. Art historian Max Liljefors's account of the vision of the ESS through image and power is a must-read for anyone who studies the contemporary SciArt trend, and his focus on the rhetoric of this field also introduces important questions about power and scale. Victoria Höög asks what happens when technoscience comes to the small university city of Lund, in the context of the history of science, in particular the Enlightenment. Finally, historian of science Gustav Holmberg asks what to do with ageing big-science facilities, a vital question for anyone in the business of building structures that are not only not biodegradable but also potentially toxic.

The combination of rich, interdisciplinary research has clearly been fascinating to the writers themselves, who seem to have enjoyed the experience and ventured beyond their own disciplines in order to ask questions that draw on many fields. As a consequence, this volume goes beyond the history of science, and opens up the topic to other forms of enquiry. Historians of other kinds, scholars of the visual, scientists, politicians and policy-makers will all be interested in the questions asked in the book, although not all answers are provided. As the ESS has yet to actually come into being, this is the first book on the subject. Compared to the works on CERN, it is refreshing, and perhaps also a positive sign of our times, that the first scholarly book engaging in the ESS is asking large, difficult and political questions.

For writers on big science this book is an important, yet quick, read. The language is clear throughout, with all the Swedish authors providing the footnotes and bibliographies required by those wishing to engage further in the themes presented. The handful of images are also clear and relevant, giving a visual insight into the future site discussed in the text. The only reservation I had whilst reading the text was a worry that there will be no future legacy from the *Legitimizing ESS* collaboration. The realization that this team, alongside other contemporary scholars, are providing a much-needed shift towards the political in our field gives hope for future books, seminars and events from this interdisciplinary group. I remain confident that anyone who ventures into this volume will feel the same.

CAMILLA MØRK RØSTVIK  
*University of Manchester*

STEVEN J. DICK, *Discovery and Classification in Astronomy: Controversy and Consensus*. New York: Cambridge University Press, 2013. Pp. xvi + 458. ISBN 978-1-107-03361-0. £30.00/\$45.00 (hardback).

doi:10.1017/S0007087414001058

Discovery is not a particularly popular subject of analysis for our discipline. Philosophers have long been fascinated by the topic, classifying scientific discovery into myriad types whilst probing the distinction between contexts of discovery and contexts of justification. But historians