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Edmund Russell. *Evolutionary History: Uniting History and Biology to Understand Life on Earth*.
Evolutionary History: Uniting History and Biology to Understand Life on Earth by Edmund
Russell

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Field Recordings in Ornithology,” William Whittington’s “The Sonic Playpen: Sound Design and Technology in Pixar’s Animated Shorts,” and Andreas Fickers’s “Visibly Audible: The Radio Dial as Mediating Interface.”

In addition, the editors’ felicitous preface, “New Keys to the World of Sound,” stands out, thanks to its detailed account of the current state of sound studies. Sound studies can, with good reason, be acknowledged as an emerging research field, and indeed the factors that identify disciplinary are clearly observable. The distinctly defined objects of scientific knowledge are sociological and historical considerations pertaining to the production of sound and the auditory sense. Despite its interdisciplinary and heterogeneous character, there is a cognitive-social entity within the research field; disciplinary coherence is assured by specialist books, scholarly correspondence, and individual meetings (e.g., at conferences) and by scientific networks like the European Sound Studies Association—which is, by the way, promoting an upcoming conference for 2014 entitled “Sound Studies: A Discipline?” There are specialized (online) journals (e.g., www.interferencejournal.com and <http://sonicstudies.org>), and since 2006 there has been a degree course (at the Berlin University of the Arts). That means that the reproducibility of the procedural knowledge is preexisting (though the Berlin program is only a postgraduate master’s course). The establishment of sound studies as a discipline can therefore be recognized as complete. Seen from this perspective, the publication of these essays in an Oxford Handbook is well timed to consolidate the coherence of the field.

The preface and the essays are well written; the translations into English and the editing are very good. The typeface and the layout are tidy and therefore reading is enjoyable. The pictures are of good quality except for the low-resolution photograph on page 489, which was obviously taken from the Internet. The PowerPoint slide on page 483 seems somewhat unimaginative. What I really don’t like is the link to the publisher’s companion website; the only things we can find here are further links to other websites—not really an added value.

But all things considered, *The Oxford Handbook of Sound Studies* has turned out well and is highly recommended for everyone who is concerned with this field of study.

VOLKER SMYREK

Edmund Russell. *Evolutionary History: Uniting History and Biology to Understand Life on Earth.*

xviii + 216 pp., illus., tables, index. Cambridge: Cambridge University Press, 2011. \$22.99 (paper).

In a 2008 Focus section in this very journal, Jane Maienschein, Manfred Laubichler, and Andrea Loettgers attempted to answer the question, “How Can History of Science Matter to Scientists?” (*Isis*, 2008, 99:341–349). In the work under review, Edmund Russell—a historian of technology and environmental history—attempts implicitly to answer the inverse question, How can science, and in particular evolutionary biology, matter to historians? Russell’s view is that knowledge of evolutionary biology can matter a great deal.

In this short and readable work, Russell makes a case for evolutionary history, “the field (or research program) that studies the ways populations of people and other species have shaped each other’s traits over time and the significance of those changes for people and other species” (p. 173). Explicitly, he points to the successes of fields such as evolutionary psychology, evolutionary economics, and Darwinian medicine as offering templates for the formation of the field of evolutionary history. He notes that there are three reasons why historians may reject his claim for the importance of evolution in their field: a lack of familiarity with evolution, a feeling that evolutionary biology is less important than other sciences to their work, and opposition for political or intellectual reasons (pp. 147–148). Russell successfully argues against all of these worries.

Russell makes five major claims. First, “evolution is ubiquitous.” Second, “people have shaped [the] evolution of species.” Third, anthropogenic evolution has shaped human history. Fourth, “human and non-human populations have co-evolved.” And, finally, a consideration of both history and biology allows for a fuller understanding of the past (p. 151). To establish the first four of these claims he provides a seven-chapter primer on evolutionary biology, most of which will be familiar to historians of the life sciences. Others are likely to find much of worth. Russell writes lucidly while covering topics such as natural selection, the effects of hunting and fishing, pathogen evolution, the importance of environmental change, (often accidental) domestication, directed breeding, and co-evolution. By the end of these chapters, most readers will be convinced by his claims.

The final claim is brought to life in a chapter in which Russell offers what he terms a “dramatic revision” (p. 151) of the Industrial Revolution. Provocatively, he challenges the claim that Englishmen initiated the Industrial Revolution and instead posits that they were responding to “innovation by Amerindians working in the New World”

(p. 105). These innovations, which resulted in modified cotton fibers, necessitated the mechanical innovations that occurred in England. The New World fibers were more suitable for spinning than the two Old World varieties and thus promoted the industrialization that occurred in Lancashire. Thus, the narrative shifts the spark of the revolution from inventors and machines to indigenous people shaping the evolution of cultivars. As Russell states, “some of the most important innovators in the Industrial Revolution were plants and long-dead Amerindians” (p. 127). I will leave it to others to judge his hypothesis (for such it is), but his claims are sure to provoke engagement by any historian willing to take seriously the potential of the biological sciences within history.

Russell correctly notes that it will be difficult for many historians to engage with the scientific literature. Since Ph.D. programs require students to be able to “understand the main arguments of a professional publication” in a second language, he suggests that a similar requirement for the mastery of “the language of science” is desirable. Indeed, given the choice between understandings of, for example, German or science, he claims that the latter would be “most useful for an evolutionary or environmental historian” (p. 169). Currently, few history of science programs require or encourage students to take coursework in the sciences, and Russell’s proposal will probably meet some resistance. Yet, as he notes, “we know embarrassingly little about the role of evolution within history” (p. 153), and such consideration offers fertile ground for future students. That said, I cannot help but feel that encouraging collaboration between biologists and historians is more likely to yield fruit in the short to medium term. For their part, biologists reading this work are likely to see nothing surprising in Russell’s claim that history needs more biology. Historians—particularly of the technological and environmental variety—are, on the other hand, certain to benefit from Russell’s engagement with biology.

JOHN M. LYNCH

K. Brad Wray. *Kuhn’s Evolutionary Social Epistemology*. xiii + 229 pp., figs., table, bibl., index. Cambridge: Cambridge University Press, 2011. \$95 (cloth).

In the first three decades of the twentieth century philosophers of science were chiefly concerned with logic and the philosophical analysis of language: science was regarded as paradigmatic of empirical knowledge and scientific language was correspondingly regarded as the characteristic element of any language purporting to describe the

world. In the second half of the century the concern of the philosophy of science shifted considerably, as it differentiated itself from the philosophy of language. It got increasingly interested in the dynamics of theories, in the change of scientific categories, and in the great intellectual revolutions, thus looking at the history of science as the acid test of rival methodologies. This fact is extremely significant, not only from the purely philosophical point of view but also from the wider cultural perspective. And while more than one philosopher contributed to this important shift of focus, Thomas Kuhn undoubtedly played a major role.

K. Brad Wray’s book is first and foremost concerned with Kuhn’s philosophy of science. Its aim is to show that *The Structure of Scientific Revolutions*, as well as Kuhn’s later works, offers a constructive and insightful framework for developing an epistemology of science. Most important, while at the same time defending Kuhn from a number of criticisms and misinterpretations, Wray undertakes to clarify the relationship between Kuhn’s views and recent work in sociology of science. Indeed, prior to the publication of *Structure*, sociologists of science studied the institutional structure of science and the relevance of external factors for the scientific enterprise; after *Structure* they shifted their task, examining how social factors affected the outcome of scientific disputes and the way in which they were resolved. And if most philosophers of science rejected this approach out of hand, deeming it an unwelcome intrusion into philosophy, Kuhn was regarded by many sociologists as a source of inspiration—his own efforts to distance himself from the more radical sociological approaches notwithstanding. Wray convincingly shows that Kuhn’s view differs from many of the sociological studies of science that claimed to have drawn inspiration from him and argues for a reconciliation: given Kuhn’s highlighting of research communities as the context for theory change, philosophers will either have to work with sociologists of science or else draw on research in the sociology of science. This, the author suggests, will enable philosophers to develop a richer descriptive account of scientific change.

Well written, clear, and carefully argued, *Kuhn’s Evolutionary Social Epistemology* will be most useful and insightful reading for all those interested in the relevance of Kuhn’s philosophy for science studies. And it has the merit of raising a number of interesting questions on the development of Kuhn’s philosophy, as well as calling for new readings of his works, especially the later and considerably less studied ones (even though other scholars, taking Kuhn’s developed view equally seriously, may come to very different conclusions).