

and straightforwardly. Indeed, in some ways it is presented rather too simply. While it is useful to be told about those who designed the artifices of the new monarchy, it is regrettable that so little attention is given here to the effectiveness of all these endeavors, to the processes they inspired, and to the reception they generated among members of the public—surely vastly different among different social groups and in geographically diverse areas of the country. There is, in fact, disappointingly little about the ceremonies themselves and precious little analysis of their ritual status. Furthermore, it seems to me at least that the undeniably important developments that form the subject of this book are not placed in an overall historical setting that takes in the important innovations of, say, a century earlier. Very little is said about them, and so the reader is bereft of a structured narrative of the development of the monarchy in the modern era. This makes it a little difficult to accept the novelty of the “democratic” thesis. Indeed, there is very little evidence of any democratic intent at all among the five major players on this royal stage. Furthermore, insofar as these royal experiments highlighted traditional, and even antique, social symbolism, they are a little difficult to square with the democratic thesis. Might not some, at least, of the material in this book support a thesis very different from the democratic argument presented here, namely, that these experiments in popular monarchy were pretty minimal, amounting to little more than necessary adaptation, and that they tended rather to limit and to discipline democracy rather than to enhance it?

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Victorian Science in Context. Edited by *Bernard Lightman*.

Chicago: University of Chicago Press, 1997. Pp. viii+489. \$70.00 (cloth); \$22.50 (paper).

Thomas Huxley brought to the task of extending the sway of science in Victorian society the same vigorous zeal that he deployed in defending the *Origin of Species*, where he earned the title “Darwin’s Bulldog.” Writing to Joseph Dalton Hooker (botanist at Kew), Huxley declared: “The English nation will not take science from above, so it must get it from below. We, the doctors, who know what is good for it, if we cannot get it to take pills, must administer our remedies par derriere” (p. 257). In his contribution to this exemplary collection of essays on Victorian science, Paul Fayer excavates this epistolary gem—excised, not surprisingly, from Huxley’s turn-of-the-century *Life and Letters*—and notes that it points to what might be called the “suppository theory of popular science education.” Scatological humor aside, the image—a passive body politic receiving, by hook or by crook, doses of efficacious science—goes a long way toward capturing a curiously pervasive way of thinking about the relationship between science and culture: science gives, culture takes. *Victorian Science in Context*, twenty essays that emerged from a conference held at York University in 1995, can be understood as a set of diverse and spirited refutations of Huxley’s infelicitous witticism.

Conference proceedings give academic editors headaches. The beady narrowness of most contributions, strung on weak threads of thematic unity, leads to books that should have been a special issue of a specialist journal. Bernard Lightman and those who helped him deserve high praise for having created not only an invaluable contribution to a very lively area in the history of science but also a model for how discrete and

detailed studies can be woven into a coherent volume. The essays in this book—spanning the psychological dimensions of economics to zoological nomenclature, science fiction to microscope illumination, scientific racism to the apodeictic quality of photographs—will be of value to all scholars working on the Victorian period, not merely historians, and certainly not merely historians of science. Perhaps more important, the breadth of the coverage, combined with the careful bibliographical essays that accompany each contribution, mean that *Victorian Science in Context* serves as a guide and gazetteer for much of the work done in the last twenty-five years on the history of science in the nineteenth century.

Three important questions drive the volume and hold it together. Part 1 takes on the most fundamental of these: What defined “science” in the Victorian period? At stake is the traditional assumption that science was from the start a self-patrolling community, one in which a set of clearly defined (and almost autochthonous) principles and persons established the boundary between what was science and what was not. The essays approach this issue in different ways. Alison Winter shows that surprisingly little distinguished the theories of two early Victorian physiologists, although their fates in the arena of London scientific society could not have been more different. The conclusion seems to be that careful management of social niceties and the maintenance of strategic alliances played key roles in defining orthodoxy and heterodoxy; the content of the theories themselves may have been of secondary importance. In another sally at the same issue, Martin Fichman reviews the complicated entanglements of Victorian politics and Darwinian evolution. He shows that Alfred Russell Wallace himself, who shares credit for the theory of evolution by natural selection, grew increasingly frustrated with the efforts of Huxley and others to confine the theory of evolution to an apolitical sphere. A socialist, Wallace (presaging the late twentieth-century critiques of Marxist-inspired science studies) objected to the ways that the seeming “neutrality” of the “scientific fact” of “survival of the fittest” worked to ratify an exploitative capitalism.

Part 2 turns to popular science writing to ask a new, if related, question: In a period traditionally characterized by scientific professionalization, what role did nonprofessional audiences play in defining science? The enormous volume of scientific books written for the Victorian public offer much material for reflection, and the authors in this section have dusted off some jaw-dropping oddments of Victorian popular scientific culture. More than curios, however, these works are here woven into accounts that reveal the inadequacy of the so-called trickle-down theory of popular science, in which the masses are thought to read the attenuated seepage of the higher vessel of real science. Lightman points to the simultaneous professional codification of science and writing and suggests that popular science writing in the period is best understood as a product of the conflict of these two communities over common turf. In perhaps the most surprising of these essays, Douglas Lorimer argues that the formation of a “scientific” racism in the latter part of the century relied on a process of selection from among popular categories and concepts. Rather than scientists offering the populace a new language for discussing race, scientific language itself drew on and reinforced popular terms. Fayter’s piece exploring three classic tropes in Victorian science fiction is a gem. While the evidence for high science taking its cues from tabloid science fiction is somewhat weak, the effort to show the permeability of real science and science fiction succeeds.

The final and longest section opens a vast question: In what ways were the practices of science situated in and responsive to broader cultural dynamics in the Victorian period? The different sites of scientific investigation come under scrutiny: Jane Camerini

compares the fieldwork of four prominent Victorian naturalists; Graeme Gooday takes up the experimentalist culture of the laboratory, examining how at times scientists reported their flubs and instrumental irregularities as validating material, whereas at other times such difficulties were suppressed in the record. The expansive category of “scientific practice” and the implicit challenge of the question—to show that the gritty doing of science itself does not stand apart from a cultural context—give rise to two of the best essays in the collection: James Moore’s investigation of Wallace’s “Malthusian moment” and Simon Schaffer’s latest exercise in weaving together diverse strands of Victorian culture. In vigorous prose, Moore sets forth—and solves—a choice puzzle: If reading Malthus made such a memorable impression on Darwin, just how did the same experience affect Wallace’s thinking on natural selection? The answer demands an improbable journey into surveying (Wallace’s early career), Celtic nationalism, and Papuan demographics. Schaffer’s piece on Victorian metrology—particularly the quest for suitable national standards for measurement—probes the elaborate (and bizarre) efforts to argue for the naturalness, historicity, and utility of particular incarnations of the imperial yard. Dramatizing that such efforts—which reached out to the pyramids of Egypt, the axis of the earth, and the spectrum of stellar hydrogen—were entangled with everything from the Ordnance Survey of Jerusalem to industrial manufacture to an elaborate natural theology, Schaffer produces a novel interpretation of the Victorian obsession with precision. In his reading, the cult of measurement represents an “invention of tradition” in Eric Hobsbawm’s sense.

In an important way, *Victorian Science in Context* represents an invention of tradition of its own. The title of the book offers a clue: this collection represents *contextualist* history of science. Lightman traces a detailed genealogy of this style in his introduction, but other authors—Moore, and a particularly helpful brief piece by Frank Turner—join in the task of sketching the contours of the historiography that have led to the kinds of densely embroidered studies of science and culture presented in this book. History of science as a discipline has staked much on what has come to be identifiable as a contextualist approach, the central premise of which lies in the rejection of the sort of “science vs. society” dichotomy betrayed by Huxley’s proctologic musings. A potential conundrum waits in the wings: historians of science—a community that distinguishes itself from other historians because it studies science—seem to have in mind undermining the very exceptionalism that defines their professional identities. The extreme edges of science studies stand to be admonished by the fate of other academic disciplines that jettisoned the objects of their investigations in the throws of theoretical *jouissance*.

This book is cause for optimism, not alarm. The upside of the contextualist approach is that nothing is ever simple. Therein, of course, lies a downside as well. The attempt to situate science in culture demands stories as complicated as culture itself. As the histories become both more complex and more detailed, the danger arises—and it is a danger Turner warns against—that a sort of disciplinary solipsism will result. The proof that this is not occurring will lie in the reception accorded to this text in a variety of cognate fields. In her essay on ordering nature, Barbara Gates asks her readers to consider the Victorian mania for science and then to let themselves be seized with a mania of their own, “a mania for the history of science” (p. 185). *Victorian Science in Context* is a good place to start.

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