

of how British male scientific practitioners navigated an unstable masculine ideal, which did not always square easily with the changing roles of scientific theorists and practitioners.

As the title hints, Ellis focuses much of the book around the British Association for the Advancement of Science (BAAS), which was founded in 1831. Ellis examines the changing structure of BAAS annual meetings, and the ways the meetings and their attendees were portrayed and discussed, both privately and publicly. For example, in Chapter 2, ‘The changing public image of the “man of science”, 1600–1830’, Ellis shows that the performance of gender was important for men in the BAAS, regardless of whether women were allowed to attend the scientific and social aspects of the meetings or not. Through attempts to reinvent the image of the ‘man of science’ and the BAAS, gender norms were also significant for men in relation to other men. Was the ‘true man of science’ a recluse, an aristocrat, an experimentalist, a gentleman or something else? Chapter 4 – “‘An effete world’: gendered criticism and the British Association’ – suggests that attempts to create an aristocratic atmosphere at the BAAS, for example by inviting women, evoked criticisms of theatricality and foppish self-display. The question of authenticity gained further traction through discussions on meritocracy and science.

Ellis makes an interesting observation, that because much of the present scholarship on the relationship between gender and science has focused on retrieving forgotten and marginalized voices, primarily female, there has been less attention devoted to examinations of how gender norms affected men and their scientific practice. The reason for this is fairly obvious, of course, as historians of science, technology and medicine generally left the practice of writing internalist hagiographies of the white, rich male ‘geniuses’ in the previous century. Yet, as Ellis rightly points out, this does not mean that studying masculinity and science is outdated. In fact, by exploring how there was no set and easily defined masculine way of embodying scientific practice, Ellis illustrates that gender and science were both unstable categories entangled in a continuous renegotiation throughout the nineteenth century.

However, this is not as novel an argument as it is made to be. For a work on gender and science, this book suffers from a surprising lack of engagement with the historiography on masculinity and science, as well as on nineteenth-century science more generally. This is particularly clear in Chapter 5, ‘Thomas Carlyle, the X-Club and the hero as man of science’, where Ellis puts the spotlight on the Red Lions and their role in developing the friendship circles of men who would later be known as the X-Club. This and the following chapter would have benefited from an engagement with books such as Ursula DeYoung’s biography of John Tyndall, *A Vision of Modern Science* (2011), and Bernard Lightman’s *Victorian Popularizers of Science* (2007), which both detail Huxley and Tyndall’s fascination with Thomas Carlyle. Some engagement with the *Osiris* special issue on *Scientific Masculinities* (2015) edited by Erika L. Milam and Robert A. Nye, and in particular the article by Michael Reidy, ‘Mountaineering, masculinity, and the male body in mid-Victorian Britain’, would also have expanded and strengthened Ellis’s otherwise interesting arguments. Although there are parts of *Masculinity and Science in Britain, 1831–1918* which *BJHS* readers are sure to find interesting, well written and clear in argumentation, the book does not fully deliver on its promise of providing the first in-depth study of British scientific masculinity in the nineteenth century.

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JANET BROWNE (ed.), *The Quotable Darwin*. Princeton, NJ and Oxford: Princeton University Press, 2018. Pp. xxix + 348. ISBN 978-0-691-16935-4. \$24.95 (hardcover).
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The Quotable Darwin is the latest installment of a series that includes *The Quotable Feynman* (2015), *The Quotable Jung* (2015) and *The Quotable Kierkegaard* (2013), among others.

Drawing from his writings and correspondence with friends and family, as well as his notebooks, Janet Browne arranges Darwin under forty-seven headings, including several potentially controversial topics ('Race', 'Intellect', 'Human society'). Despite Darwin's central position within the history-of-science curriculum, this is the first collection of this kind to offer a quick and seamless route to Darwin's most important comments and observations. Spanning approximately fifty years, the selections provide insights into Darwin's youth, marriage and home life, political views, experimental work, and efforts to clarify and retain control of the theory of natural selection.

Darwin's notebooks have long been a key source of insight into his work and also a favourite of students meeting Darwin's writing for the first time. The resulting effect of Browne's selection and arrangement of materials closely resembles Darwin's notebooks, providing a reading experience wherein Darwin's ideas are met as flashes of insight (or bias, depending on the topic at hand). Darwin was a careful and cautious writer, and his most famous works are products of compilation. The varieties of evidence Darwin employed and the value it holds for his readers are of crucial significance, but at the same time Darwin's corpus poses a daunting and formidable challenge to the reader hoping to gain some insight into Darwin's beliefs. Like many natural historians of his time, Darwin compiled cases and evidence from a wide variety of sources (correspondence with pigeon breeders, agricultural magazines, physiological textbooks, travel writing) and organized this material to illustrate and support his ideas. Browne's work has condensed Darwin's labour into a series of key observations, coloured here and there with moments of biography, wit and doubt. Consider Darwin's interest in pigeons. His writings on the topic are, in a word, lengthy. Chapter 6 of the first volume of *The Variation of Animals and Plants under Domestication* (1868) continues the discussion of pigeons that Darwin began in Chapter 5. Browne's edit includes a section dedicated to pigeons, where we gain a series of concise perspectives onto thirteen years of research and writing. Even with the availability of Darwin's work online, this volume provides a speed of insight into Darwin's thinking that cannot be matched by the search bar. While the evidence and cases that Darwin discusses are crucial to understanding his ideas, in many ways Browne has provided not a 'quotable' Darwin but an extremely concise edit of his works.

Browne's selection also reflects key debates over Darwin. In 1860, the Scottish writer Patrick Matthew claimed that he had discovered the principle of natural selection before Darwin in his book on naval timber (1831). Browne includes Darwin's defense that he had no prior knowledge of or acquaintance with Matthew's work (p. 92). Browne also includes Darwin's resistance to comparisons drawn between his views and those of Lamarck (pp. 90–96). Perhaps most interesting is Browne's decision to include a number of passages praising the views of his cousin, Francis Galton, on heredity, intelligence and marriage. Many historians of Darwin have worked to delineate and perhaps even distance Darwin from the claims of Galton, often based on their eventual disagreement over pangenesis. In this collection Darwin's sympathy and interest in Galton's work reappear at key moments, inviting readers to reflect on the connections between Darwin's work and the rise of eugenics.

Of particular interest is Part Four, which deals with Darwin's writing on mankind. Browne has condensed and concentrated Darwin's writings on race, society and women into thirty-four pages that provide ample insight into what might be better referred to as the un-quotable Darwin. Here, we find the Darwin who believed that the law of natural selection would determine the fates of nations and races, the Darwin who worried that vaccination would weaken the stock of the human race by preserving the weak, and the Darwin who viewed the widespread extinction of non-European peoples as an inevitable consequence of natural law. For historians of Darwin, these views are familiar features of the intellectual landscape of his day. But for those less acquainted with Darwin's writings, they make for challenging and disappointing reading. This section of the book reminds us that Darwin lived a long life, and that like many other white abolitionists his hatred of slavery did not extend to a belief in the equality of humanity.

Surprisingly, Browne's preface offers no guide to navigating this chapter. Readers are left to make of it what they will. While the aim of the book is to present Darwin in his own words, the volume would benefit from further discussion of some of these larger historiographical questions in the preface. Readers aren't provided with any context for Darwin's views on race or empire, but are told that 'his personality shines out from his words' (p. xvi). Darwin's personality by no means shines at every moment in this collection: his largest failings (from a contemporary perspective) are on full display. While Browne includes Darwin's own complaints on being misquoted and misunderstood (p. 209) and closes the book on a key misattribution (p. 306), the history of the places and roles that Darwin's ideas have enjoyed is left untouched.

This book provides further testament to Browne's thorough and painstaking knowledge of Darwin's life and works, and provides an ideal reference source for those new to Darwin and also readers already intimately familiar with his writing. As Darwin's works become increasingly available online, curated presentations of his ideas and beliefs become all the more valuable. There is no sign that people will soon cease to quote (and misquote) Darwin, and this collection delivers a key aid in reflecting on and studying his written work.

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OLIVIER DARRIGOL, *Atoms, Mechanics, and Probability: Ludwig Boltzmann's Statistico-Mechanical Writings – An Exegesis*. Oxford: Oxford University Press, 2018. Pp. xxvi + 612. ISBN 978-0-19-881617-1. £45.00 (hardcover).
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Olivier Darrigol's exegesis of Boltzmann's statistico-mechanical writings is an exceptional piece of work. Boltzmann is generally well known as the father of much of statistical mechanics, a proponent of atoms and a victim of suicide, but his work itself is less known, probably due to its density and difficulty. Darrigol compares it to 'a huge, dense forest, with little light, abundant bushes, rare clearings, and no well-marked trails' (p. v). The purpose of this book is to grant access to this forest and its riches, while, at the same time, correcting misconceptions. For instance, 'although most Boltzmann scholars know better, they still tend to overemphasize Boltzmann's molecular statistics; they frequently miss his true endeavours; and they keep asking questions that Boltzmann had reasons not to ask' (p. vi). What makes an exegesis like this necessary is the fact 'that the essence of Boltzmann's approach to physical theory is found precisely in the lengthy and seemingly obsolete or unnecessary developments that have been systematically neglected' by readers (p. vi). Darrigol's corrective response to this neglect is to take the reader through the primary documents chronologically, examining and explaining Boltzmann's work in detail as it played out. The results are revealing and rewarding.

This is not a book for the general reader. Familiarity with mathematical physics is presupposed, but this is simply a requirement of the type of deep and extensive study this is. Darrigol strikes a balance between modern mathematical notation and that of Boltzmann's day in a form that is rationalized and consistent throughout; it is an elegant solution that feels seamless. There are also moments where he refers to modern techniques in order to summarize or explain what were more cumbersome operations at certain points in Boltzmann's work given the mathematical tools of the time.

The exegesis itself takes the reader through Boltzmann's work on a cluster of topics related to heat, gases and statistical approaches from 1866 to Boltzmann's more widely read *Lectures on Gas Theory* of 1896 and 1898. Darrigol breaks this work up into chronological eras, beginning with 'Constructing thermal equilibrium (1866–1871)', and followed by 'The Boltzmann equation and the H theorem (1872–1875)', 'The probabilistic turn (1876–1884)', 'The analogical turn (1884–1887)', 'Consolidation (1887–1895)', 'The critical turn (1895–1899)', and finally