

**MARK S. MORRISSON, *MODERNISM, SCIENCE, AND TECHNOLOGY* (LONDON AND NEW YORK: BLOOMSBURY, 2017) ISBN 978-1-4742-3342-2 (PB) £21.99 [LENA WÄNGGREN]**

*Modernism, Science, and Technology* by Mark S. Morrisson is an engaging read, and a fine addition to the already existing work in the area of literature, science, and technology. While the field of literature and science is well established, with academic conferences, societies and journals based on the subject, technology in literary studies is often seen as a less valued add-on, the material or applied aspect of science. It is therefore great to see a focus on technological as well as scientific changes in Morrisson's account of early twentieth-century literature and society.

Surveying the scientific and technological contexts of modernist writers such as Gertrude Stein, James Joyce, Virginia Woolf, and D. H. Lawrence, the book reflects on the ways in which literature engages with and responds to paradigm shifts and developments in scientific research as well as technological changes. Following the first chapter, which brings together literary studies of modernism with science studies, the book is structured around different scientific fields: the physical sciences and mathematics (chapter 2), the life sciences (chapter 3), the social sciences (chapter 4), and 'pseudosciences' (chapter 5). The chapters are followed by a coda and a brief (three pages) glossary of key terms from science studies.

The first chapter introduces the main themes of the book, and provides both a broad chronology of literary engagements with scientific and technological changes, and an introduction to key concepts of the fields of science studies, history of science, and science and technology studies. As Morrisson lays out, the rapid modernisation of the early twentieth century in Britain and the USA, '[w]hether causing apocalyptic dread or inspiring futuristic excitement' (2), was technological and scientific. It was the time of the automobile, airplane, mass cinema, X-ray machine, and so on. Indeed, Morrisson argues, many of the developments that marked a growing modernist consciousness 'were precisely these rapidly paced technological and scientific changes' (2). This introductory chapter highlights the technophilic modernism of Futurists such as F. T. Marinetti, who embraced the fast-paced technological changes of the time, while also including the more ambiguous stance of Ezra Pound's Vorticist version of modernism. Despite their different modernisms, Morrisson asserts, Marinetti and Pound were both part of a 'scientific and technological modernism' (7).

In his overview of the fields included in literature and science studies (science studies, history of science, and science and technology studies), Morrisson talks the reader through concepts such as Thomas Kuhn's 'paradigm shift' and 'scientific revolution', Wiebe Bijker's 'technological frame', and Bruno Latour's actor-network theory. Despite the inclusion of technology in the discussion, it is the relation between literature and *science* that takes centre stage. For instance, the introductory first chapter (entitled 'Modernist culture, modernist science') while containing technological changes still emphasises scientific developments. Morrisson borrows the term 'technoscience' to denote the artificiality of the distinction between science and technology in the book, arguing that 'neither practice can be adequately contemplated in the absence of the other. [...] Only technological artefacts allow the sciences to construe natural objects scientifically, and this inscribes the objects that science describes' (Clarke and Rossini qtd in Morrisson, 23). Technoscience also denotes the intermingling of concepts and concerns among the sciences and other cultural fields, the inextricable relations of science and technology to society as a whole.

In his consideration of the shared engagements of modernism and the sciences, Morrisson highlights literary tropes, themes, and metaphors used by scientists, inventors and authors alike. For example, in his consideration of the physical sciences and mathematics, Morrisson points to James Joyce's engagements with the 'new physics' of relativity and splitting atoms. The same chapter also maps out the tropes and images of alchemy used by scientific researchers of radioactivity as well as by pulp fiction writers and modernists. Similarly, the chapter on the life sciences (which include e.g. biology and medicine) shows how new reproductive technologies were imagined in popular magazine fiction of the 1920s, while the chapter on the social sciences (which include e.g. psychology and sexology) views the 'shared cultural field[s]' of sexologists such as Havelock Ellis and authors such as E. M. Forster in their explorations of homosexuality. Rather than formulating literature and science as two separated cultures, Morrisson throughout the book emphasises their shared concerns, imagery, and frameworks.

Despite the mention of Wells on the book cover, the founder of the 'scientific romance' is not given much space: there are only four mentions of Wells in the book. The exclusion of Wells can be understood in the book's focus on literary modernism – a tradition not commonly associated with Wells – but considering Wells's mention on the cover this omission is still a slight disappointment to the reviewer. In the chapter on physical sciences and

mathematics, the time traveller's trip to the distant future in Wells's novel *The Time Machine* (1895) is read through Victorian understandings of thermodynamics of entropy. Victorian scientists' prediction of the sun's energy loss and ultimate heat death is mirrored in the abandoned cold earth Wells describes (44-6). In the same chapter Wells is mentioned (but not more) as one of many authors influenced by research on the spatial fourth dimension (50). The chapter on the social sciences contains a mention of Wells's fictional account of nuclear bombs in *The World Set Free* (1914) as both influenced by and influencing scientific research (133). However, these are the only engagements with Wells's writings in *Modernism, Science, and Technology*. Explorations of the many other scientific and technological imaginings of Wells, such as the vivisection of *The Island of Doctor Moreau* (1896) or the imagined technological futures of his utopian writings, must be found elsewhere.

The book is marketed as a guide to both students and researchers, and it is indeed more of a guide or survey of the field. While the book includes a discussion of potential new directions for literature and science as a whole, Morrisson does not present particular new findings of his own. His book is an excellent guide to the field of literature and science, not only charting engagements within the field of literature and science as a whole, but also mapping out recurring terms and concepts, as well as presenting a wide-ranging exploration of modernism's engagements with scientific and technological contexts. Of great use to Wells scholars is that Morrisson not only engages with the scientific and technological shifts of the early twentieth century; he also provides backgrounds which cover Victorian understandings of science. *Modernism, Science, and Technology* is thus an incredibly useful book not only for modernist scholars, but for researchers and students of nineteenth- and twentieth-century literature more broadly.

**PATRICK PARRINDER, *UTOPIAN LITERATURE AND SCIENCE: FROM THE SCIENTIFIC REVOLUTION TO BRAVE NEW WORLD AND BEYOND* (BASINGSTOKE: PALGRAVE MACMILLAN, 2015) ISBN 978-1-137-45677-9 (HB) £55.00 [MAXIM SHADURSKI]**

*Utopian Literature and Science: From the Scientific Revolution to Brave New World and Beyond* is Patrick Parrinder's third monograph-length study in which the legacies of H. G. Wells feature prominently. Whereas *H. G. Wells* (1970) and *Shadows of the Future: H. G. Wells, Science Fiction,*