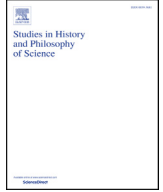




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Essay Review

What (good) is cultural history for history of science today? Perspectives, challenges, concerns

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A Companion to the history of science, Edited Bernard Lightman (Ed.). John Wiley & Sons and Blackwell, Chichester (2016). xvi + 601 pp. ISBN-13: 978-1-118-62077-9. £120.00 (hardback)

Given the unprecedented speed and depth of the transformation apparent in current developments and research trends in the history of science in the last three decades, the moment has undoubtedly come to map them anew. It can be no coincidence that a similar ambition has given rise to several such undertakings in recent years if we think of the volumes of the Cambridge History of Science edited by Ronald Numbers and David Lindberg, and the Oxford Companion by John Heilbron or the recent *Histoire des sciences et des savoirs* (Daston and Park, 2006; Roy Porter, 1999, Heilbron, 2003; Pestre, 2015). However, this Companion chooses to reject the chronological and geographical organisation adopted by those volumes; it stands out as original for providing an entirely thematic overview of thirty years of research. Encyclopaedic in scope, the book has deep sociological, spatial, and material roots. It charts research themes in detail with contributions from the finest scholars in the field, mostly native anglophone writers. It traces some promising avenues of research that challenge the cultural turn that gave birth to a new history of science thirty years ago. The present essay on this intimidating and stimulating monument of historiography does not spring from nowhere; it reflects the perspective of a French cultural historian of science of the early modern period. As an example of intelligent, innovative, reflexive, and always critical social and cultural history of science, the volume charts out fresh historiographical territories with great originality and imagination, inviting us to take its perspectives seriously. In this article, therefore, I would like to acknowledge the impressive collaborative work in this volume by giving a comprehensive overview of its academic research, while also pointing out some concerns.

1. Writing history of sciences today: poetics of scientific modernity

By choosing to proceed through many short narratives, this multi-authored work refuses to endorse the structures of scientific

revolution. As others have noted, broad overviews long tended to take the triumph or dominance and prestige of physics and mathematics in the twentieth century as their starting point, adopting these two disciplines as their paradigmatic core in order to create a great unifying narrative. In order to break with the intellectualist or idealist vision of the philosophical history of science that had been dominant among epistemological philosophers, historians who were more interested in experimental cultures and observational science tried to show how these approaches marked a dividing line between traditional (mainly Aristotelian) science and modern science. Their implicit hierarchy of disciplines and objects of science reflected the organisation of legitimate scientific fields in the twentieth century, creating a distinct category for mathematics, physics, astronomy, the life sciences and medicine. The invention of modern Science with a capital S among professionals, where Science had high cultural prestige, is said to have occurred in the nineteenth century and this book implicitly adopts this moment as its centre of gravity, although it includes significant passages on the early modern and mediaeval periods. To reinforce the grand narrative of scientific revolution, some historians of science fostered an approach to “scientific theories” that was buttressed by disciplinary genealogies (mainly mathematics, astronomy, physics, biology and medicine), while others tried to produce an archaeology of forms of scientific rationality (Alder, 2013). The latter retained the importance accorded to norms and method in breaking with more spontaneous practices of producing knowledge. Objectivity, quantification, observation, and experimentation appear as the pillars of the “scientific method” of modern science. This book does not challenge either the category of scientific disciplines as the core of its investigation or the imposition of boundaries separating them from those other disciplines that are regarded as less scientific. A comparison with other fields of knowledge requiring scientific rigour, such as law or geography, might have been productive – for example, historians have long noted that astronomy and natural history show similarities with ancient history and archaeology. Such blurring of categories facilitates an intellectual flexibility that is not bound to rigid definitions and which should be made explicit and theorised as a method of questioning science. Approaches to literary fiction and visual culture are similarly more complex than those dealing in “literature” or the “arts”, which appear as ahistorical categories (or solely

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contemporary from the nineteenth century). Meanwhile the relations between the natural and human sciences, such as anthropology, deserve more systematic attention (issues of terrain aside) in order to better situate problems of race.

Turning its back on an intellectual or disciplinary history of science, this Companion offers an overview based on an analysis of the practices and forms of scientific activity. The opening two chapters by Bernard Lightman and Lynn K. Nyhart introduce a collection of essays by some thirty scholars. While presenting itself as a continuation of both the eight volumes of the *Cambridge History of Science* edited by Lindberg and Numbers and the Companion to the *History of Science* published by Routledge in 1990 and edited by Olby, Cantor, Christie and Hodge, the present book recognises the considerable change in historiography since then. These introductions indicate that science is presented here as an activity that is at once work and cultural practice, ideal and material, and is not confined to the western world. The aim is thus to use these multiple points of entry and the overall structure of the book as a framework for a social and cultural history of science: “the science we depict is deeply embedded in its surrounding culture (even when scientists and spokesmen for science have argued otherwise)—yet that culture itself is typically not closed, but instead in constant exchange with the other cultures, feeding the wellsprings of scientific innovation, power, and conflict” (p. 17). The introductory chapter plays a crucial role in recasting cultural history of science in the aftermath of the American culturalist turn, placing into question certain conceits and naïve assumptions, rethinking discursive approaches, and adumbrating links between the cultural and the social that neither stifle cultural autonomy nor obliterate social reality (Bonnell and Hunt, 1999). Nyhart strategically insists on four different moves that structure the whole volume: “Constructing Scientific Knowledge, Socially”; “Doing Scientific Things with Scientific Things: Practice and Materiality”; “Moving Knowledge Around: Communication and Circulation”; “Scaling History of Science”.

The investigation of practices, places and the relations between science and societies goes some way to challenging the periodisation based on major figures inherited from the history of ideas. Writing history from below most of the time involves drawing on many short narratives and case studies, to the point where the field seems polarised between the grand narratives laid out in history textbooks and the tendency towards a cabinet of curiosities comprised of “exciting” cases. The historian of Chinese science Carla Nappi warns us of the consequences of case studies: “Historians have placed increasing emphasis on local case studies as a path toward a more polyvocal and encompassing narrative of science in global history. The logic of this seems to be that an agglomeration of these individual points should give us a more comprehensive history that respects local difference while weaving together individual stories into a common, global plot” (Nappi, 2013). In order to avoid the cabinet of curiosities, Bernard Lightman is also very clear about the nature and the scope of each chapter which should “be synthetic, mid-scale studies rather than microstudies” (p. 2). The debate seems confined to a question of narrative scale, while the omnipresence of scholarly storytelling goes unchallenged. The strategy is to stress the power of stories to offer counter-realities and a counter-narrative rather than to reject the charms of stories themselves. The first globalisation of science brought constraints that were quickly thrown off in the nineteenth century and more still in the twentieth, when science became global due to the internationalisation of discussions, practices, norms and standards, and through the establishment of a global governance of science by international institutions. In the last century science asserted its global nature still further through the development of fields such as ecology and climate science. The

planet became an object of scientific investigation and argument. As scientific approaches to the Earth system separated into independent disciplines, global expertise became a matter of dispute. The more modest approach of this multi-authored Companion has avoided both revolutionary rhetoric and grand globalised gestures. The modernity of the history of science had a twin function. It was both a periodisation with the scientific revolution as its centre of gravity (thus a specific periodisation describing a cycle between the Renaissance and the Enlightenment) and a value (modernity drew on a normative, positive definition of science as progress). This representation is now in crisis. The latter function has been strongly attacked by post-modern and post-colonial theory, while the former is losing its function for historical orientation through the trend towards fragmentation and excessive dilation. What kind of revolution lasts several centuries? The short stories on offer here are the antidote to any return of the grand traditionalist narrative of the now-globalised scientific revolution. While this book’s centre of gravity remains the invention of modern science in the nineteenth century, this is not unanimously accepted by scholars and some of the contributors, such as Peter Dear, have written elsewhere on the specificity of early modern science (Dear, 2012). There have been many attempts to nuance the periodisation, and historiographic frameworks have been reshaped by explorations of *classical science* (Blay and Halleux, 1998) and *baroque science* (Ofer & Chen-Morris, 2012) or drawing on the Iberian historiographic paradigm (Pimentel & Pardo-Tomas, 2017). The absence here of any discussion of these different paradigms and historiographic approaches is symptomatic of a desire to retain the unity of the history of science in terms of its questions and method linked to the anglophone academic world.

2. The primacy of roles: a sociological perspective

From the outset the reader is struck by the attention paid to the actors of science, both human and non-human (instruments, collections etc.). How is this sociology of actors to be conducted? In Part I of the book the contributors use the category of social roles to study scientific practices from Antiquity to the present day. This is a significant choice, positive in its exclusion of other approaches and negative in confining the description to a network of concepts that is not always well suited to the analysis of practices (Hicks & Stapleford, 2016).

The notion of roles has a long history in sociology and relates to the idea that society is made up of interactions between positions that have been or are yet to be constructed. It can be linked to a sociology of the rules defining a repertoire of cultural models or to an attitude, a social representation, or even a posture. The definition of the role is thus dynamic (in the theatrical sense of the word), since a role must be taken on; it is not imposed or inherited. The term has served as a pillar of Mertonian sociology. It can lead to conflict through the desire to stabilise roles and turn them into status. In recent decades the concept of persona has found favour with many historians of science seeking to establish the archetypal representations available to a savant in any given period, and historians have often been torn between the categories of vocation and profession in describing an exceptional scientist. The sociology of social roles avoids the vague category of the persona and its timeless dimension. For the architects of this book, scientific work gave rise to a division of labour, hierarchisation and specialisation. This represents a move away from the two more traditional approaches, one celebrating genius through biographies (Galileo, Newton, Einstein), the other a more anonymous view of the scientific worker so dear to the sociology of science. Part I of this book adopts an approach of scientific singularity by considering the different social roles that have made up the persona of the savant

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