and, partly because they were under their influence, also the Americans, who came to register significantly in mathematics only in the 1890s but then made up for lost time rather speedily.

Left rather isolated are the first two pieces, which treat aspects of the early non-common algebras, first in the hands of French mathematicians and philosophers from around 1770, and then with British mathematicians (especially the pioneer work by Babbage and John Herschel in the 1810s) up to mid-century. However, the later story is omitted, and, moreover, in silence. But why not treat, for example, Boole in the 1840s helping to launch formal logic with an algebra that was created heavily under the influence of the calculus of differential operators – one of the first non-common algebras to be developed? Again, where do we site the central place of algebra in analytical (meaning algebraic) mechanics already with Lagrange by the 1770s and elaborated in the nineteenth century by Hamilton and various successors? The editors confine their own introduction to a nice summary of each of the following articles but pass over other territory without comment. Thus, while their volume is an important contribution to the history of the development of modern algebra, the location of this subject within mathematics as a whole needs further exegesis.

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The Victorian Eye is a rich history full of previously understudied spaces, objects and connections. These range from the history of reading glasses to the organization of visual space in libraries, from the arrangement of lighting in the home to the use of electrical switches within it, from the banking practices of the social classes that adopted these systems to the manners required of inspectors. All of these topics are drawn together in an innovative exploration of the role played by liberal government in the creation of a networked, technological society.

Chris Otter has a lot of negative things to say in *The Victorian Eye*. He dislikes the two dominant tropes of most work on visual culture – surveillance and spectacle – which he finds 'largely useless' (p. 254). He equally disparages the pervasive focus on other elements associated with those tropes, such as the panopticon and the *flâneur*, discipline and capital, coercion and seduction. He identifies the obsession pertaining to the first of these themes as commencing with Michel Foucault and that pertaining to the second as due to the influence of Walter Benjamin (he does not mention Guy Debord). Otter's reason for moving beyond these 'monolithic abstractions' (p. 21) is a conviction that they rarely appear as concrete concerns for the historical actors involved, and are not in any case actual actors' categories of the time and period he studies: 'hardly anybody wanted floodlights, nobody built panopticons, and flâneurs were almost entirely absent' (pp. 7–8). (It does not matter to him that neither Foucault nor Benjamin were interested in analysing actors' categories.) With regard to most other secondary literature he argues that almost all that has been written before on this topic should have really been 'more dialectical and contested' (p. 28), 'more complex' (p. 49), 'more multiple' (p. 61), 'more multilayered' (p. 77) and 'more variegated, nuanced, and eclectic' (p. 213).

The Victorian Eye is also not concerned with epistemological questions about technology, science and culture. Otter maintains that his sources are 'far removed from epistemological debates' (p. 155). In contrast to some historians of science, such as Peter Galison, concerned with connecting material culture with philosophical debates, Otter makes the strong claim that the myriad practices surrounding artificial illumination 'bore practically no relation to contemporaneous arguments' on the nature of light or the ether. The history of standardization (particularly

of the unit of light) occupies an important place in the book, but his focus is not on the philo-sophical questions concerning calibration, replication and ontology (think of Harry Collins and Hasok Chang), nor does he attempt a comprehensive history elucidating the sociopolitical implications of standards, such as has been done for the ohm (Simon Schaffer) or the metre (Ken Alder).

So once we follow Otter and eschew dominant themes and much pre-existing historiography, what is left? Otter wants to stay clear of such overarching concepts, and only because 'the historian must be prepared to make generalizations' (p. 255) does he cautiously offer us alter-natives. The most important of these is the theme of the 'oligoptic', a term that he borrows from Bruno Latour, referring to a 'multiplicity of connected spaces' (p. 73). The oligoptic, according to Otter, is the better description of Victorian visual culture.

The 'politics' in Otter's subtitle, *A Political History of Light and Vision in Britain, 1800–1910*, is based on a broad view of the term as the means through which bodily practices of perception and the material systems around them arise from specific relations of power. In contrast to older work in history of technology (he targets Thomas Hughes), Otter does not see politics as merely facilitating or hampering technological growth. Privacy and freedom from large technological systems are not the result of 'politics "getting in the way" of technology' but actually issue from a liberal form of governance that is always already suspicious of totalizing, controlling systems (p. 251).

Methodologically, Otter draws inspiration from the posthuman studies of Latour that find agency not only in humans but also in objects. He does not attempt to adhere strictly to actor-network theory ('One does not need actor-network theory to see how inseparable technology and society had become', p. 262), but his interest in moving beyond human-centred accounts permeates his project. For example, he rejects previous labels which appear to be 'too human-istic'. While late nineteenth-century Britain has frequently been described as 'the age of the inspector', he prefers to call it 'the age of inspectability', finding this latter category to be 'more symmetrical', by being more inclusive of material elements and their networks (p. 132). Otter is most original when he does not focus on answering the traditional who, how and when questions behind the history of artificial illumination, but instead studies processes of 'agglom-eration, accessibility, legibility, portability' (p. 109) – categories reminiscent of those of im-mutability, scale, flatness, reproduction, recombination and so on used by Latour to sidestep otherwise human cognitive explanations.

The narrative is extremely effective when it asks why: why did we create these noisy, smelly, expensive, dirty and high-maintenance networks without which we can no longer survive? The book offers some wonderful detail (Otter even tells us of arguments that electric light 'allegedly stiffened the stools' (p. 207) of those under its illumination). And at times it draws creatively from the work of Alain Corbin on the history of the senses, Maurice Merleau-Ponty on the embodi-ment of observation, and Henri Lefebvre on the social construction of space. In leaving the focus on surveillance and spectacle aside, the breadth of topics of historical interest increases drama-tically. In this regard, *The Victorian Eye* should be commended for its originality and ambition.

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In 1818, Michael Faraday, then in his late twenties, formed a self-improvement group with four of his male friends. Aiming to improve their writing, they agreed to meet once every two months,