As a related but equally over-simplistic contrast, literary analysts place authors at the focus of interest, whereas historians of science pursue the routes taken by knowledge as it travels unpredictably through space and time, mapping its movements by investigating the afterlives of texts. Because Lynall is committed to examining Swift's role as a commentator on his own times, he picks texts apart in fine detail but largely excludes consideration of imitations, responses or later editions. A rare exception is his only reproduction of a Swiftian illustration, a 1754 image of the Laputan royal court, but he reads it as a direct representation of Swift's original intentions, first expressed in print almost thirty years earlier.

An extremely thorough and well-informed piece of scholarship, Lynall's book places priority on discussing how contemporary knowledge affected Swift's work rather than on any reciprocal part Swift may have played in shaping science. The secondary bibliography is peppered with articles by eminent historians of science whose names are familiar, yet are here enlisted to underpin a complementary process of interpretation. When they set about mining the rich resource of Swift's *oeuvre*, they mostly began by identifying themes relevant to scientific culture, and then illustrated the development and implications of each one by plundering such treasure troves as *Gulliver's Travels* and *The Battel of the Books*. Lynall has approached this topic from the opposite direction, structuring *Swift and Science* by Swift's works, and drawing in contextual details to amplify a fixed text. By adopting this strategy, he has created an excellent close reading of Swift that elaborates the cultural references pervading his publications in the early eighteenth century, but has little to say about Swift's long-term impact.

The Swift described by Lynall parodies the follies of experimental science in order to forge a rhetorical weapon for debates about establishing public authority. He deploys satire to challenge all human claims to ultimate truth, but sometimes becomes unwittingly trapped by that belief's illogical inconsistency: if you are suspicious of any appeal to universality, explains Lynall, then you cannot legitimately call on common sense as a benchmark. In five substantial chapters, Lynall relates individual Swiftian texts to five main scientific figures of the period: Robert Boyle, Thomas Burnet, Richard Bentley, Isaac Newton and Samuel Clarke. Unsurprisingly, he pays greatest attention to Newton, suggesting that as a close friend of his niece Catherine Barton, Swift had immediate access to household gossip. On the other hand, Newton's influence in this early part of the century was less hegemonic than Lynall assumes. Although he recognizes that the publication of a book does not necessarily mean that its ideas are immediately accepted or even understood, he is – like many other scholars – so swayed by knowledge of Newton's future domination that he overestimates its power during his lifetime.

For any researcher fascinated by Swift and his circle, Lynall has provided an indispensable guide to Britain's most penetrating satirical commentator on science, politics and religion – a worthy predecessor of Gillray, albeit in a different medium.

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Claudine Cohen, **La méthode du Zadig: La trace, le fossile, la preuve**. Paris: Editions de Seuil, 2011. Pp. 342. ISBN 978-2-02040-298-9. €23.00 (paperback).
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The history of palaeontology and prehistoric archaeology is an area which is seeing some timely expansion. Claudine Cohen, the author of numerous excellent works in these areas, has here produced a wide-ranging book which cuts across the philosophy and history of the deep-time sciences, providing methodological and conceptual orientation for the field along with a series of provocative and interesting case studies. Opening with certain questions: 'How can we know the prehistoric past of nature and man? How can we reconstruct 'lost worlds' and the development of extinct lineages?' (p. 11), Cohen uses the 'method of Zadig' of the title as the central organizing

principle. This relates to the story taken from Voltaire, of a Mesopotamian hermit-sage who was able to deduce the passage and physical features of the Babylonian royal family's lost dog and horse solely from their tracks. This imaginative reconstruction of an organism from its traces and fragments is taken as the prime model of palaeontological work – an example presaged by both Georges Cuvier and Thomas Henry Huxley, who themselves highlighted the Zadig story in this sense (albeit with different emphases).

This connection of literary and philosophical references with the changing methods of scientific knowledge carries across Cohen's highly stimulating account. Cohen makes a strong persistent case characterizing palaeontological sciences in particular, and 'historical sciences' like geology, archaeology and prehistory more generally, in these terms: in addition to tying themselves to changing understandings of scientific laws and processes, they require conjecture, intuition and creativity to uncover, interpret and relate various historical 'traces' of ancient life, development and environment. In this way, both an imaginative artistic sense and claims to scientific authority have moved in tandem in these fields across the ages. To trace these processes, the book follows three sets of vignette-like case studies drawn from the eighteenth century to the present day. The first (and most original) is on the history of palaeoichnology, the study of fossil trackways and footprints, moving through chapters on the nineteenth-century American naturalist Edward Hitchcock, the history of research on invertebrate and vertebrate trackways, and hominid and human foot- and handprints. The second section examines anatomical, phylogenetic and genetic reconstructions largely within the history of palaeontology, and the third deals with questions of authenticity and methods of knowing, focusing on palaeoanthropology and prehistoric archaeology. This presents an elegant thematic structure, linking consistent themes across a long duration to investigate the wide range of methods and types of evidence used by the deep-time sciences. This is supported throughout with lively examples and anecdotes, and (particularly noteworthy) fantastic illustrations, with numerous photographs, colour and line drawings and tables – something essential given the topics at hand.

With the range and variety of these case studies, there is, of course, bound to be some unevenness. The deeper, more focused chapters tend to be the most effective. Particularly strong is the chapter on phylogenetic patterns, which opens with a discussion of historical interpretations of equine evolution before broadening into a rich account of the tensions within arrangements of the 'tree of life', through the varied attempts to reconcile overarching theories and hypotheses, understood developmental laws and principles, and the often gap-filled fossil record. Meanwhile, in the broader chapters, there is sometimes the impression that rather too much is being brought in than can be dealt with in the space provided. One notable example is Chapter 4 on anatomical reconstructions, which moves through Cuvier, Owen and Darwin's reconstructive methods, the Cambrian fauna, high-tech imaging, and Charles R. Knight and Zdeněk Burian's palaeoart, in a slightly dizzying thirty pages. The examples are all thought-provoking, but the reader could not help but feel that focusing on fewer would have made the points more strongly.

The case studies themselves include the well known (the Crystal Palace dinosaurs, the Moulin-Quignon affair and the Piltdown controversy all feature) and the more novel. The former are certainly put in a new light through their connection with the book's core argument, while the latter open up interesting new areas for research. The highlight is the first chapter, on 'Hitchcock's birds' (pun surely intended), which raises fascinating issues concerning the relations between scientific and religious interpretations in the early nineteenth-century United States. Given that Edward Hitchcock's discoveries of dinosaur footprints in New England (and interpretation of them as a series of gigantic extinct bird species) are widely cited in more popular palaeontological works, but his activity falls within a period which has been relatively neglected in the more specialist historiography, this is a highly valuable account. Similar things could be said about the discussion of 'traceology' and experimental techniques in Soviet prehistoric archaeology in the

twentieth century. This touches on an area which is almost completely unresearched in the history of the modern human sciences, and is here presented as having tremendous impact on archaeological understandings of humanity.

Given that a large portion of this book focuses on debates in Britain and the United States (also connected with French, Russian and, to a lesser extent, German developments), this would be of wide interest to anglophone scholars, and it is to be strongly hoped that a translation appears in the next few years. The book's wide range and methodological insights are reasons to recommend it highly, and suggest that it would repay several rereadings. The diversity of material and largely non-chronological structure mean that readers already familiar with the history of palaeontology and prehistoric archaeology will greatly enjoy the juxtaposition of canonical and little-studied episodes, although those approaching the subject for the first time may need a textbook on hand. However, this would certainly be of benefit, as there is material for a wide range of possible readers here – not only historians of the deep-time sciences, but also those interested in the interplay of art and science, criteria of evidence, and changes in scientific knowledge across the modern period.

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Frank A.J.L. James, **Michael Faraday: A Very Short Introduction**. Oxford: Oxford University Press, 2010. Pp. xvi + 162. ISBN 978-0-19-957431-5. £7.99 (paperback).

Frank A.J.L. James (ed.), **Michael Faraday. The Chemical History of a Candle**. Oxford: Oxford University Press, 2011. Pp. xlviii + 152. ISBN 978-0-19-969491-4. £14.99 (hardback).
doi:10.1017/S0007087413000083

Oxford University Press's admirable Very Short Introduction series currently has something in the region of two hundred titles. Of those, about forty or so are devoted to famous intellectual figures. Of those great thinkers, five might be described as men (no women, of course) of science. Michael Faraday's addition to the list is quite a coup, therefore. He has been elevated to a highly select pantheon that, at the time of writing this review at any rate, does not yet even include Einstein. The choice is in some respects an odd one. Faraday nowadays tends to get thought the great experimenter rather than a theorist – a hands-on rather than an ideas man. That, however, is quite certainly not how he would have described himself, nor is it a distinction that many of his contemporaries would have drawn. As far as Faraday was concerned, thinking and doing were intimately intertwined.

As James emphasizes, this is not a conventional biography. It would certainly be a tall order to produce a fully contextualized account of Faraday's life and career, and of his place in the world of Victorian natural philosophy, in this short a space. Instead, James focuses on particular aspects of Faraday, producing a series of pen portraits of his life in science. The chapters are largely chronological in order, but James makes good use of the various stages of Faraday's career to highlight particular aspects of his science. James devotes a significant portion of his chapter on 'Science and practice', for example, to a discussion of Faraday's work on lighthouses for Trinity House. Uncontroversially, he devotes chapters to Faraday's work on electricity (and the interconvertibility of forces more generally) and on magnetism (and the origins of field theory). More novel, maybe, for the volume's primary audience, are the chapters on Faraday as a celebrity and on Faraday's twentieth-century reputation.

During Faraday's own lifetime, of course, that reputation rested, to a large extent, on the name he had established for himself as a public scientific performer and purveyor of the latest scientific knowledge to the upper classes. James's edition of Faraday's *Chemical History of a Candle* demonstrates Faraday's painstakingly acquired mastery of those arts. Faraday spent considerable effort thoughout his career as an active man of science thinking about the art of