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## Vestiges of the History of 'Popular Science'

By Jonathan R. Topham

Robert Chambers, *Vestiges of the Natural History of Creation and Other Evolutionary Writings*, ed. James A. Secord.

Chicago: University of Chicago Press. 1994. Pp. xlviii, vi, 390, viii, 254. US\$ 19.95 PB.

The title of Robert Chambers' anonymous evolutionary work, *Vestiges of the natural history of creation*, has long been familiar to even the most casual readers of the history of evolutionary theorising. From as early as 1861—when Charles Darwin first appended his 'historical sketch of the recent progress of opinion on the origin of species' to the third edition of his own more famous work on the subject—down to the present time, no history of what Loren Eiseley called 'evolution and the men who discovered it' has been complete without a discussion of this book. Yet as Eiseley's rather unfortunate phrase makes particularly clear, such histories of evolution are historiographically problematic. Indeed, it has become increasingly common over recent years to question altogether the value of 'evolution' as an object of historical study for any period before the middle of the nineteenth century, when the word began to acquire its familiar modern sense (viz., the origin of animal and plant species by a process of development from other forms). The great danger of evolution historiography is that it can unwittingly lead to teleological, present-centred history—more subtly so, perhaps, than in Eiseley's case, but nonetheless carrying the implication that Darwin's theory of natural selection (if not the modern evolutionary synthesis) was always out there, waiting to be 'discovered'.

Yet, if we are to relinquish the kind of evolution historiography that has been central to much scholarship and pedagogy in the history of science, what are we to substitute in its place? Jonathan Hodge, in an important article for the *Companion to the history of modern science*, argues that we should adopt instead a historiography of 'origins' and 'species'. Clearly this has much to recommend it: as Hodge points out, it involves working 'with words and therefore issues that the people saw themselves working with at the time, at any time at least since the middle of the last millennium BC'. Yet such a history is still arguably structured by present-centred concerns in the form of the historian's desire for a grand narrative connecting enterprises that might very properly be disconnected. Perhaps the only recourse, then, is to begin our history on a smaller scale, and to attempt to identify the perspectives from which *Vestiges* appeared significant to contemporaries.

In this regard, one need go no further than James Secord's admirable introduction to the present edition of *Vestiges*. There he asserts, what has already been broached elsewhere, that *Vestiges* was of central importance in introducing 'a developmental cosmology based on natural law to the English-speaking world'. In naturalising the progressivist doctrines of reformist middle-class entrepreneurs, and in secularising the nomological theology of nature espoused by the gentlemen of science, the 'Vestigian' was drawing on two of the great ideological traditions of early nineteenth-century Britain. It is now beyond question that the resulting book very materially altered both traditions, and stands centre-stage in both histories.

Secord secondly draws attention to the centrality of *Vestiges* in a new, 'much broader and more interesting history' replacing 'the received history of theories of species origins during the past two centuries'. By eschewing the schema oriented towards Darwin and natural selection, according to which *Vestiges* was simply 'an amateurish "forerunner"', Secord suggests that it is possible to construct an account of the history of theorising about species origins that is not present-centred, and in which *Vestiges* has 'a position of central importance'.

The third history in which Secord considers *Vestiges* to be important, is that of the origin and development of an authoritative scientific establishment during the course of the nineteenth century. This is a theme that has been touched upon by a number of authors, most notably, and at greatest length, in a ground-breaking paper by Richard Yeo. Yeo's argument is

that *Vestiges* marked a significant moment in the creation of modern science, when the status of the fledgling scientists was being jeopardised by an outsider who had directed his alternative science, over their heads, to a mass public. The story is now, in outline at least, beginning to become familiar. With the development of a mass readership in the first half of the nineteenth century, promoted both by the increased literacy born of expanding elementary education, and by the cheaper books made possible through the mechanisation of printing, the newly-emerging breed of specialist scientists found the task of policing their intellectual territory against the vocal attacks of opponents outside the scientific establishment increasingly difficult. Faced not only with the atheist firebrand, Richard Carlile, calling upon them in rabble-rousing street literature 'to stand forward and vindicate the truth [viz., atheist materialism] from the foul grasp and persecution of religion', but also with the reformist Edinburgh lawyer, George Combe, naturalising and scientising social reform and progress at 1s. 6d. a time in his *Constitution of man*, the scientific elite sought ways of defending their carefully-crafted knowledge from the pundits of both the 'blasphemous and seditious press' and the mass-circulation press more generally. Thus, as J. B. Morrell and Arnold Thackray have shown, the British Association for the Advancement of Science was born, in part, out of a desire to enforce the science of the gentlemanly elite among a far wider audience. In my own work on the *Bridgewater Treatises*, I have sought to show that both the gentlemanly authors, and the educationalists who appropriated their works, were interested in using such works—written for an audience far wider than the scientific elite—to police their own carefully-constructed versions of 'safe' science. In this context, the radically progressivist science of *Vestiges*, glaringly at odds with the ideology and mores of the gentlemen of science, and very successfully directed at a mass readership, was bound to raise hackles. And, as both Yeo and John Brooke have shown, the nascent class of scientists devoted their energies to finding effective strategies that would enable them to neutralise the threat to their authority.

While all three of the histories in which Secord conceives *Vestiges* as playing an important part are as yet somewhat fragmentary, it is clear that the last of the three is the one that requires most attention. In particular, the history of popular science publishing in the nineteenth century—in which *Vestiges* plays so central a part—and of all that that entails in terms of the establishment of the hegemony of modern science, is frankly rudimentary. This is a deficiency that Secord himself is currently addressing, as is indicated in his introduction by a footnote reference to his forthcoming book on the *Vestiges* controversy, provisionally entitled *Evolution for the people: popular publishing and scientific practice in Victorian Britain*. But revolutionary as his account promises to be, the previous neglect of this area is sufficient warrant for some more general comments on the theme in this review. Indeed, that neglect has been so profound, that it is presently difficult to do more than to raise a series of questions and areas of concern for scholarly attention. Only when a number of studies have been carried out in which such questions are taken seriously, can we begin to answer them in a more general way. Thus, what follows is by way of prolegomena to a future history.

One of the most pressing areas requiring attention from historians is the agency of the publishers themselves in the development of popular science publishing, and therefore of popular science writing, in the course of the nineteenth century. That the production and codification of new genres of 'popular science' was an active process in which publishers played a vital role, is a proposition that ought to require no proof. Nevertheless, a half-considered presumption still prevails among historians that the development of mass-readership science books was a simple result of changes in literacy, printing technology, and authorial intentions. Given the newly literate urban masses, the steam press, and the desire of increasingly specialised scientific practitioners to establish their authority as widely as possible, the development of mass-circulation science books between 1825 and 1850 was, according to this presumption, inevitable. Yet the evidence is that most of the established publishing houses of the period studiously ignored the potential new mass-market for books, continuing to rely instead on the select gentlemanly market for small editions of expensive books, and on the library market, where institutional purchasers like Mudie's circulating library could take a large

proportion of an expensive edition in a single order. The development of the library market thus, of course, represents an important distinction between mass-readership and mass-market. More important here, however, is the point that those who served the mass-market for science books—largely new-comers to the book-trade like W. & R. Chambers—did not do so as a matter of course, but took active steps to cultivate that market, and consciously formulated new kinds of books in order to do so.

In view of the place that *Vestiges* occupies in the history of the genre of popular science, it is perhaps unsurprising, then, that the book's anonymous author should have been one of the foremost among the 'publishers for the people' in the new age of the mass-market for books. Indeed, the spectacular success, not only of *Vestiges*, but of the Chambers' publishing business, suggests that Robert Chambers had a highly developed sense of the rapidly-changing market for books, and for science books in particular. He clearly possessed a tremendous stock of knowledge concerning the nature of mid-nineteenth-century reading audiences—knowledge which is, in general, not only unfamiliar to historians of science, but neither sought after nor valued by them. Yet it is precisely this knowledge that historians of science require if they are to address the pressing questions about the development of modern specialist science to its place of ultimate authority during these years.

As soon as one attempts to move beyond the general statement that publishers have played a central role in defining the shifting genres of popular science writing, to more specific questions about the actual role of publishers, it becomes clear that historians have, as yet, only scratched the surface. What did early Victorian publishers believe about the market for particular kinds of scientific book? How many copies of a given type of book did they expect to be able to sell? What kind of price did they expect to be able to charge? More fundamentally still, what were the norms to which authors' manuscripts had to conform, if they were to be accepted for publication? Only by answering these apparently simple, but remarkably obstinate questions can the historian hope to put *Vestiges* in context, as regards the changing relationship between the newly-emergent scientific experts and a wider audience increasingly being cast as lay consumers of science. It is worth noting that these are the kinds of questions that have begun to be addressed over recent decades by literary historians, and it was clearly no less the case for scientists than for writers of fiction that the commercial realities of the publishing trade—the decisions made by publishers about what was viable and profitable—constrained and defined what appeared in print.

Part of the problem is certainly that the historical materials appear unpromising. For a start, publishers have generally tended to remain relatively anonymous. The small number of autobiographies by, and 'lives and letters' of Victorian publishers is, when compared to those of scientists or writers, extremely discouraging. There are also few extant statements by nineteenth-century publishers concerning the nature of their commercial decisions, due partly, perhaps, to the time pressures of business life, but also to the commercially sensitive nature of the subject matter. One is forced instead to rely on the correspondence between authors and publishers, and such correspondence is often made difficult to analyse by virtue of the posturing of the parties attempting to strike a better deal. Indeed, on a purely pragmatic level, correspondence with publishers was often precisely that which scientists or their literary executors were inclined to discard, or, at the very least, to exclude from published memoirs. Furthermore, faced with the task of piecing together publishers' lists, analysing their output, or—more laborious still—their ledgers, most historians of science have fought shy. Yet it is only by this kind of exercise that one can begin to recover the publishers' perspectives on such books as *Vestiges*, and on popular science books more generally.

A second area requiring particular attention relates to the *actual* state of the market for popular science books in the course of the nineteenth century, as opposed to publishers' assessments of that market. Here again the questions are not only intractable, but largely unasked. How many potential readers for different kinds of science books were there? How much could they afford to spend? It will perhaps be startling, for instance, to discover from Secord's introduction, that *Vestiges* sold only 11,000 copies in the half-crown 'people's edition',

which was over a thousand copies fewer than in the variously-priced gentlemen's editions. Yet we know so little about the sales of similarly priced popular science books, that it is difficult to interpret these figures. Moreover, it is not only the *numbers* of readers for different types of popular science books that require attention, but, more crucially, the apparently imponderable questions concerning readers' motivations and their responses to their reading experience. It is important here to distinguish between 'popular science' as the product of various kinds of self-conscious popularisers, and the actual beliefs and practices about nature of those who read such works (what Steven Shapin has called 'ethno-science'). For, while it would be historically naive to suppose that the readers of books carrying the authority of an increasingly powerful scientific establishment were not subject to discursive dominance, it is nonetheless the case that readers read such works actively, creating their own meanings, sometimes in resistance to the authority of apologists for establishment science. Thus, while recovering the interests and readings of the consumers of popular science writing is intensely problematic at both pragmatic and historiographical levels, this exercise is fundamental to understanding how scientific hegemony was achieved in Britain during the middle years of the nineteenth century. Indeed, it takes us to the heart of the question raised here concerning the manner in which *Vestiges* constituted a threat to that developing hegemony of the scientific establishment.

A third area—and I deliberately leave this until last, for it is clearly the area that appeals most readily to historians of science—concerns the authors of popular science books. Yet even here, while a number of valuable studies have demonstrated the nature of the various projects in which writers of such books, Chambers included, were engaged, there are still many unanswered questions. What implications did popular science writing have for the reputation of a scientific practitioner? What kind of remuneration could an author expect to receive? To what extent was popular science writing important in financially maintaining the newly emergent scientific specialists at a time when professional posts were still very few in number? In addition, there is a whole class of popular science writers whose motives have been below scrutiny—hack writers like Ebenezer Cobham Brewer, whose *Guide to the scientific knowledge of things familiar* is reputed to have sold 319,000 copies between 1841 and 1905. Only when the conditions of authorship for these writers have been addressed does it become possible to place the authorship of more familiar authors, Chambers included, in its proper context.

More than the few words remaining to me ought to be said about the present admirable edition of *Vestiges*. It seems particularly appropriate, however, that I should pass comment on the place of this edition within the *modern* book-trade. For, considering the importance of *Vestiges* for research and teaching on the role of science in Victorian culture, it has been a subject of no small regret that the book has been unavailable for purchase by penurious students and scholars for a number of years. The economics of the trade in antiquarian science books are now such that, even if one were able to locate one of the Victorian editions of *Vestiges*, it is unlikely that any but the most interested would find the price warrantable. As a graduate student in the mid-1980s I scoured the bookshops instead for a second-hand copy of the 1969 Leicester University Press reprint. The present edition, while assuredly not a 'people's edition', has nonetheless done Chambers proud in making his book available at a modest, thankfully paperback price, which means it can be purchased by all interested readers, and not just by libraries (I had almost said 'Mudie's'). I have no doubt that the book will have a good sale, and it is devoutly to be hoped that its success, and the likely success of a number of valuable paperback reprints issued in recent years, will encourage publishers to sell larger editions at cheaper prices—and where better to start, as most of the great Victorian price-cutters did, than with reprints?

But this edition is much more than a reprint. For a start, it does not simply republish the text of *Vestiges*, but includes what the title-page rather underplays as 'other evolutionary writings'. The first of these is Chambers' *Explanations*, republished here for the first time—at least in Britain (Secord notes that it was included in some of the early American editions of *Vestiges*)—since 1846. This, Chambers' riposte to his scientific critics, constitutes a very

significant contribution to the *Vestiges* controversy, and it will provide useful pedagogic material for those teaching about the dynamics of the contest for authority in mid-Victorian Britain. The second of the 'other writings' is a remarkable piece of Chambers juvenilia—his first attempt to construct a cosmology, with the title 'Vindication of the world and of providence'.

This extraordinary Tory apology for the *status quo* in nature and society—difficult to credit as the product of the same pen that wrote *Vestiges*—appeared in 1822, in the short-lived satirical periodical, *The Kaleidoscope*, which was edited and largely written by Chambers. As such, it presents an attractive illustration of the circuitous route by which Chambers came to his mature views. Two further useful inclusions in this edition are the autobiographical preface to the heavily revised tenth edition of *Vestiges* (1853), which constitutes Chambers' most detailed account of how he came to write the book, and Chambers' three published responses to Darwin's *Origin of species*, helpfully drawn together from disparate sources.

Finally, the scholarly apparatus of this edition requires comment. I have already referred to the excellent introduction, which will doubtless serve to introduce many students to the key themes raised by *Vestiges*, as well as redirecting the attention of many more mature scholars. In addition, the edition contains, in a series of appendixes, a summary of the revisions to the different editions of *Vestiges* and *Explanations*, details of the American, Dutch and German editions, and a list of 111 English-language reviews of, and other published responses to, the two works. This is also, the first edition of *Vestiges* to possess an index, with the sole exception of the limited index of the 12th edition of 1884.

In conclusion, then, the abandonment of the old evolution historiography, in which *Vestiges* had at best a minor part, by no means reduces the book's significance. On the contrary, it has led to the development of other, more contextual histories in which *Vestiges* has a central place. In this review it has been my purpose to draw attention to one of the most important, and least satisfactorily told of these new accounts—that of the developing relationship between an increasingly powerful scientific elite and an increasingly dominated lay public, worked out to a large extent through the medium of popular science publishing. That the place of *Vestiges* in this history has received attention from James Secord, not only in his splendid introduction to this edition, but more particularly in his forthcoming monograph, is consequently a source of very considerable satisfaction.