

Reordering the Revolution in the Age of Enlightenment

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This essay is intended to summarize some of the ways that the plethora of knowledge spawned in the period of the Scientific Revolution was classified—pigeon holed secularly, personally and politically—in the period familiarly known as the Age of Reason or the Age of Enlightenment. I think this is timely because a number of books have recently been published which examine the encyclopaedic projects of the eighteenth-century—Richard Yeo’s book on scientific dictionaries, Philipp Blom on the French *Encyclopedié*, and to a lesser extent a range of new books that reevaluate the achievements of the enlightenment. While I will present some original material, my paper is also a statement of the “state of the art”; an historiographic survey of the scholarship that looks at the publishing enterprise and its hold on new knowledge. So I begin with something I read a few years ago.

Brian Harrison, the editor of the *New Dictionary of National Biography*, reflected on the categorisation of ‘life patterns’ and listed twenty-two distinct types, including careers that were ‘snuffed out’, ‘interrupted’, ‘unplanned’, or ‘facilitative’; those who had ‘head-start’ careers—like the rich who enjoy hereditary privileges—‘late changers’, into which honoured or disgraced politicians usually fall, ‘child prodigy’, and ‘late developers’, such as Lord Melbourne (if being ‘developed’ only means becoming prime minister at fifty-five, after being an MP off and on for the previous twenty-eight years); careers can be ‘variegated’ or ‘heroic failures’; those without careers are ‘privitized’—presumably those aristocrats who are too compla-

cent to take advantage of their ‘head-start’.² I did not notice an ‘opportunist’ career, though perhaps George Smith, whose interest in publishing an English version of the *Biographie universelle* seeded the growth of the original *DNB*, would fall into that category.

Pigeon-holing people is a knack one acquires as a commissioning editor, whose job includes identifying experts in a particular field who are informed enough to write an entry for the publication. This is a skill that editors of dictionaries and encyclopaedias have had in common since the early nineteenth-century, when farming out tasks to specialists was considered especially necessary as knowledge was seen to be growing exponentially and its cultivators were becoming professionalised, leading to the late-nineteenth-century rise of the ‘expert’ who, as Nicholas Murray Butler allegedly said, knows more and more about less and less.

It was Macvey Napier’s job as editor of the multi-volume *Supplement* to the fifth edition of the *Encyclopaedia Britannica* (eventually published in six volumes between 1815-24) to commission eminent authorities, a.k.a. ‘big names’, to amend previous errors and update the articles with the very latest knowledge in the arts and sciences. As a lawyer and man of letters, his own name was big enough, he felt, for him to pen numerous entries on law, philosophy, history, and many biographical entries. The latter category was something to which Thomas Young, the natural philosopher who worked on theories of light, colour, and helped decipher the Rosetta Stone, also specialised in offering to the *Supplement*, becoming the ‘solo voice’ on scientific biography. The *Supplement* seems to have been published at a transitional moment in the history of biographical dictionaries, scientific reference works, and encyclopaedias, attempting to use the expertise of its contributors as a guarantee of the publication’s authority, while leaving the editor with the hope that the material provided would be accessible and comprehensible to a broad readership.

In the days just before the specialisation of the reference genre, leading to dedicated biographical dictionaries that would—in

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² *New Dictionary of National Biography Newsletter*, 6 (June 2001), 1-2.

one branch—lead to the *New DNB*, some subtle, underlying tensions of the encyclopaedic project were beginning to emerge. Issues of who was the best authority to write on an area cropped up, and various contributors tried to direct the scope and boundaries of the work—to forge ‘patterns’ in the systems of knowledge being represented, and encourage attention to particular types of knowledge according to their own preferences. Editorial, authorial, expert, and general skills began to rub up against each other, begging questions about the aims, intentions, and utility of works that try to simplify, maybe unify, increasingly intricate fields of knowledge. For an editor in the nineteenth century, it was an ambitious, if not an opportunist, career choice. Peddling information in discrete units, bound together alphabetically, secularly, knowing that the production of knowledge moves faster than even what the printing press could keep up with, necessitating a potentially commercially viable set of *Supplements*.

It seemed much simpler in the eighteenth century, when the projects upon which later supplements would be built were originally contrived and pursued under the banner of enlightenment collection and classification of knowledge. This was when the distinctions between encyclopaedias, scientific dictionaries and biographical dictionaries were not yet drawn. The type of work that we today refer to as encyclopaedias derived from smaller dictionaries of arts and sciences where enlightenment spokesmen spelled out their early achievements to realise the Baconian programme for the advancement of natural knowledge and did so by embodying the ideal of an open, public communication of knowledge.

In the eighteenth century, as Samuel Johnson declared, knowledge was of two kinds. ‘We know a subject ourselves, or we know where we can find information upon it.’³ This, of course, was a view expressed by one of the most famous ‘compilers’ in what might be considered the first ‘age of compilation’, when every gentleman and a few gentlewomen kept a commonplace book—that resource of anecdote and ‘promptuary’—allowing many wits to appear endlessly witty since their need for a good memory was sup-

planted, so long as one remembered where to look for their stock of adages and quips. Commonplace books were an exercise in classifying knowledge, settling upon appropriate headings under which passages from books, quotations, trivia, and sundry information would be grouped. But as the collection increased, the classification system fragmented, making the management of the whole difficult and access to (and the usefulness of) its contents cumbersome. This is why they are relevant to the history of encyclopaedias, and a number of people have pointed out the debt that Chambers’ *Cyclopaedia* owed to the model of commonplace books, noting that the major encyclopaedias of the Enlightenment sought a compromise between systematic and alphabetical arrangement.⁴ This approach served two ends. Not only was it secular, governed by a categorical structure that did not purport to reflect divine groupings, but encyclopaedias, like well-conceived commonplace books, would allow readers ‘to recollect what they formerly knew’ (in the words of a contemporary reviewer).⁵ It seems that, unlike the humble Lady Charlotte Bury (companion to Princess Charlotte), who in 1811 strolled along the rows of books in the British Museum and ‘devoured with greedy eyes the outside of the volumes and wished – oh! how vainly – that their contents were stored in my brain’, many gentlemen liked to think that their brains *were* filled with all that knowledge, and reference works were merely indices to each one’s genius.⁶

Here emerges a paradoxical point about the usefulness of eighteenth-century dictionaries and encyclopaedias: they were tools for the trained. Like commonplace books, it was not only the case that one needed to remember where to look for lost information, but one needed to know what to look for. As Gwen Raverat, Charles Darwin’s granddaughter, complained, ‘You can have no idea, if you

³ James Boswell, *Life of Samuel Johnson* (Oxford, 1904), 18 April 1775.

⁴ Richard Yeo, *Encyclopaedic Visions: Scientific Dictionaries and Enlightenment Culture* (Cambridge: Cambridge University Press, 2001), 114.

⁵ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 116.

⁶ Lady Charlotte Bury, *The Diary of a Lady in Waiting*, edited by A. Francis Stuart (London: John Lane, 1908), i, 29.

have not tried, how difficult it is to find out anything whatever from an encyclopaedia, unless you know all about it already'.⁷

In fact a number of intriguing paradoxes emerge when 'encyclopaedic visions' are translated into publishing projects: that encyclopaedias were designed to abridge and condense what was revered as expansive and universal knowledge; that they celebrated and illustrated 'useful' knowledge in an age growing concerned with industrial espionage and the protection of trade secrets; they promoted vernacular and open access to information in a period notable for passing copyright laws; that their aim was to provide systematic, lasting value despite the problem that the forms of knowledge they review were continually changing; that an encyclopaedia represented types of knowledge but itself became a *typos*, a 'model' of knowledge, capturing a turn away from medieval compendiums such as the *Speculum Maius* (ca. 1250)—something regarded as a 'mirror' of nature and divine order—towards a secular circle of knowledge, a 'course of education' in the liberal arts and sciences that gathered up all the latest accumulated knowledge in attempt to restore lost knowledge and record humanity's industry and progress.

A 'modern' course of education involved more than book reading, and Renaissance encyclopaedism recognised that the representation of knowledge could also take the form of museums, cabinets of curiosity, gardens, and libraries, and the work of Paula Findlen, Chandra Mukurji, Emma Spary and others pursues this point.

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Into whatever organisational form knowledge was pigeonholed, the increasing stock of it was growing in leaps and bounds throughout the eighteenth century, necessitating more garden or cabinet space, and more volumes of dictionaries. Everywhere one looked, and encouraged others to look, more was being discovered. Travelling naturalists were finding new insects, fossils, and fauna. Circumnavigators were discovering new territories and tribes—further fuel for harbin-

gers of hope that light was dawning and the long reign of delusion, deceit and maybe even death was coming to an end. One prospect was of boundless knowledge, lending weight to Enlightenment catchwords that dominated social and economic thought, such as 'growth', 'progress' and 'perfectability'. Such conceptions of a universal expanse of knowledge instilled a dizziness in some paralleling the fright that the likes of Blaise Pascal felt when contemplating the possibility of an infinite universe.

Some order needed to be imposed on the mass of new materials and ideas. Dictionaries of arts and sciences were one means of imposing control. As Richard Yeo writes in his book *Encyclopaedic Visions*, 'these works can be seen as responses to what contemporaries perceived as a knowledge explosion, witnessed in the rapid multiplication of books and the pace of discovery in geographical exploration and in the physical sciences.'⁸ It was the job of the dictionaries to provide an abridgement – bite-size accounts – of this growing stock of knowledge. Even this task, however, laid the course for another paradox in the history of encyclopaedias. While the encyclopaedic vision of the period was one of containment, the sheer growth in the production of knowledge necessitated a rapid growth in the containment field.⁹ Thus, throughout the eighteenth and into the nineteenth century, dictionaries and encyclopaedias grew into multi-volume works in attempt to control the 'crisis of the multitude of books' that created an apparent demand for the summaries.

'Apparent demand' is a legitimate way to assess the phenomena of books being published in answer to the problem of books being published. By the seventeenth century, many scholars believed that the growth of books had reached a crisis point, and some contemporaries were left somewhat bewildered by the suggestion that more books could help control the flood of printed ideas. 'How is it possible to understand the whole universe?', wondered a French commentator in 1643.

All the books that are made treat only some of the imaginable topics; what could we read that would treat absolutely

⁷ Quoted in Yeo, *Encyclopaedic Visions*, op. cit. note 3, 27.

⁸ Yeo, *Encyclopaedic Visions*, op. cit. note 3, xiii.

⁹ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 77.

everything? In addition, these big volumes that our century has published to instruct us frighten most minds, not only because it is impossible to carry them, but because their length makes us dread reading them.¹⁰

This could be read as a prescient concern; something that could have made him (had he had visions of the coming age of encyclopaedias) begin to panic in the way librarians began to do about a hundred years on – by which time the Bibliothèque du Roi was stocked with nearly 180,000 volumes. But while this may have represented a formidable stock of knowledge to the eighteenth-century mind (or eye), it hardly represented accessible knowledge. This of course was the issue driving French *philosophes* to produce an *Encyclopédie* – making knowledge available for a curious, if allegedly forgetful, public.

But as the *Encyclopédie* was an idea ostensibly borrowed from Ephraim Chambers' 1728 *Cyclopaedia*, first edition published in 2 volumes, we should examine what lay behind Chambers' motivations and intentions in preparing the *Cyclopaedia*. This might uncover less-familiar projects that could be seen as part of a more familiar Enlightenment ideology. Relative to the culture of the Republic of Letters, Chambers was not advocating radical political change, but was critical of the privileged control of knowledge by academies sponsored by absolute monarchs, and private libraries.

For those in Britain who perhaps did not know what 180,000 volumes of bond knowledge looked like, or who were not members of exclusive societies and privy to their discussions, the *Cyclopaedia* offered a supplementary public service. In doing so, however, its promoters were aware of the political status and statements that its public offerings might carry.

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A project dealing with such expansive circles of knowledge runs the risk of spiralling back into itself, becoming yet another type of the types of knowledge that the apparatus seeks to define. Did anyone in

the eighteenth century wonder when an encyclopaedia of encyclopaedias would be published? There is a tendency toward reflexivity in encyclopaedic visions, such as when one finds an entry titled 'Encyclopaedia' inside an encyclopaedia. Diderot figured that that was the best way to explain their purpose and uses (and who better to know?, but who would know to look?), and in his own entry of that title he likened encyclopaedias to sanctuaries of knowledge, where the records of progressive knowledge would be most useful 'immediately in the wake of some catastrophe so great as to suspend the progress of knowledge, interrupt the labours of craftsmen, and plunge a portion of our hemisphere into darkness once again', he said. No need to reinvent the wheel since, somewhat ironically, the product of a revolution in thought and knowledge would provide 'protect[ion] from time and from revolutions'.¹¹ From another point of view, encyclopaedias could be seen more like shrines than sanctuaries; or perhaps as trophies of heroism, icons of national greatness left for posterity, perpetuating the record of accomplishment of their contributors.

There is a degree to which the 'nationality' of an encyclopaedia betrays its claims to represent 'universal' forms of knowledge. Despite declarations within eighteenth-century scientific dictionaries and encyclopaedias that they were authored 'By a Society of Gentlemen' (as were different editions of Harris's *Dictionary*) or a 'Société de Gens de Lettres' (as was the *Encyclopédie*) – implying collaboration amongst citizens of the pan-European 'Republic of Letters', in reality, as Dena Goodman points out, they were sometimes authored and published by only one or two people. And like most publishing endeavours, they were produced with a sense of rivalry; an eye cast toward the competition, diminishing the very universality toward which they ostensibly aspired. The rivalry and variability of representing new knowledge is evidenced in particular instances that prove the rule, where editors adopted new methods of organising entries based on others' styles. As Yeo writes, when the successor to the *Encyclopédie*, the *Encyclopédie Méthodique*, in

¹⁰ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 87.

¹¹ Quoted in Yeo, *Encyclopaedic Visions*, op. cit. note 3, 86.

1782 had its entries arranged alphabetically, ‘some supporters of Chambers said that this vindicated his method of presenting scientific knowledge as entries on terms, rather than as extended articles’.¹² The key words here which, I think, need further analysis are ‘supporters’ and ‘his method’: what are the implications for such personalised control over the reproduction of knowledge?

Such issues reverberate to the level of national pride. The *Encyclopaedia Britannica*, after all, came to be regarded as an emblem of the British Empire: in the early nineteenth century it was spoken of as the “national Encyclopaedia” and seen as a carrier of British values to the colonies.¹³ Such projects fall within a tradition of nation building through the development of displays of knowledge not unlike the work involved in establishing museums, where the appropriation of the classical past (capturing marbled pillars of antiquity) and commercial future (controlling colonies and trade routes) come together, side by side as artefacts on display and sold as relics, or articles on topics historical or ‘useful’, such as navigation, botany, or brewing.

And like travellers plundering ancient lands for curious relics, encyclopaedia editors and ‘reviewers’ were sometimes prone to pilfer others’ prose, declaring that their printing was justified as ‘an abridgement’. It is not surprising, therefore, that compilers of scientific dictionaries took the opportunity to defend abridgement in their own pages. Chambers explained that an ‘Epitome’ was ‘an abridgement; or the reduction of the principal matters of a large book, into a little compass’, implying that this was a good thing. Under ‘Abridgement’ he noted that this practice was sometimes criticised as leading to the loss of the originals, as had happened in the case of some Latin texts; but he praised the utility of works such as the abridgements of the *Philosophical Transactions* and Boyle’s philosophical works. Similarly, in the first edition of the *Britannica* its editors made an even more definite defence of those who summarise and compile, suggesting that this was a particularly necessary skill at the present time, given the number of writers who ‘have acquired the

dexterity of spreading a few critical thoughts over several hundred pages’. A review of this first Scottish encyclopaedia (that is, the *Britannica*) in *The Scots Magazine* for December 1768 simply reprinted, in full, the substantial article on ‘Abridgement’, prefacing it with this dry editorial comment: ‘We insert one article entire, as a specimen.’ The satirical insinuation here is unmistakable: by not abridging the entry on ‘Abridgement’ the reviewer implied that all this talk of its noble value was hyperbole and that, like this review, most entries in the first *Britannica* were simply lifted from other works with minimal mental effort.¹⁴

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Thus, the issues of delimiting, encircling, and controlling the representation of knowledge which define the encyclopaedic project become inextricably linked to the politics of knowledge, returning us to the problem, or paradox, of the concept of the ‘universal’ so often touted with regard to such projects. This point is familiar to those who study the history of the production (as distinguished from reproduction) of scientific knowledge.¹⁵

Science, like the encyclopaedic project that worked to summarise its conclusions, has always been made to look universal by its forms of literary representations: the history of scientific textbooks suggest ways that training through pedagogical ‘systems’ helped create the appearance that scientific work is organised, rule-bound, cooperative, relevant and accessible to all students – in this sense, universally accessible and useful.¹⁶ Encyclopaedias, being an

¹² Yeo, *Encyclopaedic Visions*, op. cit. note 3, 192.

¹³ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 1.

¹⁴ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 208-209.

¹⁵ Yeo, *Defining Science: William Whewell, Natural Knowledge, and Public Debate in Early Victorian Britain* (Cambridge: Cambridge University Press, 1993), 9.

¹⁶ An example of the implications of pedagogical ‘systems’ is discussed in Brian Dolan, ‘The Language of Experiment in Chemical Textbooks: Some Examples from Early Nineteenth-Century Britain’, in Anders Lundgren and Bernadette Bensusan-Vincent, eds, *Communicating Chemistry: Textbooks and their Audiences 1789-1939* (Canton, MA: Science History Publications,

extension to the pedagogical culture of Enlightenment Europe, likewise played on the multiple meanings of the word (and concept) ‘universal’. ‘While referring to the ambitious scope of subjects’, encyclopaedias also suggested a universal interest and hence a large potential audience.’

The ‘potential audience’ is certainly the category that most interested commercially-minded publishers and editors. There was apparently an endless supply of people desiring to be reminded of what they have forgotten, and some others desiring to expand rigorously their own intellectual horizons. If by the mid-eighteenth century librarians were worried about how many more books they could possibly shelve in the booming book trade, by the nineteenth, satirists laughed at the pretensions of encyclopaedists to think they could find all that knowledge useful. ‘Mr Panscope’, Thomas Love Peacock’s indefatigable polymath in *Headlong Hall* (1816), embodied ‘the chemical, botanical, geological, astronomical, mathematical, metaphysical, meteorological, anatomical, physiological, critical philosopher, who had run through the whole circle of the sciences, and understood them all equally well’.¹⁷

The massive presupposition in all this is indeed that people want to know—that people are eager to access information and need simple models of presentation so as not to be overwhelmed by the blooming buzzing confusion surrounding everyone. But, as with the recent literature on the history of consumerism and consumption in the eighteenth century, ironically we are left knowing more about how ‘useful knowledge’ was prepared and packaged than how it was accessed or used. Who except for the contributors cared about the contents of an encyclopaedia? In 1784 Immanuel Kant spoke of the ‘need for critical discussion of public issues as a precondition of an enlightened age’; citizens of the Republic of Letters spoke of such works as creating ‘a Library to a great many People’; subscription lists were read by publishers and booksellers allegedly ‘to find out

the wishes of the book-buying and reading public’ and then proceed without risk (if there were at least 200) in their publishing endeavour; another historian suggests that the *Encyclopédie* was a response ‘to a demand of the intellectual community’, and so on.¹⁸ Historians of the book such as, recently, Adrian Johns have noted the difficulties historians face attempting to access reading habits.¹⁹ But that questions of ‘demand’ dominate over analyses of ‘desirability’ amongst readers seems to suggest a final paradox in the history of encyclopaedic visions: that commerce, rather than freedom of access, determined the course of encyclopaedic projects.

It could be argued that little has changed over the last two and a half centuries. With all the jazz surrounding the coming of the millennium, it was guaranteed that national monuments embracing the wealth of national knowledge would once again be built, more it might seem with an eye to edging ahead of foreign competition for extravagance than utility. Hence the new buildings of the Bibliothèque nationale and British Library. The ideals of open access and public utility are to a degree embodied in the architecture of both. For each, this was, perhaps, thought to reinvigorate a national commitment to recover, codify, and preserve knowledge. Let’s remember Karl Popper’s ruinous vision of a day when ‘all our machines and tools are destroyed, and all our subjective learning, including the knowledge of machines and tools, and how to use them. But *libraries and our capacity to learn from them* survive. Clearly, after much suffering, our world may get going again’.²⁰ Eighteenth-century historians had already contemplated the implications of the destruction of annals of knowledge. ‘The valuable library of Alexandria was pillaged or destroyed’, wrote Edward Gibbon, ‘and, near twenty years afterwards, the appearance of empty shelves excited the regret and indignation of every spectator whose mind was not totally darkened by religious prejudice.’ Diderot mused that only if the ancients had written an

2000), 141-164; for the encyclopaedic treatment of such systems, see Yeo, *Encyclopaedic Visions*, op. cit. note 3, 187-91.

¹⁷ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 249; Richard Holmes, *Coleridge: Darker Reflections* (London: HarperCollins, 1998), 449-450.

¹⁸ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 41, 44, 46, 71 on which Richard Schwab is cited.

¹⁹ Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making* (Chicago: University of Chicago Press, 1998).

²⁰ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 2.

encyclopaedia, ‘and if that manuscript alone had escaped from the famous Library of Alexandria, it would have been capable of consoling us for the loss of the others.’²¹ Eighteenth-century encyclopaedic projects ostensibly grew out of a concern about humanitarian progress—carrying into the future that classical torch—rather than political national aggrandisement. But histories of the enlightenment and increasing attempts to understand the politics of representation in science reveal a range of ulterior motives. By situating the reproduction and public dissemination of knowledge within the context of major publishing enterprises, we begin to see ways that the Scientific Revolution, and much of the intellectual capital that it spawned, becomes another by-product, or mass-produced commodity, of the Industrial Revolution.

²¹ Yeo, *Encyclopaedic Visions*, op. cit. note 3, 85-6.