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‘We want no authors’: William Nicholson and the contested role of the scientific journal in Britain, 1797–1813[†]

IAIN P. WATTS*

Abstract. This article seeks to illuminate the shifting and unstable configuration of scientific print culture around 1800 through a close focus on William Nicholson’s *Journal of Natural Philosophy, Chemistry, and the Arts*, generally known as *Nicholson’s Journal*. Viewing Nicholson as a mediator between the two spheres of British commercial journalism and scientific enquiry, I investigate the ways he adapted practices and conventions from the domain of general-readership monthly periodicals for his *Journal*, forging a virtual community of scientific knowledge exchange in print. However, in pursuing this project Nicholson ran up against disreputable associations connected with the politics of journalism and came into conflict with more established models of scientific publication. To illustrate this, I turn to examine in detail the practice of reprinting, a technique of information transmission which the *Journal* adapted from general periodicals and newspapers, looking at a clash between Nicholson and the Royal Society that exposes disagreements over the appropriate role for journals during this period of reorganization in the scientific world.

But far more rash and daring is that wight,
Who, in this polish’d age, attempts to write:
Long may his hunger last, who pines for fame,
Who seeks that hard-earned morsel, call’d – a name!

William Nicholson, Prologue to Thomas Holcroft’s *Duplicity: A Comedy, in Five Acts*.

He! Why he is an *author*! Who could think of proposing him? We want no *authors*.

Sir Joseph Banks (attributed), of an unidentified candidate for Royal Society Fellowship.¹

‘Among the causes which have tended to enlarge the boundaries of science, and promote the general diffusion of knowledge’, proclaimed a letter in the *Monthly Magazine* in 1816, ‘the rapid circulation of periodical publications claims a distinguished rank’.² Other publications concurred in this self-confident vision of their

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1 Attributed to Banks in [Olinthus Gregory], ‘A review of some leading points in the official character and proceedings of the late President of the Royal Society’, *Philosophical Magazine* (1820) 56, p. 252.

2 Edward Hatfield, ‘Utility of periodical publications’, *Monthly Magazine* (1816) 42, pp. 421–422.

genre's own history. The periodical press, declared the *Mechanics' Magazine* in 1825, had 'substituted the winged sheet for the ponderous tome; and weeks and months for the long years, which the speculations of the learned used to take in travelling from north to south, and east to west'. 'Sixty years ago', it asserted, 'there was not one scientific journal, and but few of any other description; now there are upwards of five hundred of these admirable circulators of knowledge and enquiry'.³ The letter in the *Monthly Magazine*, drawing on the mechanical metaphors of early industrial Britain, dubbed these publications a 'powerful literary engine'. The *Mechanics' Magazine* went further, suggesting that they formed a kind of perpetual knowledge-circulating machine, an apparently self-sustaining system which solved the famously insoluble engineer's problem: 'a motion, which can cease but with time itself'.

The motion goes on, but the machinery is now different – and it has never been perpetual. This article goes in search of the effort involved in moving knowledge in Britain in the opening years of the nineteenth century, focusing on the workings of a central project: the scientific journal. I look in detail at the sixteen-year life of a single publication, the monthly *Journal of Natural Philosophy, Chemistry, and the Arts* (founded 1797), and its London-based editor, William Nicholson. The story of *Nicholson's Journal* (as it soon became known) reveals the malleability of the scientific journal as a category of publication during a time when it was neither the only scientific serial publication format, nor even the most prestigious. By situating the details of Nicholson's project within the wider landscape of the print culture which sustained it, we can illuminate the contours of a historical moment in which conventions of scientific publication were unstable, diverse and subject to challenge.

I demonstrate how Nicholson was a skilful mediator between two worlds: the world of scientific knowledge and enquiry (especially chemistry and natural philosophy), and the world of British commercial authorship, publishing and periodical 'journalism'. I argue that *Nicholson's Journal* was fashioned with tools and resources taken from this second world, and that it consequently retained deep connections to the authorial and textual practices of non-scientific monthly periodicals. These practices were integral components of Nicholson's project, which aimed first to gather, reproduce and rapidly disseminate scientific knowledge, and second, to establish the *Journal* as a virtual space in print in which a process of arguing over knowledge could be carried on in the same medium as the communication of that knowledge. The skills and techniques that Nicholson acquired from his long background in the world of general journalism and commercial authorship proved essential to the launch and management of his publication, but this connection left both the editor and his journal subject to disreputable associations carried by the general periodical press, among them political radicalism and the stigma of 'trade' in the printed word. Finally, I show how Nicholson's use of a specific textual practice shared with periodicals and newspapers could provoke conflict in the scientific world. This now-vanished practice, the word-for-word reprinting of material sourced from other publications, was once an essential feature of scientific

3 Preface, *Mechanics' Magazine* (1826) 5, pp. iii–vi, iv–v.

journals. But it also drew Nicholson into a dispute with the president of the Royal Society, Sir Joseph Banks, over the society's *Philosophical Transactions*, a publication of a rather different kind which early nineteenth-century readers would not have characterized as a scientific journal at all.⁴

The fruitful results of bringing the history of science into dialogue with the history of the book have been ably demonstrated by such landmarks of scholarship as Adrian Johns's *The Nature of the Book* and James Secord's *Victorian Sensation*.⁵ Historians have revealed rich histories behind scientific books, authorship, publication and reading, and now routinely envisage pieces of scientific print not as self-evident, transparent, timeless channels for communicating ideas from mind to mind, but as special cultural objects with meanings and uses which are made, and remade, by groups of historical actors.⁶ Tied to this general shift has been a greater awareness of the importance of the commercial forces which enabled the movement of scientific knowledge; as Jonathan Topham has argued, 'it is only by reinstating the agency and creativity of those involved in the manufacture of books' that we can move towards a deeper understanding of 'the actual processes by which scientists and their audiences interacted'.⁷ But until very recently the history of the scientific journal was not generally a substantial beneficiary of this drive to more thoroughly historicize scientific print.⁸ New perspectives are now

4 Of course, by emphasizing that *Nicholson's Journal* counted as a scientific journal for contemporaries and the *Philosophical Transactions* did not, I do not mean to argue that Nicholson's publication is necessarily closer to a twentieth- or twenty-first-century scientific journal or in some sense represents the modern form of publication in embryo. Both the *Philosophical Transactions* and *Nicholson's Journal* naturally operated with distinctive aims and practices that were closely tied to their particular historical circumstances in early nineteenth-century Britain. The relationship between them and the modern scientific journal is a non-trivial one, which we can only begin to trace by first seeking to understand these early nineteenth-century publications on their own terms.

5 Adrian Johns, *The Nature of the Book: Print and Knowledge in the Making*, Chicago: The University of Chicago Press, 1998. James Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*, Chicago: The University of Chicago Press, 2000.

6 For an overview see Jonathan R. Topham, 'Scientific publishing and the reading of science in nineteenth-century Britain: a historiographical survey and guide to sources', *Studies in History and Philosophy of Science* (2000) 31, pp. 559–612. More generally see Robert Darnton, 'What is the history of books?', in Darnton, *The Kiss of Lamourette: Reflections in Cultural History*, New York: Norton, 1990, pp. 107–135; and James Secord, 'Knowledge in transit', *Isis* (2004) 95, pp. 654–672.

7 Topham, op. cit. (6), p. 575. For the economics of print more generally in this period see William St Clair, *The Reading Nation in the Romantic Period*, Cambridge: Cambridge University Press, 2004.

8 However, see the following two detailed histories, each focusing on a particular French scientific journal: Maurice Crosland, *In the Shadow of Lavoisier: The Annales de chimie and the Establishment of a New Science*, Oxford: British Society for the History of Science, 1994; and David Bickerton, *Marc-Auguste and Charles Pictet: The Bibliothèque Britannique (1796–1815) and the Dissemination of British Literature and Science on the Continent*, Geneva: Slatkine Reprints, 1986. See also the publishing history of the *Philosophical Magazine* in W.H. Brock and A.J. Meadows, *The Lamp of Learning: Taylor & Francis and the Development of Science Publishing*, London: Taylor and Francis, 1998, pp. 89–109; and the more traditional view of the history of the scientific periodical in David Kronick, *A History of Scientific & Technical Periodicals: The Origins and Development of the Scientific and Technical press, 1665–1790*, Metuchen: Scarecrow Press, 1976. Looking beyond scientific journals, science in the general-readership periodical has benefited from more sustained investigation, though the focus has tended to be on the Victorian era; our understanding of the transitional decades around 1800 remains less well developed. See especially the fine studies G.N. Cantor *et al.*, *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature*, Cambridge: Cambridge University Press,

being brought to bear on the problem, aimed at reconceptualizing the formation of the modern scientific journal as a lengthy and multifaceted historical process which only came to fruition in the second half of the nineteenth century.⁹ In addition, recent challenges to the printed scientific journal, by online preprint circulation and other paperless channels of distribution, further impress upon us the contingencies involved in publicizing and distributing scientific knowledge in the modern periodical form.¹⁰ At the beginning of the nineteenth century the scientific journal was still a publication format in progress. By zooming in on Nicholson's struggles, obstacles, achievements and failures, all played out well before the rise of the modern system of journal publication later in the century, I aim to provide a productive defamiliarization of the earlier history of this now most familiar enabler of the scientific enterprise.

Behind *Nicholson's Journal* was a project to widen access not only to scientific knowledge but also to the process of doing science itself. Nicholson understood that the format and conventions of scientific print – frequency of publication, price, circulation, sourcing of copy, access to publication, editorial strategy – all intimately condition the organization of science and scientific knowledge. His journal provided readers with not only original papers but also a wealth of material translated or reprinted from hard-to-find or expensive publications. Aspiring scientific authors were offered a route to print which did not depend on personal connections or previously acquired reputation and

2004; G.N. Cantor and Sally Shuttleworth (eds.), *Science Serialized: Representations of the Sciences in Nineteenth-Century Periodicals*, Cambridge, MA: MIT Press, 2004.

⁹ Alex Csiszar has analysed the ways in which the central problem of how to solicit, select, arrange, reproduce and disseminate article-length units of scientific text had its social and technical solutions repeatedly contested and reworked during the nineteenth century before they reached something like the 'modern scientific journal' towards the end of that century. Alex Csiszar, 'Broken pieces of fact: the scientific periodical and the politics of search in nineteenth-century France and Britain', PhD thesis, Harvard University, 2010. Also James Secord, 'Science, technology and mathematics', in David McKitterick (ed.), *The Cambridge History of the Book in Britain*, vol. 4 (1830–1914), Cambridge: Cambridge University Press, 2009, pp. 451–459. For a new perspective via the in-depth history of one journal that achieved particular prominence in this later period see Melinda Baldwin, 'Nature and the making of a scientific community, 1869–1939', PhD thesis, Princeton University, 2010.

¹⁰ Even so, the modern twentieth-century scientific journal's hegemonic success casts a long shadow into the digital era that can still obscure features of its pre-twentieth-century history in unexpected ways. An example: a peculiar irony develops in some cases when archives of paper journals reaching back into the nineteenth century are made available online by publishers. These resources offer great benefits to the historian, but their imposition of the standardized framework of a modern scientific journal to compartmentalize the contents of current journals' early nineteenth-century incarnations produces an appearance of long-term continuity that (unintentionally) denies that these publications have a history radically different from their present. Information embodied in the material form of the journal is effaced, and early nineteenth-century print is uncomfortably and anachronistically shoehorned into the catch-all container of a modern 'scientific paper'. See, for example, the *Philosophical Magazine* online archive at www.tandfonline.com/page/philmagarchive, and *Annalen der Physik* at <http://onlinelibrary.wiley.com>, accessed 22 August 2013. Thanks to mass digitization, access to historical journals and other serials – obviously essential source material for the history of science more generally – has never been easier. What we still need, and what I aim to do here for *Nicholson's Journal* and the *Philosophical Transactions*, is to establish a firmer context of authorship, editing, reproduction, distribution and reading for these sources by recovering more of the cultural history surrounding such publications.

which was, with monthly publication, fast. Along with original material by most of the major figures associated with the physical sciences in Britain during this period and by many, many less familiar individuals ranging from baronets to handloom weavers, from Sheffield engineers to London physicians, the *Journal* carried book reviews and the latest ‘scientific news’ from home and abroad.¹¹ Individual readers included such disparate individuals as an Exeter widow, a Newcastle manufacturer, and Samuel Taylor Coleridge.¹² Contemporary commentators hailed *Nicholson’s Journal* as the first successful British scientific journal of recent times, or, with some exaggeration, ‘the first periodical work devoted to the sciences which had till that time appeared in the British empire’.¹³ Soon joined by Alexander Tilloch’s *Philosophical Magazine* and later by Thomas Thomson’s *Annals of Philosophy* in 1813, *Nicholson’s Journal* spearheaded what became a larger process, rooted in these new monthly scientific journals, of re-configuring the conventions governing the movement of scientific knowledge in Britain.

Sustaining the *Journal* was the publishing acumen and sheer hard work of its editor, who drew on years of experience in the world of London commercial authorship. My first section sketches Nicholson’s background in the business of print, showing how it formed the skills and personal connections that were essential for his *Journal* project,

11 The important facilitating role played by the *Journal* and its editor in British science, especially chemistry, in the first decade of the nineteenth century is well known to historians of this period; see, for example, Jan Golinski, *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760–1820*, Cambridge: Cambridge University Press, 1992, pp. 253–254. But for the last attempt to grapple with the *Journal* in detail, albeit without the benefit of manuscript evidence, we have to go back over sixty years to S. Lilley, ‘*Nicholson’s Journal, 1797–1813*’, *Annals of Science* (1948) 6, pp. 78–101. Lilley devotes much of his discussion to the ‘Important Papers’ the *Journal* featured over the years; I therefore do not rehearse these here, instead referring readers to Lilley for a survey of the very best content the *Journal* had to offer contemporaries. My concern with Nicholson’s connections to British commercial magazine journalism resonates more with another side of Lilley’s article: his point that the format of *Nicholson’s Journal* encouraged a mass of more minor and fragmentary scientific contributions, to which Lilley gave the suggestive name ‘popular research’ (p. 93).

12 A circulation of a thousand is given in *Monthly Magazine* (1806) 26, p. 163. Coleridge’s reading notes are reproduced in Samuel Taylor Coleridge, *Marginalia*, vol. 3 (ed. H. J. Jackson and George Whalley), Princeton: Princeton University Press, 1992, pp. 936–953.

13 ‘Memoir of William Nicholson, Esq.’, *European Magazine* (1812) 62, pp. 84–87, 86. Such bold and seemingly hyperbolic claims, like the *Mechanics’ Magazine*’s assertion that there was ‘not one scientific journal’ in the world in 1765 (Preface, *Mechanics’ Magazine* (1826) 6, p. v), expose a complicated relationship between commentators at the start of the nineteenth century and the scientific periodical genre’s seventeenth- and early eighteenth-century history. In particular, the *Philosophical Transactions*, Britain’s oldest scientific serial, entirely transformed in the second half of the eighteenth century, shedding its original monthly format for annual publication (in 1753) and subsequently switching to biannual publication (in 1773). By the time *Nicholson’s Journal* was founded, the *Philosophical Transactions* had long since ceased to function like a journal of the seventeenth-century Republic of Letters. It was a pre-eminent example of another genre: the slow-paced ‘memoirs’ or ‘transactions’ of scientific societies and academies. As for *Nicholson’s Journal*, parallels can certainly be drawn between some of its features and aspects of the learned journals of the early modern Republic of Letters, but contemporaries did not usually make the comparison; the commercial journals that began to proliferate at the end of the eighteenth century were generally received as a new species of publication. On the early modern journals see Anne Goldgar, *Impolite Learning: Conduct and Community in the Republic of Letters, 1680–1750*, New Haven: Yale University Press, 1995, pp. 54–114; Thomas Broman, ‘Periodical literature’, in Maria Frasca-Spada and Nick Jardine (eds.), *Books and the Sciences in History*, Cambridge: Cambridge University Press, 2000, pp. 225–238.

and how this background, and the problematic associations of ‘journalism’, barred Nicholson’s entry into the scientific elite. I then explore the details of how *Nicholson’s Journal* actually functioned, taking a single issue and moving outwards, working to show it operating from month to month as a continuing process of making and disputing scientific claims. My final section turns to Nicholson’s practice of reprinting scientific text, and the conflict between his *Journal* and the *Philosophical Transactions* which it provoked, preserved in an exchange of letters with Joseph Banks. The clash between these competing solutions to the problem of how to publish scientific knowledge exposes some of the contingency and potential for disagreement embedded in that problem, and the forces which contributed to shaping the role of the scientific journal at the beginning of the nineteenth century.¹⁴

Science on Grub Street? Nicholson, commercial authorship and scientific journalism

The first editors of the new commercial scientific periodicals were outsiders, operating on the margins of the scientific elite. The skills required to launch and run *Nicholson’s Journal* were derived from long experience with commercial authorship and the business of general periodical journalism, both far from entirely respectable activities in Britain in the turbulent years around 1800.¹⁵ Some of these many skills were concerned with the management of text: dealing efficiently with the flow of original material from correspondents; finding, extracting or abstracting articles from other publications; translating from French or German; authoring editorial material; and gathering and sifting scientific news. Others required the management of people or business relationships: dealing sensitively with correspondents, mediating disputes in print, promoting public visibility by advertising and other means, and negotiating terms with engravers and printers to produce issues and with booksellers to distribute them. Text and commerce came together in the constantly recurring monthly task of assembling interesting material for a press deadline and ensuring that copies found their way into the hands of readers – hopefully with the whole process turning a profit.

14 In a chapter that appeared after this article was substantially finished but which nicely complements the close analysis of a single journal that I offer here, Jonathan Topham has recently drawn attention to the commercial context of a range of new British technical and scientific serials from the 1790s and 1800s, highlighting how they offered purchasers affordable collections of previously printed information, or ‘anthologies of scientific discovery’. This harmonizes well with my position that the reprinting of material from other publications was fundamental to Nicholson’s model of the scientific journal, and that the emergence of *Nicholson’s Journal* as a key venue for original research in galvanism and related subjects in 1800 was an important but in some ways rather accidental (and, for its editor, lucky) development. Jonathan Topham, ‘Anthologizing the book of Nature: the circulation of knowledge and the origins of the scientific journal in late Georgian Britain’, in Bernard Lightman, Gordon McOuat and Larry Stewart (eds.), *The Circulation of Knowledge between Britain, India and China: The Early-Modern World to the Twentieth Century*, Leiden: Brill, 2013, pp. 119–152.

15 Stuart Andrews, *The British Periodical Press and the French Revolution*, London: Palgrave, 2000. Outsider status also applied to early Continental editors of commercial journals, for example Jean-Baptiste François Rozier, the founder of the *Journal de physique*: James McClellan, ‘The Scientific press in transition: Rozier’s journal and the scientific societies in the 1770s’, *Annals of Science* (1979) 36, pp. 425–449.

In launching his *Journal*, William Nicholson drew on two decades of experience in the world where words met pounds, shillings and pence.¹⁶ He had moved to London in about 1778, following two voyages as a midshipman in the East India Company and subsequent employment as a European agent for the master potter Josiah Wedgwood.¹⁷ Seeking to live by his pen in this global centre of print, Nicholson formed close friendships with similarly ambitious and impoverished young writers, especially the radical author, dramatist and occasional actor Thomas Holcroft, and the novelist and political theorist William Godwin.¹⁸ All three soon became involved in periodical journalism and other forms of commercial authorship, with Nicholson grinding out anonymous essays, poems, reviews and light literature for periodicals and collaborating with Holcroft on a novel.¹⁹

Nicholson combined these literary connections with fruitful endeavours in scientific print.²⁰ His first major publication, in 1782, was a popular introductory textbook on natural philosophy which subsequently went through five editions.²¹ Another introductory work, *The First Principles of Chemistry*, followed in 1790, along with a *Dictionary of Chemistry* in 1795.²² These books were classic examples of commercial scientific authorship, written with an eye to established markets, especially those for medical and school textbooks. They sold well, and brought Nicholson some moderate prosperity.²³ By 1797, the year he started the *Journal*, he was married and renting a large house in Soho Square, where he ran a mathematical school and gave scientific lectures.²⁴ *Nicholson’s Journal* was founded on a solid if unexceptional reputation built on his

16 Biographical information on Nicholson deployed here is sourced primarily from a biographical memoir of him published in *European Magazine* (1812) 62, pp. 83–87; an obituary in the *New Monthly Magazine* (1815) 4, pp. 76–77; and an incomplete manuscript ‘Life of William Nicholson’ by his son, also William Nicholson, housed in the Bodleian Library, Oxford (Bodleian MS Don. e.125). This manuscript is less helpful than one might expect: it was written over half a century after Nicholson’s death and apparently mostly from memory. I also draw on manuscript correspondence as much as possible, though remarkably little of it survives for this man who lived by the written word. *A Journal of Natural Philosophy, Chemistry, and the Arts* is hereafter cited as *Nicholson’s Journal*. The journal was numbered in two series: Series 1 ran April 1797–December 1801 (five volumes), Series 2 January 1802–December 1813 (thirty-six volumes).

17 Wedgwood possessed extensive scientific and commercial connections as well as links to Dissenter-owned periodicals such as the *Monthly Review*: DNB; Benjamin Nangle, *The Monthly Review, Second Series*, Oxford: Oxford University Press, 1955, p. xii.

18 For Godwin’s exertions in this world see Peter Marshall, *William Godwin*, New Haven: Yale University Press, 1984.

19 ‘Life of William Nicholson’, op. cit. (16). The novel was *Alwyn, or, The Gentleman Comedian*, London: Fielding and Walker, 1780. Nicholson’s prologue composed for Holcroft’s play, *Duplicity*, is quoted above.

20 Nicholson surely ranks as one of the most industrious scientific writers of his time; according to William Hazlitt, he once claimed that in twenty years he had written enough prose to fill three hundred octavo volumes. William Hazlitt, *Table-Talk: Original Essays on Men and Manners*, vol. 1, London: Templeman, 1857, p. 128.

21 William Nicholson, *An Introduction to Natural Philosophy*, 2 vols., London: J. Johnson, 1782.

22 William Nicholson, *A Dictionary of Chemistry*, 2 vols., London: G.G. and J. Robinson, 1795.

23 Nicholson received £420 for the copyright of his *Chemical Dictionary*, and a further £250 for improvements to the second edition. ‘George Robinson copyright documents’, Greater Manchester County Record Office, ff. 81, 71.

24 For the ‘Philosophical and Chemical Lectures’ see advertising in, for example: *The Sun*, 22 October 1799.

activities as a scientific author and on his knowledge of electricity, chemistry and the inventions of the ‘mechanical arts’; it was soon used by Nicholson to publish his greatest personal scientific achievement, the first decomposition of water with the Voltaic pile.²⁵

Complementing this scientific acumen was Nicholson’s long-time immersion in the world of general monthly periodical journalism. In 1797 the monthly periodical press in Britain consisted of the reviews, such as the *Monthly Review*, the *Critical Review* and the *British Critic*, and the magazines—like the long-running *Gentleman’s Magazine*, the *Universal Magazine* and the *Monthly Magazine*.²⁶ Nicholson’s personal connections in this world and his ability to operate the levers of business that governed it were extensive: he even briefly edited his own monthly review periodical, the *General Review of British and Foreign Literature*, in 1806.²⁷

But it was the magazines with which *Nicholson’s Journal* had most in common, both in the way they encouraged a link between reading and active authorship of contributions, and in their commitment to the diffusion of knowledge. They were general-readership publications which encompassed all kinds of information, from antiquarianism to agriculture, aiming at, in the *Monthly Magazine’s* case, ‘the advancement of mankind in useful knowledge and the genuine principles of reason and liberty’.²⁸ Much of the text was sourced from the magazine’s own readers, whose letters would usually have a rapid passage to print as articles in the next monthly issue. Some articles were on scientific matters, and even occasionally contained minor original scientific findings.²⁹ Additional content was provided by reprinting text lifted from other publications.

In his *Journal*, Nicholson continued or adapted key practices of magazine periodicals already familiar in Britain. Among them were easy and rapid access to print, allowance for debate and disagreement, an active editorial hand, and reprinting of material sourced from other often expensive or hard-to-find publications consonant with Nicholson’s stated aim to ‘collect and disseminate the Transactions of Philosophers, Chemists, and Manufacturers, with speed and precision’.³⁰ Nicholson clearly drew inspiration, as contemporary commentators realized, from journals devoted to science already in existence on the Continent, most notably the *Journal de physique*.³¹ Nonetheless, the

25 Nicholson’s reputation for scientific and technical acumen dates from at least 1784 when he was appointed secretary of the Coffeehouse Philosophical Society: T.H. Levere and G. L’E. Turner, *Discussing Chemistry and Steam: The Minutes of a Coffeehouse Philosophical Society*, Oxford: Oxford University Press, 2002, p. 19. The decomposition of water was in collaboration with the surgeon Anthony Carlisle: *Nicholson’s Journal*, 1st series (1800) 4, 179–187. On the context of this experiment see Giuliano Pancaldi, *Volta: Science and Culture in the Age of Enlightenment*, Princeton: Princeton University Press, 2005, pp. 212–218, 228–230.

26 For an overview see Andrews, op. cit. (15).

27 Literary business merged with scientific pursuits in this short-lived project: Nicholson’s *General Review*, as was common practice, dealt with books of all kinds, including scientific texts.

28 *Prospectus of a new Miscellany, to be Entitled, The Monthly Magazine; or, British Register*, London, 1796, p. 2. See Geoffrey Carnall, ‘The Monthly Magazine’, *Review of English Studies* (1954) 5, pp. 158–164.

29 For example *Monthly Magazine* (1796) 1, pp. 111–112, on improving electrical machines.

30 Advertising pamphlet for *Nicholson’s Journal*, London, 1799, p. 1.

31 See the review of *Nicholson’s Journal* in *Critical Review* (1799) 26, p. 283.

conventions of magazine publication and reading in Britain provided the dominant context for Nicholson’s project, and practices employed in *Nicholson’s Journal*, such as reprinting articles from other publications, and the anonymous authorship of some material, were part of the cultural matrix of general periodical journalism of the period. Alexander Tilloch’s rival *Philosophical Magazine* adopted a similar model, and its editor also drew on a similarly extensive background in print journalism.³² In the operation of the new journals, scientific reputation and judgement were united with skills and textual practices drawn from the world of commercial print.

The *Journal*, the source of Nicholson’s increased reputation and his usefulness to scientific devotees, was intimately, if somewhat paradoxically, connected with his outsider status. Being an editor was problematic: despite both *Nicholson’s Journal* and the *Philosophical Magazine* becoming widely read fixtures of the British and European scientific worlds, neither Nicholson nor Alexander Tilloch were ever elected fellows of the Royal Society – the elite centre of so much scientific activity in Britain. To the society’s aristocratically minded president, Sir Joseph Banks, ‘journalism’ was at best ungentlemanly, and at worst politically suspect.³³ Tilloch was compelled to withdraw his candidacy for fellowship after being specifically told that he would be blackballed due to his editorship of a scientific periodical and a newspaper (the *Star*). Nicholson’s Royal Society aspirations also ended ignominiously, with Banks said to have dismissed him as a ‘sailor-boy turned schoolmaster’ as he manoeuvred to block his election.³⁴ In the Banksian ideal, ‘an author’ (meaning a commercial author) might be useful to science, but he was hardly fit to associate on an equal level with science’s independent, gentlemanly elite. The marks of Nicholson’s authorial successes could also be a

32 On Tilloch, a Glasgow-born newspaper owner, journalist and inventor, see his obituary in *Gentleman’s Magazine* (1825) 95, pp. 276–281; also *DNB*; and Brock and Meadows, *op. cit.* (8), 90–93. The *Philosophical Magazine* launched only a year after the founding of Nicholson’s publication; it was heavily inspired by it and shared many of its practices and overall aims. Many of the points made here apply to it as well; my choice of *Nicholson’s Journal* as the object of analysis and not the eventually more successful *Philosophical Magazine* is motivated primarily by Nicholson’s willingness to open debate with Joseph Banks on the Royal Society’s publication system and thus make evident the differences between the practices of journals and the *Philosophical Transactions*. Additionally, *Nicholson’s Journal* ceased publication in 1813 and therefore, unlike the *Philosophical Magazine* (which is still published), never transformed into a modern scientific journal. This makes it easier to grapple with on its own terms; it did not last long enough to discard techniques like reprinting that were vital to scientific communication around 1800 but which later become obsolete.

33 For Banks’s efforts to exclude any trace of radical politics from the Royal Society see John Gascoigne, *Joseph Banks and the English Enlightenment: Useful Knowledge and Polite Culture*, Cambridge: Cambridge University Press, 2003, pp. 251–253.

34 *Gentleman’s Magazine* (1825) 95, p. 281. On Nicholson’s candidature see the admittedly highly polemical [Gregory], *op. cit.* (1), p. 252, whose report of the ‘sailor-boy turned schoolmaster’ jibe is corroborated by Nicholson’s son in the MS ‘Life of William Nicholson’, *op. cit.* (16). The rejection obviously rankled: Nicholson’s son recalled that his father ‘always had a feeling that Sir Joseph had not done him justice’, and that ‘the main point on which my father felt aggrieved was his rejection at the Royal Society’. Another failed Royal Society candidate, Joseph Des Barres, had previously been disdained for supposedly being a ‘writer of periodical publications’: *An History of the Instances of Exclusion from the Royal Society*, London: Debrett, 1784, p. 16.

hindrance, reducing to the stubborn ink stains of writing for money, and the stigma of journalistic ‘trade’ in words.

Furthermore, the periodical press carried specific problematic associations of its own. The links between some periodicals (especially the *Monthly Review*, *Analytical Review* and *Critical Review* and the *Monthly Magazine*), and a catch-all notion of revolutionary ‘Jacobinism’, however tenuous they may have been in reality, were frequently played up by Church-and-King critics in the 1790s in the aftermath of the French Revolutionary Terror.³⁵ The fact that these periodicals were largely in the hands of religious Dissenters only fuelled suspicion.³⁶ In 1798 the reactionary counterattack, the *Anti-Jacobin Review*, promised to ‘review the Monthly, critique the Critical, and analyse the Analytical Reviews’, and thus to take a stand against ‘the Jacobin faction, in the bosom of our country’, and ‘the torrent of licentiousness, incessantly rushing forth from their numerous presses’.³⁷

A hostile critic, professing to know him by the company he kept, might well have had reason to suspect Nicholson of involvement in this ‘faction’. Two of his close friends from the 1790s, Thomas Holcroft and John Thelwall, were actually indicted for high treason in a notorious series of trials in 1794.³⁸ Thelwall, in particular, was a prominent member of the famous London Corresponding Society, an organization of working men agitating for political reform.³⁹ Appearances certainly suggested links to a disreputable radical underworld – and Joseph Banks, of course, was fearful of admitting to the Royal Society anyone who showed any suggestion of being ‘addicted to politicks’.⁴⁰ What Nicholson’s ‘politicks’ actually were is less clear. He appears to have espoused a more moderate or at least more private position than his friends, avoiding political action or declarations in print.⁴¹ Nonetheless, he was closely involved in William Godwin’s revisions of drafts of *Enquiry Concerning Political Justice* (1793), which only narrowly avoided prosecution for seditious libel.⁴² Nicholson and Godwin had both known

35 Andrews, op. cit. (15).

36 Nicholson’s own religious allegiances are difficult to determine. While he was a close associate of Godwin, Wedgwood and other Dissenters, I have found no firm evidence that he himself was spiritually committed to any Dissenting tradition. However, an anonymous radical pamphlet critical of the Anglican Church is ascribed to him: *The Doubts of the Infidels: or, Queries Relative to Scriptural Inconsistencies and Contradictions. Submitted to the Consideration of the Bench of Bishops. By a Weak Christian*, London, 1781; the identification is written in on the title page of the British Library copy.

37 *Anti-Jacobin Review and Magazine* (1798) 1, pp. 1–3.

38 Alan Wharam, *The Treason Trials, 1794*, Leicester: Leicester University Press, 1992. Holcroft was indicted but never tried. Thelwall (and the other defendants) were acquitted.

39 The Corresponding Society was an occasional topic of discussion by Thelwall and others during gatherings at Nicholson’s house; ‘Life of William Nicholson’, op. cit. (16). Thelwall maintained a close involvement with periodical journalism, and eventually edited the *Monthly Magazine*; Carnall, op. cit. (28), p. 163.

40 Banks to Count Rumford, April 1804, in *The Scientific Correspondence of Sir Joseph Banks*, vol. 5 (ed. Neil Chambers), London: Pickering and Chatto, 2007 (subsequently *Banks Correspondence*), p. 348.

41 But he did display in private correspondence a strong sympathy for reformist causes like the rights of ‘the poor, the actual workmen’: Nicholson to Mr Acton, 5 August 1814, Wellcome Library, London, MS 7358/51.

42 Godwin’s diaries record his frequent conversations with Nicholson at the time on subjects such as ‘constitutions’, ‘labour’, ‘government’, ‘contract’ and ‘property’: *Diary of William Godwin for 1792–3*, Bodleian Library, Oxford, MS. Abinger e.4.

George Robinson, the publisher–bookseller concerned in *Political Justice*, since the 1780s, and Robinson had published Nicholson’s *First Principles of Chemistry*.⁴³ The connection proved essential for the launch of *Nicholson’s Journal* in 1797.

The business relationships behind the running of *Nicholson’s Journal* were complex, and characteristic of a man deeply immersed in the print trade of the late eighteenth century, adept at negotiating its financial intricacies; unfortunately the absence of surviving systematic records only allows a partial reconstruction.⁴⁴ Heralded by extensive advertising in the newspapers, the *Journal* launched as a joint venture between Nicholson and George Robinson’s established publishing–bookselling firm, with the first issue appearing in April 1797 under the Robinson imprint.⁴⁵ The ownership of the copyright continued to be divided equally between Nicholson and Robinson during the first year of publication, but in 1798, apparently frustrated by Robinson’s costs absorbing most of the takings, Nicholson decided to take the project forward on his own.⁴⁶ From then on, he was sole proprietor of the periodical, controlling the copyright himself and contracting directly with printers.⁴⁷ Nicholson still needed the G.G. & J. Robinson firm to sell and distribute the *Journal* from their shop in Paternoster Row, and a shifting and occasionally strained arrangement continued until the Robinsons’ temporary business collapse in 1804.⁴⁸ Without a necessarily clear distinction between editor and publisher (Nicholson united both roles), running *Nicholson’s Journal* clearly required numerous specialized business skills in addition to scientific judgement. The *Journal* was one among several projects in which Nicholson attempted to unite scientific, literary or

43 He also published Nicholson’s *Dictionary of Chemistry*. For the early links of both men to Robinson see Marshall, *op. cit.* (18), 71.

44 My reconstruction is based on information contained in the small collection of contracts and receipts in ‘George Robinson copyright documents’, *op. cit.* (23); on a few letters between Nicholson and George Robinson’s firm preserved in the Wellcome Library, London, MS 7358/49–50; and on the internal evidence of the *Journal*. For the intricacies of the trade in general see St Clair, *op. cit.* (7), esp. pp. 177–209.

45 Advertising in, for example, *London Chronicle*, 30 March 1797, 1 April 1797; *St James’s Chronicle, or the British Evening Post*, 28 March 1797, 30 March 1797; *Star*, 1 April 1797. Robinson was known as the ‘King of Booksellers’ and formed a central figure in the London book trade (*DNB*). The *Journal* initially appeared in quarto format, but after five volumes began a new series in the more portable octavo form, bringing it into line with other British monthly periodicals, including the *Philosophical Magazine*.

46 Nicholson’s worries about Robinson’s costs are indicated by Genevan scientific journalist Marc-Auguste Pictet’s comment on visiting Nicholson in London in March 1798: ‘Son journal paye seulement les frais du libraire et sa peine est jusqu’à present perdue’ (quoted in Bickerton, *op. cit.* (8), p. 331). Fairly substantial sums apparently changed hands in the business operations behind monthly scientific journals; Nicholson received a sizeable £285 from his share in the first (yearly) volume, though most of this would probably have been needed to cover previous outlays on paper and printing. ‘George Robinson copyright documents’, *op. cit.* (23), f. 69.

47 For the copyright transfer see Nicholson’s statement in *Nicholson’s Journal*, 2nd series (1813) 34, p. 152; and ‘George Robinson copyright documents’, *op. cit.* (23), ff. 66–67.

48 Nicholson both sold the Robinsons firm copies of the journal at a wholesale price and (at another time) had them sell it on a 5 per cent commission: ‘George Robinson copyright documents’, *op. cit.* (23), ff. 57–58, 66–67. After this, as *Journal* title pages show, Nicholson made arrangements with other booksellers such as H.D. Symonds and John Murray; the publication was also available for sale at his house in Soho Square. Strains in the business relationship with Robinsons, compounded by Nicholson’s debt problems and his failure to deliver corrected editions of his *Dictionary* and *First Principles of Chemistry* on time, are revealed in Nicholson to Messrs Robinsons, 1 February 1803, 17 April 1804, Wellcome Library, London, MS 7358/49, MS 7358/50.

engineering interests with commercial motives.⁴⁹ All these projects fused two goals. They aimed to advance the material and intellectual welfare of society by the improvement of technology and the diffusion of knowledge, and they aimed to be a profitable business concern. *Nicholson's Journal* had a similar double objective of social improvement by widening access to scientific knowledge, and of commercial success for its editor. Managing the diffusion of scientific knowledge with scientific journals was coupled to managing the worldly details of print commerce.

Lasting prosperity, however, proved elusive. Nicholson's financial circumstances were frequently what one contemporary referred to obliquely as 'embarrassed'.⁵⁰ In 1806 alone, his old comrade Godwin had to bail him out of debtors' prison no less than fifteen times, and when Nicholson died in 1815, it was, according to his friend the surgeon Anthony Carlisle, 'in the deepest poverty'.⁵¹ Two years before its editor's death, *Nicholson's Journal* had been absorbed by Alexander Tilloch's *Philosophical Magazine*.⁵² It had appeared monthly until then despite all of Nicholson's spells in prison and other financial troubles.⁵³

This was the world in which *Nicholson's Journal* operated: a world of booksellers and hack journalism, business contracts and unsettled debts, periodicals and printer's ink. It carried associations with radical politics and religious dissent, and was subject to the Janus-faced rewards of 'trade' and commercial authorship in Britain: respect for demonstrated industriousness and condescension for perceived ungentlemanliness.

What journal science looked like

Periodicals grow old as heavy bound volumes on a library shelf; in youth they had a more colourful existence, and were treated differently. What is now a permanent record

49 Alongside his authorship of scientific textbooks and dictionaries, his production of translations, and his short-lived *General Review*, he gave scientific lectures, ran a school and was involved with naval architecture and the construction of water-supply infrastructure. He also patented inventions, including a never-built rotary printing press. The identity which covered Nicholson's multifarious activities best was perhaps that of a 'projector', a man concerned with moneymaking ventures related to the sciences and mechanical technologies by the application of 'useful knowledge'. *New Monthly Magazine* (1815) 6, p. 77, describes him in these terms. For the origins of the natural-philosophical 'projector' see Larry Stewart, *The Rise of Public Science: Rhetoric, Technology, and Natural Philosophy in Newtonian Britain, 1660–1750*, Cambridge: Cambridge University Press, 1992. For similar figures in the context of the Industrial Revolution and 'useful knowledge' see Joel Mokyr, *The Enlightened Economy: An Economic History of Britain 1700–1850*, New Haven: Yale University Press, 2009.

50 *New Monthly Magazine* (1815) 4, p. 77.

51 Anthony Carlisle to John Symmonds, 21 May 1815, Royal Literary Fund Collection, British Library, Loan 96 RLF 1/208. One of the more bizarre instances of Nicholson's financial problems is captured in a letter from 1803 which finds him threatened with arrest for a debt due to the supplier of paper for his own *Journal* (Nicholson to Messrs Robinsons, 1 February 1803, Wellcome Library, London, MS 7358/49). He presided over a household which his son remembered for its 'thoughtless hospitality, and reckless expenditure' ('Life of William Nicholson', op. cit. (16)). For Godwin's repayment of this hospitality in repeatedly bailing Nicholson out of debtors' prison see William St Clair, *The Godwins and the Shelleys: The Biography of a Family*, Baltimore: Johns Hopkins University Press, 1989, p. 290.

52 *Nicholson's Journal*, 2nd series (1813) 36, pp. 387–390.

53 Nicholson did, however, eventually increasingly rely on the labours of an unknown editorial assistant, referred to in the text of the *Journal* only as 'C'.

or a historical source was once an ephemeral object in a stream of monthly, weekly or daily knowledge, interpreted in terms of its place in that stream and its relation to other such objects. To grasp the meaning of *Nicholson's Journal* for those whose eyes fell upon it when the ink was barely dry, our unit must be the single monthly issue: not (to borrow the terms of the *Mechanics' Magazine*) the 'ponderous tome' which preserves it, but the 'winged sheet' which it used to be.⁵⁴ It was this slim and fragile sheaf of stitched papers which delivered information on the latest experiments on heat or the most recent developments in galvanism, which contained a reply attacking the claims of an article from the last number, which transmitted the latest news on the doings of French chemists or carried an essential translation of an article from one of their journals. Now ossified into a permanent record, it was once caught up in the flow of current events.

So let us follow the issue from February 1806, fresh from the presses of William Stratford off the Strand, into the hands of a hypothetical reader. This person would have most likely purchased the issue from a London bookseller such as H.D. Symonds in Paternoster Row or John Murray in Fleet Street. The price would have been two shillings and sixpence.⁵⁵ Those not able to buy the *Journal* in London could have it sent at a little extra cost by placing an order with a bookseller.⁵⁶

Our reader would have carried home a slim, highly portable object of ninety-six pages plus three engravings, 'handsomely printed in the octavo form'.⁵⁷ Nineteen numbered papers were packed into this particular issue, varying in length from a fourteen-page article down to a one-page letter. Opening at random, our reader might come across a letter from the Kendal natural philosopher John Gough detailing experiments on the magnetism of iron wires, a reprint of a recent *Philosophical Transactions* paper by William Hyde Wollaston on the discovery of palladium, or an account extracted and translated from the *Journal de physique* of experiments performed by the Galvanic Society of Paris. Or alternatively: Humboldt and Gay-Lussac's experiments on the torpedo fish translated from the *Annales de chimie*, some 'Observations and Enquires concerning the Heat of Air Bellows' by the cryptically named 'K.H.D.', or a description of a new 'secret Lock of ten thousand combinations', by Nicholson himself.⁵⁸ It would

54 Preface, *Mechanics' Magazine* (1826) 5, pp. iii–vi, as quoted in my introduction.

55 This was five times the price of a daily newspaper, one-tenth of the price of Walter Scott's *Lay of the Last Minstrel* published that year, or a little more than the daily wages of a male farm labourer.

56 The easiest way to identify readers of the *Journal* is to look at who wrote letters or articles that were published in its pages, but this clearly omits a large class of readers who regularly consumed or just casually perused the *Journal* but never identified themselves by writing in with questions or scientific findings. The degree to which women participated in this probably largely male readership is therefore very hard to ascertain; Mrs Agnes Ibbetson, an Exeter widow and botanical enthusiast, remains the only woman reader positively identified, and this only because she took the very unusual step of publishing in the *Journal* under her own name. Other women may well have occasionally written in under pseudonyms, or gender-neutrally as Ibbetson initially did as 'A. Ibbetson': *Nicholson's Journal*, 2nd series (1809), 23, pp. 161–173, 293–300.

57 'Philosophical Journal, New Series', *Nicholson's Journal*, 1st series (1801) 5, p. 2. This issue's ninety-six pages make it unusually long: the number of pages for the octavo format varied from sixty-four to ninety-six pages and was commonly eighty (i.e. five sheets of letterpress folded in octavo).

58 As the presence of articles on 'Air Bellows' and the 'Secret Lock' suggest, the *Journal* featured much information on subjects related to the 'Mechanical Arts' (i.e. technology), and sought to appeal to the 'practical men' of early industrial Britain as well as the 'philosophical' scientific community. This set it apart from

quickly have become apparent that some papers continued topics and debates which carried over from previous issues of the *Journal*: a letter ‘on the cause of Fairy Rings’ (rings of mushrooms) added observations to a paper from the last month (and was later responded to in its turn), while a Mr James Stodart responded to a question raised by Thomas Beddoes on the breathing of nitrous oxide. A section of short pieces of ‘scientific news’ followed the papers, including the information that a certain Captain Lewis was currently engaged on an expedition up the Missouri river – from which ‘very interesting intelligence’ might soon be expected.⁵⁹

What emerges from this patchwork of ephemeral scientific exchange? We see quick responses to previous work, similarly rapid criticisms, questions posed and answered, ‘scientific news’ on a global scale, and reprintings of important British and French material from other publications. In contrast, the *Philosophical Transactions* contained none of these things. It was the pre-eminent forum for scientific print in Britain; those responsible for its contents did not refer to it as a ‘scientific journal’, and would probably have considered the term faintly dishonourable to the august name of the society had it been applied.⁶⁰ It did not print letters, scientific news, or notices of recent books, nor did it allow authors to submit articles directly. These were the practices of journals and magazines. Since the mid-eighteenth century, when the *Philosophical Transactions* had shed its origins as a monthly periodical of the Republic of Letters, it had functioned as a permanent record in print of original papers chosen from those read, out loud, at the Royal Society’s Thursday evening meetings at Somerset House in London.⁶¹ At these meetings, new work was ceremonially communicated to Britain’s scientific elite (fellows and their guests), establishing priority and becoming the object of knowledge and discussion in these circles long before it had passed under the printing press.⁶² The *Philosophical Transactions* gave papers read behind these closed doors fixed and,

scientific journals on the Continent, which rarely featured mechanical inventions. Nicholson was himself a practical man as well as a man of science, and this arrangement reflected his own vision of the unity of abstract and practical knowledge; it was also a sound business strategy that helped to widen the *Journal’s* readership, making the project more commercially viable.

59 This was indeed the famous Lewis and Clark Expedition.

60 The divide is implicit in sources such as the letters of Joseph Banks analysed in the next section. Even a few decades later, John Herschel still drew a distinction between scientific journals and ‘the more ponderous tomes of academical collections’ in his *A Preliminary Discourse on the Study of Natural Philosophy*, London: Longman, 1831, p. 352. See also the introductory remarks to the first issue of Benjamin Silliman’s *American Journal of Science* (1818) 1, pp. 1–2, which in listing British scientific journals does not list the *Philosophical Transactions* among them.

61 Information on the society’s operation deployed here is extracted from the Journal Book of the Royal Society and its Council minutes (Royal Society Archives, JBO, CMO), and from the *Philosophical Transactions*. See also Marie Boas Hall, *All Scientists Now: The Royal Society in the Nineteenth Century*, Cambridge: Cambridge University Press, 1984, pp. 1–15.

62 For claiming priority of discovery, the paper’s reading before the Royal Society was more important than printing in the *Transactions* (where the title of each paper printed was accompanied by the date it had been read). On the history of priority claims and their shifting relation to print see Mario Biagioli, ‘From ciphers to confidentiality: secrecy, openness and priority in science’, *BJHS* (2012) 45, pp. 213–233; Csiszar, op. cit. (9), pp. 101–152.

in theory, distributable form, but publication was slow, taking place only twice a year.⁶³ A paper written in July could only be read at a meeting several months later, and might have to wait almost a year before being printed.⁶⁴

Getting printed in the *Transactions* required connections as well as a sufficiently impressive scientific paper. This reflected an uneasy tension between the Royal Society's status as the pre-eminent forum by which scientific research was publicized in Britain, and its actual structure, which resembled that of an English gentleman's club (complete with blackballing of unsuitable 'journalists'). Only fellows could propose papers to be read at meetings, and most papers were by authors who were already fellows.⁶⁵ Furthermore, not all papers read at meetings could even be sure of reaching print in a volume of the *Philosophical Transactions*: they were selected for this honour by the society's Committee of Papers, which was in practice identical with the Royal Society's Council. In common with other 'memoirs' of scientific academies or societies, the *Philosophical Transactions*, controlled by an elite group of insiders, was the vehicle of the slow publication of immaculately printed papers that aspired to the status of completed knowledge. It was a series of finished products.

Nicholson's Journal was a process. Knowledge could be discussed and argued over from issue to issue, whether fairy rings or nitrous oxide, palladium or galvanism. The *Journal* functioned as a virtual community of knowledge exchange in print, whereby correspondents geographically dispersed around Britain – like the Kendal Quaker John Gough – could participate in a collective enterprise of 'public science' which had not yet been wholly eclipsed by deference to specialist expertise.⁶⁶ It was a process in principle open to all in which many participated; entry did not depend on patronage and the transition from reader to printed writer was a fluid metamorphosis. There were strong similarities here with the workings of general periodicals. The *Monthly Magazine*, for example, also thrived on discussion and controversy in print, with a reliance on readers' contributions for much of its material, calling for 'the voluntary contributions of the liberal and ingenious of all classes and professions' as part of its goal to 'forward the progress of mental improvement upon the most liberal and unshackled plan'.⁶⁷

In common with these general publications, *Nicholson's Journal* aimed to make getting original material into print easy and fast. Its monthly pace was a major asset in

63 The two parts were usually published in June and in November, with occasional slight deviations. *Philosophical Transactions* Receipt Book for 1800–11, Royal Society Archives, MS/212; confirmed for the 1790s by checking notices to fellows in the newspaper *St. James's Chronicle or the British Evening Post*. The *Transactions* was distributed to fellows at no charge, but was priced at a costly fifteen shillings or so (figure for 1800, Part 1) for everyone else.

64 The publication schedule was shaped by the fact that Royal Society meetings did not take place over the summer due to the exodus of the upper ranks of society from London. Nonetheless, other scientific academies and societies in this period tended to be even slower with their publications; on the long delays in the French case see Crosland, *op. cit.* (8), pp. 121–122.

65 A non-fellow who aspired to have a paper heard at the society would therefore have to cultivate the patronage of a fellow who would be willing to act as an intermediary in communicating the paper and who would have sufficient influence with the president and secretaries to ensure it was chosen.

66 Golinski, *op. cit.* (11).

67 *Prospectus of a new Miscellany*, *op. cit.* (28), pp. 1–2.

enlisting and coopting readers into the flow of its sheets of scientific text. A particularly strong manifestation of this was in the rapidly progressing science of galvanism: for a few years in Britain this developed in a symbiotic relationship with Nicholson's *Journal* in which quick publication stimulated further results by other researchers, contributing to a stream of new experimental findings.⁶⁸ Scientific articles were framed as letters to Nicholson, whose selection policy leaned towards printing and letting readers exercise judgement rather than enforcing strong quality control at an editorial level. Submissions would usually be printed in the next issue, appearing in under a month. The quick turnaround and regular scientific news provided by *Nicholson's Journal* and the *Philosophical Magazine* was widely welcomed. Before the launch of *Nicholson's Journal*, claimed a writer in the *Critical Review* of 1799, it was from the French *Journal de physique* that, scandalously, 'we often received the first information of discoveries that were made even in our own country'.⁶⁹

In all this, the role of the editor was essential. It was a role that required the organization and arrangement of writers and readers as well as of texts. *Nicholson's Journal* was geared to disseminating writing by a large and diverse community of authors amongst an even larger readership; many individuals were part of its geographically far-flung social web. The editor sat at the neck of the textual hourglass, at the site at which multiple sources of copy were processed into a single monthly issue to be reproduced hundreds of times by the printing press and widely distributed. He selected from new material sent to him by correspondents, sourced foreign and domestic papers which merited reprinting, gathered all the news fit to print, mediated disputes between correspondents, and occasionally contributed his own original work. Additionally, as we have seen, Nicholson managed the business end of the *Journal's* publication, negotiating with printers and booksellers to ensure that a new issue would appear at the beginning of each month to continue the process its readers had made a part of their scientific lives.⁷⁰ Though Continental models of scientific editorship, such as

68 *Nicholson's Journal* became a leading venue to publish results in galvanism as soon as Volta's battery was announced in Britain, beginning with Nicholson's own investigations into the electrochemical decomposition of water. Nicholson's publication model was clearly well suited to the urgent and often brief or fragmentary nature of many of galvanism's early results, as Lilley, *op. cit.* (11), noticed long ago. Among many examples is the work that helped to launch the career of Humphry Davy, who had six separate reports of experiments printed over seven consecutive issues. *Nicholson's Journal*, 1st series (1800) 4, pp. 275–281, 326–328, 337–342, 380–381, 394–402, 527. These short letters, adding to or commenting on previous recent work, were not a form of scientific writing for which there was previously a route to publication in Britain (though occasionally some writers had sent reports to the *Monthly Magazine* and other general periodicals).

69 *Critical Review* (1799) 26, p. 283.

70 The *Journal* appeared at the beginning of the month associated with the issue, in common with general monthly periodicals and magazines. The last day of each month was dubbed Magazine Day at Paternoster Row (the centre of the London bookselling trade), when periodicals arrived from the printers and were made ready for sale or packed up to be shipped off to the provinces. Charles Knight, *Passages of a Working Life during Half a Century: With a Prelude of Early Reminiscences*, vol. 1, London: Bradbury and Evans, 1864, pp. 263–264. The *Journal* would have gone to press several days before Magazine Day (it would have taken two pressmen about five or six workdays to print the run of an issue at the maximum size of a thousand copies each of six octavo sheets, i.e. 12,000 impressions. On printing turnarounds for journals and press speeds in this period see Bickerton, *op. cit.* (8), p. 239.

that of the Abbé Rozier, founder of the *Journal de physique*, undoubtedly provided inspiration, in Britain it was a role largely inherited from and dependent on the world of general periodical journalism, requiring the deployment of Nicholson's experience from that world.

Nonetheless, in forging a role for the scientific 'journalist' in Britain, Nicholson significantly altered this role in one respect. Editors of British periodical publications had tended to be anonymous – though their identities were usually an open secret – practising what the publisher Charles Knight was later to call 'that best of all forms of government in periodical literature – a secret despotism'.⁷¹ Nicholson explicitly broke with this convention, asserting in his prospectus for the *Journal* that that practice of 'an Author speaking of Men and Things in his own name and person' would be one 'calculated to inspire confidence', encourage 'correctness and fidelity', and endow the work with authority.⁷² Publicly identifying himself as the *Journal's* editor on each title page, and ensuring original articles were addressed as letters to himself, he fashioned an active and visible editorial role which closely tied his publication to his person. It linked the *Journal's* contents to the public stock value of his own reputation for editorial integrity and good judgement of scientific and technical material. The limits and responsibilities of this role were still largely ill-defined. In his January 1799 issue Nicholson printed a letter from a correspondent in Newcastle requesting information on 'the Invention and Practice of the Art of Hat making'.⁷³ Three issues later, Nicholson reported that he had now had time to visit 'the manufactory of Messrs. Collinsons', hatters, in Gravel-lane, Southwark', and treated his readers to a detailed account of the processes involved in the making of their headgear.⁷⁴ Other editorial responsibilities proved more taxing. Nicholson was also called upon to manage the unusual complications of anonymous and pseudonymous scientific work and commentary published in his *Journal* (another practice mirroring the monthly magazines), and occasionally had to act as umpire to heated disputes or critiques.⁷⁵ He had to deal with all the problems arising from authorship, trustworthiness and 'intellectual property' in a scientific publication whose corresponding writers were often not known personally to the editor. The potential for conflict was compounded because the role of independent commercial journals in British science was still unclear, especially in terms of their relation to more established sources

71 Knight, op. cit. (70), p. 271.

72 Prospectus for *Nicholson's Journal*, London, 1797, pp. 1–2.

73 *Nicholson's Journal*, 1st series (1799) 2, pp. 467–468.

74 *Nicholson's Journal*, 1st series (1800) 3, pp. 23–28.

75 On anonymity in science in other contexts see Secord, op. cit. (5); Mary Terrall, 'The uses of anonymity in the Age of Reason', in Mario Biagioli and Peter Galison (eds.), *Scientific Authorship: Credit and Intellectual Property in Science*, New York: Routledge, 2003, pp. 91–112. Additionally, publicly expressing opinions and judgements in an open, non-anonymous editorial role exposed Nicholson to direct ad hominem attacks in print. One particularly virulent onslaught came from the controversial gas lighting entrepreneur F.A. Winsor, who objected to Nicholson's response to a reader's question about Winsor's exaggerated claims. Winsor replied with a fifty-six-page pamphlet that hurled insults, invective and occasional bursts of execrable poetry at Nicholson, cast aspersions on his gentlemanly and scientific credentials, and poured scorn on his occupations of 'schoolmaster' and 'journalist'. F.A. Winsor, *Mr. Nicholson's Attack in his Philosophical Journal on Mr. Winsor and the National Light and Heat Company; with Mr. Winsor's Defence*, London: printed by G. Sidney, 1807.

of scientific authority such as the Royal Society. The remainder of this article focuses on what was probably the most serious conflict Nicholson encountered. It concerned a practice which had long been a staple of the general periodical and newspaper press: reprinting.

**‘To monopolize the beauties of all the modern scientific publications’:
reprinting and conflict with the *Philosophical Transactions***

Let us take another look at our issue from February 1806. *Nicholson’s Journal* was by then a recognized venue for original publication on a variety of topics, especially galvanism and chemistry. But simultaneously it was a print technology which synthesized and reproduced knowledge and information originating from a variety of sources spread across the scientific world. In our February issue, we find translations of articles from scarce French journals such as the *Journal de physique*, the *Annales de chimie*, and the lesser known *Magasin encyclopédique*, along with material extracted from a volume of the *Philosophical Transactions*. Adopting a procedure of long-standing use in the magazine and newspaper press, Nicholson harvested material from a wide variety of pre-existing print sources both domestic and foreign, no doubt using his connections with booksellers to gain access to rarer material. Other issues of the *Journal* included reprinted material originating from presses not only in London and Paris but also, for example, Turin, Leipzig, Berlin, Dublin, Manchester, Stockholm, New York and Philadelphia.⁷⁶

Reprinting mattered. Far from being merely a way to fill space, it was central to Nicholson’s vision of his project. Getting access to scientific print could be challenging. This was true especially for provincial men of science of modest means, but even for a wealthy individual living in London, the Napoleonic Wars seriously hampered the availability of Continental serials.⁷⁷ The *Transactions*, *Proceedings* or *Memoirs* of scientific academies or societies (both British and foreign) presented a particular problem, highlighted by Nicholson in the Preface to the *Journal’s* first issue. Considering ‘the very limited circulation of academical *Transactions*’, due to ‘their price, their number, their extent, distance of publication, difference of language, labour of perusal, and the efforts of mental abridgement’, he noted that some of their best papers must remain ‘unknown to a very large class of men of science’. Those ‘extreme few’ who were ‘so fortunate as to have access to all the expanded sources of philosophical intelligence’

⁷⁶ Of course, the process could work both ways: original articles from *Nicholson’s Journal* were regularly reprinted or excerpted in translation by Continental journals, among them the *Annales de chimie*, *Bibliothèque Britannique* and *Annalen der Physik*. The growth of a system of journals practising this reciprocal reprinting was clearly an important new force in the dynamics of the international dissemination of scientific work in this period.

⁷⁷ On the availability of French scientific material in Britain see Jonathan R. Topham, ‘Science, print, and crossing borders: importing French science books into Britain, 1789–1815’, in David N. Livingstone and Charles Withers (eds.), *Geographies of Nineteenth-Century Science*, Chicago: The University of Chicago Press, 2011, pp. 311–344.

might still benefit from the *Journal's* original papers, but his aim to 'collect and disseminate' knowledge was at least as important.⁷⁸

Not everyone saw it this way. The first volume of *Nicholson's Journal* did receive positive reviews in the *Monthly Review*, *Critical Review* and *Analytical Review* (all reform-minded periodicals in Dissenter hands), with the *Monthly Review* hailing Nicholson as 'richly entitled to the thanks of the public' for implementing 'the idea of a scientific journal' – which the reviewer saw as characteristic of Continental science – in Britain.⁷⁹ But the Anglican and government-aligned *British Critic* was less approving. While grudgingly admitting the existence of 'several persons' with scientific interests who were without 'the means of purchasing, or of borrowing, the new scientific publications', the anonymous writer declared,

We would not be understood to assert our entire approbation of a work which professes to extract, and, as it were, to monopolize the beauties of all the modern scientific publications. Had Mr. N. confined his Journal to the collection of new articles only, the work would have been useful to the public, and might have proved profitable to himself; nor could the authors or proprietors of other publications have possibly objected to it.⁸⁰

These were concerns around what we would now term 'intellectual property', and the ethics of copying knowledge from other publications to sell as part of one's own.⁸¹ Nicholson had vowed in the Preface to his first issue never to 'infringe that first and most sacred property which men hold in the products of their own understanding' – yet he had meant this to apply primarily to unpublished private knowledge. If material was already 'before the Public', Nicholson claimed the freedom to reprint it, though always with reference given to the publication from which it was sourced.⁸² The dispute between Nicholson and Joseph Banks would turn around the problem of the boundary between the domains of private and public, and the rights of reprinting public knowledge.

As we have seen, the *Philosophical Transactions* did not have a publication system geared towards a rapid passage from laboratory bench to printed page. That was not its aim: six-month delays in publication were incidental when producing volumes which asserted a status of permanent, polished, authoritative contributions to scientific knowledge.⁸³ As a partial compensation for the delay in the appearance of its volumes in print, the Royal Society did provide its authors with 'separate copies' (what we would now term offprints) of their papers, which could then be circulated privately. Clearly, this limited distribution to those with some access to the author, direct or indirect; before

78 *Nicholson's Journal*, 1st series (1797) 1, pp. iii–iv. Advertising pamphlet for *Nicholson's Journal*, London, 1799, p. 1. General magazines had previously occasionally reprinted material from the publications of scientific societies; additionally, there was the London physician John Aikin's more specialized 1793 *Memoirs of Science and the Arts*, originally planned as a monthly serial but apparently only appearing as a single volume; on this publication see Topham, op. cit. (14), pp. 128–130.

79 *Monthly Review* (1799) 29, p. 304; *Analytical Review* (1798) 28, pp. 363–377; *Critical Review* (1799) 26, pp. 283–289.

80 *British Critic and Quarterly Theological Review* (1799) 12, p. 117.

81 For a broad survey see Adrian Johns, *Piracy: The Intellectual Property Wars from Gutenberg to Gates*, Chicago: The University of Chicago Press, 2009.

82 *Nicholson's Journal*, 1st series (1797) 1, p. iv.

83 On this point for the publications of scientific academies more generally see Csiszar, op. cit. (9).

the *Transactions* was published, the circulation of Royal Society knowledge in Britain still mostly took place within the scientific elite.

Nicholson, aware of this and critical of the society's publication model, wrote to Sir Joseph Banks in March 1802. The letter was polite, deferential and somewhat audacious: Nicholson wanted the Royal Society's blessing on his wish to reprint the offprints of Royal Society papers in his own journal, before the appearance of the full half-volume of the *Philosophical Transactions* in which they were contained.⁸⁴ Nicholson had done this on at least one occasion, and his letter to Banks was prompted by hints from 'certain Fellows' that he had 'deviated from or offended the wish or usage of the Society' in doing so. He reminded Banks that Continental scientific journals were already in the habit of printing translations of offprints sent to fellows' correspondents abroad, and hoped that the Royal Society would not require that 'Journalists within the realm should be put in a less favored Situation than foreign philosophers'. Nicholson's proposal would certainly have considerably widened early access to new scientific knowledge announced under the Royal Society's auspices, but it also posed a serious challenge to the Royal Society's property in and control over that knowledge. The plan threatened to undermine both the sale and perhaps even the epistemic authority of the *Philosophical Transactions*, whose best papers would now appear for the first time in Britain as cheap, commercial, 'journalistic' print.

Banks was not willing to let this happen. Nor would he concede a mere journalist's veiled critique of the Royal Society's publication operation. In his reply he first disputed Nicholson's convenient identification of the distribution of offprints as the papers' 'true first publication' and hence his claim that it was appropriate to reprint them: first publication was emphatically when the full *Transactions* was 'Publish[e]d for Sale'. He then asserted that, while foreign journalists might provide a useful service in translating from the offprints, the British scientific world was 'sufficiently supplied by the Publication of the Transactions' and the customary reprinting from its papers by Nicholson and other 'British journalists' after the volume's publication. He finally indicated that even that privilege might be retracted 'if any farther liberties are taken'.⁸⁵

There was worse to come. Undoubtedly Sir Joseph was already mistrustful of the new scientific journals operating outside the bounds of what David Millar termed

⁸⁴ Nicholson to Banks, 12 March 1802, British Library Add. MS 33981, f. 4, published in *Banks Correspondence*, op. cit. (40), pp. 147–148.

⁸⁵ Draft letter of Banks to Nicholson, 12 March 1802, British Library Add. MS 33981, f. 4, published in *Banks Correspondence*, op. cit. (40), pp. 148–149. Since 1774 the copyright period had been fourteen years, with a possible fourteen-year extension if the author was still living – but in practice this was irrelevant for much text in journals, magazines and newspapers, which by long-standing custom freely reprinted each other's articles. Nonetheless, since Banks regarded the *Philosophical Transactions* as above these journalistic media, he saw any kind of reprinting from its pages as a special privilege granted by the Royal Society, which owned the copyright. The legal situation regarding the offprints is still harder to pin down, since Nicholson and Banks disagreed over the fundamental question whether their semi-private circulation actually constituted publication. In any case, the penalty held in reserve for anyone violating the arrangements was not legal but rather ostracism by Banks and his elite circle.

'the Banksian Learned Empire'.⁸⁶ Banks was notoriously jealous of the Royal Society's privileges, and to all appearances *Nicholson's Journal* already threatened what John Gascoigne, writing of Banks's opposition to the Astronomical and Geological Societies, has called 'the traditional role of the Royal Society as the clearing house for the scientific capital of the nation'.⁸⁷ Nicholson's letter would only have confirmed these suspicions. When Nicholson wrote to Banks six weeks later asking permission to dedicate the first volume of the new octavo series of his *Journal* to Banks,⁸⁸ Sir Joseph paid him the insult of declining the offer:

for as you and I differ so materially in opinion relative to the proper mode in which journalists ought to use the unexampled indulgences given to them by the Royal Society of republishing the *Philosophical Transactions* it is impossible for me to feel quite unencumbered on the subject or to be absolutely certain in how short a time I may be under the necessity howsoever unpleasant to my feelings it may be to enter into hostility with your *Journal* on that account.⁸⁹

'Hostility' was an ominous word coming from the most influential gentleman of science in Britain. Nicholson replied assuring Banks of his commitment to the rights of intellectual property as expressed in the Preface to his *Journal*: he would respect the society's 'demands' and would never presume 'to violate the property of any man or body of men'. Nonetheless, he reaffirmed his position on 'the Evils' which still 'remained without prospect of redress' in the Royal Society's publication process, informing Banks that he hoped to write with further reasons why his proposal would be 'of advantage to the Royal Society and the Public at large'.⁹⁰ *Nicholson's Journal*, its editor hoped, could still become the channel by which new knowledge read at meetings of the Royal Society might be transmitted rapidly and cheaply to those outside the scientific elite.

The *Journal* never achieved this role. Whatever slim chance Nicholson might have had of persuading Banks to embrace his publication model dramatically evaporated just over a week later in what can only have been a singular piece of perfectly timed bad luck. Relying on previous advice on the probable time of publication of the *Philosophical Transactions* from Banks's librarian, Jonas Dryander, Nicholson had reprinted offprints of two Royal Society papers in his *Journal* for June 1802, expecting them to appear shortly after the *Transactions* had reached the booksellers' shelves. But the publication of the *Transactions* was delayed, and Nicholson found he had accidentally printed two previously unpublished Royal Society papers in a single issue.⁹¹ It must have looked like a deliberate provocation, a blatant violation of the Royal Society's property, and a presumably apoplectic Banks summoned Nicholson to his house on the afternoon of

86 David Miller, 'Sir Joseph Banks: an historiographical perspective', *History of Science* (1981) 19, pp. 284–292.

87 Gascoigne, *op. cit.* (33), p. 256.

88 Unpublished letter, Nicholson to Banks, 23 April 1802, British Library Add. MS 33981, f. 25.

89 Unpublished draft letter, Banks to Nicholson, 24 April 1802, British Library Add. MS 33981, f. 26.

90 Unpublished letter, Nicholson to Banks, 25 April 1802, British Library Add. MS 33981, ff. 27–28.

91 The papers in question were Thomas Young's well-known 1802 Bakerian lecture on three-colour vision and a mineralogical paper by Charles Hatchett: *Nicholson's Journal*, 2nd series (1802) 2, pp. 78–91, 129–138.

4 June ‘to converse with him on the subject of his last publication’.⁹² Nicholson did his best to patch up the damage and assure Banks that it had all been a mistake, and that he would ‘neither desire nor claim nor intend to exercise any other power over the Royal Society’s Copy than what they think fit to grant’.⁹³ Nonetheless, the damage had been done. Banks used the situation to tighten the Royal Society’s grip on control of its own print, arranging for the society’s Council to adopt a motion requiring that all subsequent offprints carry a stern warning to authors against allowing reprinting of their papers until a month had elapsed from the day the relevant *Philosophical Transactions* volume had appeared.⁹⁴ It represented a hardening of rules which both added an extra month of delay to Nicholson’s reprinting of papers and asserted the Royal Society’s property in scientific authors’ printed knowledge over and above the choices of the authors themselves. Reprinting, a practice deeply associated with British magazine periodicals and daily newspapers, had been embraced by Nicholson as an essential practice in his *Journal*. The conflict of journalism’s values with the alternative publication regime of the Royal Society highlights the limits of efforts to use journals to rapidly and widely disseminate all new scientific knowledge at the beginning of the nineteenth century.

Conclusion: the lost labours of a ‘journalist’

Of the two brave new scientific journals launched in 1790s Britain, one now has an unbroken publication history stretching back over two hundred years and continues to be published to this day. The other is *Nicholson’s Journal*. After Alexander Tilloch’s *Philosophical Magazine* absorbed Nicholson’s publication in 1813, its subsequent operation as a joint concern with the successful bookseller–publisher Richard Taylor provided a lasting foundation for the enterprise.⁹⁵ In contrast, Nicholson ultimately lost out in the world of commercial authorship, periodical journalism and printer’s ink, dying in poverty without leaving his family ‘even the credit or the means to bury him’.⁹⁶ His *Journal* enjoyed modest success during the first decade of the nineteenth century, with its editor a well-known figure in the British scientific world—but he remained fundamentally an outsider. The scientific elite might use his publication when it suited them, taking pleasure in its announcements of their discoveries, but, with Joseph Banks at the helm of the Royal Society, they would never admit its editor to their gentlemanly inner circle. He was condemned, as one obituary put it, to ‘the common fate of projectors, to be continually employed without enjoying any material advantage from his labours’.⁹⁷ His publication gave inspiration to subsequent founders of scientific

92 Unpublished draft note from Banks to Nicholson, 4 June 1802, British Library Add. MS 33981, f. 28.

93 Nicholson to Banks, 28 June 1802, British Library Add. MS 33981, ff. 31–33, published in *Banks Correspondence*, op. cit. (40), pp. 206–208.

94 Royal Society Council Minutes, 15 July 1802, Royal Society Archives, CMO.

95 Brock and Meadows, op. cit. (8), pp. 89–109.

96 Anthony Carlisle to John Symmonds, 21 May 1815, Royal Literary Fund Collection, British Library, Loan 96 RLF 1/208.

97 *New Monthly Magazine* (1815) 4, p. 77.

journals in Britain, but he himself, commercially minded author and journalist rather than gentleman of science, did not provide a model to emulate.

Nonetheless, telling a story that ultimately ends in failure has its advantages. *Nicholson's Journal* is unencumbered by any destiny of future glories: there is no long and distinguished subsequent publication history connecting its beginnings smoothly to the 'modern scientific journal'. From Nicholson's point of view, as he worked to manoeuvre his fledgling publication in relation to more established vehicles of print like the *Philosophical Transactions*, the scientific journal was still not an inevitable success story, nor even a fully stable genre. By looking at Nicholson's struggles in the world of commercial print, and the features of British science which occasionally frustrated his efforts, we can begin to acquire a sense of the contingencies and transformations at work in the information economy of scientific knowledge around the turn of the nineteenth century. *Nicholson's Journal* illustrates how features which might at first glance seem to us like wasteful peculiarities eventually eliminated, such as the practice of reprinting, were central to the definition of what a 'scientific journal' constituted around 1800 – and a central source of conflict with the Royal Society's very different publication model. And, as I have argued, it is precisely features like reprinting which foreground deeper cultural connections with the disreputable world of general periodical journalism, the world of the struggling commercial author and the dilettante correspondent, the bookseller's trade. As the divide between expert scientific and general culture became better defined later in the nineteenth century, with the consolidation of 'popular science' as a print genre to mediate between those inside science and those outside, scientific journals transformed into exclusive, specialist, expert and eventually professional publications. In this new scientific print culture there was a place neither for the publication strategy emanating from Joseph Banks's gentlemanly and clubbable Royal Society meetings, nor for William Nicholson's project for an inclusive, accessible science carried on and distributed through commercial journals. I have sought to recover how scientific knowledge moved in print in the early nineteenth-century world in which these two alternatives uneasily coexisted, when the scientific journal was still a potentially troublesome innovation rather than a venerable institution.