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Untangling Academic Publishing

A history of the relationship between
commercial interests, academic prestige
and the circulation of research



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Executive Summary

Since the Second World War, academic publishing practices have had to cope with enormous changes in the scale of the research enterprise, in the culture and management of higher education, and in the ecosystem of scholarly publishers. The pace of change has been particularly rapid in the last twenty-five years, thanks to digital technologies. This has also been a time of growing divergence between the different roles of academic publishing: as a means of disseminating validated knowledge, as a form of symbolic capital for academic career progression, and as a profitable business enterprise.

This briefing paper aims to provide a historical perspective that can inform the debates about what the future of academic publishing should look like. We argue that current policy regarding open access publishing, and many of the other proposals for the reform of academic publishing, have been too focused on the opportunities and financial challenges of the most recent changes in digital communications technologies and have given undue weight to commercial concerns.

We show that the business practices and the cultural significance of academic publishing have been significantly transformed since the late nineteenth century as increasing government funding drove the expansion and professionalization of the research community, a process that accelerated rapidly after the Second World War. We examine how academic publishing practices have responded to the increasing number of researchers and publications worldwide, the changing expectations of academic workloads and outputs in the higher education sector, and the new business models in the publishing industry. A key phenomenon has been the growing importance of published works as career-defining tokens of prestige for academics. Although the new technologies that emerged in the late twentieth century offer great potential for improving the speed and efficiency of scholarly communication, the publishing model has been relatively slow to change.

The key themes of this briefing paper are:

- the business of academic publishing
- the role of publishing in academic careers
- and the tangled and changing relationship between them.

1. The business of academic publishing: For centuries, publishing has been a means for scholars to share their research beyond their immediate acquaintances. However, until relatively recently, research publications were rarely financially profitable for authors or for the learned societies that helped to disseminate new knowledge. Virtually all journal publishing and much book publishing depended on the generosity of sponsors who were willing to subsidise the costs of circulating knowledge in the scholarly community. In this paper we show how, during the early Cold War, academic publishing became a highly profitable industry. The international expansion of research, coupled with growth of the university sector and relatively generous funding in the UK (and the USA), created a context in which academic publishing could be transformed from something needing support into a way of generating income.

- 2. The role of publications in academic careers:** During the professionalization of academia in the early twentieth century, publishing became tightly linked to the institutional and disciplinary cultures of academic researchers, and a key driver of career progression. Modern academia has been described as a 'prestige economy', operating on the symbolic capital generated primarily by publications, rather than on direct financial rewards. During the post-war decades, editorial peer review became particularly important as a way to identify publications that counted in this prestige economy. Since the 1980s, increasing demands for accountability by government of universities, and in turn by universities of their staff, have significantly increased the perceived role of research and research outputs in demonstrating institutional and individual excellence.

- 3. A changing relationship:** During the three decades following the Second World War, the expansionist strategies of commercial publishers served the expanding research community well. But this mutually-beneficial relationship became difficult to sustain in the 1980s, when UK universities entered a period of cuts and under-funding that made it impossible for them to keep their libraries stocked with all the latest academic books and journals. The crisis in library funding did not blow over, but became the new normality. Since then, the interests of academics and publishers – often portrayed as shared – have been diverging.

For large publishing companies, the arrival of the Internet offered an alternative route to profitability, with new opportunities to monetise content and to lock-in institutional customers. For academics, it offered promising opportunities for faster communication with other members of their international research community. Historically, the peer review processes on which academic reward and recognition depend had belonged to disciplinary communities, learned societies and university presses; but their adoption by commercial publishers in the 1960s and 1970s means that they are now sold as a key value-added service to the academic community. This means that most academics remain heavily invested in traditional publishing outlets, and have acquiesced in the transfer to the online world of existing structures for the allocation of professional prestige – and with them, the commercially-oriented model of publishing.

To enable more widespread academic engagement with the new possibilities for rapid, global scholarly communication – and for public access to research outputs – we need to understand the obstacles and disincentives, as well as the advantages. Scholarly communication today is shaped at least as much by the interests of both publishers and academics, as by technological capacity. Examining the history of those interests shows the evolution of practices that can seem to be written in stone, and offers the hope of change for the better. To help convert that hope into action, we conclude our paper with specific recommendations for key stakeholders: those involved in funding research and setting publication policies, those who control university structures for recognition and promotion, and researchers themselves.

Introduction

Since the Second World War, academic publishing practices have had to cope with the increasing number of researchers and publications in the international research community, with the changing expectations placed on academics and the higher education sector in terms of workloads and outputs, and with new business models in the publishing industry. The pace of change has been particularly rapid in the last twenty-five years. This briefing paper aims to provide a broader context to inform the debates about what the future of academic publishing should look like. We argue that current policy regarding open access publishing, and many of the other proposals for the reform of academic publishing, have been too focused on the opportunities and financial challenges of the most recent changes in digital communications technologies and have given undue weight to commercial concerns.

Academic publishing is not simply an industry adapting to technological innovation. It is a system that underpins claims to new scholarly knowledge, and it is a major influence on the professional standing of the 200,000 academic researchers working in UK universities and their peers worldwide (HESA, 2016). Academic publishing is central to systems for recognising prestige, and is widely used as a form of symbolic capital by the scholarly community and its institutions (Blackmore, 2016; Blackmore & Kandiko, 2011). Thus, for any widespread adoption of new academic publishing practices to occur, they must not only be technically and financially possible: they must also be attuned to the wider academic work culture. At present, most attention has focused on trying to find financial models that will enable new technical possibilities; too little attention has yet been paid to the changes that will be needed in the institutional and disciplinary cultures of academic researchers.

Academic cultures of prestige are derived from the voluntary, gentlemanly practices of eighteenth- and nineteenth-century scholars and their learned societies; as such, they sit somewhat uncomfortably with post-1945 developments. The ethos of the academic research community had historically been non-commercial, and the sharing of knowledge had historically been enabled by the generosity of publishing organisations – such as learned societies and university presses – with a mission for scholarship rather than profit. But since the end of the Second World War, academic publishing has become increasingly commercialised.

From 1945 until the mid-1970s, the commercial model of academic publishing fitted well with the needs of an expanding academic research base that was increasingly international and increasingly specialised; and it was financed by sales to the libraries of the growing higher education sector in the UK and USA. But since the 1980s, the era of generous university funding has been over, although the volume of research outputs continues to grow. In this changed context, the relationship between commercial publishers and academic culture no longer seems entirely mutually beneficial.

Moreover, the autonomy of universities has been challenged by increasing government oversight, leading to demands that communities of scholars become more professional, managerial and output-driven, and more focused on 'research excellence' (Moore et al., 2017). Thus, academic life and academic publishing have both been substantially transformed since the end of the Second World War.

The digital revolution, which today dominates thinking about scholarly publishing, is only the most recent change of many. Though the opportunities offered by the Internet were first identified within the academic community, large commercial publishers were early adopters of online academic publishing and remain the most influential players.

Academics, meanwhile, are left with a problem: in the age of the Internet, the traditional forms of academic publishing are slow, and they are affordable to relatively few people. But, the traditional forms of academic publishing are the ones which are recognised and rewarded within the institutional and disciplinary cultures of academia. In this paper, we provide a detailed historical analysis to explain how this situation came about and attempt to identify the steps that need to be taken to untangle it.

Publication and Prestige before the 1940s

From 'scholars' to 'academics'

Until the nineteenth century, there were few universities in Britain, and thus few 'academic' jobs. Most scholars were either independently wealthy, or pursued their scholarly interests amidst the duties of their main profession. From the late seventeenth century, some of these scholars had created communities in the form of learned societies. The earliest of these covered all subject areas (e.g. the Royal Society, 1660; the Royal Society of Edinburgh, 1783), but many specialist societies were later formed to encourage or promote the study of particular fields (e.g. the Geological Society, 1807; the Royal Historical Society, 1868). These societies tended to be based in major cities, and were initially limited to men from the upper and middle classes.

From the 1790s, increasing numbers of periodicals catered to a growing reading public in Britain. Most learned societies ran scholarly periodicals, but there also emerged many independent periodicals, carrying everything from full research papers to snippets of scientific news (Fyfe, 2016). Print culture made it possible for people excluded from the societies by geography, gender, or class to participate – as readers, and possibly as authors – in some aspects of scholarly culture.

The scholarly communities created by learned societies and periodicals were voluntary. But the nineteenth century saw the creation of a professional academic community (Anderson, 2006). New universities and civic colleges were founded across Britain from 1826 onwards. Reforms to the curricula introduced such subjects as the sciences, engineering, English literature and modern history to the university. Both of these trends involved the appointment of more professors. The widespread concept of a university as a community of scholars, in which both students and staff engaged in critical enquiry, meant that professors were expected to engage in both teaching and research. These professors participated in the voluntary scholarly cultures of the learned societies and periodicals, but also owed loyalty to the institutions that employed them. Academic identity and culture were forged from the adaptation of disciplinary scholarly cultures to the context of professional employment in the universities.

The publication of research

Until very recently, publishing and distributing research necessarily required the services and skills of printers, publishers and booksellers. However, for most scholars and many of their publishers, scholarly publication was routinely seen as unprofitable: the potential market was so small and uncertain that few scholarly publications were expected to cover their costs. Those costs – of paper, ink, typesetting, and printing – were often paid in full or in part by authors or by a third-party, such as a patron or sponsor; and this enabled the copies to be sold at a subsidised price, or even distributed *gratis*.

Untangling Academic Publishing

This model of academic publishing relied upon the generosity of a sponsor. At various times, this role has been assumed by royal or aristocratic patrons, government departments, learned societies, and universities.

In certain cases, a publisher might see the possibility of sufficient sales to be willing to take on a scholarly publication as a commercial enterprise, bearing the financial risk in the hope of a profit. Some book publishers certainly did judge their market correctly; but few journal publishers before 1900 managed to do better than break-even.

Historians often distinguish sharply between publications issued as commercial undertakings, and those sponsored by a third-party, such as a learned society. There was in fact a spectrum between the two extremes, with many books and journals being published through a combination of sponsorship and commercial risk. Ownership and control might lie with the author, the sponsor or the publisher (or any combination).

Publications and prestige

Historians can trace the use of publication record to assess suitability for academic appointments back to the Prussian universities in the late eighteenth century (Clark, 2008). But in Britain in the eighteenth and early nineteenth centuries, scholarly reputation was still closely correlated with social standing. A good scholarly reputation could be gained through membership in the appropriate societies, through meeting the right people over dinner, and by demonstrating one's knowledge through conversation or the ownership of an impressive collection of specimens or artefacts. The authorship of essays or books could feed into these social structures for generating prestige, but there are good reasons why scholarly culture in this period has been called 'gentlemanly', in reference to gender and class, as well as to the behavioural norms and social activities which were valued (Morrell & Thackray, 1981).

From the 1830s, it was argued that authorship would be a better way of evaluating intellectual merit (Babbage, 1830). The scientific learned societies increasingly cared more about demonstrable scholarly activity than family background, and came to recognise a list of publications as a suitable entry requirement. By the late nineteenth century, a list of published books and – especially in the sciences – journal articles had become the typical way to demonstrate or celebrate a successful research career (Csiszar, 2017).

The list of publications became the standard way of demonstrating disciplinary expertise just at the time when research was becoming the preserve of university academics, rather than independent scholars. Since the universities valued research as well as teaching among their staff, the norms of scholarly research culture informed university appointment procedures. Thus, young researchers could hope that the intangible prestige granted by the recognition of their work from others in their field might translate into an academic position. For university administrators, a list of publications became a useful tool, in combination with personal letters of reference, for judging the research standing of a potential employee.

Yet, while it is undoubtedly true that universities appreciated research prowess in their academic staff, the idea of the university remained the Humboldtian ideal of a community of scholars engaged in both teaching and research (Anderson, 2010). Prior to the 1940s, in most of the oldest universities in Europe, research did not dominate expectations of academic life.

The Transformations in Publication and Prestige since the Second World War

In the late nineteenth and early twentieth centuries, the scholarly culture of research – grounded in learned societies and periodicals – had rubbed along happily enough with the emerging institutional cultures of modern universities. But since the Second World War, both universities and research culture have undergone huge changes in scale and focus. Academic publishing has also been transformed.

We outline the major trends here, and will then discuss particular issues in closer detail.

Growth and Professionalization of Academia

The number of higher education institutions in the UK grew from 31 in 1962 (*The Robbins Report*, 1963) to 164 in 2015 (HESA). This growth had a number of sources. University colleges were granted full university status, and a new group of eight campus (or 'plate glass') universities was approved and built in the early 1960s. Several other existing institutions were granted university status after the *Robbins Report*. From 1965, a new type of institution, the polytechnic, was created in cities across the UK; these originally embodied a different ideal from that of universities, promoting vocational training with no necessary link to a research base, nor expectation of teaching by research-active staff; but from 1992, they too were granted university status (Tight, 2009).

This expansion of the UK higher education sector was part of a pattern seen across Europe and North America, driven by government desire to increase the proportion of students going to university. Just 2.7% of the UK age-cohort had gone into higher education in 1938; that had risen to 15% by the 1980s (Anderson, 2010; Perkin, 1987); and in the early twenty-first century, the UK government target was 50%.

Since the 1970s, however, the on-going expansion of the higher education sector has been accompanied by worries about the rising costs, changes to funding arrangements, and growing government demands for accountability.

The growth in student numbers has required universities to employ more staff; the number of academic staff employed by UK higher education institutions has grown from its pre-war figure of 4,000, to 200,000 in 2015 (Collins, 2015; HESA). Many universities can now be seen as large enterprises, and increasingly behave as such, with university leaders adopting management techniques from other areas of business (Deem, Hillyard, & Reed, 2007).

An academic career path has also been created which increasingly demands significant research outputs. Whereas 'professor' was the typical appointment for a young academic in the mid-nineteenth century and could be a job for life, by the mid-twentieth century, they might be employed as demonstrator, assistant lecturer, lecturer or reader before gaining the title 'professor'. Since the 1980s, these academic positions have, in many institutions, been mapped onto standardised national pay scales, and the criteria for promotion have become increasingly formalised. Institutional expectations of academic performance have been codified; and research prestige is now widely regarded as the dominant criterion for academic career progression (Morley, 2016; Coate & Kandiko Howson, 2016).

Internationalization of Research

As teachers and administrators, UK-based academics operate within the context of UK higher education. But as researchers, they participate in an increasingly international community (Royal Society, 2011). Their reputation and prestige within a particular field or discipline is generated and recognised in a research community that transcends national boundaries. This is most apparent in the natural sciences, medicine and engineering, where research questions are shared in many countries; and less so in humanistic fields that are concerned with specific geographical areas or linguistic traditions.

International conferences, collaborations and research organisations grew in scope in the early years of the Cold War. Governments, research funders and national academies all supported international research activities, particularly in the sciences (Collins, 2015). This emergence of a global scientific community has been encouraged by the increasing use of English as the international language of science (Gordin, 2015). In the late 1940s and 1950s, Dutch and British publishers pioneered the publication of English-language research journals targeted at international communities of contributors and readers (Meadows, 1980); and by the early twenty-first century, English-language journals were being published in countries all over the world.

Rising education levels coupled with government support during the Cold War meant that the number of active researchers increased. Combined with international expansion, this meant that disciplinary communities were substantially larger in the late twentieth century than they had been in the late nineteenth century. This reinforced the existing trend towards evaluating intellectual merit through publication, rather than relying on personal interaction and social networks.

Expansion and 'Crisis' of Academic Publishing

The growing size of the international research community can be measured not just by personnel but by published output. By that yardstick, the output of academic publishing has clearly been growing over the last half century.

Between 1950 and 2002, the total number of books published annually in the UK has trebled to 125,000 new titles, with an estimated 53% of these being academic or professional books (Thompson, 2005, p. 52). With more universities and more academics, more scholarly books were being written. The same was true for journal publications.

By 1950, it has been estimated that there were around 10,000 journals worldwide, and by 1980, that estimate grew to 62,000 (Meadows, 2000). Derek de Solla Price's influential analysis of scientific journals revealed exponential growth in journal publishing over the previous three centuries, with a doubling time of around 15 years (de Solla Price, 1963). More recent analyses confirm the exponential growth trend but vary in their estimates of both current and historical growth rates. One identifies several distinct phases of growth, of which the most rapid has occurred since the mid-twentieth century (Bornmann & Mutz, 2015).

Since the 1970s, the wider availability of databases (such as the pioneering Science Citation Index, 1964) has moved the focus of analysis from numbers of journal titles to counts of articles and of the citations they gather. These, too, show the growth of published research.

The increasing output of academic publishing during the 1950s and 1960s coincided with the expansion of universities and the availability of generous funding for core functions such as libraries. By the 1980s, the contraction of core university funding meant libraries were unable to keep up with the growth in academic publishing. This became widely known as the 'serials crisis' (Douglas, 1990), although, as libraries diverted funds to journal budgets, it seemed to some more of a 'monograph crisis' (Thompson, 2005).

Now, we will discuss the key elements of this story in more detail:

1. The Commercialisation and Consolidation of Academic Publishing

One of the most dramatic changes in academic publishing since 1945 has been the emergence of commercial firms that were able to become highly profitable. This was due in part to the growth of academic research and the relatively generous funding available for the expanding university library sector: there was more research to be published, but also more institutions able to purchase it. But it was also due, critically, to the adoption of new publishing strategies associated with new players in the academic journal publishing market led by British and Dutch firms, most notably Pergamon Press and Elsevier. These strategies were subsequently imitated by the older commercial firms, and would influence the practices of mission-oriented publishers.

The new players in the market developed a threefold strategy:

1. Rather than focusing on the publication of scientific news and short research reports, as nineteenth-century commercial journals had done, they sought to be publishers of detailed primary research papers. They set up dozens of new research journals, particularly in the many emerging sub-disciplines which did not yet have journals (or societies) of their own.
2. They focused on selling to institutions. This contrasted both with the learned society tradition of giving copies of journals to many universities and libraries *gratis*, and with the model used by periodicals like *Nature*, which initially concentrated on sales to individuals. The new players recognised that institutions could be charged more per subscription than individual readers.
3. And, most importantly, the new players focused on the international market. They therefore had a vastly larger potential customer-base than the traditional nationally- (or linguistically-) based journals. To do this, they published in English (helping to develop English as the new international language of research); they recruited international editors and editorial boards; they solicited international contributors; and they targeted institutions worldwide (especially in the USA).

The older model of academic publishing practised by learned societies and university presses had prioritised the wide circulation of high-quality scholarship, with little or no expectation of making money. The new commercial model demonstrated that, in the new world order, it was possible not merely to break even but to make profit.

From the 1950s to the 1970s, publishers of all types developed increasingly sophisticated sales and marketing strategies; and they also recognised that certain costs could be reduced by sharing them between multiple journals or book series. Economies of scale encouraged academic publishers to get bigger, either by launching new journals, or by acquiring existing ones from smaller publishers. This was part of a wider pattern of mergers and acquisitions in the publishing industry, that had started in the 1960s and was intensified in the late twentieth century by the need to address the costs and opportunities of digital technologies (Thompson, 2005).

Mission-driven publishing organisations, such as learned society publishers and university presses, were significantly affected by the emergence of a viable commercial model of academic publishing. Adopting the new strategies meant that subsidising the publication of research could become a choice, rather than the necessity it once had been (Fyfe, 2015a). During the 1950s and 1960s, mission-driven publishers focused on the modest goal of trying to break-even, but by the 1990s, income-generation was increasingly seen as the goal, especially in journal divisions. These organisations have not abandoned their scholarly missions, but have sought ways to adopt commercial strategies alongside the mission. The role of society publishing and university presses in relation to their parent institutions has been tacitly recast: rather than a direct service to scholarship, publishing has become a tool for generating income that can be put to good purpose (for instance, by funding conferences, travel grants or student bursaries).

But size matters: only a few learned societies and university presses have the capacity to compete effectively with those publishers that are part of international media conglomerates. The largest journal-publishing societies and the biggest university presses now have professional publishing teams that generate significant additional income for their host organisations. Academic book publishing remains a difficult area, and the big university presses (and the commercial book publishers) have diversified into publishing trade books, textbook and reference works (Thompson, 2005).

Smaller learned societies, which could not afford to invest in their own marketing departments, copy-editing services, or new technology, have increasingly entered into profit-sharing co-publishing relationships with larger publishers. By 2004, about half of all societies published via a third party; both commercial publishers and university presses are involved in this (Baldwin, 2004). Co-publishing arrangements have given smaller societies access to expertise and services they cannot themselves provide, as well as a new income stream; but it also means that their pricing, sales and marketing strategies are usually driven by the imperatives of their publishing partner. The societies themselves appear to have little information about how their income is derived (Inger & Gardner, 2013).

In both journal and book publishing, there are a small number of large players and a large number of tiny players. The effect is most extreme in journal publishing, and specifically in subject areas where learned societies and university presses are less active (since they are generally insulated from acquisitions and mergers by their non-profit status and close ties to their host institutions).

There are now an estimated 5,000 to 10,000 journal publishers globally, but most issue only one or two journals. Just four large commercial firms each publish more than 2,000 journals: Springer Nature, Elsevier, Wiley-Blackwell, and Taylor & Francis (Ware & Mabe, 2015, p. 45). Their profitability has become so reliable that they are regarded as sound investments (Morgan Stanley Equity Research, 2002; Aspesi & Luong, 2014). This 'oligopoly' of big commercial firms has most influence in the social sciences, where they publish 70% of articles globally. In natural sciences, where certain learned societies (such as the American Chemical Society) remain significant players in the journal market, the top four commercial publishers account for around 50% of published papers. In contrast, in the humanities, the continuing focus on fragmented, local and linguistically-bounded markets appears to have more limited appeal to the big multi-nationals (Larivière, Haustein, & Mongeon, 2015).

There has been a concentration of ownership through acquisitions and mergers among commercial book publishers, many of which are now part of international media conglomerates whose parent companies have diverse interests beyond academic publishing. The university press landscape is dominated by Oxford and Cambridge, which have historic reasons for being vastly larger than any of the others (Thompson, 2005). But the presence of a significant number of mid-sized university presses in the USA has meant that academic book publishing is not quite so skewed towards a small number of players as is journal publishing (Esposito & Barch, 2017).

2. Research, and the Prestige of Universities

The post-war growth of the UK university sector, and particularly the removal of the binary divide between universities and polytechnics in 1992, has meant that universities need to work harder to distinguish themselves from their rivals. Research activity and excellence have become key ways to do that, and thus academic publications have become particularly valued.

In the traditional, liberal idea of the university, research and teaching were part of a shared enterprise, and this was reflected by way that the 'block grants', awarded to each university by the University Grants Committee in the 1960s and 1970s, were intended to fund both research and teaching.

But the British higher education sector, its relationship to government, and its funding were transformed during the 1980s (R. Anderson, 2016). Expansion of higher education continued, but the difficult economic climate, coupled with changes in political-economic orthodoxy, meant that government funding did not keep pace. Institutions faced flat, or even falling, levels of funding.

At the same time, increased state intervention during the Thatcher years eroded the autonomy of the universities, and gave rise to demands for more accountability. Teaching and research budgets were separated in 1985, and in 1989, the University Grants Committee, which had largely protected the universities from economic or social demands, was abolished. Government strategies for university teaching and research have since developed separately.

Since the late 1980s, research has risen in importance as an indicator of the reputation and status of UK universities. It can be a source of significant additional funding, and is increasingly used to discriminate between universities.

- Since 1986, research assessment exercises (the Research Excellence Framework (REF) and its precursors) have been used to allocate core government funding to UK HE institutions. Certain universities have thus been able to gain additional funding on the basis of their research activity.
- In 1992, the polytechnics were granted university-status, despite their prior focus on vocational teaching rather than research-led teaching. This encouraged many pre-1992 universities to emphasise their research excellence so as to distinguish themselves from their competitors. Although some newer universities have built reputations for teaching excellence, both formal and informal measures of institutional prestige continue to favour the older, research-intensive universities, thereby cementing the perceived relationship between prestige and research. This trend has been substantially shaped by the increasing influence of international league tables, some of which rely largely on research standing and make little effort to evaluate teaching properly (Hazelkorn, 2015).

For both these reasons, universities that see themselves as research-intensive have sought to appoint and retain academic staff with strong research profiles. They have developed appointment and promotion procedures which emphasise research rather than teaching. Academic publications are a key part of these reward and recognition procedures.

The continued expansion in student numbers since the 1990s has increased the attention paid to university teaching. The Dearing Report (1997) and the creation of the Institute for Learning and Teaching in Higher Education (2000, now the HEA) attempted to improve standards and to build a culture of teaching excellence. The vision of students as consumers became particularly powerful with the introduction of fees for higher education in England & Wales in 1998, and has inspired the establishment of a Teaching Excellence Framework, as set out in the government's White Paper on Higher Education in 2016.

To date, however, attempts to increase the recognition and reward associated with university teaching have been slow to gain traction against the culture of research-based prestige. That culture has long historical origins, but has been engrained by thirty years of government focus on research outputs. For the research-intensive universities, particularly in the post-1992 world, research has become their unique selling point and is central to their identity and mission.

3. Peer Review and Academic Prestige

While the size of the UK academic profession and the scale of its published outputs has grown significantly since the early twentieth century, there has simultaneously been a narrowing of the definition of the type of publishing that counts as 'academic' and, therefore, as prestige-generating. For instance, recent estimates that there are 24,000 academic journals in the world are significantly lower than earlier assessments; the difference is a new focus on 'serious' journals (Larsen & von Ins, 2010).

In this redefinition of academic publications, the process of editorial peer review has become central. The term 'peer review' came to public prominence in debates over grant funding in the USA in the 1970s (Baldwin, 2017), and has since been extended to cover a variety of processes by which academics formally evaluate each other's work. In the context of publishing, it is often assumed to validate new research findings, but it can also be a means of informing the allocation of limited resources, and it is widely seen as a form of accreditation that transforms a research output into a token within the academic prestige economy.

Editors and publishers have always had criteria for deciding what to publish, ranging from 'fit' with the journal or the publisher's existing output, to the size of the likely market, and literary style. However, 'refereeing', or the process of asking other specialists to evaluate the intellectual merit of scholarly work, did not originate in the book trade, but in the practices developed by communities of scholars (Burnham, 1990; Fyfe, 2015b). In the eighteenth and nineteenth centuries, most scholarly research journals and some academic books were sponsored by learned societies (and later university presses). For such organisations, referring papers to suitably-qualified members of the society or university for close scrutiny before publication was part of an editorial system that was intended to emphasise collective rather than individual responsibility, as well as to decide on the appropriate use of institutional resources (Moxham & Fyfe, forthcoming). The prestige gained by academic authors for publishing in such venues was tightly linked to the respected (and historic) role of the learned society or university in the scholarly community.

When new commercial players entered the academic journal publishing market in the post-war years, they sought to establish themselves as publishers of detailed papers of original research. This was a role traditionally associated with the society publishers, who argued that their access to the expertise and voluntary labour needed for the refereeing of such papers made them uniquely fitted for the task. But by the 1960s, the commercial publishers were able to colonise new sub-disciplines by adapting the societies' editorial processes: they recruited academics to act as editors, editorial board members and referees. Since this work had traditionally been part of the voluntary practices of the learned societies and university presses, and was seen by universities as a normal part of the duties of their academics, there was no perceived need to provide payment for this work. Refereeing, or – as it increasingly became known – 'peer review', became the way for publishers to legitimise their journals as venues for high-quality original research (Baldwin, 2015).

All academic publishing firms have now become committed to peer review, recognising it as an essential feature if their journals and book lists are to attract academic authors and be purchased by university libraries. It has spread from the society journals to non-society journals, and from natural science journals to social science and humanities journals. In academic book publishing, the long tradition of the publisher's reader has now been recast as a peer review process; like the learned societies, the university presses have embraced this terminology as a means of demonstrating their mission for advancing scholarship (American Association of University Presses, 2016).

The co-option of peer review by profit-oriented publishers now sits in tension with the perception of individual academics, who (despite complaints about the rising burden) remain largely committed to the traditional vision of refereeing and editorial work as a voluntary service to the wider academic, or disciplinary, community. The growing use of peer review, coupled with the growth and internationalisation

of academic publishing, has turned it into a massive and complex process (*Scholarly Communication and Peer Review*, 2015). The biggest publishers now provide substantial technical and administrative support for peer review, often in the form of proprietary software, and present this as part of the 'value' that they add to academic publishing (K. Anderson, 2016).

In a world where the number of peer-reviewed publications keeps on growing, publishers of all stripes have been keen to promote the use of new metrics to enable greater discrimination between one peer-reviewed publication and another. Citation counts and journal impact factors predate digital publishing, but the move online has made it significantly easier to collect and analyse both traditional and alternative metrics, and they have taken on a worrisome life of their own (Wilsdon et al., 2015). The San Francisco Declaration on Research Assessment (DORA, 2013) signalled growing awareness of the limitations and dangers of journal-based metrics as a means of assessing individual articles noting, among other things, that they could be manipulated by editors' or publishers' strategies. As yet, there has been little investigation of the extent to which article-level metrics may also be skewed by the advantages available to big publishers (such as inclusion in key bibliographical databases, more effective marketing and publicity, or the direct ownership of key analytical tools).

Thus, since the 1960s and 1970s, control of the measures of academic prestige – starting with the management of peer review, and extending to the development of metrics – has been silently transferred from communities of academic scholars to publishing organisations.

4. The Limits of the Commercial Model

For several decades, from the 1950s to the 1980s, the commercial model worked well for both publishers and academic researchers. The eagerness of publishers to launch and expand journals, and to take on new book titles, meant that academics' ability to publish their research was not constrained by the resources of learned societies or university presses. Commercial publishers helped to establish new research fields and communities, and helped to internationalise and expand the circulation of academic publications.

By the 1980s, this golden period was over. The key contributing factors to its demise were:

- **The expanding research base:** the number of new journals continued to grow, as did the number of books being published.
- **The state of the economy:** the late 1970s was a time of significant inflation. The annualised UK inflation rate for the 1950s and 1960s had been 4%, but in the late 1970s, it was over 14% (Measuring Worth, 2016). Publishers' costs rose. Library budgets no longer stretched so far.
- **University funding:** in the 1980s, UK government funding for higher education did not keep pace with the ongoing expansion of the sector. Universities experienced funding cuts, and library budgets were easy targets for cash-strapped institutions wishing to redistribute resources. This was particularly true in those universities that did not do well at gaining additional research funding. Library purchasing budgets either stagnated or were cut.
- **Exchange rates:** UK universities do not purchase only UK-published books and serials, so library purchasing power is affected by exchange rate fluctuations (Kidd, 2010). Since the late 1970s, the pound has been weaker against the US dollar (purchasing less than \$1.80) than it was in the immediate post-war period (around \$2.80).

For all these reasons, from the 1980s on, the cost of maintaining a well-stocked university research library has grown enormously, and universities have struggled to find the funds. Between 1993 and 2014, total UK HEI library expenditure on journals rose from £47m to £180m per year, an increase of 280% (SCONUL data,

2017; Jisc 2017); in comparison, the RPI increased by 82%. Expenditure on academic books appears to have roughly kept pace with inflation; but given that book prices rose, and that the number of new academic book titles more than doubled in the 1990s alone, this means that most university libraries are purchasing a smaller proportion of the academic books available (Thompson, 2005). For publishers, these economic conditions meant that sales to institutions could no longer be taken for granted.

In some industries, difficult economic times might have led to cut-throat competition and price-slashing. Academic publishing does not, however, function as a free market. Unlike most commercial goods, academic journals and books are each unique and cannot be substituted by cheaper alternatives. Thus, university libraries and their readers cannot choose between equivalent goods; and they have little or no bargaining power because publishers are under no competitive pressure from rivals with cheaper goods (McGuigan, 2004; McGuigan & Russell, 2008). For as long as there was money in library budgets, publishers had been relatively free to create new journals, expand existing ones or increase prices, secure in the knowledge that any university which wished its academics to have access to the latest research would continue its subscription.

The economic constraints on library budgets produced what university librarians dubbed the 'serials crisis' (Douglas, 1990; Panitch & Michalak, 2005). They have also led to rapidly declining sales of monographs (Thompson, 2005; Eve, 2014a). This turned out to be no brief crisis, but the new normality. It is now clear that library funding has not – and cannot – keep pace with the continually-increasing numbers of journals and books needed to contain the new discoveries and observations of the global research community.

Moreover, the rising prices of books and journals has exacerbated inequalities in access between academics at different institutions. Those fortunate enough to work at universities with endowed wealth or substantial success at winning research grants have far better access than those elsewhere (and the wider public has even less access).

For the publishers, the changed circumstances have made it more challenging to find ways to keep academic publishing profitable. Pursuit of economies of scale encouraged the consolidation of ownership among commercial journal and book publishers. Publishers were forced to develop increasingly creative income-generating strategies, ranging from complicated bundling arrangements to the disaggregation and repackaging of content (Thompson, 2005, p.322). Digital technologies would offer significant opportunities for this.

5. Alternative Technologies

Digital technologies are certainly not the first technological advance to affect the academic publishing world. In the nineteenth and early twentieth centuries, there were many innovations in the machinery of paper-making, printing and typesetting; these reduced the cost, and increased the speed and scale of production. New methods of transportation enhanced the pace and reach of global circulation. But none of these earlier technological innovations changed the essential nature of academic publications as physical objects that academics could produce and circulate only with the assistance of experienced tradesmen or industries.

From the 1950s, photographic methods of reproduction meant that students and researchers could make personal copies without the labour of transcribing, and libraries could create miniaturised preservation copies of certain materials (Gitelman, 2012). Combined with typewriters, these technologies made it possible for individuals or groups of academics to publish their own pamphlets, journals or short books. But experiments with distributing academic publications as photocopies or microfilm had limited success, partly because of the lack of a wide-reaching distribution infrastructure; and partly because the moral

courage and commitment required to publish research outside the established prestige-generating channels proved too high a barrier for most academics.

In the 1980s, early computer technologies, such as word-processing and typesetting software, reduced the time and production costs of academic publishing. For a brief period, it seemed that a move to CD-ROMs might succeed where microfilm had failed in transforming the distribution and storage of academic publications away from printed paper.

Ultimately, it was the spread of the Internet in the 1990s which would change the physical form of academic publishing. Online publishing enables research to be distributed globally, rapidly and cheaply, so long as the end-user has an Internet connection. Editorial and typesetting costs remain; but the costs of paper, ink, binding, packing and shipping have been replaced by the cost of running a digital platform. It offers cheaper marketing and promotional opportunities, and the marginal costs (the cost of producing an extra unit) diminish at scale virtually to zero. Online dissemination thus offers a way of controlling costs that was not accessible to scholarly publishers in the pre-war period, and its global reach is theoretically capable of fulfilling the grand ambitions for the circulation of knowledge held by pre-twentieth-century scholars.

Since the early 2000s, social web technologies have facilitated the digital publication and circulation of content directly generated by users (rather than by publishers). In principle, academic authors can now publish and distribute their work on their own webpages, or on repositories run by universities or non-profit organisations. Technical support and systems are certainly needed, but the traditional publishing firm is no longer a necessary point of access to the technological capacity to produce and distribute academic research.

6. Academic Publishing Online

Digital technologies at first appeared to offer hope of a resolution to the serials crisis. There were strong non-profit interests behind the development of the Internet and the Web, and in the early 1990s, there were predictions of price cuts and widespread online access to academic research. In some academic communities, new models for communicating research quickly, cheaply and internationally were developed on a non-profit basis, most notably the creation of an online pre-print server for the physics community (*arXiv.org*).

But most of the successful early entrants into online academic publishing were the big commercial publishing firms. They were large enough to absorb the technical costs involved, and many were part of media conglomerates that were already exploring digital opportunities in other fields. For these firms, the Web was a new commercial opportunity. Savings on production costs would help the already threatened profit-margins; and digital distribution opened up new ways of generating income, including:

- The so-called 'Big Deal', a contract to provide online access to a 'bundle' of journals over a number of years. These deals were good for income-generation because they locked-in subscribers, and typically obliged them to subscribe to more titles than they might otherwise have chosen (Bergstrom et al., 2014).
- Selling individual articles directly to readers.
- Offering additional paid-for services based on metadata, such as usage statistics, citation webs and bibliographic databases. Some of these measures of circulation and readership are presented as evidence of impact and influence, but they are highly dependent on the effectiveness of the publishers' digital distribution and marketing.
- Charging for text and data mining, even for those with institutional subscriptions.

Untangling Academic Publishing

Recognition of digital replication and dissemination was incorporated into intellectual property legislation in the USA in 1998, in the EU in 2001 and in the UK in 2003. This has enabled the media, publishing and entertainment industries to develop new practices for digital rights management. Likewise, the big academic publishers have sought to control the rights to digital copying and sharing to protect the profitability of works they publish.

Copyright legislation exists to protect the rights-owners' ability to benefit from the reproduction and dissemination of material that belongs to them. With the exception of certain types of books, academics generally do not expect to make money from their research publications, and have traditionally been relaxed about asserting copyright. Most willingly sign the copyright transfer forms that have been required by many journal publishers since at least the 1990s. This clear proof of ownership enables publishers to control and monetise the digital rights to research, including re-use. Only relatively recently, with the emergence of the Harvard mandate in the United States (2008) and the proposed UK Scholarly Communications Licence (2017), has the tension between the protection of copyright and the desire to circulate knowledge been recognised and re-negotiated through licensing agreements.

The global output of research continues to grow, but the successful transfer of the commercial model of academic publishing to the online world means that digital technologies have yet to deliver the benefits that academics and librarians had hoped for. University libraries continue to struggle to find funds to keep up with the latest publications, just as they were doing before the Internet. The issues of affordability, circulation and access originally raised in the 1980s appear unresolvable without fundamental changes to the model of academic publishing.

The UK government's commitment to gold open access funded by Article Processing Charges (after the *Finch Report*, 2012) protects the commercial model without addressing the underlying tension between it and the goal of circulating knowledge widely. It is notable that the Finch group's official remit to develop a viable policy on open access was supplemented by the instruction not to damage the publishing industry in the UK (Curry, 2012). It is therefore unsurprising that the same few big publishers that dominate the subscriptions market also receive the greatest share of the money paid for APCs to support the UK's policy (Lawson, Gray, & Mauri, 2016).

The UK government has insisted on obtaining value for money from public investment in research, and one consequence has been an increased reliance on journal-based measures of achievement. But it is telling that the same spirit of accountability has not been applied to the systems for publishing that research, even though they are largely publicly-funded (via subscriptions and APCs paid by universities and research councils). The markedly higher costs-per-page and costs-per-citation at the journals of commercial publishers, compared to those run by non-profits, suggests that existing pressures are not affecting the extent to which profit is prioritised over service to the research community (Bergstrom et al, 2014).

In addition, efforts to use the Web to create alternative, non-profit-driven models of academic publishing have been stymied by the inertia of the academic prestige culture. For valid historical and cultural reasons, academic systems of reward and recognition privilege the established forms of academic publication. This includes the emphasis on the peer review process as a *sine qua non*, as well as the name-recognition and prestige attached to papers in particular journals or books from particular presses. In the online world as in the printed world, publishing research with a familiar journal or press brings more prestige to its author; publishing in a new online journal or repository – as in a typescript journal in the 1960s – may be seen as a career risk.

It would still take significant moral courage for a UK academic now to publish their work outside the traditional publishing structures, although there are variations between academic communities. As long as prestige is associated with established journals and presses, most academic publishing will continue to be done under the auspices of the big publishers, despite the now well-established tension between commercial goals and effective systems of research communication.

Conclusions

In spite of the professionalization of research careers, the amateur ethos of the academic community remains strong, and broadly supports the free sharing of knowledge on an international scale. In the twentieth century, however, the business of academic publishing has come to be dominated by commercial motivations, even among mission-oriented publishing organisations. For a brief window of time, roughly from the 1950s to the late 1970s, the interests of profit-driven publishers and the academic community broadly coincided: both saw the need for new journals to support new fields of research; and both shared a desire to expand circulation on an international scale. Commercial publishers adopted strategies, including peer review and the use of the journal impact factor, that made their publications into key elements of the academic prestige economy.

Since the 1980s, however, the budgets of university libraries have been unable to keep up with the increasing number and cost of academic journals and books. Academics put in more and more work as referees and editors of a growing number of publications. Publishers continue to devise ways to monetise the academic publications whose copyright they own. The prices of academic publications continue to rise, making them less affordable and accessible.

We are not the first to wonder why academics continue to give their labour – as authors, referees and editors – to publishing firms that do not, in fact, circulate knowledge widely and affordably. The answer lies in a lack of detailed understanding among academics of the historical and economic forces at play in academic publishing; and in the success with which big publishers have learned how to make themselves apparently indispensable to the academic prestige economy. We hope this paper will help to address the former problem, and might at least stimulate debate about the latter.

The new digital technologies offer the academic community the opportunity for low-cost digital circulation of knowledge on a global scale. But academic engagement with these new possibilities has so far been constrained in two ways:

- By the institutional culture of academia, where the emphasis on prestige rewards academics as authors for engaging in traditional forms of academic publishing, many of which are controlled by commercially-motivated firms;
- And by the lack of credible, prestige-generating alternatives to those offered by the big commercial firms and their imitators. Even non-profit scholarly publishers have tended to see online publishing as a valuable income stream, rather than seeking ways to use the potential of the Internet to carry out their traditional ideals of promoting the circulation of knowledge.

All those involved in public debates about the future of academic publishing need to acknowledge that academics as authors are not yet free to act entirely in the interests of the most efficient system of research communication. A viable and sustainable model for academic publishing needs realistic consideration of the role it currently plays within the prestige economy that underpins the academic community.

Reflections and Recommendations

So far, we have looked back at the way in which the goal of circulating research has become entwined with the commercial interests of publishers, and with the deep dependency of academic careers on the prestige that accrues through publication. Now we wish to look forward, and to propose ways in which some of the knotty problems of scholarly publishing might be untangled.

We have suggested that existing moves by governments and other funders to increase accessibility by promoting open access publishing have so far been stymied both by the power of the traditional prestige culture among academics, and, financially, by the lack of determination to demand of publishers the competition and value for money that are routinely expected of researchers.

We have discussed the market advantages secured by the dominant commercial firms. Those advantages are held in place by the lack of real competition between subscription journals and by the dependency of academics on journal-based measures of esteem. As has been noted elsewhere, these measures create perverse incentives that impede the dissemination of research by delaying scholarly communication (as authors chase journal impact factors through cycles of submission and rejection), by creating a fixation on novel and positive results that generates a biased and incomplete account of the research enterprise, and by reducing confidence among academics that their work will be judged on its own merits (Casadevall & Fang, 2014; Vale, 2012).

Far less attention has been devoted to equivalent processes in book publishing. Reasons for this may include an assumption that the speed of book publishing is intrinsically slow and largely out of the author's control; the lack of anything like an impact factor to quantify the cachet associated with particular publishers (even though there are clear pecking orders in most fields); and the significant role of university presses, which are assumed to share academic values (despite the pressure on those presses to be self-supporting or income-generating).

We hope that our historical account will give some academics a greater appreciation of the roots of the ethos of sharing that still permeates the academic community and sustains the efforts of those who write, review and edit for scholarly journals without direct remuneration. We also hope it might stimulate deeper reflection by academics on how the choices they make, as authors, reviewers and editors, contribute to the *status quo* – and how different choices might help to shift this.

Clearly academics are not the only stakeholders here and do not bear sole responsibility for change. The wider system of incentives in which they participate is also influenced by governments, funders, universities, learned societies and publishers. We acknowledge the challenges faced by university presses and by learned or disciplinary societies that are also publishers. Many of these mission-driven organisations generate significant income from publishing to support a range of scholarly activities (Eve, 2014b). Nevertheless, universities and learned societies are the key institutions that reward academics and should have an active role to play in creating a non-profit, online model for academic publishing that meets academic desires *both* to circulate and share knowledge widely and to gain prestige among peers. They could do this by offering direct support for non-profit publishers (which deliver better value for money), or by harnessing emerging technologies to establish their own publishing venues (as several universities have recently done). Such efforts need to be coupled to moves – which will need to be coordinated internationally – to reassure researchers that their work will be judged on its own merits, rather than relying on brand recognition of journals or publishers.

Although we have identified the market dominance of the major publishing conglomerates as particularly problematic, we recognise that commercial players have played an important role in scholarly publishing.

In the mid-twentieth century, they supported the international expansion of research; and in the early twenty-first century, they are among the most active innovators as they test and stretch the capabilities of digital publishing. We recognise the innovation and value that comes from having a diversity of organisations working in this area. But it can only deliver value for money in an efficient market. The large profit margins extracted by the major publishers reflect the advantages they enjoy in a market that is skewed by non-fungible goods and a preoccupation with journal or publisher reputation.

In principle, the shift to a fully open access publishing ecosystem would create more effective competition between publishers as service providers to authors, and has the potential to finally resolve the problem of maintaining a well-stocked research library on limited resources. This may take some time since relatively few countries have committed to supporting gold OA (notably among them, the UK) and the problem of researcher inequalities across the globe remains to be resolved. However, a stronger requirement by funders for their researchers to achieve value for money in their publishing choices could provide a useful incentive for changing behaviour.

Informed by our historical analysis, we would therefore like to make the following recommendations for key players with a stake in the future health of scholarly publishing.

To the UK government and its research agencies:

Policy for future academic publishing should retain a focus on enabling open access to ensure free access to publicly-funded research. It should be innovative and not seek to protect the commercial business model of the mid-to-late twentieth century. As with the broader Higher Education sector, the government should commit to achieving good value for money by finding ways to stimulate competition.

- Government departments should make annual declarations of lobbying by academic publishing companies.
- National funding agencies should seek, where possible, to record systematically the total cost of enabling access to academic publications (e.g. through subscriptions, processing charges for open access articles and books, book purchases).
- The UK government should work with other nations to develop consistent support systems for the rapid communication of academic research, and value for money.

To university leaders:

Universities should lead, rather than react to, changes in academic publishing practices. They should recognise the ways in which academic concerns about reputation and career development are unduly influenced by large academic publishers whose commercial interests are not sufficiently in tune with those of the academic community.

- Universities should revise their recognition and reward processes to relieve staff from the pressures associated with journal-based metrics. (Signing the San Francisco Declaration on Research Assessment can serve as a clear signal of intent in this regard, empowering staff to challenge the *status quo*.) These revised processes will give staff increased confidence that their work will be judged on its own merits. In this way universities will enable their academics to take fuller advantage of publisher offerings that combine rigorous peer review with increased speed and value for money.
- University leaders should introduce measures (such as the UK Scholarly Communications Licence) to ensure that the copyright in academic work is retained by its creator, rather than being transferred *in toto* to third-party organisations. This is an appropriate rebalancing that will allow researchers to assume greater responsibility in the dissemination of the fruits of their work.
- University leaders should recognise that, as employers, they are the funders of a large proportion of research in the arts and humanities; with fewer and fewer publishers remaining in the academic book market, universities should shoulder the responsibility for making academic work in those fields known more widely.

To the trustees, directors and officers of mission-driven or discipline-based learned societies (and other representatives of disciplinary scholarly communities):

Learned societies that have a charitable, educational or academic mission should consider the appropriate balance between their desire to generate unrestricted income from publishing for charitable activities, and the long-term consequences of allowing the publication of academic research to continue to be dominated by commercial models. They should recognise that their ties to academic communities give them a strong claim to be able to set or redefine standards of scholarship and norms of prestige in their field. That authority could be used to develop and legitimise alternative publishing models.

- Learned societies should facilitate discussion and greater awareness among their members about the relationship between academic prestige, the publishing industry, and the circulation of knowledge. To inform such discussions, annual reports should explain the organisation's rationale for the pricing of its book and journals, and how this is justified by the organisation's mission.
- Societies that co-publish journals or book series with third-parties should reflect on whether the mission and business strategy of the co-publisher is a good fit for the society's scholarly mission.
- Disciplinary communities should embrace the opportunities for more rapid and widespread circulation of research offered by pre-print servers (such as *arXiv* and *bioRxiv*), and online mega-journals.
- Learned societies should open discussions with other societies with similar interests, both in the UK and internationally, to consider whether pooling resources could enable the creation of a low-cost, sustainable, online and non-profit-driven model of academic publishing.

To academics:

We would ask scholars to consider the responsibilities that sit alongside academic freedom and to reflect on whether they might re-prioritise the duty to communicate rapidly and widely in the face of the reputational credit that is earned through publication. Given the crucial role that academics play in peer review, we occupy a central and influential position.

- Those serving as editors of journals and book series, or on editorial boards, should reflect on the ownership and mission of the publishers they are working for, and consider whether they are helping to get the best value for their discipline by serving in these roles.
- In setting up new journals or book series, academics should seek to work with mission-driven, non-profit-oriented publishers or online platforms.
- Senior research leaders should leverage their accumulated prestige to enable their more junior co-workers to balance rigour, speed and value for money in their publishing choices.
- Academics should not sign copyright transfer forms that would give ownership to a profit-oriented publisher if a licence to publish can be granted instead.

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Untangling Academic Publishing:

A history of the relationship between commercial interests,
academic prestige and the circulation of research

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#UntanglingAcPub

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About this Briefing Paper

In 2013, the UK Arts and Humanities Research Council funded a 4-year project on the editorial and commercial history of the world's oldest-surviving scholarly journal ('Publishing the *Philosophical Transactions*: a social, cultural and economic history of a learned journal, 1665-2015', AH/K001841). The project is led by Dr Aileen Fyfe at the University of St Andrews in partnership with the Royal Society.

The project team convened a workshop at the Royal Society, 22 April 2016, on 'The Politics of Academic Publishing, 1950-2016'. This briefing paper is informed by the contributions of those who attended that day, and we thank them for their insights. The authors of this briefing paper are a sub-group of those who attended the April 2016 workshop.

This report is based upon the primary (historical) research of the *Philosophical Transactions* project team, combined with a literature review, and the expertise of the other authors (principally in higher education research, and in scholarly communication).

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