

• 科学技术史 •

英国皇家学会传播科学期刊的地理和政治(1760–1930年)

The Geography and Politics of the Royal Society's Approach to Circulating Scientific Journals, c.1760-1930

艾琳·法伊夫 / Aileen Fyfe

(圣安德鲁斯大学历史学院, 英国圣安德鲁斯, KY16 9AJ)
(School of History, University of St Andrews, St Andrews, KY16 9AJ, UK)

摘要: 18世纪末和19世纪,英国皇家学会在国际上传播它的科学期刊的主要方式是向学术机构赠刊。本文将首先考察把《哲学汇刊》和《皇家学会学报》作为礼物进行交换的实践起源。在19世纪越来越多的机构被列入受赠名单。这一增长反映了英国皇家学会对科学和学术界的看法在地理上不断扩张,从英国和西欧到大英帝国以及其他地方,这也揭示出各种各样的组织,不仅仅是大学图书馆,在历史上已经被看作是读者获取科学期刊的合理路径。本文最后将根据现存的档案材料考察英国皇家学会评估其他机构的学术声誉的隐性评价标准。其结果是得到一个从伦敦视角来看的19世纪全球学术机构格局的新图景。

关键词: 科学期刊 英国皇家学会 科学机构 科学传播 跨国史

Abstract: Philanthropic gifts to learned institutions was the key way in which the scientific journals of the Royal Society of London circulated internationally in the late eighteenth and nineteenth centuries. This paper begins by considering the origins of the practice of using the *Philosophical Transactions* and the *Proceedings of the Royal Society* as gifts and in exchanges. Over the course of the nineteenth century, more and more institutions were added to the list of recipients. This growth reflects the expanding geographical horizons of the Royal Society's view of science and scholarship—from Britain and western Europe, to the British empire and a few places beyond—and also reveals that a wide variety of organisations (not just university libraries) have historically been considered as plausible points of access for readers of scientific journals. The final section of the paper examines

收稿日期: 2023年6月12日

作者简介: 艾琳·法伊夫(1975–)女,英国圣安德鲁斯大学现代史教授。主要研究19世纪英国的科学传播和普及史。著作有:《科学与救赎:英国维多利亚时代的福音派和科普出版》(2004年)、《市场中的科学:19世纪的场所和经验》(2007年,与伯纳德·莱特曼合编)和获奖的《蒸汽动力推动的知识:威廉·钱伯斯与出版业,1820–1860》(2012年)。她目前用英国皇家学会的史料来研究从17世纪至今的学术出版史,包括科学期刊的财务模型、编辑和评审过程、以及学会作为出版商的角色。她领衔撰写的报告《解开学术出版:商业利益、学术声望和研究传播之间关系的历史》在2017年发表并被广泛引用。Email: akf@st-andrews.ac.uk

Aileen Fyfe is a historian of science, technology and publishing, and Professor of Modern History at the University of St Andrews, UK. She has written about the history of science communication and popularisation in nineteenth-century Britain, ranging from children's books to guidebooks and religious tracts. Her books include *Science and Salvation: Evangelicals and Popular Science Publishing in Victorian Britain* (2004), *Science in the Marketplace: Nineteenth Century Sites and Experiences* (2007, ed. with B. Lightman) and the prize-winning *Steam-Powered Knowledge: William Chambers and the Business of Publishing 1820-1860* (2012). Her current research uses the long history of the Royal Society, London, to investigate the history of academic publishing from the seventeenth century to the present day, including the financial models underpinning scientific journals, their editorial and reviewing processes, and the role of learned society publishers. Her expertise on the historical development of academic publishing has been recognised by invitations to address funders, policy makers and publishing organisations. She is lead-author of the widely-cited 2017 briefing paper *Untangling Academic Publishing: A History of the Relationship Between Commercial Interests, Academic Prestige and the Circulation of Research*.

the surviving archival evidence for the tacit evaluation criteria that underpinned the Royal Society's assessment of the scholarly reputation of other institutions. The result is a new picture of the global landscape of scholarly institutions in the long nineteenth century, as seen from London.

Key Words: Scientific journals; Royal Society of London; Scientific institutions; Scientific communication; Transnational history

中图分类号: N09; G255.2 文献标识码: A DOI: 10.15994/j.1000-0763.2024.05.009

In April 1924, the Royal Society of London received two requests from China. The Imperial University of Peking (now Beijing) and the Science Society of China, Nanking (now Nanjing) both hoped to be added to the "List of Institutions which receive the *Philosophical Transactions* or the *Proceedings* of the Royal Society"^①. The *Philosophical Transactions* is the world's longest-running scholarly journal. It was launched in 1665 as a private venture by Henry Oldenburg, and since 1752, has been owned and managed by the Royal Society. It was joined by the *Proceedings* in 1831. The Society began gifting copies of the *Transactions* to a handful of learned institutions in 1760s, and by the time the Chinese requests arrived in the early twentieth century, its "List" of recipients ran to over 460 institutions. Until the mid-twentieth century, more copies of the Society's journals were being distributed by gift and exchange than were being sold; and this was a particularly important mechanism for international circulation.¹

The Royal Society's responses to the two Chinese requests reveals that publications were not automatically granted to any institution that asked. The Imperial University of Peking was granted copies of all the Society's journals—both series (A and B) of the *Philosophical Transactions*; *Proceedings* A and B; and the Society's *Yearbook*—but the relatively new Science Society of China was granted only the *Proceedings* A

and B, and was required to make its own arrangements for shipping them from Europe^②. In the same year, the Royal Society also agreed to send *Proceedings* B to the agriculture department of Kyushu Imperial University, Fukuoka (Japan)^③; but it declined to send *Proceedings* to the National Museum of Budapest (Hungary)^④.

The Royal Society's philanthropic circulation "List" reveals *where* in the world the Royal Society fellows believed their scientific journals ought to be read; and *which* institutions were regarded as effective nodes for reaching scholarly readers. However, the printed lists do not reveal *why* those institutions were selected. The surviving archival records offer some hints about the selection and evaluation process. In contrast to the Society's procedures for papers submitted for publication in the journals (codified from the 1750s), and for research grant applications (from the 1850s), there was no formal application procedure for institutions seeking to join the "List", nor any explicit criteria^⑤. Nonetheless, in deciding whether to make a grant of publications—and if so, which journals to include, and on what terms—the Royal Society fellows were making tacit evaluations of other scholarly institutions. During the period considered in this paper, their tacit criteria included the scholarly credentials of an institution, the Society's desire to impress a particular institution or patron, and to the existing availability of copies of the journals in that city.

① See letters from Francis Towle (assistant secretary of the Royal Society): Royal Society archive, London (hereafter RS)

NLB/66/304 (to the president of the Science Society of China) and RS NLB/66/306 (to T. L. Yuan, in Paris, re the University of Peking), both 4 April 1924.

② See letters from Towle: RS NLB/66/304 (to the president of the Science Society of China) and RS NLB/66/306 (to T. L. Yuan, in Paris, re the University of Peking), both 4 April 1924.

③ See letter from Towle to Prof S. Kato, Department of Agriculture, Kyushu Imperial University, Fukuoka, Japan, 4 April 1924, RS NLB/66/305.

④ See letter from Towle to the General Secretary of the Zionist Organisation, 9 April 1924, RS NLB/66/327.

⑤ On the criteria for publication, see Noah Moxham and Aileen Fyfe, "The Royal Society and the prehistory of peer review, 1665-1965," *Historical Journal* 61, no. 4 (2018): 863-89. For grants, see PhD work-in-progress by Danielle Farrier, University of St Andrews.

International geopolitics were sometimes also relevant.

This paper investigates what the evolution of the Royal Society’s “List” of institutions can tell us about the changing global landscape of scholarly institutions, and their perceived suitability of different types of institutions as nodes for access to journals, as seen from London. Equivalent analysis for other national academies (or similar), or of the reciprocal lists of “publications received”, would doubtless offer an alternative view of the scholarly world. The geographical and quantitative analysis in this paper is based upon samples of the printed lists (1838, 1878, 1908, 1923)^①, one archival list (1816)^② and two lists recreated from surviving archival material (1765 and 1932)^③. These eight lists have been transcribed and geocoded; the data are openly available as a spreadsheet^④. Geographical and statistical analyses are complemented by qualitative evidence from the Royal Society archive, particularly from the minutes of its Council (ruling body) and its Library Committee.

We will start by considering the origins of the Society’s scheme of gifts, and what the changing language used by the Society implies about the meaning of its *gratis* circulation. The second section illustrates the three key trends in the development of the “List” from the 1760s to the 1930s, while the final section investigates the decision-making that led institutions to be added to (or, in the early twentieth century, cut from) the “List”.

I. The Origins and Meaning of the “List” of Institutions

Very little information survives about the sales of the Royal Society’s journals in the eighteenth and nineteenth centuries, but we do know that the vast majority of copies circulated through non-commercial

channels. They were given to fellows of the Society as a membership perk, and distributed *gratis* to selected learned institutions^⑤. In the early 1840s, the print run of the *Transactions* was 1,000 copies, of which about 140 were sold each year, while just over 500 copies went to the fellows (and foreign members), and 64 went to learned institutions^⑥. By the early twentieth century, the sales figures were similar; but there were over 460 institutions receiving *gratis* copies^⑦. We do not know who purchased the journals, but we do know which institutions were entitled to *gratis* copies. In 1828, the “List of Public Institutions... entitled to receive a copy of the *Philosophical Transactions*...” was printed in the *Transactions*, where it occupied just one page. It appeared annually thereafter, growing as more institutions were added. By 1908, the “List of Institutions which receive the *Philosophical Transactions* or the *Proceedings* of the Royal Society” occupied eighteen pages in the Society’s *Year Book*. This “List” of institutions is a valuable source of information about the circulation of the journals: it reveals the international reach of the Royal Society journals, and demonstrates the variety of institutions that were part of the scholarly-scientific world before the twentieth-century research university.

The Royal Society’s practice of using its journals as gifts dates to the mid-eighteenth century. For the first eighty years of its existence, the *Transactions* had been the private property of its editor, and although he was always one of the secretaries of the Society, the Royal Society and its fellows had no special rights to the printed copies of the *Transactions*. But in 1752, the Society took financial responsibility for the *Transactions*, as a means of gaining editorial and reputational control

① The “list” was initially published (in 1828) in the *Transactions*; it moved to the *Proceedings* in the 1830s; and then to the *Year Book* in the late 1890s, where it appeared until 1931.

② Report of the committee on distribution of *Philosophical Transactions*, RS Council Minutes CMO/09, 14 March 1816.

③ Our 1765 list has been created by collating decisions recorded in the Council minutes over the years from 1752 to 1765. Our 1932 list has been created by applying the changes recommended by an internal review in 1932 to the last list published in the *Year Book* (1931).

④ Data shared as: Aileen Fyfe (2023). Institutions receiving gifts and exchanges of publications from the Royal Society, 1765-1932. figshare. Dataset. <https://doi.org/10.6084/m9.figshare.24288820.v1>

⑤ Fyfe, “The non-commercial circulation of knowledge”.

⑥ For the figures, see Table 8.2 and surrounding discussion in Aileen Fyfe et al., *A History of Scientific Journals: Royal Society Publishing, 1665-2015* (London: UCL Press, 2022), p.271ff.

⑦ *History of Scientific Journals*, p.335 and pp.406ff.

over its contents^①. Thus, the Society gained the right to decide how best to use the printed copies “for the use and benefit” of the Society and its fellows. All fellows (and foreign members) were now entitled to claim a free copy of the *Transactions*, and the Society began to use copies of the journal as thank-you gifts to acknowledge individuals who had done something to assist the Society, such as the Jesuit missionaries in China who sent astronomical observations in 1753.

These were initially one-off gifts, but by the 1760s, the Royal Society began to make arrangements to give copies of the *Transactions* to certain institutions, regularly, repeatedly and for the indefinite future. This is the origin of the institutional gifts and exchanges. There was no explicit strategy, nor any written guidelines, for these gifts until 1932. Decisions about where to send the journals were made by the successive cohorts of Royal Society fellows who served on its council or library committee. As an internal report in 1932 would put it, the “List” represented “the accumulated effect of decisions taken over a long term of years”, and it was difficult to see “any consistent principle” behind it^②.

The fellows involved in reviewing the “List” in 1932 assumed that their predecessors’ “main object” in gifting copies of the *Transactions* should have been “to secure the publications of the sister Academies... for the Society’s Library upon terms of exchange more favourable than those of purchase”. They discovered, however, that decisions seemed to have been influenced more by the desire “to secure an adequate circulation” for the Society’s own journals “in different parts of the world”, than by any consideration of what was received in return^③. This was true, for the fellows of the eighteenth-century Royal Society were less focused on the tangible things given and received in return than their twentieth-century successors would have wished.

In the late eighteenth and early nineteenth centuries, the Royal Society used the language of “presents” rather than that of “exchange”. Copies of the journals were “presented” as gifts (or “presents”) without a formal

expectation of a reciprocal gift. It is true that some recipients did reciprocate in kind, but this was not the original purpose of the gifting. The first of the regular gifts were presented in 1761 to the newly-established British Museum and the Universities of Oxford and Cambridge, followed, in 1765, by a gift to King George III. None of these recipients could reciprocate with a set of their own publications. The gift to the king should be seen as an acknowledgement of the patronage already bestowed by him, and his predecessors, on the Royal Society, while those to the universities and to the British Museum enabled the Royal Society to signal its own status within the world of scholarship.

The desire to showcase the activities of the Royal Society—or, indeed, to advertise its very existence—was the driving force behind the early gifts of the *Transactions*. Within Britain, the Society had been severely criticised in 1750 for the supposedly tedious and trivial papers read to its meetings; and in the 1780s, it was accused by some of being little more than a gentlemen’s debating club^④. Beyond Britain, knowledge of the Royal Society’s current activities was hampered by the slowness and unreliability of international communications. Gifting copies of the *Transactions* was an effective way of spreading and enhancing the Society’s reputation.

The language of “exchange” would join that of “gifts” in the mid-nineteenth century. In 1830, the Royal Society was still working in the older tradition, as Michael Faraday discovered when he was asked by a correspondent from Geneva (Switzerland) for help in arranging an exchange of publications. August de la Rive told Faraday (who was a member of Council of the Royal Society):

It would concern an exchange of the *Philosophical Transactions* with the papers published by our Société de Physique & d’Histoire Naturelle... We have already received the favour of an exchange with almost all the learned societies of Europe & amongst others the Institut de France^⑤...

① *History of Scientific Journals*, Ch. 5.

② Report of the Library Committee, 19 May 1932, recorded in RS CMP/13, 21 April 1932.

③ Report of the Library Committee, 19 May 1932, recorded in RS CMP/13, 21 April 1932.

④ Fyfe et al., *History of Scientific Journals*, Chs. 5–6.

⑤ De la Rive to Faraday, 21 Oct. 1830, in Frank A. J. L. James, ed. *The Correspondence of Michael Faraday*, 6 vols. (London: Institution of Electrical Engineers, 1991–2012), letter 465.

It is clear that de la Rive thought that the concept of an “exchange” of publications was unproblematic. Having already established exchanges of the Genevan *Mémoires* for the journals of other learned societies, he assumed that the Royal Society would be happy to do likewise. But when Faraday asked his colleagues, he was told that, “the RS does not exchange with any Society—they present *Transactions* to Royal & National Societies”^①. This phrasing suggests both that the Royal Society preferred to cast itself as a patron of scholarship, and also that it expected the recipients of its largesse to be “Royal & National” societies, rather than locally-based societies. Nonetheless, Faraday informed de la Rive that the Genevan society could get copies, as long as they solicited a gift rather than asking for an exchange: “I find that the Secretary of Your Society must apply formally to the Secy of the RS if the *Transactions* be desired.”^② A few years later, due process having been fulfilled, the Genevan society was indeed added to the list of gift recipients^③.

Two decades later, however, the language was in flux. In October 1855, the Royal Society council considered seven institutions for inclusion on the “List”. The American Geographical and Statistical Society sought “a grant of the Publications of the Royal Society” (agreed). The Royal Society of Science of Saxony sent “a present of its publications”, and requested “the publications of the Royal Society in exchange” (agreed). The Historic Society of Lancashire and Cheshire, on the other hand, proposed “an interchange of Publications with the Royal Society” (agreed to send *Proceedings*)^④. In these examples, we can see a variety of terminology: “presents”, “grants”, “exchanges” and “interchanges”. By the 1870s, the language would settle on the concept

of “grants” of publication (rather than “presents”), perhaps because the Society was becoming increasingly active in grant funding around this time.² Some of those “grants” were made “in exchange” for publications in return, while others were not^⑤.

The policy review of 1932 would formalise these categories by dividing the “List” into two parts: the “Exchange list” and the “Presentation List (or ‘Free list’)”^⑥. The “free list” exemplified the Royal Society’s ongoing commitment to its scholarly mission by ensuring that copies of the *Transactions and Proceedings* were in the libraries where scholars around the world could find them. The “exchange list” on the other hand reflected the Society’s pragmatic recognition that it was a challenge to keep its own library holdings current, and exchanges were more cost-effective than purchase^⑦.

The “List” specified the institutions that were *entitled* to receive copies of the journals, but it provides no guarantee that they were in fact received, especially in the late eighteenth and early nineteenth centuries. The reasons ranged from misunderstandings of the process to failures of the postal services. For instance, in 1804, the Royal Society dealt with two American institutions which had not been receiving the *Transactions*, despite being on the “List”. The American Philosophical Society, in Philadelphia, complained that it was not receiving the *Transactions* regularly. The Royal Society’s president, Joseph Banks, replied that the solution was for the Philadelphia organisation to “authorise Some agent in London to receive & forward them”^⑧. Around the same time, Harvard College realised that its agent “had neglected to apply” for the *Transactions* which “had been ordered to be presented to them”, and its president apologetically requested twenty years of back-volumes^⑨.

① Faraday to de la Rive, 23 Nov. 1830, in *Faraday Correspondence*, letter 468.

② Faraday to de la Rive, 23 Nov. 1830, in *Faraday Correspondence*, letter 468.

③ RS CMP/01, 28 March 1833.

④ All examples are from RS CMP/02, 25 October 1855.

⑤ See, for instance, minutes of the Library Committee, RS CMB/47/3, 25 Feb. 1875.

⑥ Minutes of the Library Committee, RS CMB/47/5, 15 March 1932.

⑦ Other institutions accepted this much earlier than the Royal Society. See, for instance, Jenny Beckman, “Editors, librarians, and publication exchange: The Royal Swedish Academy of Sciences, 1813-1903,” *Centaurus* 62, no. 1 (2020): 98-110.

⑧ See Banks to Benjamin Smith Barton, 10 Sept. 1804, in Neil Chambers, ed. *The Scientific Correspondence of Sir Joseph Banks, 1765-1820*, 6 vols. (London: Pickering & Chatto, 2007), vol. 5, Letter 1793 (in response to Barton to Banks, London, 6 June 1804, Letter 1779).

⑨ RS CMO/08, 28 June 1804, re a letter received from the president of Harvard.

This sort of misunderstanding continued to be a problem until 1816, when the Royal Society devised a standard letter to be sent “to each Public Body” on the “List”, asking them “to authorize some person in London to receive Copies on their Account.”^①

At some point in the late nineteenth century, the Royal Society took responsibility for shipping the journals directly to institutions, but journals still sometimes went astray. In 1895, the Society’s assistant secretary (i.e. senior administrator) Herbert Rix dealt with a spate of complaints about the non-delivery of journals. One investigation revealed that almost every issue of the Proceedings sent to the Imperial Institute of Medicine in St Petersburg (Russia) in 1893 and 1894 had had to be re-sent after failing to arrive, and even so, only a few issues had arrived safely. Rix asked the St Petersburg librarian to check the address to which the Society was dispatching^②. Complaints also arose from closer to home. In July 1895, the Free Library (public library) in Cambridge complained that it had not received the latest issue of the *Transactions*; yet Rix reported that he had a “signed receipt” showing that the copies destined for Cambridge had indeed left the Society’s premises, and the records of the London and North Western Railway Company confirmed they had been dispatched^③. When the Public Library in Newcastle-upon-Tyne made a similar complaint about missing copies of the Proceedings, Rix’s assistant again confirmed that the copies had been dispatched, and suggested that the librarian ought to make a “careful search” of his own premises^④!

Regardless of whether any given institution actually received the journals to which it was entitled, its inclusion on the “List” means that it had met whatever tacit criteria the fellows of the Royal Society were using at the time. The rest of this paper investigates what we can deduce about those criteria, and thus about the way in which the Royal Society perceived the global landscape of scholarship.

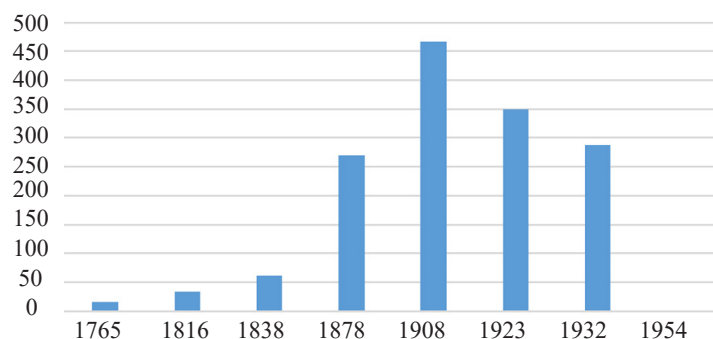
II. The Institutions on the List

We will start with what can be learned from the lists themselves, before we turn to the archives for the behind-the-scenes story. Three features stand out: numerical growth, geographical range, and the variety of institutions involved.

The growth is clear from the length of the lists. As Figure 1 shows, the increase in the number of institutions receiving the Royal Society’s journals was modest in the early nineteenth century, but took off after the middle of the century. The “List” would peak in the early twentieth century, with over 460 institutions on the list in 1908. The expansion reveals the Royal Society’s awareness of the creation of new scholarly and scientific organisations during the nineteenth and early twentieth centuries: national or metropolitan organisations were joined by provincial ones; generalist academies were joined by specialist discipline-based societies and associations; and voluntary associations of scholars were joined by government agencies.

This numerical growth was partly the result of

Figure 1 Number of Institutions Receiving Gratis Copies of Royal Society’s Journals, 1765-1954



① RS CMO/09, 14 March 1816.

② Herbert Rix, to Monsieur le Bibliothecaire, Institut Imperial de Medecine Experimentale, St Petersburg, 17 Sept. 1895, RS NLB/11/689.

③ Herbert Rix, to J Pink, Free Library, Cambridge, 10 July 1895, RS NLB/11/478.

④ Theodore E. James, to the Librarian, Public Library, Newcastle-upon-Tyne, 6 August 1895, RS NLB/11/609.

a geographical broadening of the Royal Society's horizons. In 1765, all the institutions on the "List" had been in Britain or Europe, as Figure 2 shows^①. Britain and Europe continued to account for at least two-thirds of institutions on the "List" throughout the nineteenth century.

However, as Figure 3 shows, the proportion of institutions outside Europe was growing, from about 15% in the early nineteenth century, to almost 30% by the early twentieth century. There had already been five institutions outside Europe on the list in 1816: Harvard College, the philosophical societies of Philadelphia, New York and Boston, and the Asiatic Society of Bengal (Kolkata, India). By 1838, they had been joined by the observatories at Madras (now Chennai, India), the Cape of Good Hope (South Africa), and Paramatta (Australia). The pattern clearly shows the spread of British colonial influence, and the power of shared English-language

heritage. By 1878, there were also a few institutions on the list from beyond the English-speaking world: the Asiatic Society of Japan, in Yokohama; the North China branch of the Royal Asiatic Society, Shanghai; the Royal Batavian Society of Art and Sciences (Jakarta, Indonesia); the Society of Physical and Natural Sciences (Caracas, Venezuela); and the public museum in Buenos Aires (Argentina). Figure 4^② shows the geographical distribution in 1908: it was still dominated by British and European institutions (especially in London and Paris), but also included institutions from the British empire and dominions (including the former colonies that had become the USA), and a handful of institutions in the rest of the world.

The third feature of the "Lists" is the variety of types of institutions included. In contrast to today, they were not all university libraries. We classified every institution into broad categories, and the results are

Figure 2 Map of Institutions Entitled to Regular Gifts of the *Transactions* by 1765

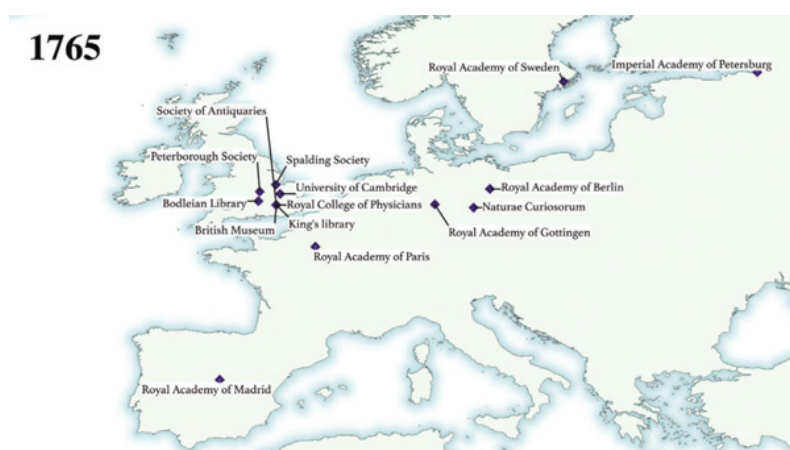
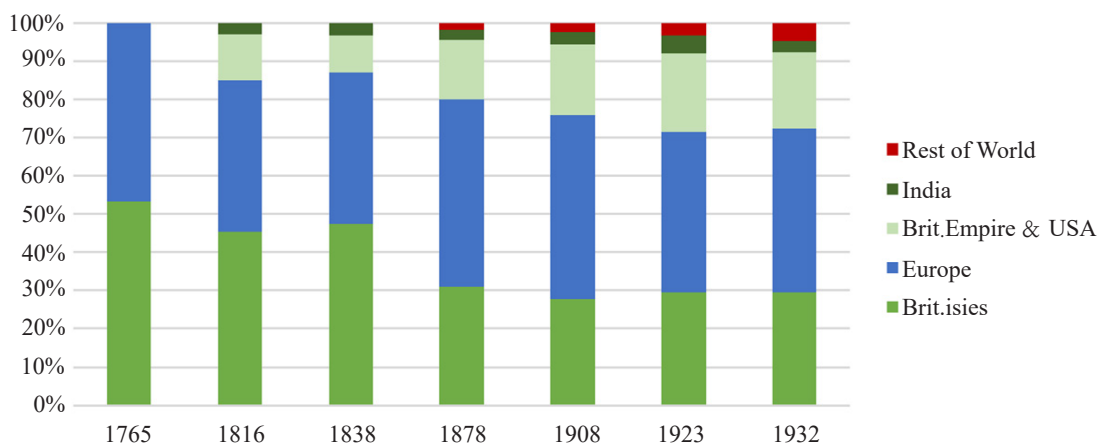


Figure 3 Geographical Focus of Royal Society Circulation, 1765-1932



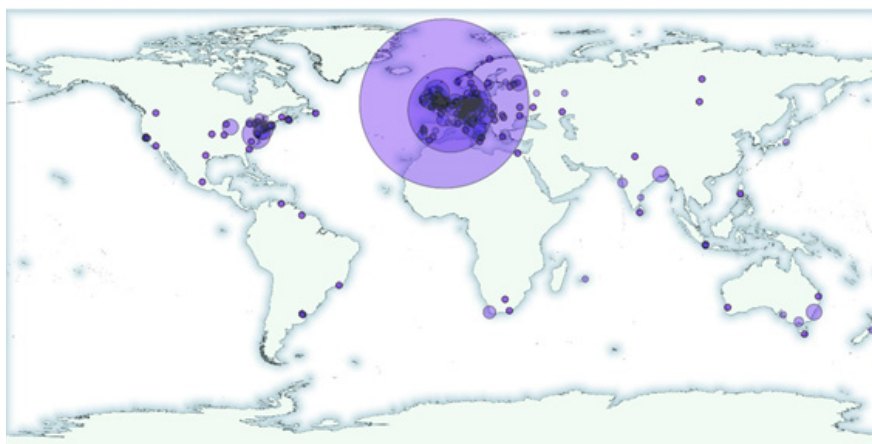
① This map has previously appeared in Fyfe et al., *History of scientific journals*, Figure 5.4, under CC-BY-NC licence.

② This map previously appeared in *History of Scientific Journals*, Figure 12.1, under CC-BY-NC licence.

presented in Figure 5A (as numbers) and Figure 5B (as proportions of the total).

During the nineteenth century, fewer than 15% of the institutions listed were universities. The two ancient

Figure 4 Map of Institutions Entitled to Royal Society Publications in 1908

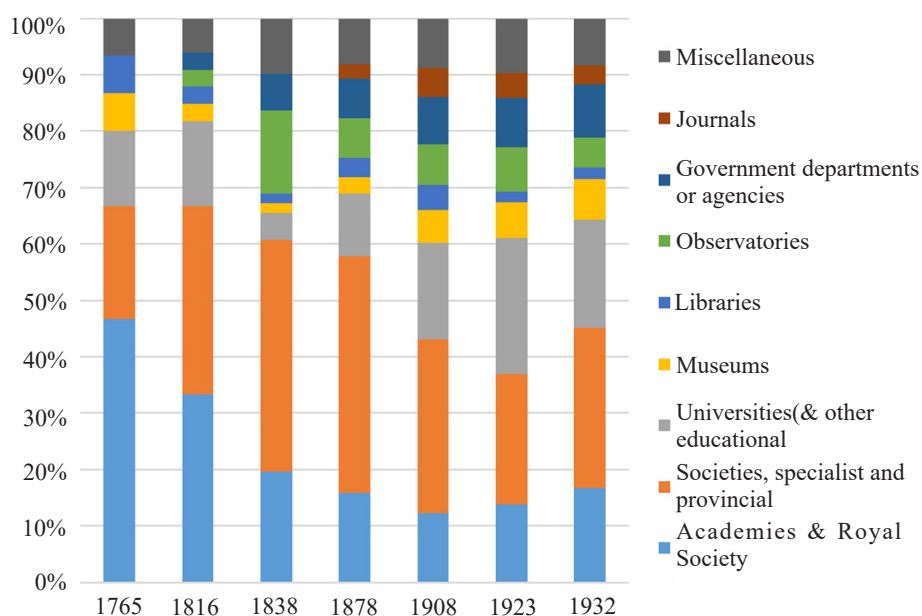


Note: Spots for each city are scaled by the number of copies sent to that city. The two largest spots are London and Paris.

Figure 5A Types of Institutions in Receipt of Copies of Royal Society Journals, 1765-1932

	1765	1816	1838	1878	1908	1923	1932
Academies & Royal Societies	7	11	12	43	57	48	48
Societies, specialist and provincial	3	11	25	113	144	81	82
Universities (& other educational)	2	5	3	30	80	84	55
Museums	1	1	1	8	27	22	21
Libraries (excl. universities)	1	1	1	9	21	7	6
Observatories		1	9	19	34	27	15
Government departments or agencies		1	4	19	39	31	27
Journals				7	24	15	10
Miscellaneous	1	2	6	22	41	34	24
All institutions	15	33	61	270	467	349	288

Figure 5B Types of Recipient Institutions (Proportional)



English universities had been on the “List” since the 1760s, but they were not immediately joined by the other universities in the British Isles. Instead, the next universities were Goettingen (Germany) and Harvard (USA). The number of universities on the “List” only grew significantly in the later nineteenth century, and it was not driven by the expansion of the British higher education sector. By 1878, some (but not all) of the new universities in Australia, Canada and Ireland had been added to the “List”^①, along with universities in France, Germany and Scandinavia; but neither the long-established universities of Scotland nor the new university colleges in England appeared. It was not until the review in 1932 that the Royal Society explicitly expressed its intention to supply all “the Universities of the British Empire” (including Britain)^②.

The type of institutions that dominated the Royal Society’s “List” in the late eighteenth and nineteenth centuries were not universities but scholarly academies and societies. In the 1760s, these sorts of organisations accounted for two-thirds of the institutions receiving regular gifts from the Royal Society, and although the *proportion* declined from that point, the *numbers* kept growing.

The Royal Society initially focused upon institutions somewhat like itself: the national and royal academies of various European countries. The numbers grew as more countries (including some outside Europe) established national academies, but they were by definition limited to one per country. The dramatic nineteenth-century growth was in other sorts of societies, including those focusing on a particular discipline (such as chemistry, geology or natural history), as well as those representing regional or provincial (rather than national) scholarly communities. These ranged from large metropolitan organisations (such as the Geological Society of London or the Meteorological Society of France) to provincial societies (such as the Geological Society of Cornwall, UK, or the Elliott Society of Natural History of South Carolina,

USA). From 1838 onwards, these sorts of societies outnumbered the national academies on the “List”, and they were the biggest category of recipients through the nineteenth century.

Despite the numerical growth in academies and societies, their share of the total “List” declined due to the Royal Society’s increasing awareness of other sorts of institutions that might be appropriate venues to host a set of the Society’s journals. As well as universities, they included institutions whose employees might have cause to consult scientific journals as part of their professional activities, such as observatories, museums and botanic gardens, and certain government departments or agencies. In 1838, there had been just four governmental institutions on the list: the library of the Admiralty in London, and its equivalent in Paris; the library of the Royal Artillery corps in London; and the *Ecole des mines* in Paris. By 1878, there were 9 British government organisations on the list, including the Geological Survey, the Meteorological Office and the War Office. This reflects the creation of new science-related government bodies, and perhaps also a strategic desire on the part of the Royal Society to make sure that those in political power in Britain were aware of the Society’s existence and, hopefully, its utility. However, the Society did not limit its gifting to UK government agencies: the United States Coast Survey and the geological commissions or offices of Austria, Italy, Spain and Sweden also appeared on the “List”.

Public libraries are an intriguing exception to the Royal Society’s tendency to direct its journals to the libraries of institutions whose members or employees were likely to be interested in scientific research. In Britain, these tax-funded libraries-open to any member of the public, free of charge-began to appear after 1850, as part of a movement to improve access to education and information for the working classes. In 1869, Royal Society agreed (apparently unproblematically) to the request from Birmingham Central Free Library (f.1865)

① For instance, in 1878, copies were sent only to two of the three relatively new Queen’s Colleges in Ireland (to Galway and Belfast, but not to Cork), and none were sent to the long-established Trinity College Dublin. All four institutions were receiving copies by 1908.

② Minutes of the Library Committee, 15 March 1932, RS CMB/47/5 (and also the final policy in RS CMP/13, 21 April 1932).

to be added to the “List”^①; and by 1878, the free Library in Liverpool was also included^②. By 1908, they had been joined by five more public libraries in England. These libraries would, however, be the first victims of the efficiency reviews of the 1920s.

Analysis of the “List” provides some insight into the general patterns of the Society’s approach to circulation, but raises more questions than it can answer. Which institutions were rejected? Why did the public libraries, or the Royal Society of Literature, receive copies despite not being hubs for communities of scientific scholars or employees? Why did some universities receive copies, but others did not? Here, we need to turn to the archival records.

III. The Decisions that Shaped the List

Decisions about the “List” were originally made by the members of the Society’s ruling Council, but by the 1870s, they had been delegated to the Library Committee. Both of these committees have surviving minute books that record the decisions but rarely provide much detail on individual cases. They do provide insight into the process and the tacit criteria for evaluating institutions.

In the late eighteenth and very early nineteenth century, when the gifting programme was relatively new and small, suggestions for additions seem to have come from within the Royal Society. The institutions on the “List” in these early decades must therefore reflect the Royal Society fellows’ awareness of scholarly communities and institutions locally, nationally and globally. Potential recipients must have been known to at least one fellow (otherwise the idea would never have reached the Council) and ideally to several fellows (since the Council supported the idea).

The minute books do not record who suggested sending copies to the British Museum or to the Imperial Academy in St Petersburg, but some fellows of the Society were directly involved with the management of the new museum, and the Society had been corresponding with scholars in St Petersburg since at least the 1720s, so these institutions were both “known quantities”. The formation of new national academies would presumably have filtered through European news networks eventually, but some newly-founded institutions made a point of announcing their existence to older institutions by sending a copy of their own *Transactions* or *Mémoires*. In 1786, Benjamin Franklin sent the second volume of the *Transactions* of the Philosophical Society of Philadelphia to Joseph Banks. Banks was president of the Royal Society, but this gift was understood to have come to him personally: his close friend commented that “they have acted very shabbily in sending none to the R.S.”^③ The Americans may have blundered on the etiquette, but the gift nonetheless ensured that the president of the Royal Society was aware of the Philadelphia society and its activities^④.

More generally, correspondence networks were important ways for the fellows in London to learn about the creation of new institutions or communities. In 1790, for instance, Banks learned of plans to create a university in Vermont (USA), and assured his correspondent that he had “no doubt that the R Society will have great pleasure in Furnishing them with their *Transactions*”. He requested a further note “to inform me whether the Enterprise of founding it has succeeded or not”^⑤. The University of Vermont did receive its charter the following year, but does not seem to have followed up on the offer of the *Transactions*.

By the 1830s, however, the decisions recorded in the minute books were presented as responses to external

① John D. Mullins, Chief Librarian at the Central Free Library, Birmingham, to the Council of the Royal Society, 29 Dec. 1868, RS MC/8/288; and the response, 21 Jan. 1869, in RS CMP/03/130.

② It appears on the 1878 List; its grant was augmented in 1889, see RS CMP/06, 28 Feb. 1889.

③ Charles Blagden to Joseph Banks, 24 September 1786 in Chambers, *Banks Scientific Correspondence*, vol. 3, Letter 672.

④ The Royal Society had sent a gift of its *Transactions* to Philadelphia in response to a gift of the first American volume, back in 1771, but it does not appear to have established a regular gift at this point. See George L. Sioussat, ‘The “Philosophical Transactions” of the Royal Society in the Libraries of William Byrd of Westover, Benjamin Franklin, and the American Philosophical Society,’ *Proceedings of the American Philosophical Society* 93, no. 2 (1949): 99–113.

⑤ Banks to the Revd. Samuel Williams, 20 July 1790, in Chambers, *Banks Scientific Correspondence*, vol. 4, letter 1002.

requests. This was a consequence of greater awareness of the Royal Society's willingness to gift its publications to appropriate institutions: from 1828 onwards, the "List" was being published annually^①. The Society was generally predisposed towards scholarly generosity, and since the print run had recently been increased, there seem to have been plenty of copies available for gifting^②. For institutions seeking to join the "List", there was no application form or guidance, but there does seem to have been an awareness that a polite letter to the Royal Society was required. This shift to a (somewhat) more open application process enabled a wider diversity of institutions—including those beyond the personal knowledge of Royal Society fellows—to be considered. And this is the main reason why the late nineteenth- and early twentieth-century lists were riddled with inconsistencies. The "List" did not represent a carefully-constructed plan for the circulation of knowledge, but was the result of a series of *ad hoc* responses to external requests. Some institutions made it on to the "List" simply because they asked politely, while others were omitted—not because they had been rejected but—because they had never asked to be included. The inclusion of an institution on the Royal Society's list reveals which institutions had librarians with an interest in stocking the Royal Society's journals.

The increasing diversity of institutions, from increasingly distant parts of the world, asking to be added to the "List" required the fellows of the Royal Society to make decisions about institutions that they knew little or nothing about. The evidence of the minute books suggest there were three considerations underpinning the Society's response to incoming requests: the reputation and credibility of the individual making the request; the perceived worthiness of the institution; and, occasionally (later in the century), the perceived need for additional copies in a single town.

In March 1833, the Royal Society received two almost identical requests for gifts of the *Transactions*

that were resolved in different ways. One came from the secretary of *Société de physique et d'histoire naturelle* of Geneva (Switzerland), and the other from the vice-president of the Limerick Institution (Ireland). The fellows of the Royal Society were familiar with the Geneva society, not only through Faraday's correspondence with de la Rive, but because that very year, they had awarded a Royal Medal to one of its members, Augustin Pyramus de Candolle. The Geneva society was added to the list without problem. The Limerick Institution, however, was rejected on the grounds that it "does not publish any Transactions" of its own^③. This was somewhat disingenuous, since the Royal Society certainly did give to non-publishing institutions (such as museums and universities) and, as we have seen, it had only recently claimed that it did not seek to "exchange" publications. It seems more likely that the existence (or not) of publications was in this case acting as a proxy for the scholarly standing of the Limerick institution. It is not clear how the London fellows knew that the Limerick institution did not publish, though the fellowship did include men born in and resident in Ireland.

Assessing the worthiness of institutions beyond the Royal Society's usual scholarly networks could be facilitated by a respected intermediary. The most effective intermediaries were people known to the Society, such as its own fellows or respected foreign scholars; and those who held positions of responsibility in political or scholarly contexts. For instance, in 1852, the public library of Malta was added to the "List". The request came from the colonial governor, Sir William Reid, who was himself both a person of political influence and a fellow of the Society^④. Three years later, in 1855, a request arrived from Kenyon College, Cincinnati (USA). In contrast to Joseph Banks's earlier willingness to promise copies to the as-yet-unfounded university in Vermont, the Society's council decided that the thirty-year-old Kenyon College did "not come under

① RS CM0/10, 8 Nov. 1827.

② See Fyfe et al., *History of Scientific Journals*, Ch. 10.

③ RS CMP/01, 28 March 1833.

④ William Reid, governor of Malta, to secretary of the RS, 11 April, 1851, RS MC/5/36; and RS CMP/02, 13 May 1852.

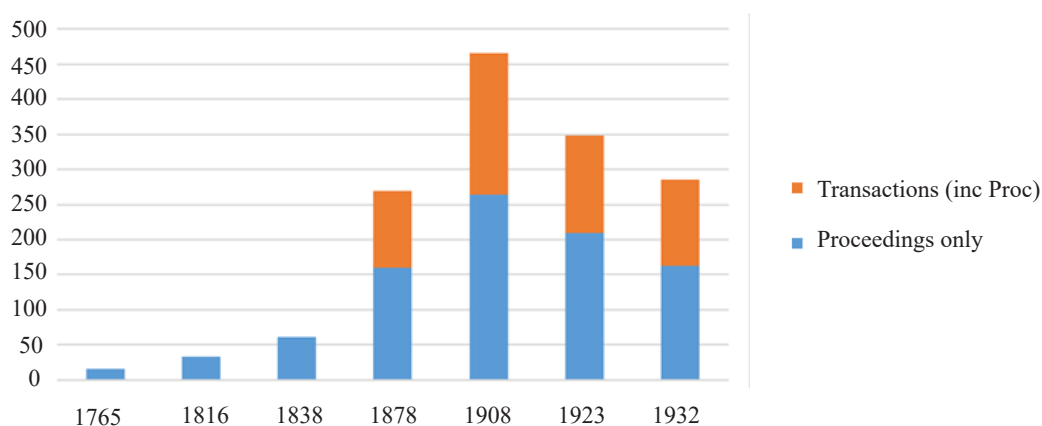
the description of Institutions which the Society grants its *Transactions*". The phrasing confirms that fellows on the council believed they had a shared understanding of the sorts of institutions that were appropriate recipients of the Society's largesse, even though no evidence survives of any explicit "description". Yet, despite Kenyon's apparent failure to meet these criteria, the fellows nonetheless decided that it could "be placed on the list of those entitled to receive the *Proceedings*". This is probably because the request had been conveyed "from the Bishop of Ohio, through the Earl of Rosse". Rosse was related to one of the major donors to Kenyon College and was also the vice-president of the Royal Society; presumably the council members did not wish to offend him^①. In contrast, in 1875, when the governors of Chetham's Hospital and Library in Manchester (UK) asked their solicitors to apply to the Royal Society, the lawyers' mediation was not sufficient to get Chetham's Library onto the list^②.

The Kenyon College grant is an early instance of a trend that would become increasingly common: offering copies of the *Proceedings* only, rather than the *Transactions* plus *Proceedings*. The *Proceedings* had begun publication in late 1831, as a monthly record of

the Society's activities^③. By the 1850s, it was carrying abstracts of papers presented at the meetings, and some short papers. It was a smaller and cheaper gift than the *Transactions*^④. It also had a higher print run, so there were more copies available to be given away. Both of these factors made it an attractive option for the Royal Society to use as gifts, and it enabled the Library Committee to add many new institutions to the "List" without too many apparent qualms. Around 40% of institutions on the "List" after the 1870s were receiving only the *Proceedings* (see Figure 6).

In this two-tier system of gifts, national academies, metropolitan learned societies (in London or in European capitals), most observatories and museums, and some universities were likely to receive the full set of publications. Those receiving only the *Proceedings* were a miscellaneous group. They included some newer or colonial universities, and some institutions focused on public education, as well as some very *local* scientific societies (the Scientific Association of Hamilton, Ontario; the Nature Research Society of Görlitz, in Germany; and the Dudley and Midland Geological and Scientific Society, in England) and some societies with little connection to the natural sciences (the Society of

Figure 6 The Two-tier System of Grants of Royal Society Journals, 1765-1932



① RS CMP/02, 25 October 1855. Rosse Hall at Kenyon College is named after the wife of the 1st earl of Rosse.

② Taylor, Kollman & Colley, solicitors to the Chetham Hospital & Library in Manchester, to the Council of the Royal Society, 11 October 1875, RS MC/10/288.

③ On the *Proceedings*, see Fyfe et al., *History of Scientific Journals*, Chs 8 and 11. Also, Alex Csiszar, "Proceedings and the Public: How a Commercial Genre Transformed Science," in *Science Periodicals in Nineteenth-Century Britain: Constructing Scientific Communities*, ed. Gowan Dawson, et al. (Chicago: University of Chicago Press, 2020), 103-34.

④ Price data, as well as print runs and editorial details, are accessible via the "Key Facts" tool at <https://arts.st-andrews.ac.uk/philosophicaltransactions/data/>. The *Proceedings* was available via an annual subscription of 5 shillings, from 1854. The parts of *Transactions* sold at different prices determined by length: a year's supply could be between £2 and £3.

Biblical Archæology).

Another factor that occasionally featured in the Royal Society's decision-making in the later nineteenth century was the existing availability of its publications in a particular city. The necessity of providing copies of Royal Society journals to 45 different institutions in London (in 1878), or to 27 different institutions in Paris (in 1908), does not appear to have raised any comment, but the question could be asked of more distant cities. For instance, in 1865, a request from Melbourne (Australia) was initially deferred pending further enquiries, and the Society subsequently declined to add the public library to the "List" on the grounds that copies of its journals were already accessible to the Melbourne public via the university library. (It is not clear how they had checked this, since it was impossible at that time for letters to have gone to and from Australia in just a fortnight.)^① Similarly, in 1895, when the Bureau of Ethnology at the Smithsonian Institution (USA) asked for one of the Royal Society's publications, the Society's secretary queried whether the Bureau was so far away that it needed its own copy in addition to that already sent to the Smithsonian Library^②.

In the early twentieth century, the Society's provision to the world beyond Europe and the British empire was expanding (see Figure 3) as witnessed by the new agreements with China and Japan in 1924. However, as Figure 1 showed, this was also a period in which the total number of institutions on the "List" was declining. This was partly due to the political tensions within Europe in these decades. Grants of publications to institutions in nations with which Britain was at war (i.e. Germany, Austria-Hungary) ceased during the period of hostilities, and only some were re-started in the 1920s. The Russian revolution also put a temporary stop to grants to institutions in the new USSR; and again, only some were re-started: in 1930, there would be only five

Soviet institutions on the list, compared to seventeen Russian institutions in 1908.

However, the bigger issue was that, from the 1890s onwards, the Royal Society's finances were under strain, and a major cause was the expense of publishing the *Transactions* and the *Proceedings* as journals that, for the most part, were circulated *gratis*^③. Fellows had once been by far the biggest group of recipients, but by the early twentieth century, the distribution to learned institutions had become almost as substantial: there were 510 fellows in 1908, and 467 institutions on the "List". And since almost three-quarters of the institutions were overseas, the shipping costs were significant. Before the First World War, the Royal Society had attempted to reduce costs by asking the fellows (and some institutions) to claim only the series of the *Transactions* that addressed their own interests (i.e. biological or physical sciences), but this had relatively little effect. The financial pressures continued, and were made worse by the inflation, economic crisis and depression of the interwar years. This was what finally forced the Royal Society to undertake its first proper reviews of the entire philanthropic circulation.

In 1921, an "emergency finance committee" looked at various aspects of the Society's finances, and, among other things, it recommended cuts to the "List". Public libraries were dropped, and the list of societies was culled. The cuts fell most heavily on institutions in the second-tier, such as provincial societies and those without a clear connection to a community of scientific readers. In an earlier time, the Royal Society had felt that offering a grant of *Proceedings*-only was more polite than an outright rejection, but by the 1920s, it no longer had that luxury. The emergency finance committee also downgraded the grants received by some of the societies that survived the cuts, with the result that a new second tier was created. There were still around 40% of

① Augustus H. Tulk, librarian of the Melbourne Public Library, to the Royal Society, 11 March 1865, RS MC/7/181; discussed at council, 18 May 1865, RS CMP/3/86; and declined, 1 June 1865, RS CMP/3/87.

② Herbert Rix (assistant secretary to the RS) to the Ethnologist-in-Charge, Bureau of Ethnology, Smithsonian Institution, 8 July 1895, RS NLB/11/465.

③ On the finances of Royal Society journal publishing, see Aileen Fyfe, 'Journals, learned societies and money: Philosophical Transactions, ca. 1750-1900,' *Notes and Records of the Royal Society* 69, no. 3 (2015): 277-99 and 'From philanthropy to business: the economics of Royal Society journal publishing in the twentieth century,' *Notes & Records of the Royal Society* (2022).

institutions receiving *Proceedings*-only, and furthermore, an increased number of them received only one series of *Proceedings* (i.e. biological or physical sciences)^①.

In 1932, the Society undertook another review of the free circulation of its publications, and for the first time, attempted to think strategically. This review created the “set of principles” that distinguished “exchanges” from “gifts”, and noted their the different purposes. The new policy insisted that any institution’s place on the “List” should be reviewed regularly, rather than being allowed to continue indefinitely.

The 1932 review committee decided that the Society should continue to make gifts (or grants) to all “the Universities of the British Empire”, but no longer to “foreign Universities” unless there was a special reason. This meant the immediate cessation of gifts to the universities of Caracas and Peking, as well as to various European institutions. The decision to stop gifts to foreign universities seems at the time to have been a simple effort to cut costs, but it came at a time when sales of the journals were starting to increase, thanks to the librarians of the new research universities of the United States. By the 1950s, it would become clear that this decision had transformed foreign universities from gift recipients to purchasers.

The committee also insisted that exchanges had to bring value in return, and thus could only be arranged with institutions “which can offer publications of substantial value” to the Royal Society’s library. This was an implicit critique of some of the organisations that earlier committees had been willing to exchange publications with, but it also demonstrates a different understanding of “value”. The emphasis was now on tangible returns, rather than on the social capital or goodwill that an exchange of gifts could create.

In 1954, another review took this approach even further by putting a cash value on the costs and benefits of the (now-reduced) exchange scheme. It calculated

that the Royal Society was still spending over £3,000 a year sending journals to other institutions, but the benefit to its library, in exchange, was only £931^②. The Royal Society had now firmly come round to the concept that exchanges ought to be regarded as a pragmatic mechanism for stocking a library. The 1954 review took place in the context of another post-war financial crisis. This was when the Royal Society moved decisively to a sales-based model of circulation, and cut all remaining gifts, even to the British and Commonwealth universities. Just a handful of exchanges remained, for the benefit of the library; and one diplomatic gift to the Queen^③.

Conclusion

In the eighteenth and nineteenth centuries, philanthropic circulation to learned institutions was the main mechanism for the international circulation of the Royal Society’s journals. Examining the changes in the “List” of institutions across 150 years reveals the expanding geographical horizons of the Royal Society’s view of science and scholarship. It also demonstrates that a wide variety of institutions and organisations have historically been considered as plausible points of access for readers of scientific journals. It was only in the twentieth century, with the creation of the modern research university and the shift to a commercial model of journal circulation, that university libraries became the key providers of access to scientific journals.

The Royal Society’s very first gifts, in the 1760s, may have been strategic efforts to establish its place in British and European scholarly life, but from the 1830s to the 1930s, the Royal Society’s approach to international circulation was responsive rather than pro-active. It was underpinned by the same sense of scholarly generosity that led the Society to allow authors almost unlimited pages and illustrations, but in this case, it led the Society to send its journals to institutions around the globe^④. Its

① In 1908, 189 of the 201 institutions receiving *Proceedings*-only were receiving both series (partly because the split of the *Proceedings* had only occurred in 1905); but by 1923, only 81 of the 138 institutions receiving *Proceedings* were receiving both series.

② See Fyfe et al., *History of Scientific Journals*, p.482.

③ For the change in the Royal Society’s business model, see Fyfe, “From philanthropy to business”, epub 3 August 2022.

④ See Fyfe et al., *History of Scientific Journals*, Ch. 10.

committee showed itself willing to send the journals to a wide range of institutions, largely because someone at that institution had submitted a request. In the nineteenth century, the Royal Society did not have the ability to query the credentials of potential recipients in detail, but its resources were not yet so strained that it needed to be particularly selective.

Public libraries and literary or historical societies may not seem obvious nodes for communities of scientific researchers, but, when resources were not constrained, the Royal Society fellows were willing to send their journals (or at least, the *Proceedings*) almost anywhere there might perhaps be an interested reader. Once resources became constrained, in the early twentieth century, the Society focused on institutions that were more likely to provide access to active researchers, rather than interested readers. The shift to a sales-based model of circulation from the 1950s to the 2010s reinforced this trend, as only librarians at institutions

with a community of active researchers were likely to purchase the Royal Society's journals. The Royal Society's recent move to an "open access" approach to circulation makes it possible once more for readers in public libraries around the world to have access.

References

1. Aileen Fyfe, "The Royal Society and the Noncommercial Circulation of Knowledge," in *Reassembling Scholarly Communications: Histories, Infrastructures, and Global Politics of Open Access*, ed. Martin Paul Eve and Jonathan Gray (Cambridge MA: MIT Press, 2020), 147-60.
2. Roy M. MacLeod, "The Royal Society and the Government Grant: Notes on the Administration of Scientific Research, 1849-1914," *Historical Journal* 14, No. 2 (1971): 323-58.

[责任编辑 王大明 柯遵科]