

# Editors, Referees and Committees: distributing editorial work at the Royal Society journals in the late nineteenth and twentieth centuries<sup>1</sup>

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## Abstract

Ever since the Royal Society, in 1752, replaced the editor of the *Philosophical Transactions* with an editorial committee, it had created an increasingly complex system which distributed editorial work and responsibility among many individuals. The 1902 suggestion that the Society ought now to appoint an editor offers an opportunity to explore what the role of “editor” was believed to be: why might such a role now benefit the Society and its journals? What role might an “editor” play, amidst the existing editorial structures? Examining the Royal Society’s long-standing commitment to distributed editorial practices offers a counterpoint to histories of academic editorship focused upon the rise of the sole editor. It allows us to investigate the acknowledged challenges of working with distributed editorial practices, and to consider the shifting perception of the academic journal editor within the wider editorial system.

## Keywords

Royal Society; editorship; scientific journals; academic publishing; nineteenth century; twentieth century

## Editorship around 1900

In November 1902, Henry Armstrong, one of the vice-presidents of the Royal Society of London, suggested that it would be “desirable to consider whether the appointment of an Editor of the Society’s publications is not called for”.<sup>2</sup> The Royal Society was then processing about 120 submitted articles per year, most of which ended up either in its *Proceedings* (founded in 1831) or in one of the two series of its *Philosophical Transactions* (founded 1665, divided 1887). The Society managed to evaluate, select and publish over 2,000 pages of print each year, yet, as Armstrong’s

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<sup>1</sup> This article is part of the Special Issue on Scientific Editors and Editorship, with Anna Gielas and Aileen Fyfe as the guest editors.

<sup>2</sup> Armstrong (1902).

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memo reveals, it apparently did so without the assistance of a person formally designated “editor”. This might seem a pedantic point, for the Society clearly did have someone organising its editorial matters – the role was routinely undertaken by one of its two secretaries – but the fact remains that Henry Armstrong felt that having an “editor” would bring certain advantages. This episode provides an opportunity to consider the nature of academic journal editorship around the turn of the twentieth century.

There is a possible history of academic journal editorship that focuses on the efforts of sole editors, especially those who founded new journals and helped establish new disciplines. The late eighteenth-century German professor-editors, discussed by Martin Gierl and Anna Gielas elsewhere in this issue, are part of this story;<sup>3</sup> so too are the late nineteenth-century British editors such as Michael Foster (*Journal of Physiology*, 1878), Karl Pearson (*Biometrika*, 1901), Benjamin Moore (*Biochemical Journal*, 1906, and William Bateson (*Journal of Genetics*, 1910).<sup>4</sup> By the 1920s, the obituary announcements at the anniversary meetings of the Royal Society routinely acknowledged editorial achievements as well as research discoveries, suggesting that editing a journal had come to sit alongside teaching and research as something that might well be part of what senior researchers and professors were expected to do.<sup>5</sup>

Yet there are significant differences between the editorial function performed by modern academic journal editors and the early sole editors. The modern academic journal typically functions not just with an editor (or editor-in-chief), but with an editorial or advisory board and a pool of expert referees. Unlike Lorenz Crell, William Nicholson or Norman Lockyer, modern academic journal editors do not make decisions alone.<sup>6</sup> The work and responsibility of decision-making is distributed among referees, board members and similar people (such as associate editors). There is, therefore, another possible history of academic journal editorship that focuses less on sole editors, and more on the structures that distributed editorial work and responsibility. There is an increasing body of research that suggests that peer review did not become mainstream in academic journal editing until after the Second World War. Prior to that time, it was part of the community-based editing practices common in learned society publishing.<sup>7</sup>

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<sup>3</sup> Gierl, this issue; Gielas, this issue.

<sup>4</sup> These editors are part of the rise of the academic professor-editor; but we do not as yet know enough about *how* they actually edited.

<sup>5</sup> For example, see “Address of the president, Nov. 1922”, *ProcA* 102 (1923): 374-8.

<sup>6</sup> On Crell and Nicholson, see Gielas, this issue; on Lockyer, see Baldwin, this issue.

<sup>7</sup> Baldwin (2015); Baldwin (2018); Pontille & Torny (2015); Moxham & Fyfe (2018); Rose (2019).

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The Royal Society is the publisher of the world's longest-running scientific journal, and this long history (and its well-preserved archive) offer unrivalled opportunities to investigate the history of journal editing and publishing.<sup>8</sup> From the 1750s until the 1980s, the Royal Society operated an extreme form of distributed editorship: the Society's journals had no editor; scrutiny was distributed among the fellowship; and decision-making theoretically rested with the collective decision of a committee.

The structures of distributed editorship had emerged as a way to protect learned society publishers from the reputational risk posed by an individual editor, who might be incapable, whimsical or prejudiced. Refereeing (later known as peer review) became a way of providing appropriate expert scrutiny to inform decision-making; and this was particularly important when a journal's scope extended across multiple disciplinary fields, as was the case at the Royal Society.<sup>9</sup> Together with editorial committees and boards, the input of referees transformed a journal from the organ of a powerful individual into something that represents some kind of community approval. However, these structures for distributing editorial work and responsibility – with their extra stages and opinions – also slowed down decision-making, or made it difficult to generate consensus on the appropriate action.<sup>10</sup>

This tension would be at the heart of Henry Armstrong's 1902 proposals: distributed editorship grounded the journals in the Society's communal identity, and helped them continue as broad-remit journals; but appointing an editor would potentially bring executive oversight, efficiencies and faster publishing times. Today's academic journals combine the two systems; and that is what some of the (younger) learned societies had already done in the nineteenth century. For instance, the Royal Geographical Society's *Journal* had an editor (as well as referees and a committee) from the 1830s; and the *Journal* of the Chemical Society had a paid academic editor from at least 1884.<sup>11</sup> These societies did not, however, have the historic legacy of the Royal Society, nor its disciplinary breadth.

We will start by investigating the way editorial work and responsibility were carried out – and distributed – during the period when George Stokes was secretary in the late nineteenth century. Then, we will look more closely at Armstrong's 1902 arguments in favour of an editor, and what they imply about the problems with existing processes. Finally, we will survey the Society's twentieth-

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<sup>8</sup> Fyfe, McDougall-Waters, & Moxham (2015).

<sup>9</sup> Moxham & Fyfe (2018).

<sup>10</sup> Fyfe, Squazzoni, Torny, & Dondio (2019).

<sup>11</sup> Newman (2019); Mussell (2007), p. 129-30.

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century efforts to adapt its editorial practices to the challenges of the expanding international research enterprise and the growing competition in the journal publishing industry. The editorial role was distributed among multiple people (as it still is); but the distribution of work and responsibilities changed over time. Examining the Royal Society's long-standing commitment to distributed editorial practices offers a counterpoint to histories of academic editorship focused upon the rise of the sole editor. It allows us to investigate the acknowledged challenges of working with distributed editorial practices, and to consider the shifting role of a potential editorial figure within the wider editorial system.

### **The Management of Editorial Work in the late nineteenth century**

The lack of an editor for the Royal Society's publications dated back to 1752. Until that point, the *Philosophical Transactions* had been run by a series of individual editors, starting with Henry Oldenburg in 1665 and ending with Cromwell Mortimer in 1751. These men had all been secretaries to the Royal Society, which created an association between the *Transactions* and the Society. After Mortimer's death, the Society's Council decided to take corporate control of the *Transactions*, and to change the way it was edited. The aim was to eliminate "any future Inconveniences for the want of a due Attention to the proper choice" of papers: actual or potential editorial incompetence was presented as a risk to "the Reputation of the Society".<sup>12</sup> In place of an individual editor, the Council decided "to appoint a Committee who should, from time to time as occasion should require, assemble together, and select from the said Papers... such of them as they should think proper to be printed". This collective editorial decision-making, it was claimed, would "tend to the Credit and honour of this Society".<sup>13</sup>

During the nineteenth century, the Royal Society created an increasingly complex set of editorial practices to enable publication decisions to be produced by a committee of its fellows, with expert assistance from other fellows acting as referees.<sup>14</sup> These distributed editorial processes were under the supervision of the Society's two secretaries, and served both as sources of expertise beyond their own fields, and as means of generating editorial decisions that were attributable to the Society at large, rather than to the secretaries as individuals.

The mathematical physicist George Gabriel Stokes (1819-1903) was the longest-serving secretary in the Society's history: his three decades as secretary were followed by a stint as president,

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<sup>12</sup> RS Council Minutes (Originals) [hereafter RS CMO] vol. 4, 23 Jan. 1752.

<sup>13</sup> RS CMO/4, 15 Feb. 1752.

<sup>14</sup> Moxham & Fyfe (2018).

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from which he finally retired in 1890. He was not authoritarian, as Joseph Banks had been,<sup>15</sup> but he was an efficient administrator and the amount of work – both editorial and other – that he had managed for the Society was only fully appreciated once he retired. The Royal Society always had two secretaries at any one time, and during the late nineteenth century, the habit was for one of them to focus on “external” matters (e.g. correspondence, relationships to other societies, and advice to government) while the other managed the Society’s “internal” matters (e.g. meetings of the fellowship, and the publications). George Stokes had filled the internal role since the 1850s, and he was in no doubt that this meant he was *de facto* the editor. Stokes welcomed this identity, telling a contemporary in 1884 that, “I am editor of the *Transactions*”.<sup>16</sup> But what did the editorial role involve at this point in time?

A major component of Stokes’s role was the management of the Society’s complex editorial process (see Figure 1). Its core elements had been created in 1752: an editorial committee (the “Committee of Papers”) that collectively made the decisions about what to publish; and a gate-keeping process that meant all papers considered by the committee had already been vetted. All papers had to be read at the general weekly meeting of the fellows before they could be considered for possible publication; and they could only be presented at such a meeting if they were “communicated” by one of the fellows. The requirement for reading at meetings was dropped in the 1890s, but the insistence on “communication” remained until 1990.<sup>17</sup> The level of scrutiny expected of communicators was ambiguous, but by the early twentieth century, they were expected to confirm that they had indeed read the paper, and “considered it of sufficient merit to be submitted”.<sup>18</sup> These gate-keeping processes helped weed out weak or unsuitable papers ahead of submission, thus enabling the Society to publish over 80% of papers submitted to it, until the late twentieth century.<sup>19</sup>

[IMG] Figure 1: The Royal Society’s editorial system c.1900. Most of this system was in place in Stokes’s day; except for the green “chairmen”, whose sub-committees were created in 1896.<sup>20</sup>

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<sup>15</sup> On Banks, see Moxham, this issue.

<sup>16</sup> Stokes to Owen, 1 Nov. 1884, CUL Stokes Papers ADD. 456 069. Stokes was writing in response to a letter in which Owen blamed co-secretary Foster for a mistake in the labelling of figures, see Owen to Stokes, 10 Oct. 188[4] [misdated 1886], CUL Stokes Papers ADD 456 068.

<sup>17</sup> Fyfe & Moxham (2016).

<sup>18</sup> Royal Society Council Minutes [hereafter CMP] vol. 9, 20 Feb. 1908.

<sup>19</sup> Fyfe et al. (2019).

<sup>20</sup> This figure has also appeared in Fyfe et al. (2019).

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In the 1830s, an additional element had been introduced: for papers being considered for publication in the *Transactions* (but not yet in the new *Proceedings*), the committee would seek the written opinion of (usually) two fellows, or “referees”. The introduction of written refereeing was a response to critiques about the variable quality of editorial decisions being made by the committee. Referees could help the committee to make more secure decisions, not just because of their expertise, but also because they could take the time to read the entire text with care. This combination of editorial committee plus referees was also used by other learned societies around this time, including the Geological, Astronomical and Geographical societies.<sup>21</sup> In the 1890s, discipline-specific sub-committees would be added to the Royal Society’s system, to help the secretaries select and evaluate referee reports.

In this distributed editorial system, no single individual made editorial decisions. It is clear that Stokes had ample opportunity to advise and recommend, but he had only limited power to act on his own authority: he could decline to accept a paper for consideration by the Society (for instance, by suggesting that it would be more appropriate for one of the more specialised societies); and he could accept short papers for publication in the *Proceedings*. Compared to an autonomous editor, in full charge of his own journal, Stokes’s editorial power was heavily circumscribed. The distribution of editorial responsibility among so many fellows protected the Society from the hypothetical failings of an individual editor, while also creating a collective authority that protected individual officers of the Society from criticism.

The Society’s editorial processes also distributed workload. Listing the tasks involved helps us to consider who did what (see Figure 2). In turn, this will help us to see how the expectations of “a journal editor” changed from the late nineteenth century to the late twentieth century.

[IMG] Figure 2: editorial tasks at the Royal Society

One set of tasks relates to the economic aspects of running a journal. Judging from what we know of independent journals, financial management was not necessarily part of the editor’s remit. Editors who owned their journals often entered into some form of arrangement with a printer-publisher to whose expertise the business side of things could be delegated; and some journals (including *Nature*) were owned by their publishers, who managed the business aspects and hired an editor. The Royal Society, however, was its own publisher: it made its own arrangements with paper

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<sup>21</sup> On the Royal Society, see Moxham & Fyfe (2018) and Csiszar (2018), Ch. 3 (who also mentions the Geological and Astronomical societies). On the Geographical, see Newman (2019).

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merchants, engravers and lithographers, and printer. Thus, in principle, the secretary to the Society might actually be more aware of the economic details of journal publishing than those supposedly “commercial” editors whose business was managed by a publishing partner.

That said, the financial management of the journals did not take up much time for George Stokes, and these tasks were unlikely to be at the top of the list when he thought about his “editorial” work. The Society funded its journals as a service to scholarship, rather than seeking to make them profitable, which meant that its approach to the economics of production and distribution differed from that of independent journals.<sup>22</sup> Negotiating with printers was not something that the Society did very often: it preferred to establish long-term relationships with its printers – e.g. Taylor & Francis (1828-77) and Harrison & Sons (1877-1936) – and trust them to manage the costs. Arrangements for the supply of paper, and for the creation of artwork, was managed by the Society, but seems to have been done on an *ad hoc* basis by the Society’s staff. There was next to no attention to sales or marketing in the nineteenth century: the distribution of free and exchange copies was managed by the staff, and copies could be bought either from the Society’s premises or from the printer.<sup>23</sup>

The senior employee at this time was designated the “Assistant Secretary”, and since the secretary’s role involved overseeing the publications, it was part of the assistant secretary’s role to help with the publications. It is clear from the surviving minutes and correspondence that Walter White, who held the position from 1861 to 1885, organised the production of art-work and the purchase of paper. He also communicated with the printers about production schedules, the correction of proofs and the appropriate retail price for the volumes. In other words, while Stokes was involved in the important, but rare, strategic decisions about production or distribution, he delegated most of the day-to-day work to his paid assistant. As he bluntly told a disgruntled correspondent, “I need hardly say that it does not form part of the duties of the secretary of the Royal Society... to look over the shoulders of a bookbinder’s assistant as he is doing his work lest he should make some mistake.”<sup>24</sup>

The work that Stokes was most closely involved with was that associated with authors and referees (the second and third areas in Figure 2). His correspondence with authors often began before papers were formally submitted, with Stokes explaining to authors – particularly those who were not fellows – how the Society’s processes worked. Later, he would inform authors of the decision. He

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<sup>22</sup> Fyfe (2015).

<sup>23</sup> Fyfe (forthcoming).

<sup>24</sup> Stokes to Richard Owen, 1 Nov. 1884, quoted in Larmor (1907), vol. I, p.224.

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sometimes conveyed instructions to delete sections or images, paying some attention to the treasurers' fears of rising costs of publication. To some authors – often those close to his own field – he made suggestions for revisions to improve the paper, though such suggestions were rarely binding.<sup>25</sup> In later years, he would imply that making such suggestions had been his personal choice, claiming that “It is of course no part of my duty as Secretary of the Royal Society to revise, or attempt to revise, papers that the authors send in.”<sup>26</sup>

A large amount of Stokes's editorial workload was a consequence of the practice of consulting referees. Stokes chose the referees, drawing upon his extensive knowledge of the interests and expertise of the fellows of the Royal Society. He requested them to read and report on a paper, and then had to read their reports and decide what action to take as a result: whether to recommend acceptance, whether to seek a further opinion, or whether to risk offending the fellow responsible for the paper (as author or communicator) by recommending they withdraw it from consideration. For each paper, going through this process could take two or three months, or more. How much of Stokes's time it took is more difficult to estimate: he usually spent one day a week at the Society, but also took Society work home to Cambridge.<sup>27</sup>

Stokes did not manage the review process entirely by himself: many of the routine tasks (such as logging the receipt of new submissions) were delegated to the assistant secretary, and he could draw upon the advice of other fellows in selecting referees. Stokes worked with several co-secretaries during his tenure, each of whom had expertise in the life sciences rather than physical sciences, and were therefore a valuable source of advice for choosing referees in those areas. Once suitable referees had been identified, a standard letter requesting a report was usually sent by the assistant secretary, on behalf of the secretaries.

As the number of submissions grew through the late nineteenth century, the amount of paperwork involved in dealing with authors and referees grew. Many of Stokes's correspondents were glad when he became an early adopter of the typewriter in the late 1870s, but the real time-saver was the introduction of standard printed letters and forms.<sup>28</sup> By the 1880s, the effort involved in requesting a report from a referee had been reduced to that of entering the paper's details on a printed letter, signing and posting it (see Figure 3a). By the late 1890s, the printed guidance for

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<sup>25</sup> Baldwin (2014b); Gooday (2020).

<sup>26</sup> Stokes to “an author”, 2 May 1882, quoted in Larmor (1907), vol. I, p.223. Compare with Baldwin (2014b).

<sup>27</sup> On decision-making times, see Fyfe et al. (2019); on “Royal Society Thursday” in the Stokes household, see Larmor (1907), vol. I, 35-35.

<sup>28</sup> On the significance of printed blank forms, see Gitelman (2012), Ch. 1.



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referees was transformed into a form with blank spaces for answers: having a standard layout helped the editorial team process the reports (see Figure 3b). For instance, rather than being included in an extended narrative letter, the referee's overall recommendation could now be consistently found towards the top of the page, in answer to Q.1.

[IMG] Figure 3 Standardised, printed paperwork: a) request for a referee's report, 16 Feb. 1883 (RS RR/9/17); b) referee report form, 2 March 1898 (RS RR/14/56)

The final set of tasks listed in Figure 2 relate to the strategy of the journal: determining its format and contents, and raising its profile among researchers to encourage a steady flow both of submissions and of readers (or purchasers). As we will see, these would come to be seen as an important part of the editorial role in the later twentieth century, but they do not appear to have been conscious elements of Stokes's role in the nineteenth century. This is because the format of the *Transactions* was already well-established; the prestige of the Royal Society meant that there was no worry about insufficient papers being submitted; and the Society's officers took the existence of readers for granted. It is significant, therefore, that when Henry Armstrong suggested appointing an editor for the publications in 1902, he specifically referred to the needs of the *Proceedings*, whose role was still evolving.

For George Stokes, being "editor" was largely a matter of overseeing and organising the people and processes that enabled the Society to make decisions about the intellectual merits of the papers submitted to it for publication. He had substantial ability to steer those decisions, but not the authority to make them. He had some involvement in the financial management of the Society's journals, but this was mostly a matter for the treasurer and the finance committee. It is possible that his own reputation, and his extensive networks, helped to encourage the flow of submissions or to build the prestige of the journals, but that was far less significant than the name, status and networks of the Royal Society itself.

### **Why did Armstrong want an Editor?**

The decades around 1900 were a period of reorganisation and modernisation for the Royal Society, made necessary (and possible) by a change-over in senior management. The secretaries who replaced George Stokes were of a different generation, served shorter terms, and had to fit their secretarial duties alongside new expectations of university academics. The expanding workloads of Royal Society secretaries were the context for all discussions about editorial duties in the twentieth century. The reforms were driven by the appointment (in 1896) of a new assistant secretary, Robert

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Harrison, who set out to modernise the Society's administration with everything from new procedures to typewriters and electric lighting.<sup>29</sup>

At the same time, *Proceedings* was changing its role. It had originally been an auxiliary journal to *Transactions*, publishing reports from the Society's meetings and short accounts of papers not deemed worthy of full publication in the *Transactions*.<sup>30</sup> But by the 1890s, the mid-sized article, of 15-24 pages, in the *Proceedings* had become the typical sort of paper published by the Royal Society, although long and well-illustrated papers continued to appear in *Transactions*. The faster periodicity of *Proceedings* (roughly monthly) made it attractive to authors concerned with establishing priority, especially in competitive, international research areas.<sup>31</sup>

It was in this context that Henry Armstrong suggested the appointment of an editor. Armstrong (1848-1937) was an educational reformer and professor of chemistry at the Central Institution at South Kensington.<sup>32</sup> He was closely involved in the Chemical Society, serving on its Council and for a term as president in the 1890s; he would have known its editorial model (committees and referees overseen by an editor), and probably also that of William Crookes's *Chemical News* (an editor in sole charge).<sup>33</sup> In the closing days of his term as vice-president of the Royal Society in 1901-1902, he delivered a substantial memorandum reacting to a report reviewing the "organisational" aspects of the Society.

Armstrong was concerned about the status of the Royal Society in an age of multiple specialist societies, and of its publications amidst a plethora of alternative publication options. He feared that the Society was "in no slight danger of losing its position as the most important body in this country engaged in the promotion of Natural Knowledge". He claimed that the Society was not showing leadership: "at present, it follows, but it does not lead". One reason for this was that, despite recent organisational reforms, he felt that the Society was becoming too bureaucratic, and Council simply did not have the time to consider "questions of broad policy".<sup>34</sup>

Armstrong's critique included the Society's publications, for (he alleged) the published papers "do not represent the high-water mark in all branches of science" and, despite the established processes of editorial scrutiny, many "are somewhat trivial in character". He believed that, despite

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<sup>29</sup> "P. D. R." (1946).

<sup>30</sup> On *Proceedings* and its kin, see Csiszar (2018), Ch. 2; and Csiszar (2020).

<sup>31</sup> Baldwin (2014a).

<sup>32</sup> Brock (1973).

<sup>33</sup> Brock (2004); Brock (2008).

<sup>34</sup> Armstrong (1902).

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continued growth of submissions, the Society was not receiving the most interesting or significant new work, because “many authors prefer to publish through other channels”.<sup>35</sup> Armstrong had three suggestions:

- Regularise the issue of *Proceedings*, so that it appeared on a definite date each month (or fortnight);
- Appoint an editor for the Society’s publications, rather than relying on the busy secretaries;
- Give more power to the editor (or secretaries) by reducing the role of committees and referees.<sup>36</sup>

The periodicity of *Proceedings* was a matter of long-standing complaint: since it originated as a record of the meetings of the Society, it appeared only in those months of the year when the Society had meetings (roughly, November to June); and it appeared when it was ready, not on a specific date each month.

Armstrong’s other suggestions related to his desire to place more editorial power in the hands of individuals, rather than referees or committees. That could mean more power to the secretaries, but Armstrong’s preference was the appointment of an editor. He was not proposing separate editors for each of the Society’s journals, but the appointment of an individual whose main focus would be on journals; the secretaries were occupied with so many other Society activities that they could not give the journals (especially *Proceedings*) the attention Armstrong felt they needed.

Armstrong saw individual power as a way to reduce “the complexity” of the editorial process. He pointed out that the recent 1896 reforms had done little to streamline the editorial process: in fact, by adding sectional committees as well as referees, “the machinery of publication has... been complicated rather than simplified”. Armstrong believed that an editor “conversant with the general trend of scientific enquiry” could make decisions more efficiently than could sectional committees and referees. Being “conversant” with research would be a challenge for any Royal Society editor, given the wide disciplinary range of the journals. Armstrong acknowledged this in his suggestion that, although the sectional committees should no longer be involved in editorial affairs, their chairmen could nevertheless be useful “advisors or assessors” (as representatives of different areas of scientific endeavour), assisting the editor (or secretaries).<sup>37</sup> This was, in fact, broadly what happened.

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<sup>35</sup> Armstrong (1902).

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It says much about Armstrong's concept of "editor" that he presented it as an alternative to using referees: he was imagining the editor of *Chemical News* or *Nature*, not the modern academic editor who consults with referees. The use (or not) of referees was central to Armstrong's argument. He described the use of two referees as "the old plan", and "an anachronism in the majority of cases".<sup>38</sup> He had two broad sets of arguments against the use of referees: the failure of confidentiality; and the difficulty of finding appropriate referees.

Ever since the Society began using referees, disgruntled authors had from time to time complained about "secret" judgments,<sup>39</sup> but Armstrong's complaint was not about the legitimacy of such judgments, but about poor confidentiality: "sooner or later, in some occult manner, it usually leaks out who has been the referee, and too frequently ill-feeling is engendered".<sup>40</sup> This was something that the Society would formally address in 1914, when its revised standing orders explicitly stated that "The opinion of the referee shall be regarded as confidential by the society", a phrasing that presumably included the identity of the referee.<sup>41</sup>

Finding sufficient, appropriate fellows to act as referees was becoming increasingly challenging because the size of the fellowship was not growing with the scientific community. As Armstrong pointed out, this meant that the "number of persons to whom papers can be referred is very limited". Furthermore, busy academics were not always willing to accept requests to referee, particularly if they felt that their "valuable time" was being "practically wasted on such work", and might have been better spent doing their own research.<sup>42</sup> And if the most appropriately-qualified fellows were not willing, then was it any better to refer a paper to another fellow than to rely on the expertise of the secretary himself? Armstrong's suggestion that referees be used only in cases already "deemed very weak or undesirable" implies that he saw referees as useful only for confirming those decisions, and their role was not so much evaluation as protecting the secretaries from direct blame by disgruntled authors or their communicators.<sup>43</sup>

Reducing the use of refereeing would have speeded up publication times. In the 1890s, decisions on papers for *Proceedings* (mostly made without referees) took 35 to 40 days on average, while those for *Transactions* (which always involved referees) were taking 80 to 110 days on average.<sup>44</sup>

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<sup>38</sup> Armstrong (1902).

<sup>39</sup> Csiszar (2018), 152-54.

<sup>40</sup> Armstrong (1902).

<sup>41</sup> Standing Order 50, agreed 21 May 1914, RS CMP/10.

<sup>42</sup> Armstrong (1902).

<sup>43</sup> Armstrong (1902).

<sup>44</sup> Based on analysis of the Royal Society "Register of Papers", RS MS/622; see Fyfe et al. (2019).

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This suggests that refereeing added seven to ten weeks to the decision-making process. (In hindsight, this seems quite respectable for a process that involved sending the single copy of a manuscript through the postal service to the first referee, back to London, to the second referee, and back to London again!) This was not, however, used by Armstrong as one of his arguments against refereeing.

Armstrong was particularly concerned with the state of *Proceedings*. He hoped that an editor, by acting “in concert with the officers, and loyally supported by them, might easily, in a year or two, make the Proceedings the most important publication of its kind”.<sup>45</sup> This reveals that his vision of an editor was grander than just making the editorial process more efficient: after all, *Proceedings* already had a simpler editorial process than *Transactions*, as the secretaries already had significant “freedom of action” for short papers.<sup>46</sup> This was why Armstrong wanted to see the appointment of an editor who was not burdened with other secretarial duties: he saw an editor as someone who would actively shape the direction of the journal, who might determine its role and remit, and help to raise its profile.

As things turned out, Armstrong’s memorandum had little direct success. It disappeared into a succession of committees. In 1904, one of those committees considered “suggestions relating to the publications of the society”; it looked at the form of both *Transactions* and *Proceedings*, as well as their relationship, and “with a view to rendering it [*Proceedings*] a more effective publishing medium”.<sup>47</sup> This suggests that Armstrong’s concerns were not without some foundation. However, appointing an Editor was not among the proposals discussed.

The most significant change that arose out of these discussions was to extend the existing division of *Transactions* – into series A for physical and mathematical sciences, and series B for biological sciences – to *Proceedings*. As a consequence, the Society’s editorial work came to be more clearly divided between its two secretaries, rather than being seen as part of the load of whichever secretary was dealing with “internal” matters. Not having to deal with the B-side editing was presumably welcome news for the physical science secretaries; but for the biological secretaries, who had tended to focus on “external” relations, this was an addition to their responsibilities.

In 1927, Ernest Rutherford, as president of the society, would claim that “Anyone who reads our ‘Proceedings’ cannot fail to be impressed in general by the great variety and importance of the

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<sup>45</sup> Armstrong (1902).

<sup>46</sup> “Explanatory notes on the procedure relating to the reading and publication of papers”, in *Year Book* (1899), 86-89, at p.89.

<sup>47</sup> First committee appointed, 27 Nov. 1902; reported 28 May 1903, in RS CMP/8. Quotation from RS CMP/8, 30 Apr. 1903. That committee was reappointed on 21 Jan. 1904, RS CMP/9.

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papers appearing in them.” Rutherford claimed the Society was “now the most important medium of publication of papers in Experimental and Theoretical Physics and Physical Chemistry in this country”.<sup>48</sup> The success of *Proceedings A* demonstrates that Arthur Schuster (secretary 1912-1919) and James Jeans (secretary 1919-1929) proved able to develop the journal within the Society’s existing editorial structures.

It is more difficult to say whether the absence of a similarly triumphal development of *Proceedings B* reflects a different approach from the biological secretaries John Bradford (1908-1915) and William Hardy (1915-25), or the different context of research in the life sciences in the period. It is clear that, from the end of the Great War onwards, the Society received significantly more papers in physics, chemistry and mathematics than it did in botany, zoology or physiology: for instance, in 1927, there were only 77 submissions in the biological sciences compared to 201 in the physical sciences.<sup>49</sup> It may be that Schuster and Jeans were more willing or able to devote significant energy to developing *Proceedings A* than Bradford and Hardy were with *Proceedings B*, or that they were more effective (either personally or by reputation) at encouraging researchers in their fields to submit papers to the Society. It could equally be that the growth of the A-side simply reflects the rapid and exciting growth of modern physics in the early twentieth century.<sup>50</sup> Nonetheless, Armstrong may have been right that, for *Proceedings B*, appointing a fellow as editor, with the remit of focusing specifically on the journal, would have been a good idea.

### **Redistributing Editorial Roles**

In the early-to-mid-twentieth century, the constant increase in submissions to Royal Society journals posed challenges for the Society’s commitment to its traditional structures for distributed editorship; and the expansion of refereeing to *Proceedings* (in direct opposition to Armstrong’s suggestions) increased those challenges.<sup>51</sup> In response, the Society introduced several new types of designated editorial roles. The “assistant editor” was a paid staff member, helping with the routine paperwork and correspondence; and the “associate editors” were volunteer fellows, helping with the selection of referees. The role of “journal editor” emerged in the late twentieth century, from the tasks and responsibilities that remained.

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<sup>48</sup> [Rutherford] (1928), p.305. On Jeans and *Proceedings*, see Clarke (2015).

<sup>49</sup> Annual submission rates are recorded inside the front cover of the Royal Society “Register of Papers”, MS/589 (for the A-side) and MS/590 (B-side).

<sup>50</sup> Clarke (2012).

<sup>51</sup> Fyfe et al. (2019).

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### *Assistant Editor*

In 1937, the Royal Society appointed Ronald Winckworth (1884-1950) to the new post of “Assistant Editor”; he thus became the first person in the Society’s history to have a formal title as “editor”. A former school-teacher, Winckworth had joined the Society’s library staff in the late 1920s. While the assistant secretary managed the correspondence with authors, referees and printers, Winckworth became “masterly” at preparing manuscripts for publication, and learned to be a “painstaking proof reader”.<sup>52</sup> When the assistant secretary unexpectedly died in 1932, Winckworth was promoted to his role, and he created the role of “Publications Clerk” to ensure that the work he had done was not neglected while he focused on other Society business. However, Winckworth found himself “irked by the routine of administration”, and when the publications clerk left the Society in 1937, Winckworth found a way to return to publications. He argued that the administrative burden of overseeing the Society’s business and publications was now too much for one person. The role was split in two: an Assistant Secretary and an Assistant Editor – and Winckworth himself chose the editorial role. This change in staffing indicates a recognition of the growth of routine paperwork associated with the *Proceedings* and *Transactions*, and of the value of having a staff member dedicated to the publications.

Winckworth’s new editorial team included J.C. “Jock” Graddon (formerly of the library staff) and at least one clerical secretary, possibly Jean Lamb.<sup>53</sup> Together, they managed the refereeing process, corresponded with authors, did the copy-editing and proof-checking, and liaised with the printers, lithographers and paper merchants. This is the origin of the Royal Society’s professional publishing team that, by the 1990s, would involve over a hundred people in roles ranging from copy-editor to marketing manager. Back in the 1930s, however, none of these people had any background in publishing: Winckworth was an Oxford history graduate who had become a keen collector of molluscs and echinoderms during his wartime naval service; the first publications clerk, William Diamond, had completed a PhD after his war service and then worked in the civil service before joining the Society; and Graddon was a science graduate who had previously worked for Cable & Wireless.<sup>54</sup>

As staff of the Society, rather than fellows, they could do a considerable amount of work on the publications, but they did not have responsibility for the editorial decisions. That still formally rested with Council, but was usually performed by the secretaries, except when papers were to be

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<sup>52</sup> Davies (1951), 295.

<sup>53</sup> Lamb was certainly Winckworth’s secretary later, and she went on to work for Graddon after the war.

<sup>54</sup> Davies (1951); *Comrades of Old* (2015).

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declined. The choice of referees, the interpretation of referee reports, and publication recommendations remained with the secretaries, with advice from the sectional committee chairs. When the Society's publishing processes were reviewed by an experienced publisher in 1955, he reported himself astonished to see so much "slogging clerical work" being done by "professors and scientists".<sup>55</sup> Nonetheless, the idea of splitting off the publications work from the (honorary) secretarial role – along the same lines as had been done for assistant secretary and assistant editor – gained no traction until the 1980s.

### *Associate Editors*

A different set of "editor" attributes emerged from discussions in the 1960s about the "policy and procedures" for *Transactions* and *Proceedings*. In these discussions, the editorial figure moves from being an organiser and administrator to someone influential and well-networked in their field.

The appointment of applied mathematician James Lighthill as Physical Secretary, in 1965, was the impetus for a package of reforms. Within eighteen months, he had enough ideas to fill a ten-page document. Among other things, Lighthill wanted to find a clearer mission for the Society's journals amidst the proliferation of scientific journals in the early Cold War. His secretarial colleague, the experimental pathologist Ashley Miles, agreed on the need for change, but as he had a different vision, no significant changes were made to policy. But both secretaries agreed that the editorial procedures were "cumbersome and, to some extent, outmoded"; and they broadly agreed on reforms to practice.<sup>56</sup>

Like Armstrong six decades earlier, Lighthill and Miles wanted to change the role of the sectional committees and their chairmen in the editorial process – but whereas Armstrong complained about the inefficiency of having too many committees, his successors wanted more effective access to discipline-specific expertise. Lighthill complained that the current system "seems to assume that the Physical Secretary is a sort of scientific Pooh Bah, knowing all the 'A' side sciences and everyone in them; and that the five Sectional Committee Chairmen can field all the mistakes he may make. Neither assumption is justified." Lighthill believed that even six people could not hope to have "personal, and preferably up-to-date, knowledge of [every] field and those working in it".<sup>57</sup> The expansion of scientific research in the Cold War, both in terms of specialisation and

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<sup>55</sup> Lusty Report, quoted in Morley (1963), 1-2.

<sup>56</sup> "Proposed Future Policy and Procedures for Royal Society *Philosophical Transactions* and *Proceedings*" [For Council on 15 June 1967], in RS C/84(67).

<sup>57</sup> [Lighthill] (1967), 9.



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internationalisation, meant that the Royal Society itself might not include fellows with appropriate expertise to referee every possible paper. The subsequent 1968 reforms would include a provision that allowed the secretaries to look beyond the fellowship for referees; and this would make it more important than ever for the secretaries to have access to networks that would help them identify appropriate referees.

Lighthill noted that personal networks mattered for more than referee selection. He had discovered that the reports he received from fellows were “seldom... clear-cut”, and those with editorial responsibility needed to check closely for “some unintentional clue” that might reveal a bias that would lead a recommendation to be “treated with caution”. This would be even more necessary once the pool of referees was widened. Apparently, “knowledge of the field and the personalities involved helps enormously”.<sup>58</sup>

Both secretaries felt that the Society’s existing sectional committees (and their chairs) were not the right bodies to assist with the selection of referees and the consideration of their reports. Lighthill suggested that each secretary needed about twelve “helpers”, while his colleague Ashley Miles had a similar idea involving the creation of an Editorial Board to help each secretary. The point was to have a larger group of fellows to draw upon; and also to have a group whose remit was specifically focused upon the needs of the *Proceedings* and *Transactions*. From December 1968, the sectional committees ceased to be involved in editorial work; and twenty-four Fellows were appointed as “Associate Editors”, to assist with “referee selection and evaluation” and generally to support the interests of the journals.<sup>59</sup>

The 1968 reforms would also give the secretaries greater individual responsibility for editorial decisions. Since the mid-eighteenth century, collective, or committee-based, decision-making had been fundamental to the Society’s editorial processes: just as the workload was distributed, so too the responsibility had been shared among the fellows. In theory, since 1896, all recommendations made by the secretaries had to be approved by the relevant sectional committee and by Council. In reality, ratification of straightforward decisions to publish had become automatic and after-the-fact. But decisions regarding problematic papers usually did go to the committees, and could take weeks or months to finalise. Lighthill and Miles both wanted “increased powers” for the secretaries.<sup>60</sup> Council

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<sup>58</sup> [Lighthill] (1967), p. 9.

<sup>59</sup> Council minutes, 15 June 1967, RS CMP/22. See also RS CMP/23, 9 May 1968; and “Notes for the Guidance of Associate Editors” [undated 1969].

<sup>60</sup> [Lighthill] (1967).

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agreed. Henceforth, the secretaries were empowered to reject papers on their own authority; and decisions to accept papers could be made by Associate Editors, subject to automatic ratification by the relevant secretary.<sup>61</sup> Removing the role of committees gave the secretaries decision-making power similar to those of independent editors. Indeed, by this time the secretaries were informally referred to as “editors”.

### *Journal Editors*

The question remained of how effectively the Society’s journals could be run by secretaries who were also overseeing the Society’s correspondence, conferences, grants, policy work and international scientific diplomacy. One of the implicit expectations of Henry Armstrong’s suggestion for an editor had been that a dedicated editor would be able to devote time and energy to developing and promoting the journals. In 1983, the Associate Editors made a proposal to Council that there should be an “experiment” with “the formal delegation of editorial responsibilities... [from the secretaries] to two Editors”.<sup>62</sup> The timing was auspicious, because until that year, the Society’s editorial department had been run by assistant editors whose ideas about journal editing had been formed in the 1930s and 1940s. Now, there was a new assistant editor, who had “only” been with the Society since 1977.

In early autumn 1983, the quantum physicist Paul Matthews (FRS 1963) and the zoologist Brian Boycott (FRS 1971) became “acting editors” for the series A and series B journals, respectively. Their division of labour shadowed that of the secretaries, and they each took responsibility for a series of *Proceedings* and *Transactions*. A year later, the experiment was declared “most successful”, and Council began drafting the new procedures necessary “to put this arrangement on to a permanent basis”, with five-year editorial terms.<sup>63</sup> In fact, the B-side editing returned to the Biological Secretary, but the A-side journals did continue with a separate editor.<sup>64</sup> The discussions surrounding this “experiment” again shed light on notions of what an “editor” might do.

One of the things that the acting editors apparently managed to do was to improve “the steady flow of papers through the processes up to acceptance”. Since Boycott estimated that he had only spent two to three hours work per fortnight on editorial work, this suggests that the time the

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<sup>61</sup> “Notes for the Guidance of Associate Editors” [undated 1969].

<sup>62</sup> Annual Report (1983), p. 10, referring to Council minute of 14 July 1983. Rowlinson & Robinson (1992), p. 108.

<sup>63</sup> Annual Report (1984), p. 10 and pp. 16-17.

<sup>64</sup> See the pages “Editors and Associate Editors” in the Year Books for 1986-89. JT Stuart covered the A-side editorial work in 1987, and Frank Smith took over in 1988.

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secretaries had previously been able to devote to the journals might have been extremely modest.<sup>65</sup> Boycott's editorial experience fired him with enthusiasm for other things that editors could do. Barely six months into his role, he had ambitions for the journals "to go more entrepreneurial". He wanted to "increase sales, publish more and better papers and increase the rejection rate".<sup>66</sup> Boycott suggested that the editors should be "named on the journal covers", so that they would "take responsibility for making decisions".<sup>67</sup> Boycott's vision of an editor, in other words, was not merely someone who managed the editorial processes and paperwork for the Society, but someone who would publicly set the policy, direction and tone of the journal.

Boycott himself did not continue as an editor for the Society after 1984, but by 1987, these ideas were starting to gain traction. Ongoing concerns about the falling number of subscriptions (and lack of growth in submissions) for the journals stimulated a formal review of the Society's practice and policy on publications. One of the particular motivations of the 1987 review group was that "there had been fuzzy lines between journals."<sup>68</sup> As the appointment of editors in 1983 had illustrated, the Society still thought of its publications in terms of the A and B series (reflecting the remit of the two secretaries), rather than as four separate journals: *Transactions A*, *Proceedings A*, *Transactions B*, and *Proceedings B*. The difference between Series A and Series B was clear enough, but what really distinguished *Proceedings* from *Transactions*? The review group made many recommendations but one of the most significant was the journals would henceforth be edited, managed and marketed as four separate titles. At an organisational level, this involved appointing four "committed and enthusiastic" fellows as editors, each assisted by an "effective" editorial board (replacing the A and B groups of Associate Editors).<sup>69</sup> The new editors would have day-to-day control and substantial independence: they would meet collectively in a new Publications Management Committee, but they did not have to get their editorial decisions passed by that committee, nor by sectional committees nor by Council.

John Enderby (*Proceedings A*), Bryan Clarke (*Proceedings B*), Frank Smith (*Transactions A*) and Quentin Bone (*Transactions B*) were appointed as the first journal editors in late 1988.<sup>70</sup> The

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<sup>65</sup> "Ad hoc meeting on RS publications policy" (1984).

<sup>66</sup> "Ad hoc meeting on RS publications policy" (1984).

<sup>67</sup> "Ad hoc meeting on RS publications policy" (1984).

<sup>68</sup> Interview with Peter Cooper, 3 June 2016.

<sup>69</sup> Minutes of PPC2, 21 Dec. 1987, in RS CMB/328b; "Publications Review, 1988 / Summary of Conclusions" reproduced in file at RS C/31(95).

<sup>70</sup> Strictly, *Notes and Records of the Royal Society* had had a named editor ever since it was created in 1938, but it was initially a members' news magazine and latterly a history of science journal, rather than a scientific research journal.

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importance of strategic thinking in their new roles was immediately apparent, as, after choosing the members of their new editorial boards, their first task was to prepare their journals for a high-profile re-launch in June 1990. The aim was for each journal to have “a more distinct and clearly defined character”, including its appearance as well as contents. The “tradition that the four journals should all be of similar design” would be broken, and it was up to the new editors to decide what types of articles their journals should carry, and what size and format they should be.<sup>71</sup> The re-launch was swiftly declared highly successful. Submissions rose. The effect was particularly dramatic in the life sciences, where submissions soared, overtaking those from the physical sciences for the first time in a century. For *Transactions B* and *Proceedings B*, editors appear to have helped the Society’s journals engage with the massive expansion in life sciences research in the late twentieth century.

## Conclusion

The editorial roles that the four appointees in 1988 were expected to fill had some similarities to the role performed by George Stokes, but also many differences. The journal editors had direct decision-making authority and were not constrained by committees, but they still did not make decisions alone: the ongoing use of referees might have surprised Henry Armstrong. Editorial responsibility continued to be distributed between editor, editorial board, and referees. There was, however, a lot more paid help, and new electronic technologies would shortly make it possible to work with a more internationally diverse pool of referees.

A key change for the Royal Society’s journals – and thus for their editors – was the competitive landscape in which the *Transactions* and *Proceedings* now operated. In the late nineteenth and early twentieth centuries, there had been no need to solicit more submissions: submissions were driven by the Society’s reputation and the prestige of its *Transactions*. By the 1950s, this could no longer be taken for granted, and the idea re-emerged of appointing someone who would take on a more proactive, public role in shaping and promoting the journal. One fellow put forward an early proposal for a “Board of Editors”, whose names should appear on the journal; this, he hoped, would encourage more fellows to take an active interest in “the welfare of the journal”.<sup>72</sup> The editors appointed in 1988 were definitely intended to take a strategic role in shaping their journals, and to do so in a way that would encourage submissions.

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<sup>71</sup> “The Society’s Publications”, 11 June 1987, p.8-9, in RS C/87(87); “Publications Review, 1988 / Summary of Conclusions” reproduced in file at RS C/31(95).

<sup>72</sup> McCance (1954).

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The changing landscape of academic publishing also affected the way the journals were distributed. In the days of Stokes and Armstrong, most of the copies of the journals that went to academic and learned institutions were distributed non-commercially, through gift and exchange.<sup>73</sup> From the 1950s onwards, they increasingly did so by sales, with libraries paying for subscriptions. This meant that the Royal Society's publishing department in the later twentieth century was far more aware of the need to produce a product that libraries would pay to acquire. This had not been a concern at all in earlier generations. But it was, however, largely a concern for the paid staff, particularly those in the sales and marketing department (created in 1955). For the associate editors, and after them, the journal editors, their existing aim of publishing high quality science was assumed to translate unproblematically to sales.

The different histories of *Proceedings A and B* in the twentieth century suggest that Henry Armstrong was partially right about the advantages of an editor, though not necessarily for the reasons he identified. *Proceedings A* shows that a devoted secretary could do a good job of running a journal; but *Proceedings B* suggests that it depended a lot on the personality and other commitments of the secretary, and on the wider research context. One simple but important difference between an "editor" for the Society's journals, and having the journals managed by the "secretary", was the focus and attention that the journals would receive; this was clearly demonstrated in the 1980s, even though it had been found true at the staff level in the 1930s.

Examining the Royal Society's processes reminds us that editing a journal could be done without an "editor", but also that editorial work and responsibility at scientific journals is shared between many other people. Developments over the twentieth century have enabled more of the work to be delegated to paid staff or technology, but responsibility for intellectual decisions continues to lie with the academics who serve (usually unpaid) as journal editors, board members and referees. George Stokes's editorial role had been primarily as an organiser, and as a recommender. His modern successors can decide, rather than recommend; and they have staff to do most of the organising. And, in a world where journals must compete for authors and for library budgets, strategy, vision and journal promotion have become far more prominent parts of the editorial role.

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