

## SHORT NOTE - NOTES AND RECORDS OF THE ROYAL SOCIETY

### Short title for page headings

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Karl Pearson's Patterns of Publishing

### Title

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Karl Pearson's (1857-1936) Patterns of Publishing

### Author names and full addresses

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### Summary (< 200 words)

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Karl Pearson (1857-1936) was elected FRS in 1896 based on his contributions to applied mathematics. His contributions to biometry, eugenics, and other areas of applied statistics largely came later. This research note describes patterns in Pearson's publishing behaviour: which venues did he choose for his work, how did these choices compare with choices made by peers of similar standing at the same institution. This note quantifies patterns in choice for publishing venues for Pearson both for his whole bibliography and for the subset of his bibliography associated with biometry and eugenics. This analysis indicates Pearson relied to a high degree on publishing through venues either solely or primarily under his own editorial control. That pattern of publishing is a significant outlier compared with our sample of peers of similar local standing in University of London. These results suggest the considerable potential for more detailed studies of publishing patterns by senior university researchers.

## Key words or phrases

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moral economy of science, peer review, self-publishing, bibliography, editorship, academic publishing, eugenics, Karl Pearson, statistical science

## Main body

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Karl Pearson (1857-1936) was elected FRS in 1896 based on his contributions to applied mathematics. His considerable impact on biometry, eugenics, and other areas of applied statistics came later.<sup>1</sup>

Pearson's reputation to these fields was amplified because he was prolific. Yule and Filon provided a selective bibliography.<sup>2</sup> Morant and Welch provided the most comprehensive bibliography for Pearson, listing 648 items published between 1879 and 1937.<sup>3</sup> They divided his publications into five subjects: "theory of statistics and its application to biological, social, and other problems" (n=406), "pure and applied mathematics and physical science" (n=37), "literary and historical writings" (n=107), "writings on university matters" (n=27), and "letters and reviews and prefatory and other notes in scientific publications" (n=111).<sup>4</sup>

In addition to his productivity as an author, Pearson was prolific as a publisher. Primarily, this involved launching new journals and series (Table 1). Series were produced under imprints associated with two research units created by Pearson at University College, University of London in the first decade of the twentieth century. These were the Biometric Laboratory and the Francis Galton Laboratory for National Eugenics.<sup>5</sup> Between 1901 and 1925, Pearson launched nine different serial titles. All became important publishing outlets for him and for members of the laboratories he directed. Cain catalogued publications produced under the imprint of the Eugenics Laboratory.<sup>6</sup> No similar catalogue has yet been published covering the imprint of the Biometric Laboratory.<sup>7</sup>

Biographers and historians of statistics have noticed a pattern in Pearson's choice of publishing venues for his professional writing. Kevles was plain: "More than two-thirds of the research papers appeared in organs that Pearson controlled – notably *Biometrika*."<sup>8</sup> Cain described as "self-publishing" Pearson's heavy use of series he created through the Eugenics Laboratory, such as its *Lectures* and *Memoirs* series, to publish work under his own name.<sup>9</sup> In four of these series, for instance, Pearson authored or co-authored more than 80% of the research content (Table 1).

Explanations for Pearson's publishing preferences tend to pivot around a discussion of abusive treatment in the journal, *Philosophical Transactions of the Royal Society*, in the context of the so-called "Mendelian-Biometrician controversy".<sup>10</sup> In these narratives, publications by Pearson and his compatriots (i.e., biometricians) between 1895 and 1900 were abused and blocked from publication by Mendelians, notably William Bateson. Specific incidents occurred over a longer arc of political manoeuvring within a Royal Society research committee into the causes of evolution that saw biometricians pushed out as Mendelians took over. Simply put, the abused parties took their work elsewhere, starting up publications

of their own. As the narrative is told, *Biometrika* was launched in 1901 as a direct result of these events.

Yule and Filon give an alternative explanation.<sup>11</sup> Essentially, they place the founding of *Biometrika* within the context of discipline formation. They argue Pearson, Weldon, and Galton were committed to a separate publishing vehicle regardless of the outcome of disputes within the Royal Society, and those disputes served as a *post hoc* excuse, rather than ignition, for creating a new venue. Historians routinely flag the creation of alternative journals as a sign of attempted discipline formation.

It is not the purpose of this research note to defend one narrative over another. Both might be causal for the course of events. Instead, our aim is to focus on a wider pattern towards publishing independence and self-control in Pearson's career. Prior to events at the Royal Society, Pearson used independent self-publishing to communicate messages he deemed important. For instance, Pearson's 1892 book, *The New University for London*, was a self-published argument in favour of a certain configuration of colleges within the University of London. The same is true for his first book, a fictionalised autobiography titled *The New Werther* and a later position piece published in a particularly heated moment in debates over university re-organisation.<sup>12</sup> After *Biometrika* stabilised, Pearson routinely created new publishing ventures as a means for further, or niche, communication.

No study of Pearson's biography is complete without attention to his entrepreneurial activity as a publisher. More widely, independent publishing as entrepreneurial and intellectual assertion needs more attention in historical studies of scientific activity. When are authors choosing independent versus dependent vehicles for publication? What is the moral economy of disciplines and institutions that validates or punishes specific publishing decisions? How are the norms of control and dependence negotiated during employment, during a career, and over the life history of research activities? Recent research on the role of publishing houses in shaping scientific knowledge is most welcome.<sup>13</sup> Also welcome is recent research into the evolution of editorships, peer review, and peer validation for research journals.<sup>14</sup> Collectively, these studies raise further questions about editorial independence and dependence within the broad evolution of publishing ethics. Science communication is impossible without vehicles to carry the information.

In this research note, our question is specific and empirical. Did Pearson prefer publishing venues under his own control? We undertake a quantitative analysis of Pearson's choices for publishing venues across his full bibliography. We calibrate results for Pearson against something approximating a professional norm for his time and location by producing similar quantitative assessments for several academic peers within University of London. We strongly encourage wider-ranging quantitative studies of publishing patterns not only in this period but also across the whole history of science.

## Methods and Data

This analysis uses Morant and Welch's bibliography to source and characterise Pearson's venue choices.<sup>15</sup> We focus on publications appearing in two sections of their bibliography:

(1) “theory of statistics and its application to biological, social, and other problems” (n=406), and (2) “pure and applied mathematics and physical science” (n=37). This totals 443 items.<sup>16</sup>

The total numbers of publications used in our analysis departs from the totals listed by Morant and Welch for several reasons. First, books and chapters in books (26 records in total) were excluded because we felt we could not draw safe conclusions as to independence without in-depth investigation for each. Second, Morant and Welch combined separately published abstracts and papers into one entry in their bibliography. For instance, an abstract might be published in *Proceedings of the Royal Society*, and this might be followed by a paper in *Transactions of the Royal Society*. We counted these as separate publications, and we note this decision slightly increases the proportion of work appearing in venues not controlled by Pearson. Our total count for this study involved 446 Pearson publications. This population of publications constitutes *Dataset 1*.<sup>17</sup>

Our method for quantitative analysis has limitations. For instance, Pearson frequently republished material, and publications likely to be part of re-publication chains have been counted as separate items in this study. When Pearson re-published, this tended to be in publications under his own control. That behaviour has the effect of amplifying in our study the presence of venues under Pearson’s control. Detailed analysis of content duplication and similar practices is beyond the scope of this short note despite the fact it is an important behaviour to identify.

One possible interpretation of data resulting from counting Pearson’s choices involves normalisation of practice. Did everyone do the same? More precisely, perhaps, the pattern from data about Pearson’s choices reflects common practices in early twentieth century university-based science. For an initial comparison, we identified four individuals as a peer group, i.e., individuals with roughly comparable professional standing at University College, University of London during roughly the period of Pearson’s activity. We examined the distribution of their publication choices. The individuals selected were: (1) physiologist Archibald Vivian Hill FRS (1886-1977), (2) mathematician Louis Napoleon George Filon FRS (1875-1937), (3) geologist Edmund Johnston Garwood FRS (1864-1949), and (4) physicist Lawrence Bragg FRS (1890-1971). Criteria for selection of these individuals were: (a) approximately similar power within an institution, (b) approximately similar prestige within a research community, measured by fellowship in the Royal Society, (c) availability of a reliable bibliography, measured by *Biographical Memoirs* and other standard bibliographical tools, and (4) individuals having some claim to disciplinary invention or restructure, assessed through obituary notices and biographies. To identify publication records, we used bibliographies accompanying obituary notices from *Biographical Memoirs of Fellows of the Royal Society*, accepting their selective nature for the purposes of this study. We constructed datasets for each, following our methods for Pearson. Results for these individuals are presented in *Dataset 2*.

## Results

Pearson’s publishing patterns for his statistical and biometrical papers tended to prefer a small number of venues, with a heavy reliance on several specific venues (Figure 1). The

overall emphasis in Pearson's choice of publication venues was to prefer those for which he himself held editorial control.

The change in publication pattern associated with Royal Society venues is confirmed (Figure 2). Between 1892 and 1902, most of Pearson's statistical papers were published in the Royal Society's journals (15 in *Philosophical Transactions of the Royal Society of London*; 18 in *Proceedings of the Royal Society of London*, and 14 abstracts in *Proceedings*). However, in the following decade there is a sharp decline in papers published the Royal Society journals (1 paper in *Philosophical Transactions*, 6 in *Proceedings*, and 1 abstract in *Proceedings*). That trend toward reduction continued until 1933. Only 3 publications appear in Royal Society journals between 1914 and 1924 (2 in *Philosophical Transactions* and 1 in *Proceedings*), and only 1 appears thereafter. This change can be explained by the abuse Pearson and his compatriots reported, or by their investment in *Biometrika* as an outlet for their new discipline, or both.

Pearson's use of *Biometrika* as a venue for his own work was considerable (Figure 1). He published 14 items in *Biometrika* volume 1. He published 84 items between 1903 and 1913; 66 between 1914 and 1924; 69 between 1925 and 1935; and finally, 2 between 1936 and 1937. (Pearson retired in 1933; he died in 1936.) In total, Pearson published 235 items in *Biometrika*, compared with 45 (62 when including abstracts) in Royal Society titles. For comparison, Pearson did not much use *Journal of the Royal Statistical Society*, publishing only 4 items between 1892 and 1937. Farrall noted Pearson also "carried the heaviest burden of editorial and organisational responsibility" for *Biometrika*, and he exercised full editorial control following Weldon's death in 1906.<sup>18</sup>

A similar pattern emerges for Pearson's publications in mathematical and physical sciences (section 2 in Morant and Welch's bibliography). Initially, Pearson favoured mathematical journals, such as *The Quarterly Journal of Pure and Applied Mathematics*, *The Messenger of Mathematics*, and the *Proceedings of the London Mathematical Society* (publishing 3, 3, and 2 items respectively between 1879 and 1889). This changed dramatically after 1904, when Pearson launched the Technical Series of the *Drapers Company Research Memoirs*, a venue created as part of the new university venture that he called the "Biometric Laboratory". After 1904, 7 of Pearson's 10 mathematical and physical sciences papers were published in the Biometric Laboratory's Technical Series.

In 1906-07, Pearson oversaw creation of the Francis Galton Laboratory for National Eugenics (abbreviated as the "Eugenics Laboratory"), and he was appointed its first director. This appointment was an additional role to his directorship of the Biometric Laboratory.<sup>19</sup> As with the Biometric Laboratory, Pearson created new serials to facilitate publication for research undertaken at the Eugenics Laboratory. His own writing in eugenics was channelled into these outlets. Between 1906 and 1910, Pearson launched 5 serials associated with eugenics, adding *Annals of Eugenics* in 1925. Table 1 shows the relative contribution of Pearson as author or co-author in these venues. As a function of time, Pearson's contributions to serials in the Eugenics Laboratory imprint was highest prior to 1915. Pearson authored or co-authored the largest fraction of pages printed in *Annals of Eugenics* volumes during his editorship.<sup>20</sup>

The comparison with Pearson's peers at University College, University of London, is noteworthy (Figure 3, Figure 4, Figure 5, Figure 6, and Dataset 2). In total numbers of publications examined, Bragg authored 265, Filon authored 53, Hill authored 215, and Garwood authored 33 in the bibliographies studied. Bragg's choice of publishing venues was the most diverse with 102 different venues. The other authors published across a much smaller variety of venues during their careers, between 12 and 29 titles per person. While Bragg published almost yearly throughout his career, with gaps mainly towards the beginning and end of his career, the others have notable periods of publishing inactivity. Garwood displayed the largest number of years of publishing inactivity.

In contrast to Pearson, the patterns of venue choice for Bragg, Filon, Garwood and Hill did not change significantly over time. Even in cases where they did have preferred publishing venues, they rarely published more than 4 papers in any one title during a specific year. For instance, Bragg's preferred outlet was *Nature*, and he published in *Nature* a maximum of 4 publications in it in any one year (e.g., 1942). Filon normally published 1 publication per venue per year (with a maximum of 2 in three cases). Garwood published 2 in the same venue only in one case. Hill's preferred venue appears to have been the *Proceedings of the Royal Society of London* with the *Journal of Physiology* a close second, but the majority of his publications spread evenly. Even in cases where they preferred a specific venue, these authors rarely appear to use those venues in a heavy way. The contrast with Pearson is stark.<sup>21</sup>

## Discussion

Quantitative analysis of Pearson's bibliography confirms a pattern of publication in which he relied heavily on venues under his direct control. *Biometrika* was the primary publication route for Pearson after his break with Royal Society venues (Figure 1), with 57% of his career bibliography in applied statistics appearing in this one venue. The same pattern existed for Pearson publications in mathematical and physical sciences. *Drapers' Company Research Memoirs: Technical Series* dominated his publishing venues in these subjects, with 22 of 37 items (59%) over his career (Dataset 1).

Comparing indicative samples for peer researchers at the same university, Hill published 42% of his overall bibliography in one preferred venue. Garwood published 30% in one venue; Filon, 15%; Bragg, 15%. Unlike Pearson, none of these individuals used as their preferred venues publications they themselves controlled.

Pearson's preference for venues under his own editorial control is amplified when the full range of his venue choices is included in cumulative totals, i.e., beyond *Biometrika* (Table 1). Adding items from series published through the Biometric Laboratory (22) and the Eugenics Laboratory (49) makes a total of 306 from the 446 items in Dataset 1 appearing in venues Pearson controlled (69% of his career bibliography). This leaves 140 publications (31%) for external venues.

Some of Pearson's publication patterns can be explained as the result of his creating new paths and to discipline building. In developing biometry, for instance, Pearson, Weldon, and



Galton understood themselves to be coming to grips with new conceptualisations and new analytical tools.<sup>22</sup> Their experiences within the Royal Society demonstrated, to them, that others simply didn't understand their research programme, and the only way to progress would be to start new avenues of communication. The establishment of *Biometrika* can be understood as simply an example of new infrastructure for a new discipline.

Pearson's reliance on *Biometrika* seems unusually high for a discipline-architect-cum-editor. Additional quantitative comparisons are required to establish a firm baseline for typical behaviour on this point in this period. Nevertheless, the lack of enrolment of colleagues from other institutions into authorship and onto editorial boards argues against a community-building ethos. The data here supports a characterisation of Pearson more as sovereign than community architect. This interpretation is in line with Porter's biographical assessment.<sup>23</sup>

Publishing so heavily in venues under his own control effectively insulated Pearson from mechanisms of scrutiny and discussion prior to publication. Peer review (or "reviewing") has a history of its own, and 21st century norms cannot be applied to earlier periods without evidence. Digital archives from publishers, such as Royal Society, are allowing for studies of processes such as scrutiny, peer inclusion, and networks of power. Evasion is a loaded conclusion. No doubt in Pearson's case, creation of in-house imprints was justified within the community as opportunities to publish data-heavy studies and voluminous records (as is common in descriptive areas such as museum based alpha taxonomy), or as opportunities to present material in novel forms. The comparison with peers (both from the sample here and from other samples) is useful. *Questions of the Day and of the Fray* is a strong argument for evasion, but that serial alone is too small a part of Pearson's *oeuvre* for it to be used as representative. In this study, the key point is avoidance of all independent - more precisely, uncontrolled - input in publication, be it from reviewers, editors, or clerical staff. Whatever the purpose, avoidance seems a consistent pattern.

At the same time, Pearson's exceptionally high productivity boosted his currency within institutional and professional circles.<sup>24</sup> Pearson placed a premium on his institutional location in a university to assert a premium standing and validation. His manufacture of publishing outlets, and his duplication of listings, inflated the sense of scope and productivity on his side of this competition. Along similar lines, Pearson reported to university authorities a high return on investment from the Drapers Company funds he controlled, basing this report in part on high publishing volume through the Biometric Laboratory imprint.

Discipline building in eugenics likely explains some of Pearson's pattern of publication in this subject. Production of fundamental research was one of his own key metrics for success and importance. Pearson's activities at University College, University of London took place against a backdrop of competition between himself and officers of the Eugenics Education Society (EES) for leadership in British eugenics and for claims to be Galton's preferred disciple.<sup>25</sup> High levels of productivity and distinctive imprints were part of Pearson's one-upmanship with the EES to claim primacy as British authority in the subject. Cain argues Pearson's exceptional productivity in the period 1906-1911 was key for convincing Francis Galton that he (Pearson) would be most impactful with Galton's financial legacy.<sup>26</sup>

Pearson had critics. His self-controlled venues offered mechanisms for avoiding them. They also gave Pearson avenues for engaging those critics on his own terms. For example, the serial *Questions of the Day and of the Fray* allowed Pearson to engage critics on grounds of his own design rather than in moderated settings of established peer-reviewed journals, where his critics were publishing against him. Pearson's pattern of engagement is not replicated in the peer group used in the present study.

Biographers emphasize Pearson's heavy editorial hand over publications associated with publications under his control. This applied to employees. It also applied to external authors. Yule described *Biometrika* as 'surely the most personally edited journal that was ever published'.<sup>27</sup> Porter confirmed this behaviour as a general pattern. Farrall indicated Pearson's "imprimatur was necessary before a paper was published" by employees of the laboratories. Kevles was damning, citing Pearson as displaying 'a relentless closed-mindedness', going as far as removing from *Biometrika* [papers submitted by] those who opposed his theories.<sup>28</sup> Pearson reportedly refused to publish papers by his critics.<sup>29</sup>

Pearson's control over publishing was consistent with behaviours in other parts of his professional life. Porter described Pearson as a "fierce antagonist" who displayed "viciousness" whenever challenged on a scientific issue.<sup>30</sup> In their obituary to Pearson, Yule and Filon cite A.V. Hill remembering Pearson as a "dominating and pugnacious spirit, controlled by a passion of loyalty and desire to help," but also with a resentment of having to accept "advice and instruction from people much younger and less experienced than himself."<sup>31</sup> Porter also notes that any different research lines were seen as "ill will, and this led to painful ruptures" with many one-time close collaborators.<sup>32</sup> Staff and students described him as a domineering personality who prevented opposition or dissent within the facilities he controlled.<sup>33</sup>

One possible criticism of this analysis is that the peer group is not comparable to a person like Pearson, who manifested considerable intellectual energy across so broad a spectrum. Or, comparison might better be made internationally, for example with the careers of Augustin-Louis Cauchy (1789-1857) or Adolphe Quetelet (1796-1874). Both authors have a reputation amongst historians for workaround practices and creation of new publishing venues. Our peer group was chosen to help identify typical practices within University of London as part of a study of local norms and working practices. Our sample size was further skewed toward mathematical and physical sciences. Samples with other emphases, and a wider range of actors, such as beyond one institution or within and across disciplines, is strongly recommended. No doubt, quantification in this area will pay high dividends.

## Conclusion

Pearson was a prolific author. His impressive productivity took place against a backdrop of equally impressive work to build publishing imprints associated with biometry and eugenics. Quantitative analysis of Pearson's choices for publishing venues for his own work shows a distinct preference towards venues he controlled. This pattern stands in marked contrast to choices by peer researchers at the same university. Our analysis of Pearson raises questions about publishing patterns for other individuals, especially community architects



and discipline builders. Is Pearson's behaviour typical of individuals in these positions, or is he an outlier? Are producers of highly personally edited journals likely also to be community architects and discipline builders? This analysis raises questions about norms for venue choice for other prominent researchers, whole communities, and publishing practices over longer periods of time.

## Acknowledgements

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## Table Legend

Table 1: Pearson's Journals. Journals and Series Established in Whole or Part by Karl Pearson

## Figure Legends

Figure 1: Distribution of Karl Pearson's Statistical Publications 1892-1937 by Publication Title. Item count for statistical publications authored, co-authored, or edited by Karl Pearson as categorised by Morant and Welch (1939). Organised by publication title.

Figure 2: Distribution of Karl Pearson's Statistical Publications 1892-1937 Comparing Use of *Biometrika* with all Royal Society titles. Count of items identified by Morant and Welch (1939) as statistical publications in specific titles and authored, co-authored, or edited by Karl Pearson. Organised by publication title. *Biometrika* volume 1 is 1901. Royal Society titles include: *Philosophical Transactions of the Royal Society of London*, *Proceedings of the Royal Society of London* (including papers and abstracts).

Figure 3: Distribution of Publications During the Careers of Peer Researchers: Hill. Annual count of publications for each individual for their publishing career. Individuals shown here is physiologist Archibald Vivian Hill FRS (1886-1977). Data collected from *Biographical Memoirs of the Royal Society*. Vertical axis is quantity of publications per year. Horizontal axis is time as year.

Figure 4: Distribution of Publications During the Careers of Peer Researchers: Filon. Annual count of publications for each individual for their publishing career. Individuals shown here is mathematician Louis Napoleon George Filon FRS (1875-1937). Data collected from *Biographical Memoirs of the Royal Society*. Vertical axis is quantity of publications per year. Horizontal axis is time as year.

Figure 5: Distribution of Publications During the Careers of Peer Researchers: Garwood. Annual count of publications for each individual for their publishing career. Individuals shown here is geologist Edmund Johnston Garwood FRS (1864-1949)/ Data collected from

*Biographical Memoirs of the Royal Society*. Vertical axis is quantity of publications per year. Horizontal axis is time as year.

Figure 6: Distribution of Publications During the Careers of Peer Researchers: Bragg. Annual count of publications for each individual for their publishing career. Individuals shown here is physicist Lawrence Bragg FRS (1890-1971). Data collected from *Biographical Memoirs of the Royal Society*. Vertical axis is quantity of publications per year. Horizontal axis is time as year.

## Electronic Supplemental Materials Legends

Dataset 1: Publishing Venues Used by Karl Pearson between 1879-1937. Distribution of publishing venues used by Karl Pearson during his publishing career. Data on publications extracted from G. M. Morant and B. L. Welch, eds., *A Bibliography of the Statistical and Other Writings of Karl Pearson* (Cambridge: Cambridge University Press, 1939).

Dataset 2: Publishing Venues Used by Peer Group (Bragg, Filon, Garwood, and Hill). Distribution of publishing venues used by four researchers at University College, University of London. Individuals include: (1) physiologist Archibald Vivian Hill FRS (1886-1977), (2) mathematician Louis Napoleon George Filon FRS (1875-1937), (3) geologist Edmund Johnston Garwood FRS (1864-1949), and (4) physicist Lawrence Bragg FRS (1890-1971). Data on publications extracted from bibliographies accompanying obituary notices from *Biographical Memoirs of Fellows of the Royal Society*.

## Notes

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<sup>1</sup> Pearson's most detailed biography remains T. M. Porter, *Karl Pearson: the scientific life in a statistical age* (Princeton: Princeton University Press, 2004). Radick gives an impressively nuanced analysis of these events, in G. Radick, *Disputed Inheritance: The Battle Over Mendel and the Future of Biology* (Chicago: University of Chicago Press, 2024). Yule and Filon's biographical memoir for the Royal Society drew from direct working experience with Pearson in G. U. Yule and L. N. G. Filon, 'Karl Pearson (1857-1936)', *Obituary Notices of Fellows of the Royal Society of London*, **2**, 72-110 (1936). Magnello also has written extensively on Pearson's biometrical work, including M. E. Magnello, 'The non-correlation of biometrics and eugenics: Rival forms of laboratory work in Karl Pearson's career at University College London', *History of Science*, **37**, 79-106 (1999), and M. E. Magnello, 'Karl Pearson's mathematization of inheritance: From ancestral heredity to Mendelian genetics (1895-1909)', *Annals of Science*, **55**, 35-94 (1998).

<sup>2</sup> Yule and Filon, *op. cit.* (note 1).

<sup>3</sup> G. M. Morant and B. L. Welch, eds., *A Bibliography of the Statistical and Other Writings of Karl Pearson* (Cambridge: Cambridge University Press, 1939).

<sup>4</sup> Readers seeking to count originality will note these totals are inflated slightly by inclusion of reprints and re-issues. Our focus is not on duplication. It is on the choice to use particular publishing venues for particular purposes. Republication plays a role in that activity. Morant

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and Welch also list “syllabuses of lectures” in local circulation. These are not considered in the present paper.

- <sup>5</sup> Farrall gives a reliable account of Pearson’s creation of these laboratories in L. A. Farrall, *The origins and growth of the English eugenics movement, 1865-1925* (London: UCL Department of Science and Technology Studies (STS), 2019; first published 1969). Kevles draws on Farrall’s work in D. Kevles, *In the Name of Eugenics. Genetics and the Uses of Human Heredity* (Cambridge, MA: Harvard University Press, 1985). The Biometric Laboratory was launched in 1903 with funds donated to University of London by the Worshipful Company of Drapers. The Francis Galton Laboratory for National Eugenics was launched in 1907 with funds donated to the University of London by Francis Galton.
- <sup>6</sup> J. Cain, ‘Publications produced by the Francis Galton Laboratory for National Eugenics’, *The Library*, **22**, 523-548 (2021).
- <sup>7</sup> Cain published lists of titles published in several series under the Biometric Laboratory imprint: <https://profjoecain.net/biometric-laboratory>. This does not include stand-alone titles, nor does it include series such as statistical tables. Descriptions of Pearson solely as an author leave his biography incomplete. The scale of his role as a publisher was considerable.
- <sup>8</sup> Kevles’s claim appears to be an impression only; no data is cited to substantiate it in Kevles, *op. cit.* (note 5), at p. 40. A similar impression is offered by Porter, *op. cit.* (note 1).
- <sup>9</sup> Cain, *op. cit.* (note 6).
- <sup>10</sup> Farrall, *op. cit.* (note 5), at p. 61; Kevles, *op. cit.* (note 5), at pp. 29-35; Porter, *op. cit.* (note 1), at pp. 266-272.
- <sup>11</sup> Yule and Filon, *op. cit.* (note 1), at p. 77.
- <sup>12</sup> K. Pearson, *The New University for London: A Guide to its History and A Criticism of its Defects* (London: T. Fischer Unwin, 1892) and K. Pearson, *The New Werther* (London: C. Kegan Paul and Co., 1880). On the latter, see Porter, *op. cit.* (note 1), at pp. 43-53.
- <sup>13</sup> For example, I. M. Keighren, C. W. J. Withers and B. Bell, *Travels into Print: Exploration, Writing, and Publishing with John Murray, 1773-1859* (Chicago, IL: University of Chicago Press, 2015).
- <sup>14</sup> For example, A. Fyfe, N. Moxham, J. McDougall-Waters, and C. Camilla Mørk Røstvik, *A History of Scientific Journals: Publishing at the Royal Society, 1665-2015* (London: UCL Press) and A. Fyfe, K. Coate, S. Curry, S. L. N. Moxham and C. M. Røstvik, *Untangling Academic Publishing: a history of the relationship between commercial interests, academic prestige and the circulation of research* (St Andrews: University of St Andrews, 2017).
- <sup>15</sup> Morant and Welch, *op. cit.* (note 3).
- <sup>16</sup> We consider Morant and Welch’s bibliography, *op. cit.* (note 3), to be the most accurate source for Pearson’s bibliography, which lists 406 statistical items and 37 items in mathematical and physical sciences in a total of 648 total publications. There is a very slight discrepancy with Magnello, *op. cit.* (note 1), who maintains Pearson published a total of 650 items. This difference does not significantly impact our results.
- <sup>17</sup> When assigning a particular publication to a specific year of publication, we made several minor judgements. For instance, when Morant and Welch attributed a paper to a calendar year but indicated the work was published in a previous year, we credit that paper to the previous year rather than the year attributed by Morant and Welch, *op. cit.* (note 3).

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- <sup>18</sup> Farrall, *op. cit.* (note 5), at p. 110. Magnello, *op. cit.* (note 1) described *Biometrika* as part of the “Pearson family for more than 80 years,” indicating Pearson and Weldon co-edited it until 1906 (when Weldon died), but Pearson was the “principal editor” from 1906 to 1933 (when his son, Egon, was introduced as co-editor). Morant assisted Pearson editing *Biometrika* in his later years, see S. M. Stigler, ‘Mahalanobis & Fisher: Mathematical Statistics as a Global Enterprise’, *Sankhya: The Indian Journal of Statistics* **B 80** (Suppl 1), 167-178 (2018) and I. Clever, ‘Biometry against Fascism: Geoffrey Morant, Race, and Anti-Racism in Twentieth-Century Physical Anthropology’, *Isis* **114**, 25-49 (2023). Karl Pearson’s editorship ended with his death in 1936. Egon continued as principal editor until 1982.
- <sup>19</sup> Farrall, *op. cit.* (note 5).
- <sup>20</sup> In *Annals of Eugenics*, Pearson authored or co-authored 26% of pages in volumes 1-5, 1925-33. Overall, a total of 5% of the pages were single-authored pieces by Pearson and 21% were from a co-authored series of papers on “The Problem of Alien Immigration,” co-authored by Moul. Other major contributors by number of pages included familiar authors from other GLNE series: Stocks (18%), Elderton (6% directly plus 15% indirectly), Morant (10%), Usher (3%), and Bell (2%).
- <sup>21</sup> None of the journals checked (*Nature*, *Proceedings of the Royal Society of London*, *Quarterly Journal of Geology*) list their editorial boards online. It has not been possible to confirm participation in editorial boards for favourite publishing outlets for Bragg, Hill, Filon and Garwood.
- <sup>22</sup> Farrall, *op. cit.* (note 5).
- <sup>23</sup> Porter, *op. cit.* (note 1).
- <sup>24</sup> Our description of Pearson has parallels with Geison’s analysis of Pasteur in G. Geison, *The Private Science of Louis Pasteur* (Princeton, NJ: Princeton University Press, 1985).
- <sup>25</sup> Porter, *op. cit.* (note 1).
- <sup>26</sup> Cain, *op. cit.* (note 6).
- <sup>27</sup> Yule and Filon, *op. cit.* (note 1), at p. 100; Porter, *op. cit.* (note 1), Farrall, *op. cit.* (note 5), at p. 170.
- <sup>28</sup> Kevles, *op. cit.* (note 5), at p. 36; also F. Louça, ‘Emancipation Through Interaction - How Eugenics and Statistics Converged and Diverged’, *Journal of the History of Biology*, **42**, 649-684 (2009).
- <sup>29</sup> L. A. Farrall, ‘W.F.R. Weldon and the English Biometric School’, *unpublished manuscript* (no date); also, Porter, *op. cit.* (note 1), at p. 36.
- <sup>30</sup> Porter, *op. cit.* (note 1), at pp. 266-272.
- <sup>31</sup> Yule and Filon, *op. cit.* (note 1), at p. 78.
- <sup>32</sup> Porter, *op. cit.* (note 1), at p. 273.
- <sup>33</sup> Kevles, *op. cit.* (note 5), at p. 40.

**Table 1**

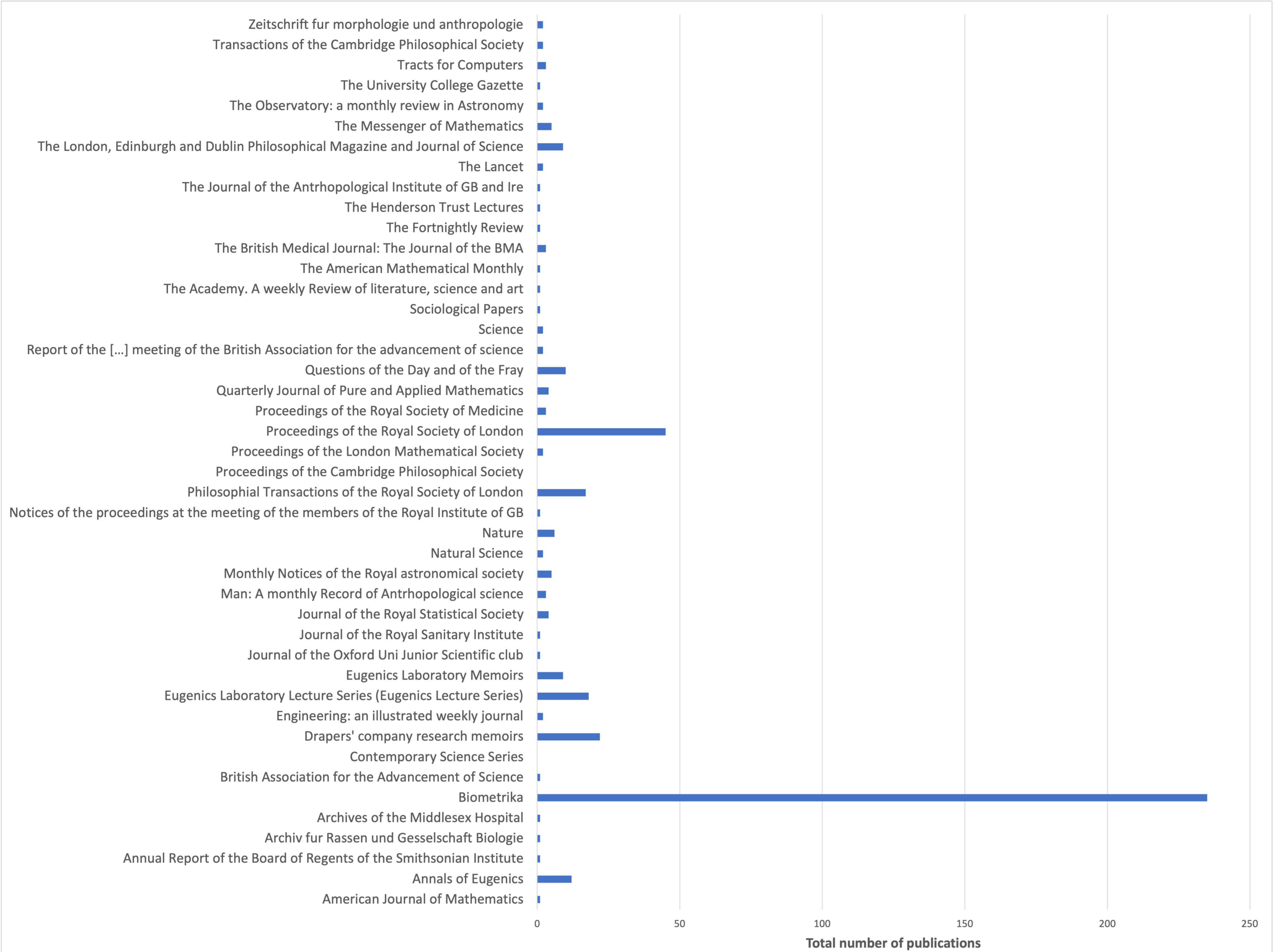
Journals and Series Established in Whole or Part by Karl Pearson

	<b>Publishing interval</b>	<b>Number of articles to 1936</b>	<b>Pearson as author or named co-author of articles</b>
<b>Journals</b>			
<i>Biometrika</i> *	1901-	477	114 (24%)
<i>Annals of Eugenics</i> **	1925-[1933]	63	14 (22%)
<b>Series through Biometric Laboratory</b>			
Drapers Company Research Memoirs. Technical Series	1904-1918	7	6 (86%)
Drapers Company Research Memoirs. Biometric Series	1904-1922	12	12 (100%)
Drapers Company Research Memoirs. Studies in National Deterioration	1906-1924	11	5 (45%)
<b>Series through Eugenics Laboratory</b>			
Eugenics Laboratory Lecture Series	1909-1927	14	12 (86%)
Eugenics Laboratory Memoirs	1907-1966	14	6 (43%)
Treasury of Human Inheritance***	1909-1958	16	7 (44%)
Questions of the Day and of the Fray	1910-1923	12	10 (83%)

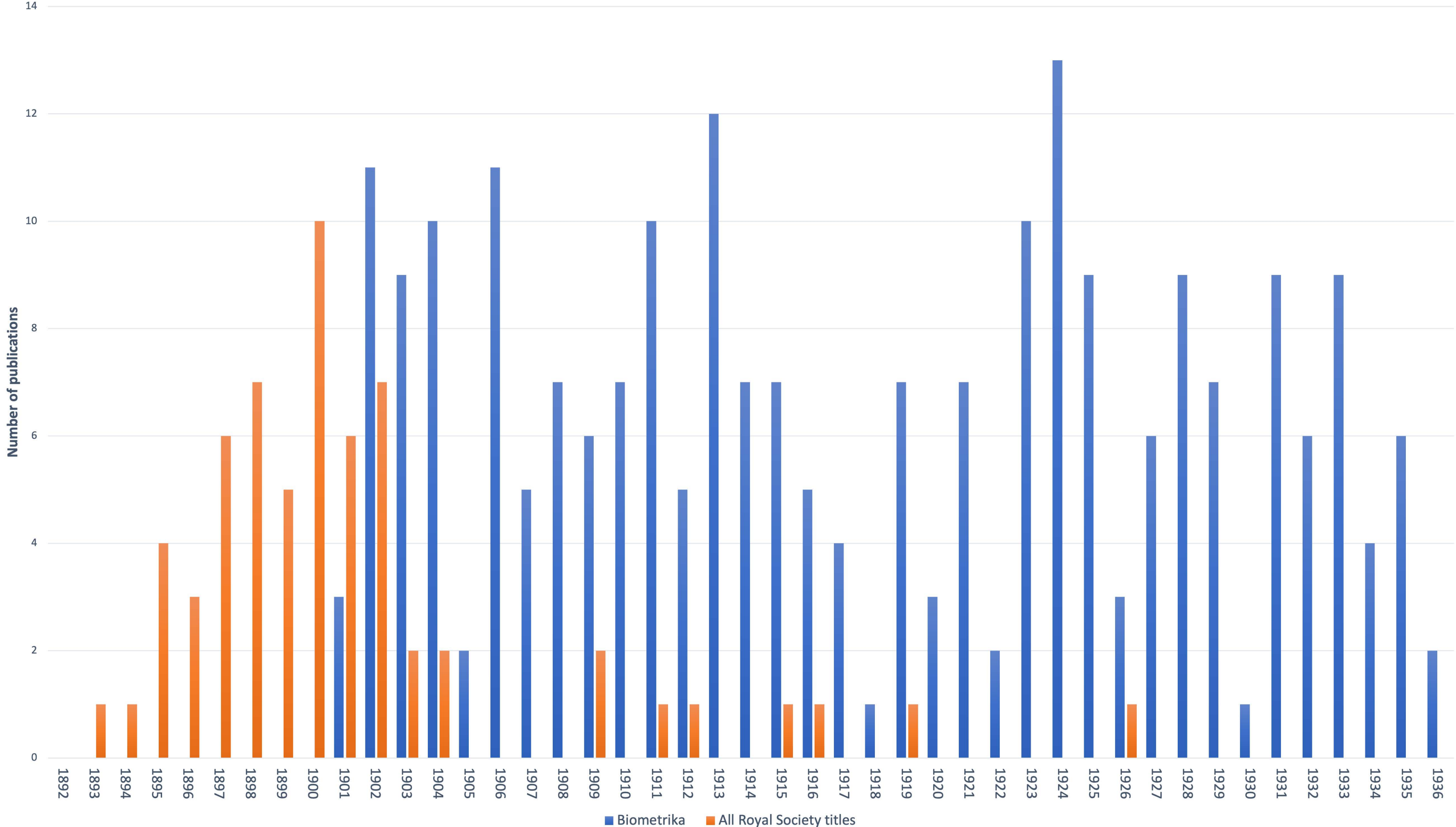
\* - *Biometrika* continues in print. The count for this table covers volumes 1 (1901) through 28 (1936). For "number" the count refers to articles and memoirs; the count excludes editorials, reviews and miscellany.

\*\* - *Annals of Eugenics* was renamed *Annals of Human Heredity* in 1954. The count for *Annals* covers articles published 1925-1933, while Pearson served as editor. He published no articles in this journal thereafter. The count is for articles only.

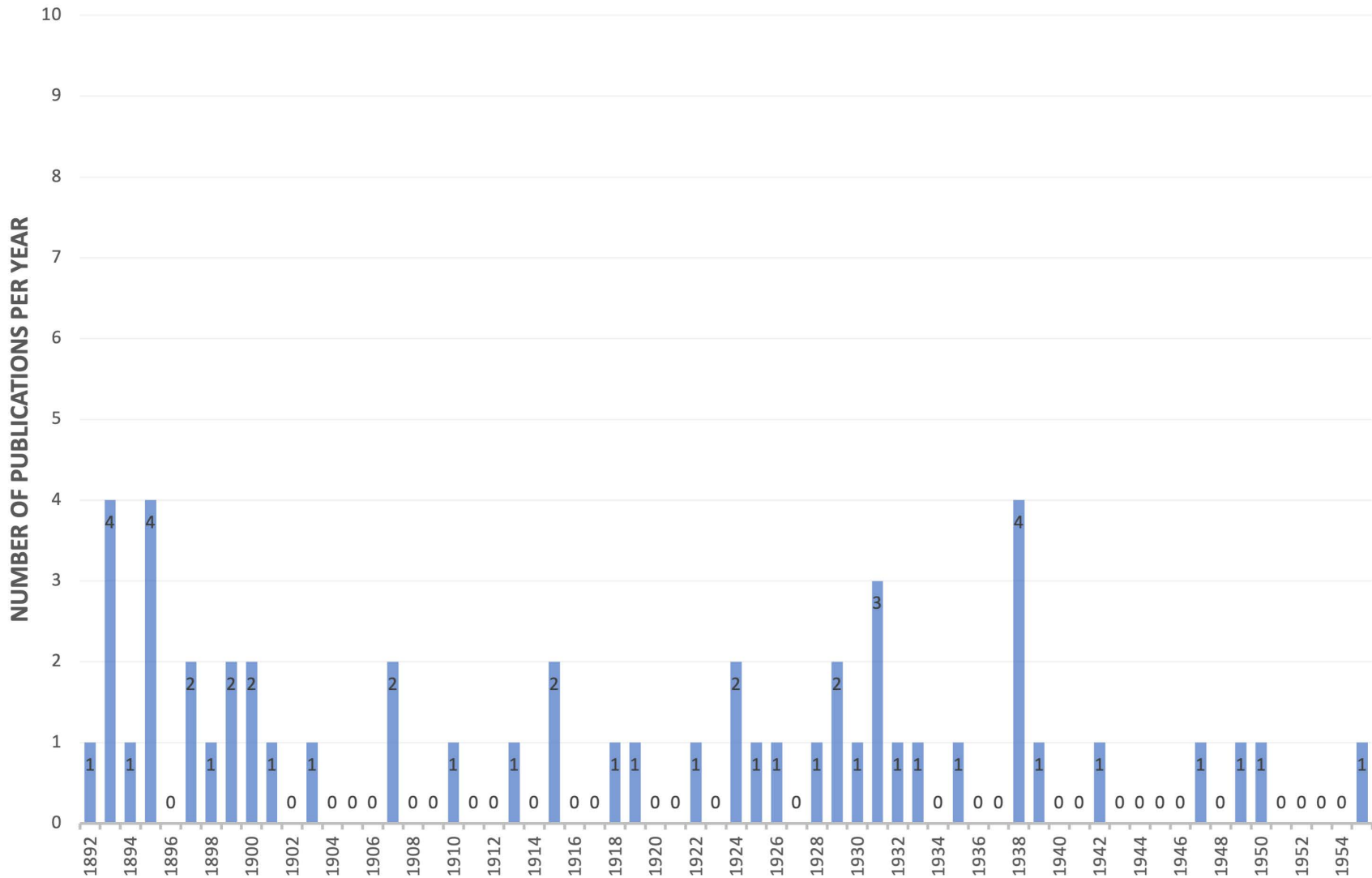
\*\*\* - First numbers of *Treasury* were published within *Eugenics Laboratory Memoirs*. All *Treasury* numbers were co-listed by Pearson as *Memoirs* parts. For this calculation, duplication is removed from *Memoirs* count.



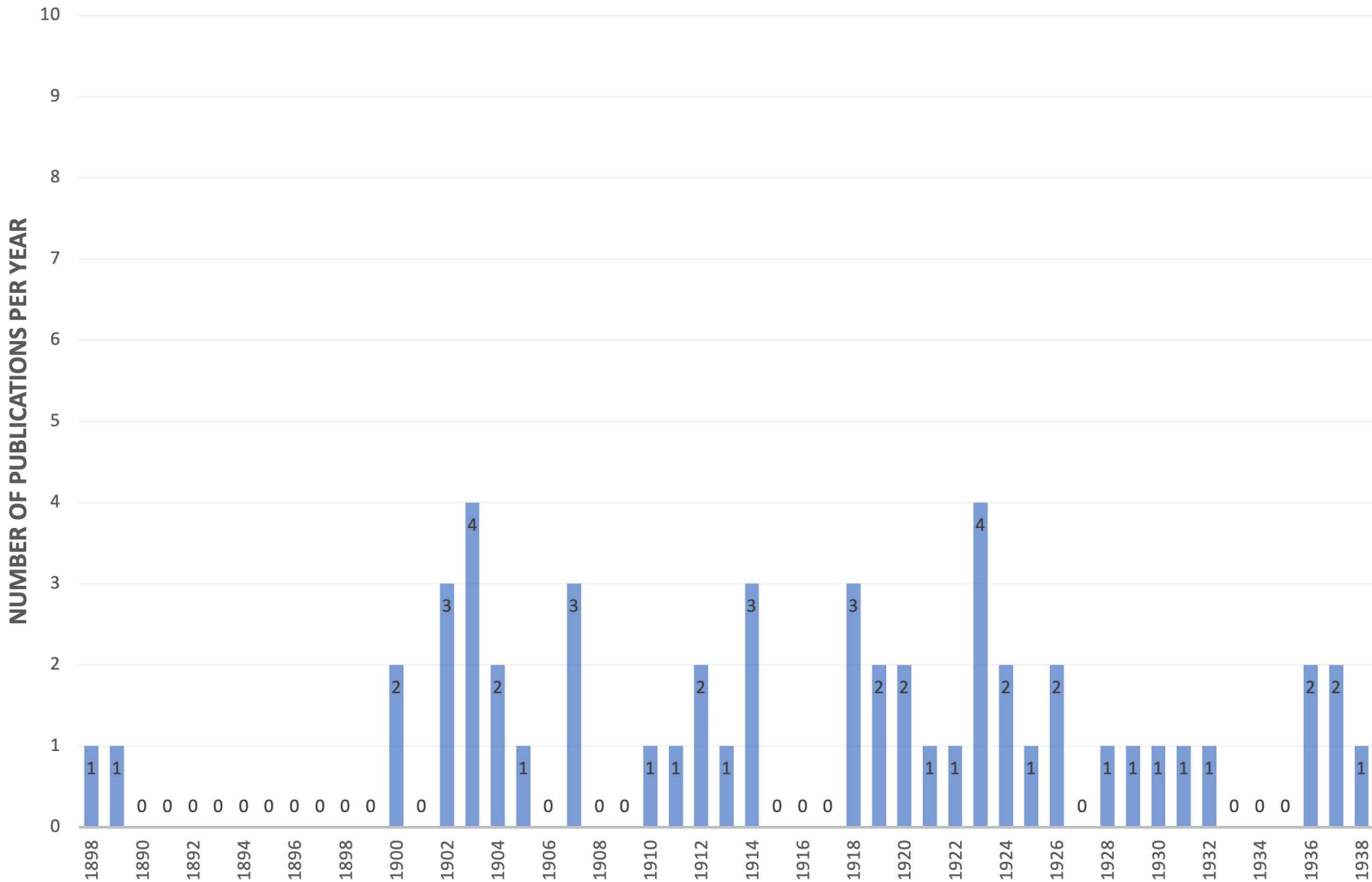




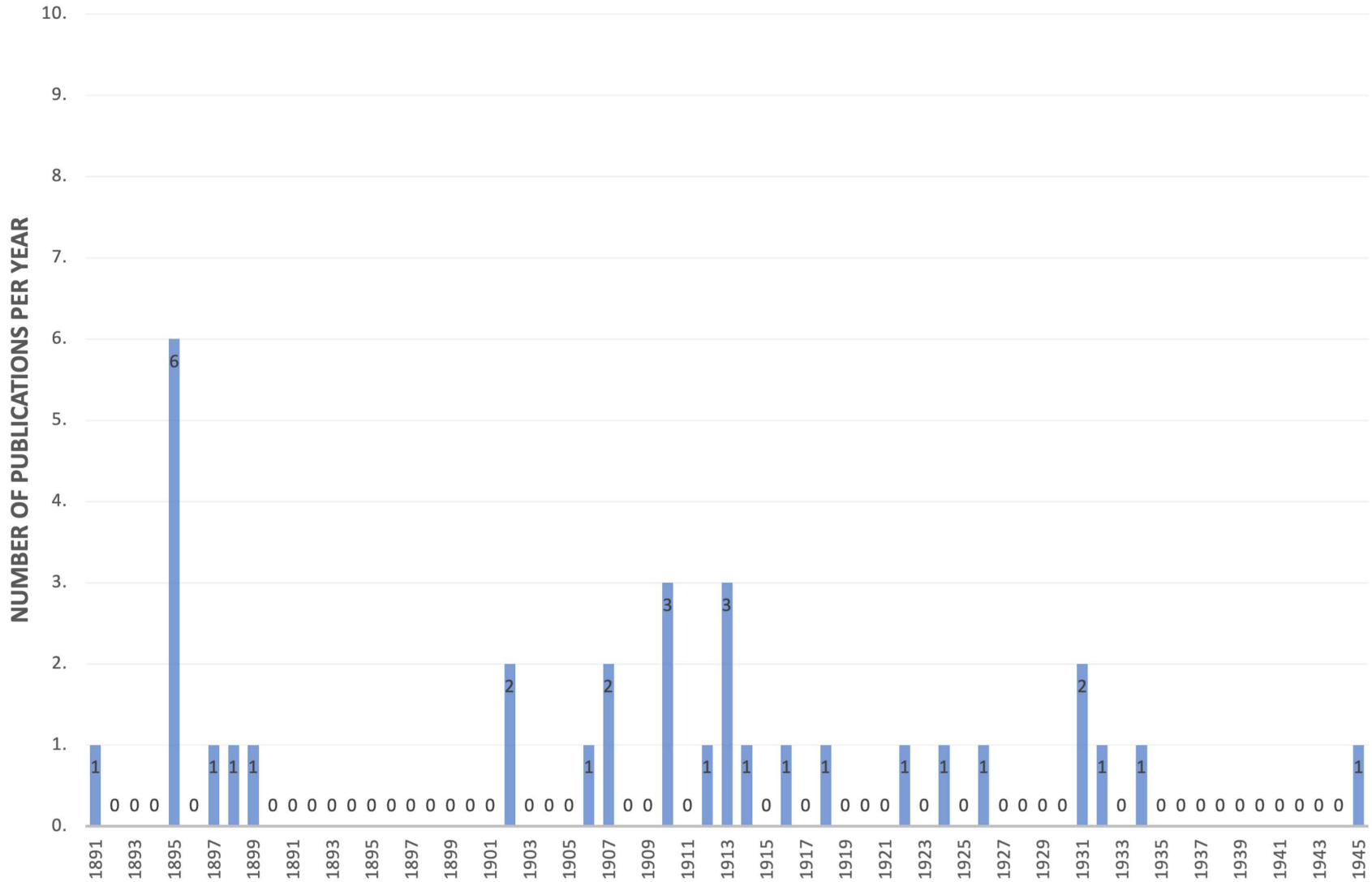
# Archibald Vivian Hill FRS (1886-1977)



# Louis Napoleon George Filon FRS (1875-1937)



# Edmund Johnston Garwood FRS (1864-1949)



# Lawrence Bragg FRS (1890-1971)

