

Editorial: Peer Review per *Physical Review*

We editors often say, and also often hear, that the great strength of *Physical Review* and *Physical Review Letters* lies in the extensive peer review that submitted manuscripts receive. This widely held view is a natural topic for our discussion surrounding the 50th anniversary of *PRL*. The issue is particularly relevant because recently both *Physical Review* and *PRL* have taken steps that have increased the number of papers that are returned to authors *without* external review. These steps were a response to the relentless increase in submissions and to a generally held view that average manuscript quality has decreased. Another important goal was to address the ever increasing burden on reviewers, the source of our journals' strength. Thus, in recent years, more papers are reviewed only by the editors, and it is of interest to examine how this trend fits in with historical practice.

The *Physical Review* was conceived in 1893 as a more egalitarian publication than was usual for the time. One can guess as to why. Perhaps it was a reflection of the 19th century American inclination to redefine class. Perhaps it came about because the journal was initially located at Cornell, a relatively new, and quite progressive institution that admitted women as well as men. (Incidentally, Ezra Cornell, a self-made millionaire of humble beginnings, was an embodiment of the changing social strata of the time.) More prosaically, the *Physical Review* may have embraced an egalitarian model for the simple reason that it was natural to do so amongst late 19th century U.S. physicists because there were few of wide fame. In any case, we know that at least a few submissions were sent by the editors to external reviewers as early as 1901. Other papers were reviewed by the editors, eventually with assistance from an Editorial Board that was in place by 1913, when APS assumed responsibility for the *Physical Review*. As was common practice at scientific journals around the turn of the last century, most papers were published or rejected without extensive review. Decisions about what to publish and what not to publish were to a large extent made solely by the editors.

We know that by the 1930s, peer review at the journal was more established. Ledger pages from the time contain the same basic information that we now store in our computer: date of receipt, date sent to a reviewer, date returned, date published or rejected. From these, we see that many papers were sent out for expert evaluation, but also that in many cases, the expert assigned to a manuscript was the Editor, John Tate. We also learn that many papers had no referee assigned to them, and that some of these were accepted and some were rejected. Thus during this period, peer review was growing and making a larger contribution, but decisions were still often made by the editors alone.

This situation apparently continued for many years. In the early 1960s, when the APS journals were located at Brookhaven National Laboratory, Editor Simon Pasternack would obtain local input from physicists who worked at the lab. A memo in use at the time, reproduced below, clearly allows for rejection of a paper without peer review.

So far this discussion has been about the *Physical Review*. The history at *Physical Review Letters* is somewhat different. First, one must consider the basis for *PRL*, the Letters to the Editor section of the *Physical Review*, which first appeared in 1929. From 1929 through the first half of 1958, it included a disclaimer from the editors: "The board of editors does not hold itself responsible for the opinions expressed by the correspondents." This statement carries the implication that Letters to the Editor were not reviewed. This is supported by the fact that no Letters to the Editor appear in the ledger entries mentioned above. It is also clear that not all submissions to the Letters to the Editor section were published: By the 1950s, the section had grown to such an extent that the Editor, now Sam Goudsmit, took steps to reduce their numbers, which of course means that he turned away some Letters to the Editor without external review. So, manuscripts that appeared as Letters to the Editor were chosen entirely by the editor.

When *PRL* began, it initially followed the practice established for Letters to the Editor. In an editorial in the first issue of *PRL*, Editor Goudsmit states that "most of the decisions for acceptance...will have to be made in the Editor's office." Naturally, this means that decisions *against* acceptance were to be made there also. This original intent quickly shifted, however, as *PRL* grew, and a few months later, 1 August 1958, Editor Goudsmit wrote that the journal was

THE PHYSICAL REVIEW	No.
Date:	
Memo to:	
The following paper has been submitted to The Physical Review. Would you please check the appropriate box(es) below and return this memo to us right away.	
Author(s):	
Title:	
<input type="checkbox"/>	Send it to me to referee.
<input type="checkbox"/>	I will drop in to look at it.
<input type="checkbox"/>	I am not interested in it.
<input type="checkbox"/>	I have seen a preprint.
<input type="checkbox"/>	I am familiar with the work.
<input type="checkbox"/>	It warrants publication.
<input type="checkbox"/>	It does not warrant publication.
<input type="checkbox"/>	It should be refereed. I suggest:
<input type="checkbox"/>	Other comments (Use reverse side if necessary.)
From: S. Pasternack, Phys. Rev. Office, 1-63	

FIG. 1 (color online). Referee response form that was in use in the early 1960s.

The three events demonstrate that in some cases during these years, decisions were made largely by the editors, sometimes without extensive review.

So, what can we conclude from this? Certainly, we can say that throughout its history, the editors of the *Physical Review* and *Physical Review Letters* have made decisions about publication using some referee advice. We may also state that referee input has grown over the years. Further, we see that the editors have adjusted their reaction to, and usage of, input from referees for cause, e.g., to control growth of published pages. We find it reassuring to find precedent for our recent efforts to turn away some submittals without review.

The proof of the pudding, however, is in the eating, and it is also reassuring to note the considerable evidence that these efforts have been successful. Certainly, the roughly 20% of submittals to *PRL* that now do not go out for review has reduced the burden on our pool of referees. In addition, our early decisions have allowed manuscripts to find homes in more appropriate journals without undue delay. They have also sometimes inspired authors to take another look at their manuscript, and improve it, occasionally to the extent that the manuscript becomes appropriate for one of our journals. Finally, early decisions have had no obvious impact on the quality of the published journals, and have not diminished interest among authors in publishing in them. Overall, early decisions have proven themselves to be beneficial, will continue, and should probably increase.

“obliged to send to referees many of the submitted Letters to ascertain whether their contents require rapid publication.” Consultation with single referees grew through the sixties, and in the early seventies, a shift to simultaneous consultation of two referees took place.

Three other points are of interest in this context. Beginning in July 1964 and continuing into the 1970s, *PRL* submissions that covered high-energy physics experiments were accepted without review, if they met certain simple criteria. On the other hand, in March 1969, faced with continued growth and with financial pressure, Editors Goudsmit and George Trigg wrote that while “in the past, most borderline cases, when referees’ opinions differed, were decided in favor of the author,” they “could no longer afford that luxury.” Finally, in the late 1980s, in response to a flood of submissions relating to high temperature superconductors, the journals established a temporary advisory board to make quick decisions about submittals on this topic. This board acted similarly to the 1913 Editorial Board mentioned above, making quick recommendations to the editors either for or against publication.

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Published 4 February 2008
DOI: [10.1103/PhysRevLett.100.050001](https://doi.org/10.1103/PhysRevLett.100.050001)
PACS numbers: 01.30.-y, 01.10.-m, 01.65.+g