Physics Journals Adopt New Policy

It was quite an admission, but there it was in a December 1979 editorial in the *Physical Review Letters* (*PRL*), the favorite publishing place of American physicists: "... if two-thirds of the papers that we accept were replaced by two-thirds of the papers we reject, the quality of the journal would not be changed." The end results of a year-long examination of what to do about the endless wrangling that nonetheless goes on over most of the papers submitted to the prestigious journal has now been announced. Henceforth, says the American Physical Society's editor-in-chief, David Lazarus of the University of Illinois, the society's flagship publication, the *Physical Review*, will accept short, letter-type communications. The hope is that specialized research reports inappropriate to the broad readership of *PRL* will go to the various sections of the older journal and thereby relieve the pressure pent up in a community that has anguished for years over the *PRL* problem.

PRL was born in 1958 as the reincarnation of the letters to the editor section of the *Physical Review* when the number of letters submitted was growing so rapidly that the short communications threatened to swamp the journal. But from the start the *PRL* editors were determined not to let the letters journal replace *Physical Review* as the principal place for physicists to publish. A set of criteria evolved that required prospective papers to "be important and of broad interest" and to have a "reason for [the] relatively quick publication which the journal provides," according to one of the current editors, Robert Adair of Yale.

In hindsight, what happened was foreseeable. *PRL* became an extremely attractive place for physicists to publish because the journal was inexpensive and short enough to carefully scan each week, and nearly every physicist subscribed to it. In contrast, *Physical Review* was expensive and had grown fast enough that it was published in four thick sections, one for each major subfield of physics. The fact that only 45 percent of the papers submitted to *PRL* were accepted for publication helped the journal gain an unintended measure of prestige. In the end, the prestige associated with being published in *PRL* outweighed the original criteria of timeliness and being of broad interest. Prospective authors would therefore fight very hard to get papers published in *PRL* and sometimes with good reason. Adair says that there are several examples of cases where project directors in federal agencies or promotion committees based their decisions primarily on the number of the candidate's publications in *PRL*.

Selection of research reports for publication is inevitably a difficult process, in part because of the inherently subjective nature of the acceptance criteria. In a proposal for changing *PRL*, Adair estimated that perhaps one-sixth of the submitted letters clearly were acceptable, passed quickly through the refereeing process, and were promptly published. Another one-sixth were just as obviously unsuitable and were quickly disposed of. The remaining two-thirds of the submitted letters provided the problems. Adair's figures showed that the mean time to publication in a typical month for undisputed papers was 80 days, but an additional 56 days were tacked on when negotiations were necessary to iron out disagreements. Two papers of 89 published that month were delayed more than a year.

One outcome of the situation has been a rising level of anger among physicists. Many, especially younger researchers, feel they cannot afford not to publish in *PRL*, but they dread what they know will be a big hassle. Said one low-temperature physicist, "You send a paper in and you just know you're in for a long-term fight." Another outcome has been the refusal of some physicists to be bothered any longer at all by publishing elsewhere, such as the popular European journal *Physics Letters*. "There are eminent physicists who will not submit papers to *Physical Review Letters*; there are eminent physicists who will not serve as referees for the journal," wrote Adair and co-editor George Trigg in the editorial that announced that changes in the journal were under consideration. But the most telling consideration was the editorial's assertion that, for the two-thirds of the papers to which most of the attention was devoted, a coin-flip appeared to be as effective as the agonizing selection procedures. "All this Sturm und Drang, and it wasn't doing any good," moans Lazarus.

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The solution that the physical society has adopted and is now putting into place is a modification of the idea that Adair suggested. The spirit of his idea was to end all the wailing and gnashing of teeth by accepting for *PRL* all papers that are scientifically sound. This change would, he estimated, increase the numbers of papers published by a factor of 2.5. To keep subscription costs down, Adair proposed dividing *PRL* up into sections that would parallel those of the *Physical Review*. A fifth section would be reserved for papers of interest to physicists in more than one subfield. Subsequently, Heinz Barshcall of the University of Wisconsin, who is editor of *Physical Review*'s nuclear physics section, recommended binding the sections of *PRL* into the corresponding *Physical Review* sections.

This spring a subcommittee of the physical society's publications committee met to thrash out a solution under the direction of Stanley Hanna of Stanford University. The consensus hammered out by the subcommittee was to keep *PRL* intact but to add new sections called Rapid Communications and Brief Reports to *Physical Review*. Over the next year, as physicists get used to the new sections, the criteria for acceptance by *PRL* will shift from timeliness and novelty to general interest. Adair says the desired division of submitted letters will be one-half to *PRL* and one-half to the new sections of the *Physical Review*.

Obviously, the changes in no way guarantee that *PRL* will not continue to be a problem as the elite physics journal, and everyone involved admits this. Hanna says the experiment "may fail abysmally," but it might not necessarily be for this reason. Another possibility is that physicists, having a new outlet for letter-type publications there, will flock to the *Physical Review* and *PRL* will wither for a lack of interesting papers to publish.—ARTHUR L. ROBINSON

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