

## Selecting Scientific Research for Publication

**Panelists:**

**Katrina Kelner**  
*Science*  
Washington, DC

**Leslie Sage**  
*Nature*  
Washington, DC

**Reporter:**

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Texas A&M University  
College Station, Texas

How should papers submitted to journals be evaluated? At this session, speakers from *Science* and *Nature* addressed this issue and related topics.

Katrina Kelner, deputy managing editor of *Science*, emphasized that peer review should not be a passive process in which reviewers merely vote on the acceptability of a paper. Among other problems, she said, this approach places the “identity of the journal in the hands of the reviewers”. Moreover, she observed, papers that turn out to be most important do not always receive the most favorable reviews.

Kelner advocated the following:

- “Articulate an active editorial vision” for the journal.
- Use peer review to help determine whether a paper suits this vision. Select reviewers accordingly—for example, on the basis of their previous reviews, their talks at meetings, or recommendations from others. Instruct the reviewers about their responsibilities. Critically evaluate the reviews.
- Drawing on the reports from the peer reviewers, determine how well the paper suits the editorial vision of the journal.

Accordingly, decide whether to accept the paper, accept it if suitably revised, or reject it.

Kelner said that a useful review briefly summarizes a paper (to show what the reviewer understood it to say), indicates the quality of the data, evaluates the interpretation or discussion, and addresses how well the paper suits the editorial mission of the journal.

Kelner said that *Science*, which publishes about 10% of papers submitted, uses the following criteria for acceptance: novelty, technical validity, importance (both in general and in a specific field), newsworthiness, and balance of topics in the journal. In closing, she advised those wishing to change the identities of their journals to advertise their missions, be active (for example, by soliciting papers), and be patient.

Leslie Sage, a senior editor of *Nature*, said his journal seeks to publish papers that contain major new insights, present startling or unexpected results, and are exciting in their fields. Such content, he noted, tends to be newsworthy; however, scientific findings should not be communicated to the public until papers are peer-reviewed and published in journals.

Sage advocated embargoes (prohibitions on publicity before journal publication) as a way to promote information release at a suitable time. He said journalists can receive articles in *Nature* about a week before publication and thus have an opportunity to prepare stories carefully before release. The embargo system, he stated, helps to maximize publicity for the author and the journal.

Preprint servers, such as that at Los Alamos ([xxx.lanl.gov](http://xxx.lanl.gov)), “complicate our

lives as editors”, Sage said. He noted that technically posting to a server is publication and thus can preclude appearance in a journal, but he added that journal editors must “live in an increasingly electronic world”.

Print journals might be able to survive in that world, Sage said, by adding value—for example, by helping authors to write better papers, tightening standards, increasing speed of publication, distributing material faster to subscribers, and enforcing ethical standards. Peer review, he noted, is central to quality control. He said the best referees are postdoctoral fellows who received their PhD degrees 3 to 5 years ago and therefore are not yet overloaded with work and are still “naive enough to be blunt”. *Nature* lets referees identify themselves, and he favors their doing so. Noting that *Nature* publishes fewer than 10% of papers received, he advised audience members not to hesitate to reject submissions.

Sage said that *Nature* uses a postcard to reject crank papers. Explaining the deficiencies to the authors, he observed, is a waste of time. “Crankers can be time-consuming. Be ruthless!” he advised.

Before closing, Sage discussed the trend toward electronic submission of manuscripts. Advantages for the review process, he said, include increased speed and decreased mailing costs; a long-term challenge is to integrate such submission with production. 