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EDITORIAL

A Science Paper Is . . .

Aspiring authors of *Science* papers successfully run the gauntlet of our reviewers and editors only a small fraction of the time. In some of the more competitive fields, only about 10% of submitted papers are published. As a result, many ask us what distinguishes an accepted paper from the often excellent work we feel we cannot publish. Our "Information for Contributors" (see *Science*, 5 January 1996; on the World Wide Web, the address is <http://science-mag.aaas.org/science/>) describes the review process generally, but authors seeking more details about the characteristics of desirable papers may find "novel concepts of interdisciplinary interest" and "novelty and general significance" to be ambiguous criteria. Inevitably, given the keen competition for our pages and the generally excellent quality of submittals, some subjective elements influence the acceptance of manuscripts. Those elements reflect the opinions of the reviewers, of members of the Board of Reviewing Editors, and of *Science* editors. As we begin the new year, a few guidelines taken from the views of reviewers and editors may illuminate some of the fuzzy logic behind our decisions.

A *Science* paper should be exciting and thought-provoking. Risk-taking must be balanced against technical perfection, as pioneering work cannot always be the most complete. Rather than being a "nail in the coffin" of a well-researched area, a *Science* paper preferably opens up new avenues of research. Some papers are chosen because they present innovative ideas in a field that has been quiet; others, because they merge previously divergent fields. Perhaps the majority make the grade not by being groundbreakers, but by presenting solid progress made near the cutting edge of research in a field that is currently very active. The latter papers are tricky because if we are to maintain a balance of topics in the journal, our standards for the evaluation of such papers must evolve as rapidly as the fields themselves.

We are essentially greedy—we want to publish the best research in all fields, but in a way that will make the achievements understandable to our general readership. The best *Science* papers capture the interest of a wide audience with observations that provide new insight into the natural or theoretical world. Given our strict space limitations, *Science* Reports must be explicit and concise or have sufficient breadth and depth to qualify as Research Articles. Ideally, a *Science* paper challenges experts in a field by questioning current theories. In more slowly moving fields, a landmark paper might overturn existing concepts or achieve a long-sought theoretical goal (such as validation of the Bose-Einstein condensation state) or a particularly complex synthesis. The best *Science* papers have such broad interdisciplinary impact that they merit attention by the entire scientifically minded community (for example, the discovery of master control genes, such as the *Drosophila eyeless* mutation). Papers that combine two previously unrelated areas of science, thus changing the way a problem is seen, are especially interesting.

Often the most appealing papers, regardless of their field, fit into no neat category. Health-related issues, for instance, raise many different kinds of questions: How important to the general public is the discovery of a disease-causing gene or a treatment for that disease? Is the approach novel or the problem extremely serious? Will the treatment change medical practice or public policy?

Obviously, a *Science* paper must also meet the usual requirements for publication of any scientific paper. Results should clearly justify conclusions, and the research should be conducted with all controls that are necessary to establish the technical validity of the findings. In some fields in which our editors have professional experience, an early inquiry might help shape a paper or avoid misdirected effort. In almost all cases, our international Board of Reviewing Editors helps us choose the most expert reviewers to judge for technical and interpretive excellence. Consequently, *Science* reserves the right to refuse reconsideration of unmodified manuscripts, unless the reviews are technically inaccurate.

From Molière, we learn that "There is no reward so delightful, no pleasure so exquisite, as having one's work known and acclaimed by those whose applause confers honor." Authors who recognize that *Science* provides such an audience may now have a better appreciation of what we think we want. We look forward to receiving the papers you consider to be your best.

Floyd E. Bloom