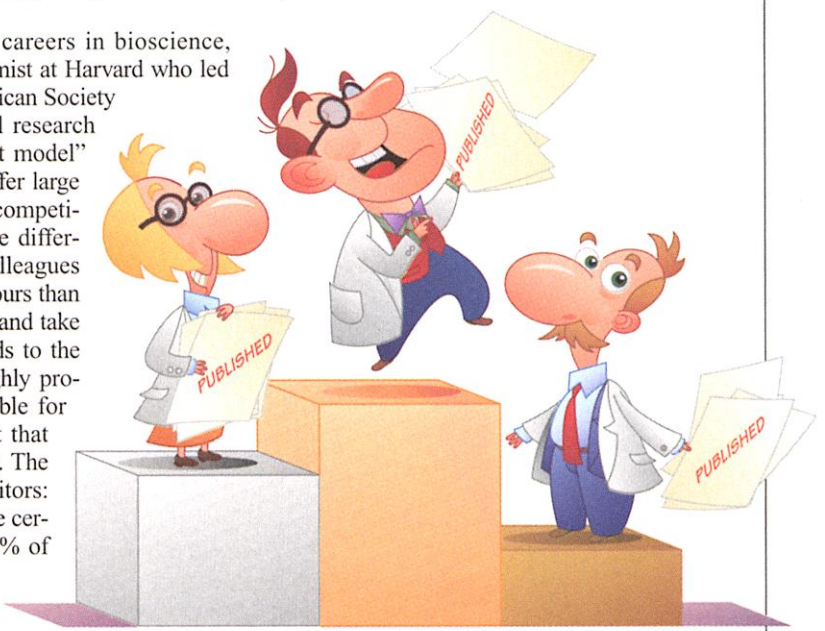
Tournaments, Prizes—and Us

One of our senior outside editors gave us a shock the other day. A scientist in a country from which we get relatively few papers had sent along a manuscript, inquiring whether it might be suitable for publication in *Science*. My colleague read it carefully, consulted for a bit, and replied that it probably was not. In response, the author pled that her government had made it plain that publication of a paper in *Science* would qualify her for a very large bonus payment; wasn't there something that could be done?

It was tempting to put this incident aside as a curiosity, but it is not so easily disposed of. In the evaluations for tenure that are regularly undertaken in U.S. universities, publication in *Science* is accorded great weight (in the spirit of "when I say Oxford, I mean Oxford and Cambridge," I mean *Nature* as well). U.S. deans and provosts count journal prestige and citation frequency heavily; so do academic administrators in Europe. Although some scientific cultures may be more direct about paying cash for prestige, similar things are happening here in the West, where we put the "b" in subtle.



In a recent analysis of competition and careers in bioscience, Richard Freeman, a distinguished labor economist at Harvard who led a team working under the auspices of the American Society for Cell Biology, pointed out that biomedical research follows what economists call the "tournament model" (*Science*, 14 December 2001). Tournaments offer large prizes for finishing first, thereby enhancing competition; small differences in inputs produce large differences in outcome. Thus, Freeman and his colleagues found that biomedical scientists work longer hours than scientists in other fields, wait longer for entry, and take less pay. The intensity of the competition leads to the exploitation of junior researchers in some highly productive laboratories and is probably responsible for some of the disaffection and disappointment that graduate students and postdocs are expressing. The intensity surfaces in attitudes toward competitors: Nearly 30% of biology authors ask us not to use certain people as referees, compared with only 8% of authors in the physical sciences. That, along with the recent increase we have experienced in duplicate or overlapping submissions, suggests the eagerness with which even a tiny edge in the race is being pursued.

The picture isn't a pretty one, and it presents us with a vexing question. Confronted with the knowledge that we're playing a big role in professional careers, shouldn't we ask ourselves whether we're comfortable with it? Most of the scientists with whom we work care about the use to which their science is put, and we owe a similar duty of care to them. At *Science*, we want to get the best papers and provide the best news and commentary, and we have no plans to suspend those efforts. But given what we know about the way in which our publication decisions are amplified in people's lives, we should be especially sure to be fair about them. Tournaments, after all, rely on accurate scores; and the larger the prize, the more important the scorekeeper.

Thus, if publication in our journal is helping to push the biomedical research community into a winner-take-all tournament, we should worry; and from the evidence, competition in this domain has gone too far. How might we help to relieve the pressure? First, just because others sometimes take us too seriously, we shouldn't fall into the same habit ourselves. Much of the work we'd like to publish takes more explanation than we have space for; other superb papers are suitable for a more specialized audience. Citation indices and impact factors are easily misjudged: Some of our best papers are lightly cited, and some less important ones get referenced everywhere. Even the indices themselves can be subject to question, as our colleagues at *Nature* have recently pointed out (*Nature*, 10 January 2002). Second, we can make our judgments and policies as transparent as possible, not only to those who choose to submit work to us but to those who will then be awarding prizes. We should be prepared to be realistic and appropriately modest, explaining not only what our decisions mean but also what they don't mean.

Donald Kennedy

CREDIT: TERRY E. SMITH