

Karl Broman, Academic Editor

Tracey A DePellegrin

Karl Broman is Professor, Department of Biostatistics & Medical Informatics, University of Wisconsin-Madison; Senior Editor, GENETICS journal, published by the Genetics Society of America; Academic Editor, PeerJ; and Member, BMC Biology Editorial Board.

TAD: Karl! I have questions about genetics and questions about being an editor. So many questions! What's a typical day like for you? I mean, one in which you're performing both editorial duties and one in which you're teaching or doing research.

KB: I keep pretty regular hours, and I tend to get to campus early because my kids leave for school at 7:15. I try to keep meetings packed into particular days so that I can have longer blocks of time for data analysis, software development, writing, or just thinking. I also travel about once a month: to a scientific conference, to give a seminar, to visit collaborators, or to teach at a workshop.

Editorial duties are unpredictable. I might see nothing in a week, or I may get five new manuscripts in a few days. I feel a sense of urgency, so I'll try to fit in a quick read during the day. But I usually leave it to the end of the day or the evening to study more thoroughly, and I might not take action until the next morning.

TAD: How would you explain your science to a layperson? Do you have an elevator pitch?

KB: Saying "I'm a statistician" will close down a conversation pretty quickly. I tend to say that "I help scientists make sense of data," or more particularly, that "I try to find genes contributing to disease, mostly in mouse crosses."

TAD: You've been an Associate Editor for GENETICS for 6 years, and you're now a Senior Editor. What are the most interesting aspects of the editorial role?

KB: I'm not sure about "interesting," though I am fascinated by the politics of academic publishing. I'd say the aspect I find most valuable is helping authors to improve their papers. I've certainly benefited enormously from reviewers' and editors' suggestions over the years. For example, I had a paper at GENETICS that received really terrible reviews. However, rather than reject the paper, the associate editor (Dr. Mary Sara McPeck, from the University of Chicago) spent a bunch of time on it and said basically, "Here's what the reviewers aren't understanding, and here's what you can do to make it clear." I'd like to be able to do that for authors.



Karl Broman

TAD: What are the most challenging aspects of this role?

KB: I often have a hard time making decisions. A lot of this is a matter of taste: Is this work interesting and important enough to be included in GENETICS? Rejecting papers without sending them out for review can be particularly difficult. It is certain to annoy the authors, but should I annoy them now or later, and should I waste reviewers' time when I'm confident that the paper ultimately won't make the cut? With such rejections, I've found it best to say as little as possible. By providing more details, I'm providing more material for the authors to rebut.

Rejections are the most painful part of this business, and I spend the vast majority of my time on mediocre or just plain bad papers. Grading homework or exams is like this, too. The really good papers breeze through; I spend all of my time trying to puzzle through the mediocre ones: What could the authors do to make this better?

TAD: What was the biggest surprise to you about being an editor?

KB: Hmm. I guess it's that you get to see another side of people. For example, people you'd respected may behave badly (get really nasty; fail to meet commitments; or write cursory, empty reviews). Then, others show their

CONTINUED

extreme devotion to making science better, such as editors and reviewers who put a lot of time into helping authors improve their papers. Mark Johnston (Editor-in-Chief of GENETICS) has done amazing work for GENETICS, and Dan Schaid (from Mayo) put enormous effort into improving the journal *Genetic Epidemiology* in the early 2000s, with great success.

I guess the real surprise, regarding academic publishing, was the authors' page charges. I'd thought it was all paid for by subscriptions. As I recall, *PNAS* used to put a notice on each paper, that it was formally an advertisement.

TAD: What particular skills are critical to being successful as both a professor and an editor?

KB: You've got to really enjoy writing. You need to become skilled at explaining things clearly and simply. To be an editor, you need to really care about people and want to help them to improve and to derive joy from their successes. To be a professor, you need to be creative, identify important problems, and craft solutions (generally in collaboration with others). And, you need to finish things.

TAD: What are the most significant changes you've seen in scholarly publishing over the years?

KB: Back in 1997, when I was a postdoc, it was all on paper. We'd receive hard copies in the mail to review. A couple of times, I was mailed a manuscript to review without even being asked first. Periodically, I'd have to drive to Madison to go to the library and make copies of articles to read (my postdoc was in Marshfield, Wisconsin). So the move to email and the Web, first for the review process and then to be able to get all articles electronically, has been the biggest change.

More recently, I'd say it's the move towards open access, and then the more recent culture of preprints that is finally taking off in biology. In statistics, there's a long history of making articles available in advance, as technical reports. This is largely because the publication process has been so incredibly slow in that field. However, the tech reports were often hard to find or obtain, and there had been no such practice in the biological sciences until now.

TAD: Do you have any predictions for the future (of scholarly publishing)?

KB: Oh, I'm terrible at making predictions. But, I'll tell you what I hope, and that's that the entire scientific

corpus becomes open at the time of publication. It will require a big change in the way we pay for things, but there'll be such an enormous benefit to science and to society.

I personally don't want to do away with journals and the tradition of peer review. I've benefited enormously from peer review, and I appreciate the curation that editors can provide. I'm not particularly enthusiastic about open peer review, because, well, people behave badly. Having just one big repository of manuscripts, with unsolicited "post publication" reviews? I think this will further skew the advantage towards big names at big institutions, with important papers from lesser-known people on less-fashionable topics being largely ignored.

I don't see us breaking the culture that, in hiring and promotion, over-emphasizes publications in flashy journals, instead of, you know, actually reading someone's papers. I guess that's a prediction.

TAD: What role do scientific journals and editors have to play in ensuring published research is reproducible?

KB: I think the big thing is adopting policies that require data and software to be publicly available. Then we need to follow through and double-check that authors have provided all that is needed. For data, this is relatively straightforward. However, just as it's tedious to compile the relevant metadata that documents the data, it can be difficult to check that all of the data and metadata are available in a useable form. Harder still is checking the software: Is it all there, and useable? We need to raise the level of quality of scientists' computational work, and the key there is education and training.

TAD: When you were a kid, could you have imagined yourself doing this job?

KB: For sure not. I didn't really understand how science worked until college, or even graduate school. And I'd not heard of statistics until college.

TAD: If you had to give one piece of advice to someone who's interested in taking a role as an academic editor for a scholarly society journal, what would it be?

KB: Compile a personal list of possible reviewers. It's hard to think of people off-the-cuff; you want a nice long, diverse list of people to browse.