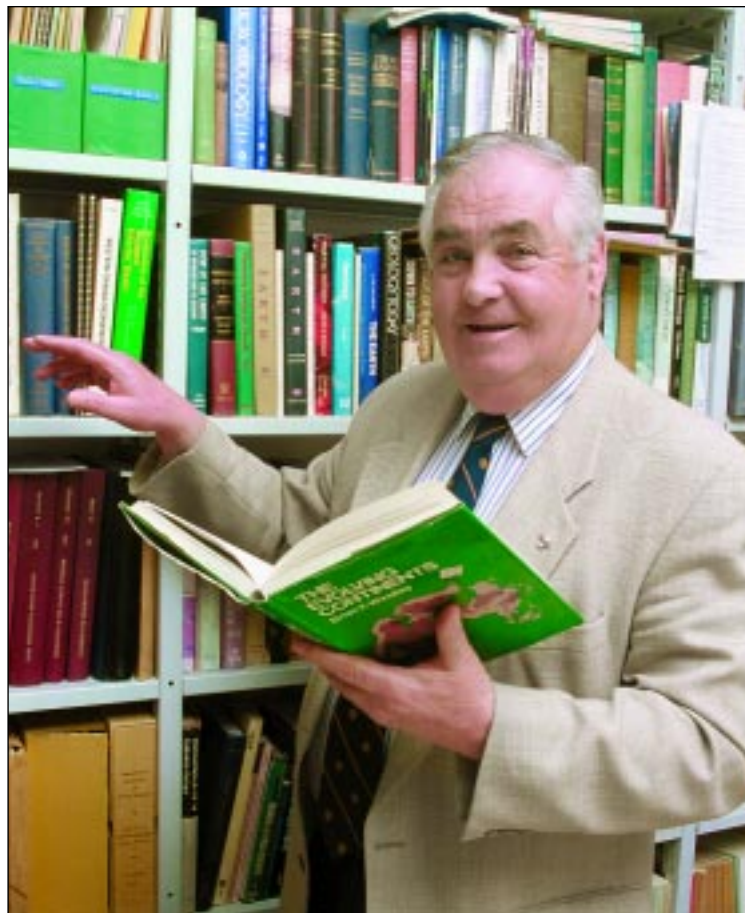

RESPECT OF ONE'S PEERS

by Ann Silversides



Glen Caldwell

This is quite the worst manuscript... that I have ever seen."

The first time that Glen Caldwell read that remark on a manuscript he had sent out for peer review, he took it seriously. By the third time the same reviewer made the identical remark, on yet another manuscript, "I said, forget that, and ceased to use him," says Dr. Caldwell, relaxing in his cluttered office in the earth sciences

Peer review is at the very heart of academic life, but the process is not always well understood. Five seasoned peer reviewers weigh in with some sound advice.

building at the University of Western Ontario, where he is now professor emeritus.

The opinionated reviewer of his recollection was not a young academic, out to impress. He was "a very fine scholar in his field, exceedingly well published," says Dr. Caldwell, who at the time was editor of the *Canadian Journal of Earth Sciences*. "However, for some reason when he was asked to

Alan Noon

judge the work of others, he was incapable of doing it in a balanced way.”

Peer review is at the heart of academic life and peer reviewers can have enormous power over the professional life of academics. But the peer review process is not always well understood, and not everyone is good at it.

of Calgary, who is also a director of the Alberta Cancer Board. “You should really be interested in forwarding knowledge.”

At the same time, peer reviewers should be able to see beyond their own specific interests when making a judgment. “Obviously, one’s personal interests are exciting stuff, while others

which is why the knowledge of the peer reviewer has to be quite considerable.”

Knowledge of one’s own field is not sufficient, adds Dr. McNeil. A reviewer should also have a broad perspective and “eclectic” interests, since a reviewer doesn’t just get grant submissions or articles that fall directly in one’s own field.

“It’s insufficient to just say *‘this paper is too long’ or ‘the authors have not cited the appropriate literature’.*”

The purpose of peer review is to allow granting agencies and journal editors to obtain informed, professional opinions about submissions. “We all want to hold grants from agencies that award them on a truly competitive basis, that distinguish the deserving from the less deserving or the undeserving,” says Dr. Caldwell.

To get a better handle on what makes a good peer reviewer, *University Affairs* talked to a handful of scientists who were identified by their peers and by granting agencies as being particularly adept at the task. The researchers, who have all served on national (and in some cases international) granting agency panels and have peer-reviewed articles for academic journals, showed a remarkable degree of unanimity about the attributes that a good peer reviewer needs.

The experts say the qualities required for reviewing journal articles and grant applications are quite similar. However, reviewing articles is a solitary task, while committee members obviously have to be capable of working well with others. As well, the journal reviewer is dealing with a final product, while the committee member must evaluate a proposal that is more speculative and must also be able to assess items such as budgets.

So, what *does* make for a good peer reviewer?

“A high degree of enthusiasm for the research area” is a prerequisite, says Heather Bryant, a professor of community health sciences at the University

may not ring your chimes quite so much – but they must all be judged on merit,” says Jeremy McNeil, a biology professor at Université Laval, whose own research speciality is the behavioural and chemical ecology of insects.

Don’t consider reputation Judging the merit of a proposal is very different from judging the reputation of an applicant, which must never sway the peer reviewer, insists Dr. McNeil. He recalls one incident in which a paper written by a well-known figure was accepted by two referees, who made very few comments. Two other referees, meanwhile, found rather major errors and insisted on a major rewrite. The first two reviewers admitted they had just glanced at the paper, assuming that the author had done a fine job. “All grants must be judged on merit – or lack thereof!” says Dr. McNeil.

Indeed, the willingness to be “rather coldly analytical” is a key requirement, argues Dr. Caldwell. A peer reviewer should be able to “finger the critical evidence and conclusions and expose these in a fair manner” so others can appreciate their importance.

This is why a peer reviewer needs to have the knowledge to assess what the quality and quantity of the applicant’s work really amounts to, and an appreciation of the creativity and originality involved in the work that has been done, Dr. Caldwell goes on. “This is not by any means a small matter,

Sometimes, that leads peer reviewers to the library or the computer, to read up on aspects of the work under review, says Kristan Aronson, a professor of community health and epidemiology at Queen’s University, whose research interests include multiple sclerosis and environmental and occupational epidemiology. “The closer to your area that the work is, the less you have to go outside,” says Dr. Aronson, “but sometimes I’m busy checking references, doing [database] searches.”

Demands on your time

A willingness to invest the time required to do a proper job is vital. In peer reviewing, this means taking time to think about the proposed objectives or goals, the experimental approaches proposed, and so on, says Dr. McNeil. “The applicant or author has invested a great deal of their time – hopefully – and you must respect this.”

With this in mind, peer reviewers should treat applicants and authors the way they would like to be treated in the same situation. The time-pressed peer reviewer should not think, “Oh, I’ve got to write something, something is better than nothing,” says Dr. Caldwell. He suggests that if you’re desperately short of time, or harried, it’s better to return the manuscript right off and say, “Rather than doing an inadequate job, I’m sending it back while there is still time to get other reviewers, and may I suggest professors X and Y.”

On the other hand, while editors and granting committees *do* vet articles and proposals, there are also times when the peer reviewer is asked to consider a piece of work which is seriously wanting. "There is a difference between peer review and copy editing," observes Brock Fenton, a biology professor at York University. "If something is just bad, don't spend time with it until the author cleans it up."

Knowing where to draw the line between serious flaws and minor imperfections is a crucial quality of the good peer reviewer. Judgments must be balanced with a healthy dose of practicality about the reality of doing research, says Dr. Aronson, especially in a field such as epidemiology where there are "so many steps" to the process of discovering how to reduce the burden of disease.

"Everything has some measure of imperfection ... you want to get

Wanted: peer reviewers

Most of the academics we spoke to expressed some concern about the supply of academics willing to become engaged in peer review. That may be partly because all of them (with the exception of Glen Caldwell, who is retired) are in constant demand. Queen's University's Kristan Aronson, for example, has calculated that she dedicates about 10 per cent of her working time to peer review. When she's reached that threshold, and is invited to do more peer review tasks, she hands out IOUs.

"But I would say in general, the obligation to act in the service capacity of peer review is diminishing," Dr. Aronson says. "The granting agencies need more now than in the past, but I've seen a trend towards fewer people feeling an obligation to serve the community."

When *University Affairs* caught up with Brock Fenton, a biologist from York University, he too had several peer review tasks on his plate. But he was less pessimistic about the future, because "most students are thrilled to death to be asked" to be a peer reviewer.

close to the ideas, and make sure the applicant is aware of the limitations and can minimize them. The key is, will this piece of work make a contribution given the current state of knowledge?"

Dr. Fenton, whose speciality is the study of bats and who has been

changes could be made, and they should provide examples of the literature which they think would help the authors make a stronger case for their thesis, he suggests.

Of course, feedback from peer reviewers won't always be this helpful.

"Don't be bullied. If you think something is good or bad, don't back down just because you're in the minority."

doing peer review for 25 years, notes that there is "a certain level of conservatism" in the activity, partly because of a general tendency to be suspicious of ideas that don't align with current thinking.

To ward against undue conservatism, peer reviewers should be willing to support innovative or risky projects if the applicants have presented their case well, advises Dr. McNeil at Laval. "If an author or applicant is speculating, don't be negative. Unless there is an evident error – for example, the theory is based on the premise that the world is flat – be positive. Good speculation should stimulate future research and increase our understanding."

In a certain sense, the peer review process is both an evaluation and a training exercise. Merely evaluating something is not helpful: the quality of the feedback from peer reviewers should help the applicant prepare a better proposal or article the next time.

Often academics who are new to the peer review process don't realize they are supposed to be giving advice as well as a judgment. "It's insufficient to just say 'this paper is too long' or 'the authors have not cited the appropriate literature'," says Dr. McNeil. "That is of no help to the editor or the authors or the committee members."

Peer reviewers should make precise recommendations, indicating where

Asked if he'd ever been at the receiving end of a review that didn't meet standards he'd expect, Dr. Caldwell replies, "Of course! I've received reviews that I've read with nothing short of wonderment and asked myself if this is really a review of my paper ... yes, I think all of us have, but by and large I've been very satisfied."

No one should be asked to be a peer reviewer unless they are actively involved in submitting grant applications and articles for publication, says Dr. Fenton, because they need to know what it's like to be on the other side. He also stresses the need to "disengage the ego" when reading rejections.

"A good criticism is something you can learn from. That doesn't mean your first reaction isn't, 'I don't need this today' or 'What does that son-of-a-bitch know?' As long as you can laugh at yourself later."

One area where the experts aren't in total agreement is on how senior a peer reviewer needs to be. Dr. Caldwell suggests that more senior peer reviewers are the most successful because they understand the process and have a good sense of the responsibility involved in undertaking the task. "Those who can look back – and I would stress back, never down – from a position of experienced seniority make better peer reviewers than more junior members of the community."

There's a tendency to ask more established academics to be peer reviewer because younger scholars

are typically busy building their careers and because the peer review workload can be huge, notes York's Dr. Fenton. While maturity and self confidence are essential for the task of peer reviewing, he says, "those qualities are personality-based, they aren't linked to age or position. People who are long in the tooth and well-established can be very insecure." Peer reviewers have to be mature enough "so they don't feel a need to be derisive about people who they think aren't as good as them, or to take shots at high flyers".

A good degree of self-awareness about your own limitations is also important. "For example, you may understand the content but not the methodology," says Dr. Bryant. "You should defer commenting on methodology, or make sure that someone else on your committee complements your understanding. As well, you can always go back to the investigator."

That said, peer reviewers on committees also have to feel confident having people disagree with them. They have to be able to defend their point of view, adds Dr. Bryant.

"Don't be bullied," is the advice Dr. McNeil would give to peer reviewers who are new to the job. "If you think something is good or bad, don't back down just because you're in the minority. Change only if you are truly persuaded that the opposing opinion has greater merit than your own. This is where you have to feel good in your own skin and have to be sure that you have done a good job preparing your evaluation."

The academics agree that preparation is key. Over his 20 years of involvement in peer review, Dr. McNeil says he has (though infrequently) seen committee members come very poorly prepared. They just go along with the committee opinion or, when they're supposed to present a case in detail, they just rehash the comments of the external referees.

But committees have a way of taking care of such situations, he says. "One [poorly prepared] reviewer who sticks in my mind was subsequently removed from the bank of potential referees and was more or less excluded during the committee meeting." Moreover, the Canadian academic community is small enough that it has a "corporate memory", notes Dr. Bryant. "If there are concerns

Tips for good peer review:

- Be able to be coldly analytical and to separate the proposal or paper from the person who wrote it.
- Have a broad perspective and an interest in advancing knowledge beyond your own personal research field.
- Be well-prepared, and do research on the topic when necessary.
- Treat authors the way you would want your work treated.
- Be willing to support innovative or risky projects when the case is well presented.
- View peer review as a training process as well as a judgment call, and give helpful advice for improvement.
- Be aware of your own limitations, and defer commenting on areas where you're not qualified.
- Have confidence in your opinions, and don't be bullied.

[about a reviewer], they tend not to be invited back ... A sense of fairness and a high degree of integrity are very important for the task of peer reviewing."

Finally, while you won't get rich from peer reviewing – it is a strictly voluntary activity – there are other rewards. There's a big learning curve in peer review and it can take "one or two cycles" to get comfortable, as Dr. Bryant notes. But peer reviewing allows you to see first hand a good cross-section of the research in various fields that

is taking place across the country, and that's enlightening.

"It's the same with journals," observes Dr. Caldwell. "I don't think I was ever quite as on top of different kinds of research going on in the earth sciences as I was at the time I edited the *Canadian Journal of Earth Sciences*."

Meanwhile, there's another important personal benefit from doing peer review for granting committees. "You certainly learn to write an excellent grant application!" laughs Dr. Aronson. **UA•AU**

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