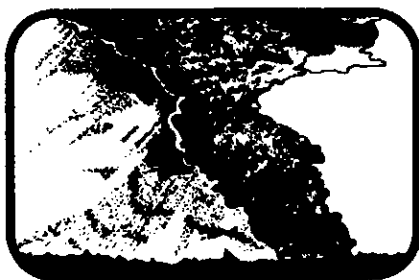


FEATURE



PYROCLASTS

The Case for Books

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One of the most interesting committees I have ever served on is the Promotions Committee for the Faculty of Arts and Science at the University of Toronto. It is very instructive to learn how the various standards for promotion to Full Professor vary from discipline to discipline.

For social scientists to publish an average of one article a year in a reasonably good journal might be enough to demonstrate "deep engagement in scholarly work." In the History Department, we learned, it is absolutely essential to publish books and to write learned reviews of other historians' books. For scientists, however, books are anathema. Those who write books cannot, it seems, still want to be regarded as committed researchers. Books, even those written specifically

as introductory textbooks to make lots of money, indicate a lack of seriousness. One young physicist we promoted had a total of 147 articles on particle physics in major journals, all co-authored, and no review articles or chapters in anybody's books. He was regarded as a serious candidate for a major award.

I mention this because I have written three books and edited or co-edited four others. Once I was severely cut back in my Operating Grant from NSERC and, when I requested the reviewers' letters to learn why, I read that one of my esteemed colleagues (I still don't know who it was) said that I was not a real researcher because all I did was massage other people's work into books. So you might wonder why I put myself through this.

I cannot understand this problem with books. In a field such as geology, which generates reams of descriptive material and truckloads of case studies every year, how is a person to keep up if he or she does not read reviews or books? Nobody can read everything, although a few of us can try. Those who work in the corporate world are commonly under severe time constraints and have little time to read anything. If some of us do not make the effort to synthesize the literature for everyone else, most geologists will be condemned to re-invent the wheel every few years (many manage to do this anyway). The alternative is to become more and more specialized and focussed. At a time when we are discovering how increasingly connected earth systems are, and at a time when earth science is becoming increasingly multidisciplinary, to not keep up with a wide array of data and techniques is to put oneself at risk of irrelevance.

Another good reason for writing books is that it makes a strong impact

on teaching, especially at the graduate level. My teaching improves my knowledge of the subject material and helps to bring about improvements for the next editions of the books, and the research carried out for the books provides much important new material that I find I need to put in the courses, as well as providing ideas for new research projects. So my courses get better (I hope), and the students benefit directly by being able to read my words as well as hear them.

Almost every year for the 20 years I have been at the University of Toronto I have offered a Basin Analysis seminar course, which consists of a series of readings from the primary research literature. Each week for 13 weeks the participants are required to read about a dozen original articles and discuss them in a seminar lasting for up to two hours. For the first few weeks most students find this a traumatic experience. Most North American students, it seems, have not been required to read much primary literature before, and the reading consumes their entire waking hours. By the end of the semester it has become a breeze. They have learned how to find the meat in an article without wading through all the other stuff, and to focus on the intellectual contribution an article makes without becoming bogged down in the technical detail of research methodology or sample documentation. So a valuable research skill is obtained, as well as an introduction to the literature in a major area of the earth sciences, and an appreciation for how vast that literature is. Most students end up in awe of the scale of the literature: it is vast. My book *The Geology of Fluvial Deposits* contains a reference list of about 1300 articles. There are many case studies not included in this list, which is confined largely to publications in the English language.

I have a hard time with the idea that the Internet and the world wide web are going to liberate us from our chains of ignorance, now that the world's data are to be "at our fingertips" and can be called up on any computer screen "at the click of a button." (Some click. Investments in hardware, weeks or months spent learning the software. More months gaining experience in searching and browsing. Hours spent browsing through useless "hits" and getting sidetracked by other stuff. More months spent learning to discriminate the wheat from the chaff. Some click, indeed).

First off, how will the student know what to call up? And how will he or she know what to do with it? My attempts to find useful information on the Web (mainly to help with my kids' school projects) have mostly turned up advocacy sites or the tedious documentation of the various services and personnel of governments, corporations and associations. Typically, as soon as one gets close to something of value, a screen intervenes requesting a credit card number. What liberation is this, except as a ringside seat to chaos?

The information out there on the Web is in an even more chaotic state than that in our hard-copy libraries. At least most of the latter have been sorted and catalogued properly and can be assumed to represent a reliable collection of sources, given that the cost of producing hard copy tends to ensure that the publisher makes some effort to achieve a certain quality in order to be sure of sales. Individual books have carefully constructed order, with subject matter arranged to introduce concepts in a logical sequence, plus tables of contents and indexes. Order is definitely not characteristic of the Web, where anyone can post anything (and usually does) and hierarchy and structure are largely absent. This is supposed to make learning easier?

As a teaching tool, computer technology really offers nothing new except a fancy delivery. Some kids like to tinker with computers (but by no means all. My two teenagers are bored silly with computers, and much prefer to focus on their social lives), but a fascination with the technology does not guarantee an equal fascination with the output. It might be very exciting to download images from NASA's picture library, but how many are prepared to read de-

tailed discussions of those pictures and the theories they illustrate about planetary origins? The proponents of the information revolution confuse information with knowledge, but information without guidance and understanding is just noise.

Part of the so-called information revolution is supposed to be the rise of electronic publication. The idea is that we will be able to download articles as we wish, and even print them out on paper if we are inclined to be so old-fashioned. (Perhaps we might want to read the thing under a low-tech tree or in a non-electronic canoe.) Many questions remain to be answered about this new way of publication, not least being how can we replicate one of the most valuable features of the existing hard-copy publication system: uniform worldwide standards and a uniform worldwide product, so that anyone, anywhere, can take the same reference to his or her hard-copy library and always find the same thing in the same accessible format: paper. CD-ROM technology goes some way toward answering the need for structure and consistency in electronic products, but suffers from the same disadvantage as the Web in that one needs a technological product to make use of the disks.

It has been the global uniformity and long-term consistency of the book and journal culture that has permitted the growth of the global knowledge framework. With everything in a constant state of flux, with websites appearing and disappearing daily, how is there to be a continuing accumulation of knowledge? The whole point of books is to make a case, and present a thesis, with carefully selected data and argument (and to serve as an archive of all of this for the future). I have never yet met a student who did not need this kind of guidance, either in the classroom or in assigned reading. In my experience, even advanced undergraduate students in earth sciences cannot construct a worthwhile term paper without some hints as to possible theses and likely sources. So let's hear it for books (and royalties, thereof, of course).

I remain a skeptic about the coming brave new world. Maybe I should write another book about it.

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