

The Amateur Professor

I am an amateur professor. That statement, coming from a tenured faculty member at a major state university, may sound like an oxymoron. Yet there is no contradiction if the word “amateur” is interpreted in the sense of its Latin root *amator* (lover). Most of my “professional” activities are tasks that I do for the love of the endeavor rather than because they are an assigned part of my job.

Administrators who view the modern university as a business venture would no doubt be shocked to learn that I have spent half an hour revising the wording of a single sentence while drafting a research paper; that I have invested the time to compose a crossword puzzle for an advanced calculus class; that I have written a referee’s report so detailed that it numbered half as many pages as the manuscript under review. Although an efficiency expert would not approve of such activities, an amateur does them for love of the future readers of the research article, for love of the students, for love of a beginning colleague struggling with the challenges of mathematical exposition.

Unlike me, my wife is a professional. In her role as a nurse practitioner, she has a license, a written job description, a specific requirement for continuing education to maintain her certification, protocols governing the services that she provides, and an annual evaluation of the strengths and weaknesses of her performance of assigned duties. In contrast, I have had little formal training for most of the things I do professionally and even less oversight of how I do them. The state legislature thinks that my main function at the university is teaching, yet I have never had formal instruction in how to organize a syllabus, or select a textbook, or compose an examination, or lecture to a class. Nor have I been taught how to write a review, present a seminar talk, run a committee meeting, prepare a grant proposal, or mentor a graduate student. I am an amateur professor.

And I hope that many of my colleagues too are amateurs—lovers—of their work. History suggests, however, that exhortations to love one’s fellow human beings are ineffective unless accompanied by prescribed standards of behavior. I find it puzzling that we mathematicians have formulated few standards for our profession.

Teaching, for example, is a major part of the job of most mathematicians based at universities, yet there is no widely understood and generally accepted characterization of good teaching. Although the theory of mathematics pedagogy has been discussed at least since the time of Socrates, today one finds among mathematicians little agreement about what to teach or how to teach it. Indeed, the second edition of Steven G. Krantz’s book *How to Teach Mathematics* contains a lengthy appendix in which other mathematicians express disparate views. Concerning mathematics education at the elementary level, the National

Council of Teachers of Mathematics issued in 2000 the *Principles and Standards for School Mathematics*, but this document has not been enthusiastically endorsed by research mathematicians (see the October 2000 issue of *Notices*, pages 1072–9, for four reactions to the document).

Nor is there agreement about how to measure the success of a mathematics teacher. The only widely adopted mechanism for evaluating teaching is to survey students’ feelings about the instructor on a five-point scale. Although this method pleases administrators, faculty wonder what the numbers measure. Indeed, my own mathematics department switched to a free-response student opinionnaire after an internal study showed that students’ numerical responses had no statistical significance. Despite a dearth of supporting documentation about the quality of teaching, each year we happily nominate candidates for teaching awards. Apparently good teaching, like beauty, is in the eye of the beholder.

Although technical writing, like teaching, is another primary activity of many mathematicians, the principles of good mathematical exposition are rarely made explicit. Being comfortable with the idea of abstract definitions, mathematicians should have no difficulty assimilating the arbitrary rules of English grammar and composition. The subtler issues of understanding the target audience, organizing the material, choosing appropriate notation, finding the proper level of generality, and so forth, need repeated explication. Yet one finds in the AMS online bookstore more items about the technicalities of typesetting equations than books about how to write mathematics well.

There are promising indications that the leaders of the mathematics community recognize the need of our profession for standards in all aspects of our work. In 1995, for example, the AMS Council endorsed a set of ethical guidelines (reprinted in the June/July 2002 issue, pages 706–7). This year, the International Mathematical Union endorsed a set of best current practices for the electronic communication of information (see the September 2002 issue, pages 922–5). May this trend continue in which designated authorities issue formal recommendations, and may the members of the mathematics community follow the lead.

—Harold P. Boas
Editor

Letters to the Editor

André Bloch

Isn't it ironic that diametrically opposite the letter to the editor "A Beautiful Mind" (June/July 2002 issue) warning of the danger that the lay person would confuse schizophrenia with "the mind of a mathematician", the technical article "Singular Surfaces and Meromorphic Functions" mentions A. Bloch, a mathematician confined to a lunatic asylum for killing three relatives? What I find interesting is that many complex function theorists who were so very careful about their epsilons and deltas reported vastly divergent versions of the story ("Beauty and the Beast: The Strange Case of André Bloch", *The Mathematical Intelligencer* 7 (1985), no. 4, 36–8).

It is amusing that one of them was George Pólya, who wrote the famous book *How to Solve It*. Incidentally Pólya actually collaborated with Bloch on a paper.

—George DeRise
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Commutative Diagrams in the Fine Arts

The pages of the *Notices* are precious in the sense that they are rare space for the discussion of mathematical activities which are conducted at an unusually high level of endeavor, not in the sense that they should be filled with precious articles such as Karl Heinrich Hofmann's "Commutative Diagrams in the Fine Arts" (June/July 2002).

There is a strong technical argument that commutative diagrams are as inherently obfuscatory as the heavy sub- and superscripting in classical differential geometry, but their use originated in a creditable intention to clarify some things. Contrary to this objective, Bernar Venet's graphical art, far from bridging the moat between the paying public and the stratospheric spires of formal mathematics, exploits the public's ignorance of mathematics to achieve its

effects. That is, the public is invited to enjoy a feeling of unmitigated amazement that, of all the possible ornate squiggles which might appear on a wall, these particular ones happened to occur, and this in an age when the most successful business on the internet seems to be pornography.

Commutative diagrams may indeed provide fine examples of the typographer's art, but any claim that they convey to the uninitiated an appreciation of mathematical elegance is as preposterous as the notion that they are erotic. And, in fact, as Hofmann almost admits, they are far from perfect for the mathematical ends that they purport to serve. If the editors of the *Notices* wish to fulfill their manifest duties to their professional constituency in some regard that relates to commutative diagrams, the editors might consider devoting a portion of the *Notices* to material on the origins, current status, and prospects of abstract category theory, with an emphasis on the evolution (if there has been any) on the attitudes of working mathematicians toward this field. In fact, it would be useful to see a survey of not only the mathematics research community, but of computer scientists and mathematical modelers.

In other words, let's get back to work.

—Pat Donaly
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About the Cover

The cover image shows a colorful pile of cooked crabs, a regional dining favorite in Baltimore, Maryland. Baltimore is the site of the 2003 Joint Mathematics Meetings, January 15–18, 2003.

Cover photograph courtesy of the Baltimore Area Convention & Visitors Association.



The *Notices* invites readers to submit letters and opinion pieces on topics related to mathematics. Electronic submissions are preferred (notices-letters@ams.org; see the masthead for postal mail addresses). Opinion pieces are usually one printed page in length (about 800 words). Letters are normally less than one page long, and shorter letters are preferred.