

Mathematics and the Public

Like most U.S. states, Oklahoma, where I live, allows car owners to purchase license plates for their vehicles with alphanumeric strings selected by the purchaser, provided, of course, that no one else has ordered the same string. Mine says "GALOIS". I like to joke that this makes me the only licensed Galois theorist in the state. (For the record, I note that character limits precluded ordering a plate saying "Differential Galois Theorist".) Most people who read or have to record my car tag, such as tow truck operators or highway patrol officers, do so without comment or even accurate pronunciation. But on occasion it does provoke welcome conversation. For example, a fellow customer stopped me recently in the parking garage of an upscale Dallas shopping center to inquire if I knew that the name on my license plate was that of a famous mathematician. This fellow turned out to be a computer engineer with a mathematics background, and a pleasant chat ensued.

I would contrast that encounter with the typical exchange one often has with strangers when it comes up that one is a mathematician. We are so commonly told in these situations that our interlocutors are functionally innumerate ("I can't even balance my checkbook," for example) that we tend to miss the force of that admission. Presumably the same individuals are not going to tell newly met English professors that they "can't even read a newspaper" or make similar confessions of functional illiteracy.

In fact they are no more likely to be innumerate than illiterate. One reasonable explanation goes as follows: the general public in the United States, because of their school experience, tends to identify mathematics with arithmetic computation and therefore to assume that what mathematicians do is some elaborate and high-powered form of arithmetic computation. Thus their polite denigration of their own arithmetic skills via clearly false claims of incompetence should be instead viewed as compliments being paid to the putative vastly superior arithmetic skills of mathematicians.

Presumably all mathematicians agree that this social convention is a pity. But suppose our casual conversation partners spoke directly from their assumptions, not mentioning the unbalanced checkbook but saying something like "So you're a mathematician. I'll bet you're really great at dividing fractions (or long division, or mental multiplication of multidigit numbers)". Whether your answer would be yes or no, what one would really like is to explain some of what mathematics really is and some of what mathematicians do.

A lay explanation of the latter is the subject of a communication in this issue by Martin Krieger ("Some of what

mathematicians do", p. 1226). This is a bit of a departure from our standard expository mathematical articles. Members of the American Mathematical Society certainly know what mathematics is and what mathematicians do. Our information for authors of *Notices* mathematics articles instructs that "all [Notices] readers may be assumed to be interested in mathematics research". But larger publics have been considered as well: when the transition to the current *Notices* format was under discussion a decade ago, there was even thought of possible newsstand sales.

The *Notices* will not be trying that any time in the near future. But we will occasionally try to have articles that can be a resource for mathematicians who want to explain what they do to the general public.

Professor Krieger's article is drawn from his recent book, *Doing Mathematics* (World Scientific, 2003), written for a general audience. As the proliferation of titles in your local general bookstore reveals, publishers believe there is a substantial market for books about mathematics for the lay reader. The *Notices* reviews a few of these, and we try to keep mathematicians informed about a somewhat larger number in our Book List section. We do not list research monographs or textbooks, but rather books that have potential to appeal to the general public, as well as to mathematicians. We remind readers that there is no implicit or explicit endorsement when a book is put into the Book List. Its purpose is not to recommend books but to give an overview of what's currently "out there" in the way of popular books on mathematics. As with the rest of the *Notices*, readers' suggestions for the Book List are welcome.

Finally, I noted above the misunderstanding of the nature of the mathematical enterprise that may be the unwelcome result of the American school mathematics curriculum. As Lynn Steen pointed out in this space last month ("How Mathematicians Can Contribute to K-12 Education"), there are ways mathematicians can help improve this situation. Some mathematicians have been doing this over the years. Future *Notices* articles will report on their experiences and successes. Readers who would like to share their personal stories as mathematicians involved in K-12 education are invited to submit brief accounts for this series.

—Andy Magid

Letters to the Editor

Reply to Hastrev

In response to Professor Hastrev's letter about "Mathematicians and Mathematics Educators Must Be Political!" (*Notices*, June/July 2004, page 607), there is a definite need for mathematical people to support political advocacy for mathematics education regardless of the No Child Left Behind Act. I do advocate for NCTM's [National Council of Teachers of Mathematics] program for advocacy and no other, because I am not aware of another mathematics organization having such a program. Note that the program is not specific to NCTM but is a program that could be embraced by other organizations and by the entire mathematics community.

Though there are threats to mathematics, I sincerely hope that we have not reached the ultimate threat he suggested. If we are and there is a slippery slope, I do not believe that it is one I described. In addition, Professor Hastrev chose to separate mathematics and mathematics education; it is more likely that this continued separation may be an ultimate threat. Virtually no one outside the mathematics community either knows about or understands this separation; perhaps we would all be better off if this particular sea were allowed to close.

Finally, effective advocacy is much more than helping to increase funding for various mathematics efforts. It's educating policymakers, proving us expert and valuable contributors to the process, earning credibility as expert resources, and more. Many efforts cannot be made without funding, but I did not imply that more money was the answer to all issues surrounding mathematics.

As to the boycott suggested by Professor Hastrev, whether I agree or disagree is irrelevant to political advocacy.

—Johnny W. Lott
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Reply to Bharali

My thanks to Gautam Bharali for his question, as well as for his undeserved compliment (*Notices*, October 2004, page 1022). Though I would hate to believe Mr. Chicken was purely a fictional creation, it is indeed hard not to see him as an avatar of the animal discussed by Russell in the following passage:

"The man who has fed the chicken every day throughout its life at last wrings its neck instead, showing that more refined views as to the uniformity of nature would have been useful to the chicken."

(B. Russell, *The Problems of Philosophy*, 1912, paperback edition of 1977, Oxford University Press, p. 63.)

My review didn't mention this parable (nor the chicken's more recent, and mysterious, incarnation in the literature as an "inductivist turkey") for the simple reason that I was unaware of it before reading Bharali's letter. Which goes to show that one should be no less wary of mathematicians writing about philosophy than of novelists writing about mathematics.

—Michael Harris
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Revive the Queries Column

In the 1970s and 1980s the *Notices* carried a regular column called Queries, which ran a page or a page and a half. Its long-time editor, Hans Samelson, introduced each column with the statement:

"QUESTIONS ARE WELCOMED from AMS members regarding mathematical matters such as details of, or references to vaguely remembered theorems, sources of exposition of folk theorems, or the state of current knowledge concerning published or unpublished conjectures...REPLIES from readers will, when appropriate, be edited into a composite answer and published in a subsequent column. All answers received will be forwarded to the questioner."

Since the column's demise, we have the Internet and a new generation of mathematicians. From time to time, a question arises and we know that the answer—or enlightenment—is "out there"—somewhere, but where? and to whom do we write? The Internet sometimes helps, but not as directly or fully as would a column designed for such questions.

I write to ask if the editor and the readership of the *Notices* would be interested in reviving a Queries column.

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