

Ten Years of the “New” *Notices*

Ten years ago, the Society completely redesigned the *Notices of the AMS*. This redesign touched on nearly all aspects of the publication, including content, editorial oversight, appearance, and production method. It was an enormous change, requiring a great deal of effort on the part of staff and member volunteers. The main motivation was the desire to bring to members high-quality expositions about the frontiers of mathematical research. To achieve this goal, the *Notices* needed at the helm a research mathematician with wide interests and a keen talent for expository writing. Since the appearance of the newly redesigned *Notices* in 1995, there has been a succession of four different editors, each of whom brought in fresh ideas and new perspectives. The tenth anniversary of the “new” *Notices* provides a good occasion to take a look back, through the observations of former editors, on how the *Notices* has developed.

The *Notices* was launched in 1954 as a spinoff from the *Bulletin*, which was the Society’s original member publication. Today all members receive both the *Bulletin* and the *Notices*, as well as the *AMS Member Newsletter*. Originally the *Notices* was intended as a vehicle for routine material that had been appearing in the *Bulletin*, such as announcements of meetings and news about AMS activities. Because official reports about Society activities were also shifted to the *Notices*, it became the journal of record of the AMS. But in addition to carrying routine material, the *Notices* became a place in which mathematicians could discuss issues facing the community, such as difficulties in the job market, policies about federal funding for mathematics, and problems in mathematics education. The *Notices* editor was one of the associate executive directors on staff in the Providence headquarters office. There was also an editorial board, which dealt mostly with letters to the editor.

During the 1980s, the *Notices* initiated a series of so-called “Special Articles”, with Ronald Graham as editor; later on Jeffrey Lagarias took over. These were expository mathematical articles, and the series featured some real gems. But it appeared only occasionally and was never really a central feature of the publication. Also in the 1980s, the design of the *Notices* was updated, with a larger page size and a few modest graphic elements. At the time, the *Notices* was produced in TeX, which made for excellent typesetting of mathematics but which did not allow easy inclusion of illustrations, photographs, or graphic design elements.

In focus groups held at AMS meetings in the early 1990s, one message came across loud and clear: members wanted to know more about what was going on in mathematics research. There are plenty of venues for experts to communicate with each other. What was lacking was a place for articles that would describe current developments in a way that could be read by a broad audience of mathematicians. Subsequently, the AMS assembled an ad hoc committee to review AMS member publications, and this committee concluded that the *Notices* should be revamped and that in particular it should include in each issue some expository articles about mathematics. Soon the plans grew to encompass the design of the publication and its editorial oversight.

From the beginning, the aim was to publish articles that would emphasize accessibility and the “big picture” over rigor and technical precision. “The committee fully realized that it was going to be difficult to get researchers to write in this style,” noted Hugo Rossi of the Mathematical Sciences Research Institute in Berkeley, who chaired the committee and became the first editor of the “new” *Notices*. “I had once asked a colloquium speaker, who had provided an entrancing stroll through the ideas and motivations in a piece of current

research, to write an article like that. The response was, 'I'd never put that nonsense in print!' The challenge was to get authors to agree to try to write such articles and then to "work with them in the fight against mathematical rigor".

The first issue of the "new" *Notices*, the January 1995 issue, was emblematic of the changes being made, as well as of the traditions being preserved. The "old" *Notices* had carried obituaries, and the first "new" issue carried a long and loving tribute to the memory of Lipman Bers. The first page of that article featured a graphic that was unthinkable in the old format: the text is superimposed on a screened photo of Bers, his arms outstretched in a characteristically welcoming pose. The January 1995 issue also carried "Symmetry and Tilings", by Charles Radin of the University of Texas at Austin, an article whose low-tech approach and illustrative graphics set the tone for the kind of exposition the *Notices* aimed to present. To produce sophisticated layouts like those featured in this first issue, the *Notices* production was shifted from $\text{T}_{\text{E}}\text{X}$ to QuarkXPress, a software package used widely in magazine publishing. That first "new" *Notices* issue also carried on the tradition of presenting opinions about issues facing the community, with a pair of articles giving opposing views on the desirability of the transformation of the mathematical literature from paper to electronic media. Also with this first issue of 1995, the *Notices* went up on the World Wide Web.

The biggest challenge for the "new" *Notices* has been getting mathematics articles. Very few suitable ones come in "over the transom". "Probably many *Notices* readers, if they think about it at all, assume that the editor has ten or twenty articles in hand all the time, all sent by eager authors, and he just has to pick one or two or three to publish," said Anthony W. Knapp of the State University of New York at Stony Brook, who succeeded Rossi as *Notices* editor. "Not at all! Getting publishable articles is harder than pulling teeth. The usual backlog is zero. Ninety per cent of the mathematics articles that got published when I was editor were invited, and for many of them the author had to be coaxed and recoaxed to send in some kind of draft."

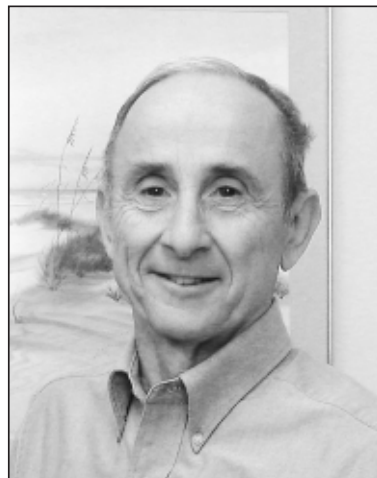
All four editors have spent many nail-biting hours on the effort to get enough good material. The ideal is to have the *Notices* carry articles across a wide spectrum of mathematical areas. But most often the editors had to sacrifice such ideals and go with the articles in hand. "Apparently the new *Notices* has too short a history for readers to have deduced what kinds of material the *Notices* wants," observed Harold Boas of Texas A&M University, whose term as *Notices* editor came after Knapp's. "Consequently, the absence of an article on a particular subject rarely reflects a lack of interest on

the part of the editorial board. More likely such a lacuna indicates that the editor has been unsuccessful in convincing a leader in the field to contribute an article."

The editor also spends a good deal of time on editing manuscripts. This task is aided greatly by the *Notices* Editorial Board (NEBO). In addition to providing specific comments on the articles that come in, NEBO suggests possible authors for articles, provides advice to the editor, and generally acts as a sounding board. Usually each article gets a close reading by the editor and by one or two NEBO members, and sometimes outside referees are used. *Notices* authors are instructed to aim for a target audience of at least 5,000 readers, or about one-sixth of the AMS membership. This means that any given article will likely be hard for most readers to understand. The editor's job is then to work with the author to bring down the technical level as much as possible without sacrificing substance. It's a tough balancing act. "The *Notices* aims to convey what is happening at the frontiers of research, and it is not feasible to explain in a short article the work of, for example, the recent Fields Medalist Voevodsky without assuming substantial technical background," noted Boas. "The editor and the editorial board do, however, work hard to make the mathematics articles accessible and inviting to as large an audience as possible."

Mathematicians are accustomed to reports from referees that say very little, and many who have written for the *Notices* have been surprised at the intensive editing process.

"Sometimes I would completely rewrite a section and send the revision to the author with the query: 'Does this say the same thing as your version?'" Rossi recalled. "The answer usually was, 'yes, thanks,' but sometimes it was, 'No! You've omitted the hypothesis of lower semicontinuity at a denumerable number of points,' in which case I'd simply say, 'I see you agree that my version is the better one.'" The editors have had many such arguments with authors, nearly all of which were



Hugo Rossi



Anthony Knapp

successfully resolved, resulting in greatly improved exposition. Knapp remembered that sometimes



Harold Boas

the changes he suggested to authors were “pretty radical”, involving chopping out a whole section or changing the emphasis of the article. “Some authors were enraged by the suggestions and just went away mad,” he said. “Most were receptive and even appreciative; they really did want their articles to be read, and they trusted the combined reactions that they were receiving” from the editor and the editorial board.

All four editors have a love of excellent expository writing, so despite the huge amount of effort in securing and editing manuscripts, they very much enjoyed the work. “During my term as editor, I carefully read and edited all of the mathematics articles,” Boas said. “This was great fun, because it entailed becoming expert enough about the subject of each article to be able to make coherent comments on the mathematics.” Of his work on mathematical articles for the *Notices*, Rossi said, “this most difficult challenge was also the most satisfying work I’ve done in the past few decades, and most rewarding.” Many authors have found that

their *Notices* articles have generated much more attention and have been much more widely read than any of their research articles.

The Society’s commitment to promoting expository writing about mathematics is expressed in the establishment in 2001 of the Levi L. Conant Prize. This \$1,000 prize is awarded annually to recognize an outstanding expository paper published in either the *Notices* or the *Bulletin* in the preceding five years. Three *Notices* articles have been recognized with this prize: “A Tale of Two Sieves”, by Carl Pomerance (December 1996); “A Guide to Entropy and the Second Law of Thermodynamics”, by Elliott Lieb and Jakob Yngvason (May 1998); and “Lattices, Linear Codes, and Invariants”, by Noam D. Elkies (November and December 2000).

Although the mathematics articles take up a large portion of the work of the *Notices* editor,



Andy Magid

they are not the only responsibility. In fact, the *Notices* editor is responsible for everything except certain routine features, meetings announcements, advertising, and two sections containing Society news and reports (“Inside the AMS” and “From the AMS Secretary”). Book reviews, opinion columns, letters to the editor, articles about the profession and education—all such material is within the editor’s domain. Assembling each issue so that it has a good mix of material to appeal to a wide range of readers is the ultimate goal.

The editor enjoys a good deal of independence and freedom in deciding what to publish. “The AMS was extremely supportive of the experiment [of the “new” *Notices*], and never imposed, or even suggested, any editorial constraints,” Rossi noted. At the same time, the fact that the *Notices* is what he called a “bipolar magazine”—meaning that it is simultaneously the AMS journal of record and an independently edited publication—sometimes caused misunderstandings. “I wrote many letters attempting to calm an outraged reader: ‘No, the views of that letter are not those of the AMS’... ‘No, in publishing that article, the AMS is not endorsing any particular medical diagnosis’.”

With a circulation of around 30,000, the *Notices* is one of the most widely read mathematical periodicals and may be found in mathematics libraries all over the world. One would not expect it to be read much outside of the mathematical community, but there have been indications that more people read the *Notices* than one might expect. For example, Dave Bayer of Barnard College was asked to be the mathematics consultant for the movie *A Beautiful Mind* after director Ron Howard read Bayer’s review of the play *Proof* in the *Notices* (October 2000 issue). Another article that picked up notice was a sidebar called “My Career in the Movies”, by Daniel J. Kleitman of the Massachusetts Institute of Technology. The sidebar accompanied a review, by Mark Saul of the Bronx High School of Science, of the film *Good Will Hunting*. In the sidebar, Kleitman recounted how he spent an hour or two with the film’s creators, who hoped to bring some mathematical authenticity to the film, and how, as a reward, he was invited to be an extra in the movie. A Minneapolis newspaper asked to reprint the sidebar, then a radio station interviewed Kleitman, then a couple of reporters contacted him, including one in Japan. All of this occurred during the season of Academy Awards. Said Kleitman, “Since I had advised on the screenplay and it won the Oscar, I decided that my movie career had peaked and I had better retire from it.”

In another case, Donald Saari of the University of California at Irvine wrote an article about mathematical economics (“Mathematical Complexity of Simple Economics”, February 1995). The article shows that, contrary to the received wisdom of

the “invisible hand”, which is supposed to guide economies to stable equilibria, chaotic dynamics abound in even simple models of economic systems. The article appeared around the time of a major financial crisis in Mexico. The Mexican president at the time, Ernesto Zedillo, an economist, initiated a package of reforms that relied on the “invisible hand” of the free market. Saari’s article stirred a good deal of debate in government and academic circles in Mexico, and he was invited to give a major address at a meeting of economists and mathematicians in Mexico City.

The Committee on Publications carries out periodic assessments of all AMS publications, including the *Notices*. One of the big challenges identified for the *Notices* is the need to reach out to new generations of readers, particularly graduate students. One effort in this direction is the “WHAT IS...?” column, which was established in 2002 and which provides brief, nontechnical descriptions of mathematical objects in use in current research. The hope is that each column, by focusing narrowly on a single object, will give readers a flavor of a topic of current mathematical research. “The *Notices* will continue to work on ways to reach out to graduate students,” said current editor Andy Magid of the University of Oklahoma. “We welcome suggestions from readers on this or any other aspect of the *Notices*.”

As a field of research, a scholarly endeavor, and a profession, mathematics is becoming increasingly diverse and ever more international. Organizations like the AMS draw this diverse community together, promoting understanding of differences and highlighting common interests. One of the goals of the *Notices* is to help in this endeavor. As Knapp put it, “My hope when I was editor and my continuing hope is that the *Notices* helps to bring the mathematics community together—that mathematicians are able to get some feeling for what is happening in fields outside their own, that mathematicians and educators are able to understand and appreciate each other’s point of view, and that everyone is made aware of current professional issues and the range of positions about them that people have.” This is a worthy aim for the “new” *Notices* as it enters its second decade.

—Allyn Jackson