

An Interview with Immediate Past President Kenneth A. Ribet

Evelyn Lamb

Every other year, when a new AMS president takes office, the *Notices* publishes interviews with the outgoing and incoming presidents. What follows is an edited version of an interview with Kenneth A. Ribet, whose two-year term as president ended on January 31, 2019. Ribet is a professor of mathematics at the University of California, Berkeley. The interview was conducted in fall 2018 by freelance writer Evelyn Lamb.

An interview with incoming president Jill C. Pipher will appear in the April 2019 issue of the *Notices*.



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Notices: I'd like to start with something that I think is on the minds of a lot of people, which is how the US political situation in the past few years has affected mathematics and the AMS.

Ribet: Many of Trump's actions have been harmful to science and mathematics. My very first act when I was becoming President of the AMS was to draft a statement protesting Trump's travel ban and explaining its impact on the mathematical community.

Actions like that by the President of the United States have forced the AMS, through its officers, to make political statements, whereas in the past, this was almost never necessary. Some AMS members are disturbed by this turn of events. Of course, there are many people who are delighted that the AMS, along with other scientific societies in the US, has taken a stand against what the President is doing.

Fortunately, the US Congress has been a lot more sympathetic to scientific research than the White House. Proposals by the White House to drastically cut budgets of the National Science Foundation and other agencies that fund mathematics were ignored by Congress.

Notices: What role do you feel the AMS should take in protecting mathematicians who are affected by things like the travel ban, which has targeted researchers from some Muslim-majority countries, or other immigration policies that affect people from, for example, Latin America?

Ribet: I would say that the AMS needs to take global positions against the sort of problems that have befallen

many mathematicians as a result of this administration's policies. When it comes to intervening in individual cases, there is no easy answer. The AMS has intervened in some individual cases in the past; while this can call attention to an individual case, the Society lacks the resources to do much more. Recently, there have been active discussions, starting in the Committee on the Profession and the Committee on Human Rights, as to what the appropriate role of the AMS is in individual cases.

To me, this is really an ongoing question.

Notices: In your interview with the Notices at the beginning of your term as president, you talked about some shifts in the strategic plan of the AMS. Can you talk about what those shifts have been and how the AMS is moving forward in different directions?

Ribet: For one thing, there are new people on the job. Catherine Roberts took over from Donald McClure about six months before I became president. Karen Saxe, who heads the Washington office (now known as the Office of Government Relations) began her work a month before I became president. There's a new Director of Membership, Megan Turcotte, who is trying to revitalize the Society in ways that matter to members.

Beyond personnel changes, the AMS [began a rebranding effort to strengthen our members' and our potential members' understanding of what the AMS does and has to offer to the math community. As part of that rebrand] the AMS also designed an awesome new logo!

Additionally, we launched a major fundraising effort called the Campaign for the Next Generation. It aims to secure a \$3 million endowment that can be used for people early in their careers. So this is a lot of good change that's going on in the AMS.

The Society's 2016–2020 strategic plan calls for us to increase our publishing activity. As a non-profit, the AMS takes the proceeds from our profitable publishing operations, such as MathSciNet®, the academic journals, and the book program, and puts them back into the mathematical profession.

For example, publishing profits subsidize AMS regional conferences, which are extremely popular but expensive to run—registration fees fall short of the cost of running the conference by about \$25 per person on average. This is just one of many ways in which the AMS uses its publishing revenue to support mathematicians.

Recently, the AMS purchased the entire program of books—monographs and textbooks—from the Mathematical Association of America [MAA]. All of the series like the Carus Mathematical Monographs that are associated with the MAA are now [owned] by the AMS. And so in one fell swoop, the AMS has substantially increased its book publishing program.

Notices: Related to the relationship between the AMS and MAA, recently it was announced that in the near future, the Joint Meetings are no longer going to have the same form, where the AMS and MAA jointly organize and fund them. Can you comment at all on that decision, and what, if any, practical effects people will see from that change?

Ribet: Starting in 2022, the MAA will shift a lot of the activities that it has been conducting at the winter meeting, the Joint Mathematics Meetings [JMM], to the summer meeting, MathFest. One thing that has emerged in the comments about this decision is that AMS members who think of themselves as primarily research mathematicians love going to the JMM in order to attend both research talks and talks about teaching. The aggregate AMS–MAA community at JMM has always been really great. I think what is likely to happen is that the AMS will start organizing special sessions that are analogs of the special sessions that the MAA is now thinking of moving to the summer. The footprint of the AMS will change a little bit, that we will start being more explicit, for example, about our commitment to undergraduate education. This was always part of the AMS, but the organization of those activities at the JMM was done by the MAA, and I think the AMS will step in.

Another interesting theme from the comments about the change is that many MAA members feel that the employment services at the JMM—and those are run completely by the AMS—were a very important reason for their attendance at JMM. Perhaps this will inspire MAA members to continue attending JMM, and it is the job of the AMS to make them feel at home.

I should add that there are a number of other organizations that participate in JMM. There are a number of other organizations, including the Association for Women in Mathematics and the Society for Industrial and Applied Mathematics, that are partners in JMM. A likely scenario is that those other organizations will start being more active in JMM as the MAA shifts its focus to the summer meeting.

Notices: It seems like publishing is still exploding, as it has been for a while. There is more and more information that researchers are trying to take in, and more and more demands on them for refereeing and so on. A lot of new open access journals are starting, debates about publishing with companies like Elsevier are continuing. What do you see as the future of publishing in mathematics?

Ribet: There are lots of things going on. Open Access is certainly one of them. The exploding mathematical literature is another. The question of how long people are going to be walking around with physical books, as opposed to tablets, these are all questions in real flux. Mathematicians tends to be more conservative than people in some other sciences. For example, if you have a publisher like Springer, which

is publishing in medicine and all across the sciences, from that broad perspective, they see virtually no demand for printed books. But you go in the mathematical community, and people really like to browse through books on paper.

Optimally, what people would like is the hard copy that they can keep open and refer to while they're working and a soft copy they can use for searching. In the near term, the future will probably be that people will buy a bundle consisting of paper and PDF so that they can have access to both depending on what they want to do.

The Society began to prepare for open access five or six years ago by creating open access partners to the *Proceedings of the AMS* and the *Transactions of the AMS*, and we still anticipate that there will be a big demand for publishing in open access journals. But at least in the United States, so far, that hasn't exactly materialized. People are still publishing in journals that are behind paywalls, at least for a year, and at the same time, they're putting up their final version on arXiv and on their webpages. In practical terms, this gives everyone access to the content and still keeps the publishers happy that they have some special product that they're charging access for, for some limited embargo period.

Notices: Another thing you talked about in your previous interview was the increasing visibility of math popularization and news stories about math. Do you feel like that's still continuing? How do you think controversies, such as the status of the ABC conjecture, have played to the larger science news consuming public?

Ribet: Oh, I think they're wonderful. There is more and more interest in mathematics matched with a just-as-rapid increase in the ways mathematics can be accessed. It's just astonishing how many views a Numberphile video gets, almost as soon as it's published. The *Hidden Figures* book and movie drew a tremendous amount of attention to mathematics. There was a lot of media attention on the Fields Medals when they were awarded in August. There is a lot of hunger for high-level mathematics from people kind of interested in mathematics but who are not professional mathematicians.

I think it's good for the general public to see how mathematicians struggle and how progress is incremental, how people attempt things and consult with their colleagues and learn that their proposed proof might not be correct. But on the other hand, incorrect proofs often contain interesting ideas that turn out to be useful later on for a correct proof or in different contexts.

Notices: What do you see as some of the big challenges to the mathematical profession right now?

Ribet: The one that comes to mind is the increased focus on hiring people in research departments whose primary function is going to be teaching. They are often called lecturers, though other titles are used at different universities. Many lecturers were trained in research, and they are part of research departments, but they might be devoting most of their time to teaching large calculus or pre-calculus courses. An important challenge to the society is how to serve this large community, this increasing community, that was not part of the mathematics profession before.

Notices: And some of this might be related to the job market, which has not completely recovered after the economic downturn. Can you talk a little bit about what you see as the challenges of the job market and how that will shape the profession?

Ribet: The obvious answer is what Mark Green has called the mathematical diaspora—having mathematicians spread across areas that are not pure academic mathematics. It's completely obvious that the majority of people who are now training in graduate programs in mathematics, 10 years from now, 15 years from now, will not have positions as professors of mathematics in academic institutions. A lot of them were going to be working in the BIG area, B-I-G for business, industry and government.

Some will be working for the NSA [National Security Agency]; some will be working in biotech; some will be working for insurance companies. There is a great deal of demand for hiring people with mathematical skills, especially if they include programming, statistics, and probability or machine learning.

There's a tremendous difference between the culture and expectations in mathematics and in neighboring subjects, like statistics and computer science. At Berkeley, at least, from day one, many graduate students in statistics are aiming to work in Silicon Valley as soon as they get their PhDs. They're not thinking about academic jobs. The same is true in computer science. But in mathematics, students still seem to be motivated by the idea that they're going to work in the "Ivory tower." What is beginning to happen is that after an initial post-PhD academic position, mathematicians realize that there are so many opportunities outside the university: they can live in an exciting geographic area, increase their salaries, and have fun if they are willing to expand their mindset to be more aligned with their colleagues in statistics and computer science. I believe that graduate programs will start offering resources to students who want to think in that direction before getting their PhDs so they can get a little bit of training as part of their PhD program that will help them if they look for non-academic jobs.

Notices: Do you think the AMS is responding to this change in the proportion of people who get PhDs who continue in the academic career path?

Ribet: The AMS is certainly aware of this trend, that people are moving outside academia.

The Society is prodding departments to start offering resources to such students when they are training for non-academic careers. Of course, the AMS wants to serve these mathematicians once they go into industry. The membership department understands that mathematicians who joined the AMS as graduate students will stay as members and contribute to the Society if the Society continues to provide a good community and relevant support.

Notices: Is there something you've been most proud of about your work for the AMS for the past two years?

Ribet: A little known responsibility of the AMS President is to name mathematicians to committees. The AMS has binders full of committees, scores of committees, and every year, there's a meeting of the Committee on Committees. They spend several hours going through every committee in the binders and generate a list of credible candidates to appoint. After that session, the President, the Secretary, and other people from the secretariat office make the final selections. I'm really proud of the large number of committees that I've done a good job of populating well. In making these selections, I've thought about diversity of many kinds: ethnic diversity, gender diversity, small institutions, large institutions, teaching institutions, research institutions, geographic distribution. People I've selected for the committees have been delighted to serve and have done fantastic jobs.

A frequent response to an AMS invitation to join a committee is "It will be an honor to serve." The AMS committees have made vast contributions to the mathematical profession.

Notices: Is there anything else that you wanted to talk about, related to the future of mathematics or the AMS?

Ribet: I am just amazed by the large organization that is the AMS. The AMS includes over 200 staff members working in four different locations. I'm overwhelmed by the breadth of activities and the dedication and expertise of the staff, who work behind the scenes to produce AMS publications, run meetings and conferences, and provide essential services to the mathematics community.

Notices: Finally, in your previous interview, you mentioned that you are quite the oenophile. Is there a special bottle of wine that you've been saving to celebrate the end of your term as president?

Ribet: What an interesting question! I have a couple of bottles that are really ready for some special occasion. One of them is an apparently very expensive bottle of pinot noir that one of my wife's colleagues gave us about two years ago. It's getting to be time to drink it. Another is a strange bottle of Bordeaux from 1961 that I bought at the end of my first year in Paris, in 1976. I'm very curious to see what that wine is like. It may just be complete vinegar by this point, but 1961 was one of the absolute great vintages of the 20th century, and there have only been a couple of times in my life that I have had the opportunity to taste 1961s.

Notices: Thanks for taking the time to talk with me.

Ribet: Thank you.



Evelyn Lamb

Credits

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