

## The 2015 American Mathematical Society Dinner

# CELEBRATING CONNECTION & COLLABORATION

*Joint Mathematics Meetings – January 13, 2015*

### **We Are the AMS Today and 25 Years from Now**

*Remarks by AMS President David Vogan at the  
AMS Dinner held at the 2014 Joint Mathematics Meetings*



My name is David Vogan. I am, for the next four hundred and thirty-five hours, the President of the AMS. That's a job that has occasional moments of pure fun, like tonight (not sure when I decided that anything requiring a jacket and tie could be "pure fun," but somehow I've gotten into that state). The actual *work* of being President is mostly about listening to other people. I'd like you to look now at some of the people that I have been listening to.

Raise your hand if you have served on an AMS committee, or reviewed a publication for Math Reviews, or given a talk at an AMS meeting, or have been a member of the AMS for more than ten years.

Each of you has helped to steer the AMS—to steer all of mathematics—to where we are today. You're the people that AMS presidents listen to all the time, and I can tell you that doing so is an education, and a privilege, and even a good source of one-liners. You help us to do the old stuff *right*. Thank you for your service and involvement.

Now, raise your hand if you are attending tonight's dinner as a student.

You are the future of mathematics. (How about them apples? And your mother only wanted you to be a dentist!) You will determine where the American Mathematical Society will be twenty-five years from now. You'll show us what the *new* stuff is that we need to do. You're the people that AMS presidents *need* to listen to!

At this point I'm supposed to tell you what mathematics and the AMS are going to look like in twenty-five years. So get ready for a giggle...

The mathematics that I learned from my teachers is not quite the same as the mathematics that I practice, and both of those things are not quite the same as the mathematics that I teach. I hope that you as students will remember all the things that your teachers are now offering to you; but I know that the mathematics

*you* practice, and the mathematics *you* teach, will be something that's different. You'll ask different questions, and sometimes they'll be *better* questions.

When I was a student, the mathematical literature lived in dark and cramped library stacks. You found things using big orange volumes called Mathematical Reviews; you needed reasonably strong arms just to move them around. When you found an article you needed, you borrowed the journal from the library; if the article was worth a serious financial investment, you might make a photocopy of it.

When I was a student, a representation was a Hilbert space carrying linear operators that you could study in functional analysis. (That's not the analysis from Blue Rudin, but some enormous and powerful generalization—actually Green Rudin, but there's no need to go into details.)

The world of cramped stacks and Hilbert space representations doesn't exist anymore, except in the memories of us experienced mathematicians. There aren't any big orange volumes, and there aren't any dark stacks: the mathematical literature lives on the web. To find things, you type a few letters phonetically similar to what you're looking for, and click. If it's an article you need, you look at it on your phone screen; if it's going to be part of your thesis, then the pdf file may go on your laptop.

A representation now is a perverse sheaf. (That's *not* the kind of sheaf I learned about in topology, but some enormous and powerful generalization.)

Literature searches on the web can do everything we used to do with the big orange books, much faster, and that's a good thing; but that's just engineering. What is wonderful is that math on the web makes possible things we never imagined. You know about the arXiv; about Polymath and prime gaps; about the computational power of the Sage project, bringing together the programming insights of dozens or hundreds of people.

On the mathematical side, perverse sheaves answered most of the questions that I learned about as a student, and that's good; but what's wonderful is the entirely new worlds of questions that perverse sheaves have opened up.

That's what I think the future of mathematics, and the future of the AMS, can be like. Sure, we'll be able to enjoy something like tonight's three-hour banquet in a single, incredibly intense, two-minute Twitter feed. But what's most interesting are the questions we can't now ask or imagine. You, the students here tonight, are going to ask those questions.

I can't wait to hear them!