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(Interviewed by T. Christine Stevens)

How did you get involved in the MAA?

As a good citizen of the mathematical community, I was a member of MAA from the beginning of my career. But I worked in an "AMS culture," so I wasn't actively involved in the MAA. As of January, 1983, I had never served on an MAA committee. But I had been Associate Secretary of the AMS from 1971 to 1981, and thus Len Gillman (who was MAA Treasurer at the time) asked me to be MAA Secretary. There was a strong contrast between the cultures of the AMS and the MAA, and my first two years were very hard.

Did you receive mentoring in the MAA at the early stages of your career? From whom?

As a graduate student at the University of Washington, I hadn't even been aware that the department chairman, Carl Allendoerfer, was serving at the time as MAA President. My first mentor in the MAA was Len Gillman, who got me involved with the MAA. Being Secretary and Treasurer, respectively, we consulted a lot, and he was the one who helped me learn the MAA culture. One confession: At that time, approvals for new unbudgeted expenses under $500 were handled by the Secretary, the Treasurer and the Executive Director, Al Wilcox. The requests usually came to me first. Since Len was consistently tough, and Al was a push-over, I would first ask the one whose answer would agree with mine, and then with a 2-0 vote, I didn't have to even bother the other one.

How did you become MAA Secretary?

I was a really good associate secretary of the AMS, and I was talked about as a possible successor to Everett Pitcher as Secretary of the AMS. I'm convinced that Len Gillman thought it would be a coup to get me away from the AMS. I didn't know what a terrible idea it was at the time, because I didn't realize how different the two organizations are. At first, I took the job so seriously that, at the Joint Mathematics Meetings in Anaheim in 1985, I ate only two meals. I almost resigned as MAA Secretary after that meeting, and I had a very apologetic letter of resignation (addressed to President Steen and Treasurer Gillman) on my computer for a month. I never sent the letter, of course, and I am certainly glad that I didn't. Much of the remainder of my career has been intimately connected with the MAA.

What accomplishments as MAA Secretary are you especially pleased with?

My first goal was to get the MAA on an equal standing with the AMS with respect to the Joint Mathematics Meetings. When I became Secretary, the MAA sessions were all scheduled on one day at the end of the meetings, and there was a separate mimeographed program for them. The MAA secretary would arrive a day early and get the program printed. Apparently I was the first one to be bothered by this anomaly. There was no resistance from the AMS, but I had to take the initiative to correct it.

Another issue that I addressed was the way the agenda**s** and minutes of meetings of the MAA Board of Governors were organized. When I became MAA Secretary, the agenda and minutes were just an essay. I asked Henry Alder, the ultimate secretary and the only Secretary Emeritus, for his approval to organize them into sections.

There were other actions that I facilitated, although I didn't take the initiative on them, such as the establishment of the Gung and Hu Award for Distinguished Service to Mathematics. I also suggested that the MAA needed an associate secretary for meetings, and I worked on revising the bylaws, doing single-handedly back then what was recently done by a task force.

What accomplishments as MAA President are you especially pleased with?

I said in advance that my main goal was to do no harm, but I felt that I should have a goal beyond the "greedy" one of becoming President. In fact, the process by which I was nominated was a very awkward one. I was actually a member of the Nominating Committee until Lida Barrett, who wanted to get a candidate with solid math credentials, suggested that I be kicked off, so that I could be nominated. I didn't expect to be elected; in fact, I told people that my chances of winning were 50% or less. I had expected that Doris Schattschneider would be running, but my opponents were Bernie Madison and Ann Watkins.

Here's a goal and something that I did well: I made being MAA President a full-time job. I wasn't a dean or anything. While I was MAA President, I taught one graduate course and communicated with my students by email. My agreement with the class was that, if I liked a student's question and my answer, I would send them to everyone in the class.

Through various contacts, I became aware of how terrible the job market was and how badly applicants were being treated. For example, they weren't getting any responses to their applications, and they had to find out from secretaries about the status of their applications. I became an advocate for treating applicants better, and I gave talks about this issue. One of the people with whom I discussed the job market was Charles Mannix, Jr., who was a recent Ph.D. in applied mathematics from the University of Washington. He and I wrote an article entitled "Myths in Math" that appeared in 1995 in the *Notices of the American Mathematical Society*. In it, we argued that new Ph.D.s in mathematics would continue to find it difficult to get tenure-track positions in academia, and we urged university mathematics departments to adjust their graduate programs accordingly.

Also, I became a charter member of the Young Mathematicians Network, and for many years I was the co-organizer, with Kevin Charlwood, of the YMN/Project NExT Poster Session at the Joint Mathematics Meetings. I also tried to get the AMS to include in the announcements for the Joint Meetings some hotels that offered adequate but inexpensive lodging, but the AMS was reluctant to get into a situation where they might get complaints about sub-standard hotels.

Each month I wrote a one- or two-page report to the Board of Governors about what was going on. Subsequent Presidents haven't kept up this practice.

I really enjoyed the dinners held at the State Department for the USA Mathematical Olympiad winners. But I felt that "the buck stopped" with me, as MAA President. One of the difficult decisions that I had to make was to terminate the newsletter *UME Trends*. Most MAA members were always wonderful to work with, but of course every rule has its exceptions.

I notice that, after you were President, you immediately became chair of the MAA's task force to re-assess the NCTM Standards. How did that happen?

The biggest criticism of the 1989 version of the NCTM Standards was that they didn't involve the full mathematics community. So eighteen organizations were invited to review the second version in a formal way. I found some good people on both the "left" and the "right" about the Standards who agreed to serve on a task force to review the new version, but I couldn't think of who should be the chair. So I conferred with Jerry Alexanderson, the incoming MAA President, and he asked me to be the chair. I thought this was a very important issue, even though, for me, education is a lot like making sausage – I didn't want to see it made.

How well did that go?

Very well, and I was an effective chair, because I didn't have strongly-held opinions. I still see the point of the need for reform, but I also saw the reservations held by the other side. I was proud that I got consensus from the task force, and we avoided minority reports. (Every three months or so, we had to respond to an array of questions from the NCTM.) Hung-Hsi Wu, Debbie Haimo, and Henry Alder were all on the task force, and they were strong enough to balance the larger number of pro-reform members and thus help to forge a consensus. At least two top people in the NCTM said that the MAA's reports were the most valuable ones that they received, precisely because there were no minority reports.

The key players on the task force were Wu, Haimo, Alder, and Jim Leitzel. Susanna Epp and Bob Megginson were very helpful with writing the report. Wu came to respect my ability to re-cast concerns in more civil language. I worked very hard on this task force after being President.

It seems that your goal on the task force was to forge consensus. Why did you yourself have no strong opinions about the NCTM Standards?

My focus was on mathematical research, and I was, at best, an observer on education issues. I did, however, serve on the Advisory Committee for the Core-Plus Mathematics Project, and I worked with them to write something for the *Notices of the AMS*, but the *Notices* wouldn't publish it. At least one mathematician regarded me as a sell-out for working with Core-Plus.

You obviously invested a lot of energy in this task force. Do you think the NCTM Standards were effective?

I didn't follow up. I've heard that the second version is better than the first. I certainly think that we have to teach in a more communicative way than we did when I was a kid. As a child, I certainly didn't understand long division, but I could do it. But now you don't need to do long division that way any more.

Are there any efforts of yours in the MAA that you are disappointed with?

I have a general feeling of lack of follow-through on two or three things. As MAA Secretary, there was so much to learn. At first, it seemed that everyone understood my job better than I did. Steve Maurer, chair of the Committee on the American Mathematics Competitions, was very helpful early on. He just drafted the letters I should write, and I signed them. As President, I did my best, but I could have been more of a leader. I had faith in the finance people, so my involvement with finances was minimal.

One specific disappointment involved the University of Rochester's decision in 1995 to terminate its Ph.D. program in mathematics. I wrote a letter to the university's President, urging him to reconsider this action. But I thought the situation was hopeless. Meanwhile, AMS President Cathleen Morawetz sent a three-member fact-finding committee to the University of Rochester campus. And the AMS President-Elect, Arthur M. Jaffe, lined up support from many scientific leaders. Eventually the decision was reversed, thanks in big part to the AMS's actions. I regret that I failed to see that the situation was *not* hopeless and thus did not do more.

And I had fun as President. Intrinsically, we had a very good relation with the AMS. But, it helps if the MAA President has mathematics credentials.

What changes have you seen in the MAA since you first became involved?

I've already mentioned a lot of the changes. In fact, I helped cause them. In addition, the MAA is certainly a more professionally-run organization, and the finance department is a lot better. When Al Wilcox was Executive Director, the MAA was something of a mom-and-pop operation. I chaired the search committee when Tina Straley was hired

as Executive Director. Two valuable members of that committee were Jerry Porter and Jerry Alexanderson, so I was very quiet during the interview. Near the end, Tina started asking questions, and I could tell from her questions that she would take the job. Then she asked us why she should leave a secure position in Georgia and risk not meeting the challenges at the MAA (this is the sense of her question, not a quote). I was sitting next to her, and I muttered under my breath, "That never stopped you before." Her look indicated that I had hooked her.

Another change is that many research mathematicians have no interest in the MAA. This change was already occurring in 1983-1984. Before 1984, there were five mathematicians who served as MAA President and also as AMS President. Since then, only Ron Graham has served as president of both organizations. There was also a strong representation from the Pacific Northwest Section. Carl Allendoerfer, Victor Klee, Ivan Niven, and I all were MAA Presidents from that Section. Gillman and Klee were my mathematical godfathers.

Describe your activities in your Section.

I've been a good, active member of the Pacific Northwest Section, and I received its Certificate of Meritorious Service in 2001. I was never a Section officer, but I have been the Section archivist for nearly thirty years. Almost thirty years ago, I got four or five boxes of files from the Section Secretary-Treasurer and wrote a history of the Section, which I've been updating annually. Also, over the years, I've been asked for a lot of advice in the Section. If Project NExT hadn't come along, the Section might have died. Right away, the Section's Project NExT Fellows helped organize the Section meetings, and they soon organized the PNW Section NExT.

Have you been active in any mathematics organizations other than the MAA and AMS?

I joined the National Association of Mathematicians (NAM) and the Association for Women in Mathematics (AWM), but I wasn't active in either of them.

You've been retired over ten years. Did you continue teaching after retirement?

The answer is close to "no." As I approached retirement, I gave up teaching graduate courses, since I wasn't accepting Ph.D. students any more, and I volunteered to teach large lecture courses. I retired on February 28, 1999, and I last taught at the University of Oregon in June, 2000. Serendipitously, I received an email around that time from Camille McKayle of the University of the Virgin Islands about a grant for which she was applying. If they got it, then she wanted to invite me down to teach. UVI did get the grant, and I spent four months there in 2000, teaching calculus and an upper-level course on Markov chains and random walks. Through Rick Cleary of Bentley University, I also taught probability for three weeks at a business college in Bahrain, with which Bentley University had an exchange program. I haven't done any teaching since then.

Did you remain active in mathematics and the MAA?

I stay active working with kids and on MAA activities. I particularly enjoy working with the Spectrum book series and *Mathematics Magazine*. Moreover, I've published three or four articles in MAA journals since retirement.

One of your projects in retirement was to publish a book about mathematics and baseball, *A Mathematician at the Ballpark: Odds and Probabilities for Baseball Fans* **(2004). Can you explain how you came to write that book?**

The University of Oregon offers freshman seminars, which are courses for freshmen that are taught by "real professors," and every student gets into some freshman seminar. In my last term teaching at Oregon, I volunteered to teach a course about the statistics and mathematics of baseball.

The students in the class formed a very interesting group. Most of them were rural "jocks" (including one female student) whose real interest was baseball. There was also a black woman from Tanzania who knew nothing at all about baseball. Well before class began, she came and asked me about this problem, and I told her to come back in a week. I bought a book online about baseball that was aimed at 8-12 year olds and gave it to her. Although she read it carefully, there were still some glitches. The book, for example, talked about "bases on balls," so she didn't know what a "walk" was when I mentioned it in class. She did fine, however, and I assigned her the hardest project.

After the course was over, I realized that it would have gone better if I had started with the concept of odds, before covering probability, because the students were already familiar with odds. So I started thinking about writing a book for baseball fans. I didn't want to publish it with a mathematical press, and Don Albers agreed to help me find a publisher. Jim Daniels' wife suggested Pi Press, which was a very tiny part of Pearson that mostly published popular science books. The editor was very helpful, and he even persuaded me to re-write the foreword.

I did eight or nine book-signings. I would start out by saying, "I'm sure you'd like to hear my position on steroids." After a pause, I would declare, "I'm for them and use them myself," and after some laughter I would add, "You should have seen me before!"

Later, the publisher wanted me to write a book about gambling on sports, including horse racing, but I had to decline that invitation. I did, however, collaborate on an appendix about fantasy baseball that was included in the paperback edition of my baseball book.

Do you have any more recent plans that you'd like to share?

At the Joint Mathematics Meetings in January, 2012, I agreed to revise my most successful book, *Elementary Analysis: the Theory of Calculus*." This will be the second edition; the first edition was published in 1980.

What personalities have stood out in the mathematical community, in the MAA and elsewhere?

That's a tough question to answer, because I know so many people. The major influences on me in the MAA were Gillman and Klee. I met Lida Barrett at a colloquium reception at the University of Utah in 1956, and we've been friends ever since. Marcia Sward was extremely helpful, especially when I was MAA President. In fact, so many people were so helpful so often: Lynn Steen, Steve Maurer, Alan Tucker, Don Kreider, Lida Barrett, Debbie Haimo, Jerry Porter, Jerry Alexanderson, Martha Siegel, and many more. The AMS meetings department was great, especially Hope Daly.

Do you have any favorite stories about your activities in MAA?

There are two good stories involving the Olympiad. The 1996 International Mathematical Olympiad was scheduled to be held in Delhi in June, and Walter Mientka was the head of it. The preceding December, I happened to be in India for an unrelated international conference, and I went to Aligarh for a meeting of the Indian Mathematical Society. While I was there, the Secretary of the Indian Mathematical Society told me that she hadn't yet started organizing for the IMO, which was only a few months away. I was horrified that she thought that an Olympiad could be organized in such a short period. So I alerted Mientka to the situation, who checked it out. The result was that the IMO was moved from Delhi to Bombay.

On another occasion, I went to a meeting of the Indiana Section of the MAA, where I met Melanie Wood, who was in the ninth grade at the time. I was really impressed by her love of mathematics. After the meeting, I called Walter Mientka and told him, "I just met the first woman on the U.S. Olympiad team."

A nice statistic involving women in mathematics is that for a short, three-month period during my Presidency at the MAA, the Presidents of the American Mathematical Society, the Canadian Mathematical Society, the National Council of Teachers of Mathematics, the Association for Mathematics at Two-Year Colleges, the Mexican Mathematical Society, and the Society for Industrial and Applied Mathematics all were women.

There is also an interesting story involving Marilyn vos Savant and the proof of Fermat's Last Theorem. In 1990 she wrote a column for *Parade Magazine* about what is often called "the Monty Hall problem." Although the statement of the problem was somewhat ambiguous, there was a reasonable interpretation that made vos Savant's solution correct. Nevertheless, she was inundated with letters from statisticians and mathematicians who, using a different interpretation, denounced her solution as wrong.

Then in 1993 vos Savant published a book, entitled *The World's Most Famous Math Problem*, about Andrew Wiles' proof of Fermat's Last Theorem. She rejected his proof on the grounds that it used hyperbolic geometry. I read her book and found her argument ridiculous. I thought that I should write to her, but in view of the confusion about the Monty Hall problem, I first wanted to be sure of my position. So I consulted Ken Ribet and Barry Mazur, who confirmed my judgment that the use of non-Euclidean geometry was valid. Marilyn vos Savant responded to my letter with a formulaic reply, saying something like "there are a lot of different opinions about this." I had hoped that my letter would carry some weight with her, precisely because I was *not* a specialist in number theory, and I thought that it was important to get through to her. Although I apparently failed in that effort, she did acknowledge, in a 1995 addendum to her book, that it was legitimate to use non-Euclidean geometry in the proof.

Another unexpected experience during my MAA Presidency was the arrest in 1996 of the "Unabomber," Ted Kaczynski. One morning I got a call from a reporter at the *Los Angeles Times*, who asked me for a brief description of complex analysis. I asked why she wanted this information, and she told me that a mathematician had been arrested as a suspect in the "Unabomber" case. Thus I was one of the first people to find out about this event. She read me the title of Kaczynski's dissertation, but I really couldn't shed much light on the topic.

In discussing your role as an MAA officer, you observed that you were "born to be a facilitator." Why do you say that?

I'm not a guy with ideas nor a man with vision, but I like to make things run well. Exhibit A: organizing mathematics meetings. I thought of myself as "middle management," so one reason I treated being MAA President as a full-time job was to compensate for the fact that I don't feel that I'm a natural leader.

You've invested a lot of time and effort in the MAA. What was your reaction to receiving the Gung and Hu Award for Distinguished Service to Mathematics in 2010?

You'll have to ask Martha Siegel, who was Secretary at the time and the person who notified me about the award, but I think I was insufficiently surprised. At the meeting where I received the award, I was honored, humbled and embarrassed. I'm not crazy about long-time achievement awards. But I have no regrets about my mathematical life, and I certainly have no regrets about my heavy involvement with the MAA!