I Want to Be a Mathematician: A Conversation with Paul Halmos

Reviewed by John Ewing

I Want to Be a Mathematician: A Conversation with Paul Halmos
A film by George Csicsery
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> I spent most of a lifetime trying to be a mathematician—and what did I learn? What does it take to be one? I think I know the answer: you have to be born right, you must continually strive to become perfect, you must love mathematics more than anything else, you must work at it hard and without stop, and you must never give up.
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> —*Paul Halmos,* I Want to Be a Mathematician: An Automathography in Three Parts*, Mathematical Association of America, Washington, 1988, p. 400*

What does it mean to be a mathematician? That's not a fashionable question these days. Career counselors caution young people about identifying themselves too closely with their careers. Sociologists confidently predict that most people will have many careers in the future and quote some statistic to prove it's already under way (an average of at least eight careers—one wonders how "career" is defined and what sort of precision is contained in the phrase "an average of at least").

Paul Halmos came into mathematics in an earlier age, when immersing oneself in a career was still fashionable. He lived life as a mathematician as fully as anyone might live such a life. That doesn't mean he spent every moment doing mathematics; he didn't. But almost every part of his life was influenced by being a mathematician—

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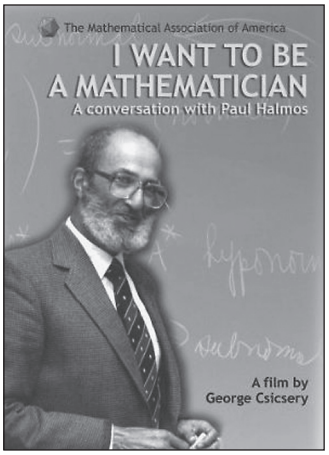

social, professional, family, friends, and travel.

In a bygone age, this was not unusual. Some decades ago, the annual meeting of the American Mathematical Society was held in the period between Christmas and New Year's. Stories tell of mathematicians who packed up their families and drove halfway across the country to attend that meeting as a perfectly ordinary way to celebrate the holidays. Decades later, summer meetings of the AMS/MAA (and then only the MAA) were events to which families tagged along to join up with other mathematical families for a summer vacation…at a mathematics meeting! Social life in mathematics departments revolved around colloquia and seminar dinners, as well as parties. When job candidates came for interviews, the whole department was part of the evaluation process, including (often) at meals and social gatherings. Daily mathematical lunches were frequent, daily teas with faculty and students were expected, your colleagues often were among your closest friends—not your only friends, to be sure, but among them.

This may sound dull to a modern ear. Your job is not supposed to dominate your life, and you are told to keep some distance between your job and the other parts of your life. But, for Paul Halmos, "mathematician" wasn't a job; it was a profession—a lifestyle that dominated all parts of life. He not only led the life of a mathematician, he taught others to lead it as well.

I don't mean he gave advice to mathematicians, although he certainly did that. Paul Halmos wrote about writing, talking, publishing, traveling,

teaching, editing, and many other activities mathematicians engage in. Every talk should contain a proof. Teaching should be about asking questions, not giving answers. The hardest part about being an advisor is to get a student started—to suggest a problem for the student to work on. Mathematics is not a deductive science—that's a cliché. Letters of recommendation should be governed by two rules: always tell the truth, but sometimes not the whole truth; and no matter how much good you want to say, be sure to say something bad. Elections at departments tend to produce second-rate leadership. Surveys are hard to write, but good expositions—the low road—are harder still. A good book review is a chatty expository essay on a currently interesting subject. This is a small sample of Halmos's advice that, even when it wasn't adopted, prompted mathematicians to think about their craft.

But Paul Halmos gave a different kind of advice by the life he led. He organized mathematical lunches nearly every day, banging on doors with his famous cane to gather a group of mathematicians. Lunch conversation ranged from mathematical gossip (who would win the Fields Medal) to tricky problems (what can the value of pi—that is, the ratio of circumference to diameter—be for various convex sets). He came to tea most days and made conversation easily with everyone—new faculty and old, graduate students and visitors, mathematicians and physicists, who were all part of the mix. He attended nearly every colloquium, whether related to his field or not. He faithfully went to regional weekend workshops. He and his wife, Ginger, attended almost every party for colloquium speakers and job candidates; they held many social events themselves, often mixing mathematicians, historians, philosophers, and musicians together. Mathematics and mathematicians were ever present in his life.

The DVD under review provides a glimpse of the man as he chats about his life and offers snippets of advice. It contains a 45-minute interview by Peter Renz, along with some additional conversations with mathematicians who knew Halmos. A large segment of the interview focuses on his views about teaching and his enthusiasm for the Moore method, which may be slightly misleading. Halmos's enthusiasm was genuine, but he also was a superb lecturer, and the Moore method never defined him as a teacher. Much of the conversation points to the advice he wrote about in other places, and the DVD contains scanned images of seven related papers by Halmos—well worth reading. (Alas, some of this material is not carefully scanned, which is a bit jarring when reading the words of someone who strove to be perfect.) The DVD also includes a scanned image of a large excerpt from his book *I Want to Be a Mathematician: An Automathography*, after which this present work was named.

The last few pages of his book speak eloquently both about his own life and about the life of a mathematician.

> All these prescriptions and descriptions about how to be a mathematician arose, inevitably, from my own attempts to become one. Nobody can tell you what mathematicians should do, and I am not completely sure I know what in fact they do—all I can really say is what I did.…I taught, I wrote, and I talked mathematics for fifty years, and I am glad I did. I wanted to be a mathematician. I still do.
>
> —*Halmos,* I Want to Be a Mathematician*, pp. 401–402*

And he was.