event, a WinCompTop special session will take place at the 2017 AWM Research Symposium at UCLA in April. The session will be organized by Emilie Purvine (Pacific Norwest National Laboratory), Radmila Sazdanovic (North Carolina State University), and Shirley Yap (California State University – East Bay), and travel support for organizers and speakers is provided by the AWM ADVANCE grant. Further follow-up opportunities are also being explored. In two years, we will repeat this experience with the second biennial WinCompTop. We hope to see you there!

If you are interested in being the first to know about upcoming related events and/or find the topic of computational topology interesting, we invite you to join our listserv by sending a blank email to wincomptop+subscribe@googlegroups.com.

MEDIA COLUMN

In addition to longer reviews for the Media Column, we invite you to watch for and submit short snippets of instances of women in mathematics in the media (WIMM Watch). Please submit to the Media Column Editors: Sarah J. Greenwald, Appalachian State University, greenwaldsj@appstate.edu and Alice Silverberg, University of California, Irvine, asilverb@math.uci.edu.

A Conversation About the Film The Man Who Knew Infinity

Madhu Raka, Panjab University and Alice Silverberg, University of California, Irvine

In this article, Madhu Raka (MR) and Alice Silverberg (AS) discuss some aspects of the film The Man Who Knew Infinity. The topic of the film is S. Ramanujan, especially his relationship with G. H. Hardy in Cambridge.

AS: I enjoyed the film. I felt that the filmmakers took the mathematics consultants seriously; the mathematics was more authentic than one usually finds in such films.

I think that Jeremy Irons was the perfect Hardy, but he seemed to me to be the Hardy who wrote A Mathematician’s Apology in 1940, not the younger Hardy of the Ramanujan era.

MR: I think the movie is great. I have seen many documentaries on Ramanujan made in India. This film emphasizes more Ramanujan’s stay in Cambridge than his struggle in India.

I watched the movie in the cinema hall along with Professor R. P. Bambah (a 91 year old internationally known number theorist who did his PhD at Cambridge under the guidance of Professor Mordell in the 1950s) and two other colleagues from the Math Department. Professor Bambah (he has been my teacher and mentor and encouraged me to apply for a Commonwealth Fellowship at Cambridge in 1979–80) desired to see the movie, so we all watched it together. He told me that he has met Janaki [Ramanujan’s wife].

AS: Raka, for me one of the benefits of the film was that it gave us an opportunity to connect again after all these years, and reflect on our experiences in Cambridge when we were there in 1979–1980.

Since the University of Cambridge was essentially an all male institution a century ago when the film took place (and sometimes seemed that way to me even when we were there!) there isn’t so much in the film relating to “women in mathematics.” But some issues that come to mind are:

(1) being an “outsider” at Cambridge (as Ramanujan was as a foreigner, and you and I were as a woman and foreigner);

(2) the (over?)emphasis in the film on the relationship between Ramanujan and Janaki.

MR: Of course there is overemphasis on the relationship between Ramanujan and Janaki and also between Janaki and Ramanujan’s mother. There has been no indication of this in the films/documentaries made in India.

AS: I guess the filmmakers wanted a love interest, and the love triangle of Ramanujan, mathematics, and Hardy (or continued on page 18
quadrilateral, with Littlewood) wasn’t enough. It may have been useful for the lay audience to see Ramanujan sharing his love of mathematics with Janaki, and trying to explain to a non-mathematician his passion for it.

The racism towards Ramanujan in the film led me to think back on our time at Cambridge, and to remember what it felt like to be an outsider there, as a woman and an American. I thought that the film conveyed well the feeling of being an outsider in Cambridge. In 1979, when I knew I would be going there, I asked Andrew Wiles for advice (since I was an undergrad at Harvard where he was a postdoc). He told me that none of the other students in the Cambridge Maths department would talk to me, and there were three reasons for that:

1. I was a woman, and they don’t talk to women.
2. I was a foreigner, and they don’t talk to foreigners.
3. They’re shy Englishmen who don’t talk to anyone, so they certainly wouldn’t talk to me!

It seemed to me that the social circles among the “postgraduate students” at Cambridge were like an onion, with the core being the English students who had been undergraduates at Cambridge. The next layer was English students who hadn’t been Cambridge undergraduates, then students from Commonwealth countries, then other foreigners like me on the outer ring. For each layer, the women were further from the center than the men. Did you have that feeling at all? I wonder if you felt closer or further from the center than I did.

MR: India had been under English rule for a long time. Most English people at that time treated Indians as inferiors and hated them. Ramanujan had to face the same treatment.

When I visited Cambridge I was very excited though a bit scared also, being a woman and it being my first stay away from my place and that also in a foreign country like the UK. Then there is a lot of difference between Indian English and English English. This was another hurdle. But I remember Professor Cassels (even when he was busy being Department Head) introducing me to others, taking me to the library himself, and inquiring about my progress on the problem I was working on. He introduced me to “adjoint forms,” which helped me to complete the paper. Professor Baker talked to me once, when I was about to finish my fellowship. His words I still remember: “would you like to give a talk in the Number Theory Colloquium?” That was all.

I myself being a shy and reserved type of person didn’t try much to talk with others. Being a woman and an outsider, I felt very lonely in the beginning. Later I was given a room in a house which was for “outside” ladies and had a common kitchen. Being vegetarian I cooked myself and avoided the kitchen when other ladies cooked non-veg. Now I enjoy recalling those days.

AS: I had some email correspondence with Ken Ribet about the film. He thought that an alternative title could be “The man who mistook his wife for a partition,” or better yet

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**NSF-AWM Travel Grants for Women**

**Mathematics Travel Grants.** The objective of the NSF-AWM Travel Grants is to enable women mathematicians to attend conferences in their fields, which provides them a valuable opportunity to advance their research activities and their visibility in the research community. Having more women attend such meetings also increases the size of the pool from which speakers at subsequent meetings may be drawn and thus addresses the persistent problem of the absence of women speakers at some research conferences. The Mathematics Travel Grants provide full or partial support for travel and subsistence for a meeting or conference in the applicant’s field of specialization.

**Selection Procedure.** All awards will be determined on a competitive basis by a selection panel consisting of distinguished mathematicians appointed by the AWM. A maximum of $2300 for domestic travel and of $3500 for foreign travel will be funded. For foreign travel, US air carriers must be used (exceptions only per federal grants regulations; prior AWM approval required).

**Eligibility and Applications.** Please see the website (http://www.awm-math.org/travelgrants.html) for details on eligibility and do not hesitate to contact Jennifer Lewis at 703-934-0163, ext. 213 for guidance.

**Deadlines.** There are three award periods per year. Applications are due February 1, May 1, and October 1.
“The man who forsook his wife for a partition.” That might make a good title for this review!

**MR:** I do not fully agree with the title “The man who forsook his wife for a partition.”

Ramanujan worked a lot on tau functions etc. also but this movie highlights his work on partitions only, maybe because it is easy for a non-mathematician to understand the concept partitions.

The documentaries made in India never mentioned his relationship with his wife. In those days marriages were performed without the consent of the boy or the girl. Whether Ramanujan actually wanted to marry is a question mark. He was so dedicated to his mathematics, he might not have given it any importance and he just obeyed his parents.

As a school boy he devoted all his time in doing mathematics, ignored all other subjects. As a consequence he failed in his high school. He used to guide and teach mathematics to his much senior fellow students.

His reply to Hardy in the film that “It comes to me, God speaks to me and makes me write all this. The formulae can't be wrong,” is very touching and inspiring. He was a truly God-gifted person.

**AS:** The filmmaker, Matt Brown, says “this film is really about the cost that comes when people wait out of fear to connect in their relationships.” But for me, rather than being about missed opportunities, the story of Hardy and Ramanujan shows that wonderful things can happen when one seizes opportunities, which Hardy brilliantly did by answering Ramanujan’s letter and bringing him to England, and which Ramanujan himself did by bravely writing to Hardy in the first place.

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**BOOK REVIEW**


**Reviewer:** Marge Bayer

This book is part of a series called *Journeys to Leadership*. The goal of the book is to investigate what makes women choose STEM careers, what makes them stay in STEM careers (whether they face major or minor obstacles), and how they choose the directions of their careers. The approach is in-depth interviews with eight women, who have careers in academia, government and industry. The interviewers are not presented in the book, however; the chapters are presented as monologues by the eight women.

The women are from civil engineering, microbiology, molecular biology, paleobotany, physics, chemistry, geology, and computer science. (The computer scientist was previously a PhD student in mathematics, and appears in the mathematics genealogy, so mathematics is not completely unrepresented.) The women range in age from early 40s to 70, so their experiences are in many ways different from those of women in early stages of their careers (we hope), but they are all conscious of the climate for women in STEM today and the challenges they face. The stories of these women, who, after all, stuck with their scientific careers, tell more of “subtle dismissiveness” [Angela Hessler, p. 116] than of blatant discrimination. However, I find some of the experiences they describe to be examples of not-so-subtle discrimination. Most of us have read a number of accounts such as these, but I found a number of new insights in these pages.

Cynthia Barnhart, an associate dean of engineering at MIT, says she never experienced bias or discrimination, but apparently she was using a narrow interpretation of these terms. She describes a poor atmosphere for women at Georgia Tech and was pleasantly surprised by the progress made at MIT after the reports in 1999 and 2002 on the status of women faculty. In a follow-up study in 2011, women who had participated in the earlier studies reported great progress. Barnhart attributes support she feels from male colleagues to their observation of their own daughters facing challenges, trying to manage careers and family. She expresses a common concern about policies intended to ease the workload upon birth or adoption of a child: that some men take advantage of the policy to increase their research efforts rather than to care for their children.

Linda Birnbaum has had the longest career among the interviewees. After completing her PhD in microbiology in 1972, she followed her husband (a mathematician) as he taught at a couple of small colleges. This resulted in a job opportunity that changed the direction of her career: at a medical research institute. The next family move was for her career, as she started a job at the National Institute of Environmental Health Sciences (NIEHS). As many women scientists recognize, a successful career is more likely with a continued on page 20