April 15 2006

The Sum of all Parts

Mathematics possesses not only truth, but also supreme beauty, wrote Bertrand Russell, among the many wise men starting with Plato and Aristotle who espoused its study. Yet millions of people -- present company included -- shy away from math in school, treating it as fearfully as a bomb strapped under the table. Despite my ineptitude with numbers though, I am second to none in admiring the truth and beauty of math -- from a distance.

News from Hollywood that two biopics of the great Indian mathematician Srinivasa Ramanujan are in the works triggered a buried memory. In the late 1980s, I had seen a documentary in India on Ramanujan with that fine actor, Raghuvir Yadav, playing the lead. Yadav's stagecraft did not list the effort so I emailed him asking if my memory was playing a number on me. He wrote back confirming he did play Ramanujan and it was "interesting" I remembered it. "I must have forgotten to mention it," he explained.

Whether it speaks to his disregard for mathematics or biopics I don't know, but he did a brilliant job of portraying Ramanujan, whose story, including his journey to Cambridge and the 1729 episode, is well known.

So compelling is the Ramanujan saga that although he never came to the U.S, he has inspired a play here. A couple of years back New York playwright Ira Hauptman wrote Partition, a work centering around Ramanujan that won rave reviews coming a decade after Tom Stoppard's Arcadia, which dealt with Fermat's Theorem. The University of Florida's math department publishes a Ramanujan Journal, and gives an annual prize in his name.

Ramanujan's feats, derived from a legacy that goes back to Aryabhata, Bhaskara, and Brahmagupta, inspired many Indians, none of whom gained much fame except in the rarified math world. One such figure was Harish-Chandra, a Kanpur-born genius who worked in Princeton for many years

and whose contributions to representation theory are considered seminal. Long before it became fashionable for high-profile NRIs to bankroll schools in India, the Department of Atomic Energy funded the little-noticed Harish Chandra Research Institute in Allahabad.

Perhaps because its graduates will not get $ix-figure $alaries, no breathless reporters will ambush them for sound bytes. Mathematicians are an unsung lot. But the work of many Indian mathematicians makes the world go round -- sometimes literally so as in the case of Narendra Karmakar, whose algorithms are used in airline scheduling. Unfortunately, they are recognized more in the west than in India. Dazzled by lure of sums rather than nobility of numbers, young Indians are taking to management these days, leaving the task of advancing pure math to a pristine few.

In the U.S at least, Indians continue to dazzle the math world. Last year, Manjul Bhargava of Princeton University and Kannan Soundararajan of University of Michigan won the first Sastra Ramanujan Prize. Others like Madhu Sudan of MIT, Ravi Vakil of Stanford, Lov Grover of Bell Labs, and Umesh and Vijay Vazirani at UC Berkeley are carrying the torch passed on by pioneers such as UCLA's VS Varadarajan and Purdue's SS Abhyankar who are more celebrated here than in India.

The movie Ramanujan might spark some general interest in India, like the Beautiful Mind and Goodwill Hunting did in the U.S. "I hope it will get more people to study math," says University of Illinois's Bhama Srinivasan, one of the few top women mathematicians in a male-dominated world. "Math is cheap. It doesn't cost anything." If Hollywood does as good as job with Ramanujan as it did with Gandhi, the price of a movie ticket could yield a lot.