

# RAMANUJAN:

*What might have been, if only...*

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A few weeks ago, I watched the film “The Man Who Knew Infinity” based on the book with the same title by Robert Kanigel. It tells the story of the prodigy Srinivasa Ramanujan whose contributions to the field of Mathematics were so profound that scholars are still trying to make sense of his work. I remember reading the book several years ago and being gripped by the story of his life. It is a very well-written book.

The movie, however, made a stronger impact on me in several ways: I realized how little, if anything, someone like me has contributed to this world; I realized what a waste of time it is to spend time perusing Facebook and WhatsApp posts; I appreciated the hard work and dedication of some of the finest researchers in the world; and I recognized the importance of Mathematics in solving many of the challenges we face in today’s world, especially in the fields of science and technology. However, what was probably more revealing to me was that the story of Ramanujan is a story of misfortune and woe, worthy of a place among the best Greek tragedies. I couldn’t but contemplate what might have been, had it not been for the series of unfortunate events, a perfect storm, that enveloped Ramanujan’s life.

Let’s start with the fact that he was born in the India of 1887, a country steeped in poverty, religious orthodoxy and illiteracy, burdened by centuries of foreign rule – whose sole purpose was to rob India of her riches and make her citizens work as peons while the masters enjoyed a life of pleasure. In such conditions, it was no wonder that very few Indians were competent enough to perceive Ramanujan’s extraordinary mathematical ability. Wasn’t it ironical that the only way to further his proficiency was to seek help from the very empire that was subjugating him? What if Ramanujan had

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been born in Britain, France, Germany, or even the USA? At the risk of losing bragging rights for Indians, but for the sake of furthering knowledge, couldn't it have helped Ramanujan to have been in an environment where his talent and gifts were not just recognized but cultivated and enriched?

Ramanujan's own religious beliefs prohibited a person from crossing the seas. As a Hindu, I don't believe that any such clause exists in the religion. Were Ramanujan and his family of the same mindset as some of the great explorers like Columbus, Francis Drake, Magellan and Vasco da Gama, the fear of distant lands would not have stopped him from seeking to travel where he could find opportunities to excel and shine. As with Galileo, religious beliefs nearly snuffed out the amazing results that he did eventually publish.

Then came Godfrey Hardy, a man so British and so married to Mathematics that he could not or would not or did not acknowledge that Ramanujan, while doing extraordinary work, was personally miserable. In the US, there is a popular slogan used by the state of California to promote its dairy products: *Great Cheese Comes from Happy Cows and Happy Cows Come from California*. While this may be only an advertising gimmick, there is merit in the statement that can and does apply to humans: a happy researcher will produce good results. If only Hardy could have just put aside his stiff British upper lip and opened up to Ramanujan; if only he could have enquired a little about Ramanujan's well-being; if only he had been more understanding and appreciative of Ramanujan's upbringing and Indian culture; if only he had been more involved, emotionally, with Ramanujan, as a friend. Could that bonding have established conditions where Ramanujan may have been happier and thus accomplished a whole lot more?

If only Hardy could have applied his remarkable mind to recognize that his genius ward was struggling to survive without his wife. Ramanujan was also unable to consume the food that was offered because he was a vegetarian. I can't but help wonder what could have been if Hardy would have offered to invite Ramanujan's wife

to join him, or, at the very least, have offered to arrange for a cook to help with Ramanujan's dietary requirements. Could this have helped Ramanujan feel more accepted and appreciated? If only Hardy's first few statements to Ramanujan could have been: "What can we do to make your stay here comfortable?" Or: "If there is anything that is bothering you or keeping you sad, please let me know." Or: "Don't hesitate to come to me with any issues; think of me as your elder brother in this foreign land." Hardy assumed, incorrectly, that Ramanujan would just fit in like any other researcher of mathematics and enjoy everything that Cambridge offered.

And if these barriers by themselves were not sufficient to thwart progress, Ramanujan had to also deal with racial prejudice on the part of some of his Cambridge colleagues. I am always at a loss to explain how someone smart enough to work at an institution like Cambridge – where one is expected to be of a higher intellectual caliber than the rest of the society – can still harbour the notion that an entire race of humans can be inferior. Had these colleagues been more accepting of Ramanujan's strengths and encouraged and worked with him, instead of dismissing him, it may have boosted Ramanujan's creativity even more.

You would think that Ramanujan's cup of misery couldn't overflow any further. There was another villain lurking in his life, in the form of his very own mother. So possessive was she of her son's affections that she secretly intercepted letters his wife wrote and failed to mail them to Ramanujan. It is hardly a source of wonder that in an era when letters are the only means of communication, one would feel alone and depressed when one's own wife, the one person to be depended on for support, does not respond to your letters. One would be left with the feeling that perhaps she has moved on, increasing one's agony. If only Ramanujan's mother had stepped away from interfering in her son's life, he would have had at least one lifeline to use as a crutch, instead of attempting suicide. Perhaps Ramanujan's mother assumed that her son was

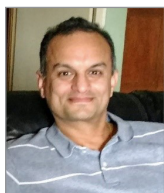
in the best of company, living out his dream, and that once his wife joined him, he would forget all about his mother. History also has it that she was mean towards her daughter-in-law. Why blame the British for racial prejudice when one's own family can become a barrier in one's progress?

Finally, Ramanujan's own stubbornness is to blame for many of the issues he faced. He refused to get treatment for whatever was ailing him. He was in Britain, a place as good as any for good medical resources. If only he'd sought medical attention; if only he confided in Hardy his discomfort; if only he adapted to British food and acclimatized to the British weather; if only he found another friend in India to whom he could write and enquire about his wife, perhaps, just perhaps, things may have turned out better than they did. Another advertisement in the US has a tag line: *A Mind is a Terrible Thing to Waste*. In the case of Ramanujan, it was a great mind that was mostly wasted, and wasted for the wrong reasons. When Raj Reddy, the famous computer scientist and Turing award winner, was asked the secret of his success, he replied, modestly, that he was in the right place at the

right time. In the case of Ramanujan, it appears that he was in the wrong place at the wrong time. I just want to raise my hands to the sky and shout, "Why?"

### A closing comment

It can generally be argued that if a discovery is not made at a particular point in time by a certain person, it would be made sooner or later by someone else. Had Newton and/or Leibniz not invented Calculus when they did, probably someone else would have (indeed, calculus-like thoughts were very much in the air at the time). Lobachevsky and Bolyai independently worked on non-Euclidean geometry at around the same time. But Ramanujan appears to be an exception to this phenomenon. Keith Devlin articulates my thoughts beautifully in his book *Finding Fibonacci* (Princeton University Press, 2017). He argues that "had he [Ramanujan] not lived, it is likely that no one would have discovered many of the things he did." Extending this thought, had Ramanujan lived longer and in happier times, mathematics could have been so much the richer.



**RAHUL TIKEKAR** is a tech enthusiast whose current work involves applying mathematical techniques in computer science. He has found new appreciation for the power of mathematics in solving real world problems. He holds bachelor's, master's, and PhD degrees, all in computer science. He can be reached at [Tikekar.Rahul@gmail.com](mailto:Tikekar.Rahul@gmail.com).