

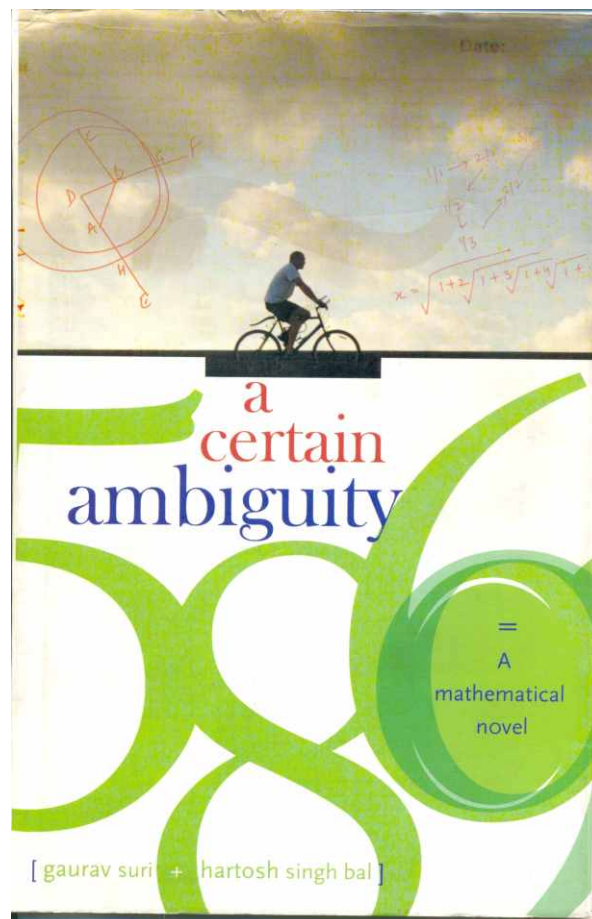


Here are two attempts: one, to peep into the nature of the subject, Mathematics, and two, to get a glimpse of the workings of a Mathematical genius's mind. I want to share with you my experience of reading two unusual books: **A CERTAIN AMBIGUITY** (By Gaurav Suri and Hartosh Singh Bal) and **THE MAN WHO KNEW INFINITY – A Life of the Genius Ramanujan** (By Robert Kanigel). The former takes the reader on a journey that reveals immense beauty in the subject while the latter leaves the reader astounded at the marvels of one man's mind.

A CERTAIN AMBIGUITY calls itself (or rather, the authors call it) 'a Mathematical novel'. I found this so intriguing (how can a novel be Mathematical?) that I was drawn to reading the book.

And so began a compelling experience. Not having enjoyed Mathematics particularly as a school girl, (and having positively disliked it at the college level), this book left me wishing I had been taught Mathematics in this way. Why did no teacher ever help me see the beauty of numbers? The awesome logic? The aesthetic patterns? Does one have to go and study Math in Stanford University (as the main protagonist of the book does) in order to realize these aspects of the subject? (Surely not, as the second book revealed. But more of that, later.)

The title A CERTAIN AMBIGUITY springs from the dilemma that a grandfather and grandson struggle with throughout the book: Can there ever be absolute certainty in Mathematics or life? Knitting together a well-thought out plot (that has considerable amount of suspense in it) and actual expositions on Mathematics (through lectures delivered in Stanford University and that you wish you could have attended) the book straddles fiction and Mathematics beautifully. I hesitate to tell you that there are lectures in Mathematics strewn throughout the book: for that makes it sound forbidding. Believe me, they are mouth watering lectures! Rigour is maintained throughout the book: and the amazing thing is that it still makes for fascinating reading. I never knew Mathematics could be so attractive. The book also made me wonder: what does it mean to face the extent – and the limits – of human knowledge? A must read, for all Mathematics teachers and particularly, those afflicted by Mathematics phobia.



*Written by Suri and Bal, who have been friends since childhood and have both completed a Masters' in Mathematics (from Stanford and New York University, respectively), the book succeeds largely in realizing the writers' purpose: "Our principal purpose in writing A CERTAIN AMBIGUITY is to show the reader that Mathematics is beautiful. Furthermore, we seek to show that Mathematics has profound things to say about what it means for humans to truly know something." Thus begins the Authors' Preface.*

Most of us know the legendary tale: of how, in 1913, a 25-year-old Indian with no formal qualifications wrote a letter filled with startlingly original theorems to the Cambridge don, G H Hardy. Dimly, we are aware of how Ramanujan turned Mathematics upside down in the next five years.

But we (at least most of us) know little else.

Here is a book about an uncommon and individual mind: whose tragic tale still haunts his countrymen, in more ways than one. While Hardy was avuncular, he was still aloof – the British stiff upper lip - and this young man, who “grew up praying to stone deities; who for most of his life took counsel from a family goddess, declaring it was she to whom his Mathematical insights were owed” returned to India in 1919, depressed, sullen and quarrelsome. He died a year later.

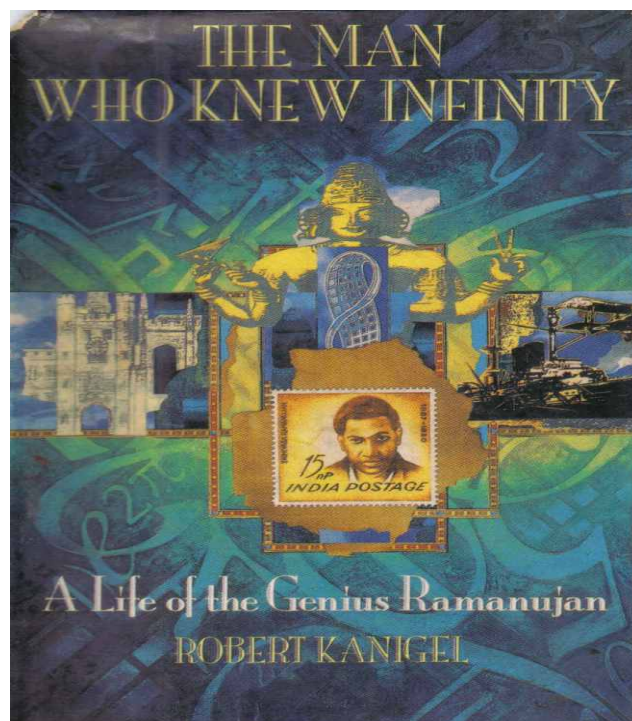
If ever there was an unsung hero, this was one!

In a short life span of 33 years, he accomplished so much that Mathematicians the world over are still trying to fathom some of it. And yet, his twenty year old widow eked out a humble and anonymous existence for most of the next half century, probably not the only one to be unaware of her husband's intellectual prowess.

This is a biography with a difference, for as the author says: “Biographies as do exist either ignore the Mathematics, or banish it to the back of the book. Similarly, scholarly papers devoted to Ramanujan's Mathematics normally limit to a few paragraphs their attention to his life. And yet, can we understand Ramanujan's life without some appreciation for the Mathematics that he lived for and loved? Which is to say, can we understand an artist without gaining a feel for his art? A philosopher without some glimpse into what he believed?”

The book is true to the above intent, in that it takes the reader into some of the problems that he applied number theory to, without dwelling too much on the subtle and powerful Mathematical tools that he used. For, as the writer confesses, Ramanujan's Mathematics is more accessible than some other fields; much of it comes under the heading of number theory, which seeks out properties of, and patterns among, the ordinary numbers with which we deal every day.

Interesting tidbits like the following whet the appetite of a reader (especially if the reader is a teacher) to know more about the curious child Ramanujan: “Quiet and contemplative, Ramanujan was fond of asking questions like, Who was the first man in the world? Or, How far is it between clouds?”



*The book reports ironic tidbits like the following: At the time of Ramanujan's death in April 1920, the editor of the Journal of the Indian Mathematical Society had fallen so far behind their publication schedule that the issue bearing the news was dated December 1919. Into copies of that issue, small olive green slips of paper, bordered in black, were inserted:*

**THE LATE MR. S. RAMANUJAN**

*We deeply regret to announce the untimely death of Mr. S. Ramanujan, B.A., F.R. S., on Monday, the 26<sup>th</sup> of April 1920, at his residence in Chetpet, Madras. An account of his life and works will appear in a subsequent issue of this journal. Seven months later, the journal carried two obituary notices.*

The book brings out many (Mathematical as well as real life) paradoxes, not the least of which is the strange alliance between a confirmed atheist (Hardy) and a staunch devotee of the goddess Namagiri of Namakkal. "An equation for me has no meaning," Ramanujan once said, "unless it expresses a thought of God."

While working on this book, Robert Kanigel spent five weeks in the South, traveling to places that had figured in Ramanujan's life. "I rode trains and buses, toured temples, ate with my hands off banana leaves. I was butted in the behind by a cow on the streets of Kumbakonam, shared a room with a lizard in Kodumudi."

Not surprisingly, therefore, this book is conspicuous also in the lack of condescension - which often (maybe even unwittingly?) creeps into the writings of many a Westerner about India/Indians.

Both these books sparked off a desire in me to learn Mathematics well; and shook my former image of the subject (as didactic and dry) substantially. I recommend both books strongly, especially to teachers of Mathematics, for they will get juicy material for use in classes.

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### Logico-Math Brain Teasers

There are 12 balls in a box. They are identical to each other in terms of size, shape, colour, feel, appearance etc. The weight of one of these 12 balls is slightly different (it could be heavier or lighter) from the others which have identical weight. You are provided a two-pan weighing balance (but no weights). How will you identify the odd ball out and ascertain if it is lighter or heavier than the rest in only three weightings?

Use this space for calculation 😊

*(Hint: Label the balls and try various weighing combinations)*