

## Ramanujan through a Biopic

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Say the words ‘mathematical genius’, and the image that comes to the mind is that of a person scribbling apparently meaningless but complex mathematical calculations all over a blackboard. Such images reinforce the idea that mathematics involves long calculations, and that it is too complex for ordinary mortals, and that it is an abstract discipline not connected with practical life — all of which are untrue. As a well-known mathematics professor puts it, “The hope of improvement in mathematics teaching, whether in schools or in colleges, lies mainly in the possibility of humanising it. It is worthwhile to remember that our pupils are human beings...to humanise the teaching of mathematics means to present the subject, so as to interpret its ideas and doctrines, that they should appeal, not merely to the logical faculty, but to the power of interest of the human mind”. (Keynes, 1912).

One laudable effort to humanise mathematics and mathematicians is the film, *The Man who knew Infinity*. A British biographical film released in 2015, it traces the life of Indian mathematical genius Srinivasa Ramanujan from childhood to his stay in England, and his death at the age of 32.

Ramanujan was born on 22 December 1887. He was often on the verge of starvation. He worked in lowly jobs, where fortunately, his employers noticed his skill in mathematics. He was then given basic account work. Ramanujan interacted with two college students (who had rented a room in his house) and absorbed all mathematical concepts they knew. Gradually, he began to write on mathematics, and his impressed employers, sent him with letters of introduction to various professors in the field. A meeting with V. Ramaswamy, founder of the Indian Mathematical Society, proved to be the turning point in his life.

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Correspondence with Professor G.H. Hardy at the Cambridge University followed, and the rest is history.

These details of Ramanujan's life indirectly throw light on how the Indian society viewed him, and the society's attitude to geniuses, in general. The film focuses on how the prodigy struggled even as a child for his daily bread, how he was ridiculed by others, how his immersion in mathematics made him fail in other subjects, and how frequently he fell ill due to poor nutrition.

Cultural differences are dealt with great sensitivity in the film, contributing to the larger concept of humanity. Ramanujan was in England at the time of World War – I, when food was scarce and essential items were rationed. His traditional upbringing as a strict vegetarian compounded his problems. The harsh winters made him homesick. What added to the feeling of alienation was that he received no letter from his wife. We later come to know that his mother had hidden all the letters that he had sent from England in a drawer — away from his wife's sight.

The relationship between Ramanujan and his mentor Professor G.H. Hardy is beautifully portrayed. Despite their differences in nationality, religion, culture, temperament and even their approach to mathematics, a deep and lasting bond was formed. Hardy was an atheist, while Ramanujan came from a religious background. Hardy had crossed milestones

in his career, Ramanujan was a self-taught mathematical wizard. Hardy believed in mathematical rigour and the indisputable nature of proof, Ramanujan had blinding flashes of insight, in which he could 'see' proofs of theorems. The ultimate insight of course is Hardy's, in discussing the diamond in the rough.

There are memorable moments in the film that tug one's heart. When Ramanujan sees the snowfall for the first time in his life, looking upward to allow snowflakes to drift on to his face, when his wife finds his letters and realises the machinations of her mother-in-law, when Ramanujan falls ill and begins to cough blood — all these provide an emotional contrast to the rational mind whose fascinating theories inspired a number of researches decades later. It is heartbreaking to see that due to non-access to knowledge of achievements in the field of mathematics, Ramanujan spent months re-discovering already established theorems.

It is no wonder that the film took 10 years to be made. As with all biographical films (biopics), the challenge was that of authentic portrayal. Since a biopic attempts to tell a comprehensive narration of a person's life, or provide a concise view of the historically important years of his/her life, it should show actual people whose actions and views are documented and in public domain. *The Man who knew Infinity* succeeds in portraying a prodigy

without undue sentimentality, with a gentle understanding of Ramanujan's oscillation between the struggle for existence and his love for mathematics.

More important is the attitude towards mathematics through which viewers retain that it can be learnt by anyone and is accessible even to a person from a 'non-maths' field. This is a difficult impression to convey, particularly because people, in general, tend to think of mathematics in relation to practical life only. The National Curriculum Framework–2005 states, "The narrow aim of school mathematics is to develop useful capabilities, particularly those relating to numeracy—numbers, number operations, measurements, decimals and percentages." Yet, the realm of mathematics is far beyond this. Ultimately, the aim is "to think and reason mathematically, to pursue assumptions to their logical conclusion and to handle abstraction". Ramanujan's mind devoted itself solely to mathematics, making major contributions to mathematical analysis, number theory and infinity.

Ethnic prejudice, housing problems, even failing health did not matter to him.

The film brings out the almost unbelievable achievement of a poor Indian boy walking up the steps of Cambridge University, where only a privileged few were allowed in the nineteenth century. On the 125<sup>th</sup> birth anniversary of Ramanujan, the Indian government declared that 22 December would be celebrated as the National Mathematics Day every year. This would certainly focus public attention on the discipline and on the mathematical genius. Nevertheless, the fact remains that there are still a number of children who for no fault of theirs are denied access to education. A matter of concern is the persistence of perceptions that create conditions of non-access to education, like girls 'cannot' learn science; 'inferior' castes should not be given education; differently abled children need 'special' education, and so on.

One cannot help but wonder how many Ramanujans are amongst them.