

The Man Who Knew Infinity (2015)

Rated PG-13. Running time: 1 hour 48 min.

Our content ratings (1-10): Violence 1; Language 1; Sex/Nudity 1.

Our star rating (1-5): 4

An intelligent mind acquires knowledge, and the ear of the wise seeks knowledge.

Proverbs 18:15

If I speak in the tongues of mortals and of angels, but do not have love, I am a noisy gong or a clanging cymbal. And if I have prophetic powers, and understand all mysteries and all knowledge, and if I have all faith, so as to remove mountains, but do not have love, I am nothing.

1 Corinthians 13:1-2

Matthew Brown's biographical film introduces us to a great mathematician, famous in his native India and in England, but probably little known to most of us in the USA—Srinivasa Ramanujan. We will recognize, however, the actor who plays him, Dev Patel, thanks to such engaging films as *Slumdog Millionaire*, and *The Best Exotic Marigold Hotel*. This is another of those films I delight in because it introduces us to an unfamiliar culture, time, or personality—and in this case, also the field of higher mathematics. If the thought of the latter strikes fear, you need not worry. The script, written by the director and based on Robert Kanigel's book, *The Man Who Knew Infinity: A Life of the Genius Ramanujan* focuses upon the personal details of his life. This film will be as entertaining as *A Beautiful Mind* or *The Theory of*

Everything because, like them, it is not a scientific treatise, but a story of an unusual friendship and of Ramanujan's thrill of discovery.

The story begins in southern India where Srinivasa Ramanujan (Patel) is living with his wife Janaki (Devika Bhise) and mother (Arundathi Nag). His family is Brahmin, but poor, so he has little formal education in mathematics—or much of anything else, for that matter. He is enamored with numbers and equations, the latter seeming just to come to him. He fills up notebooks with his equations and theorems. A Hindu, he believes that each equation is a “thought of God.” He tries to explain to Janaki that there are beautiful patterns in everything, that a mathematician is like an artist “painting without colors,” but this is beyond her.

Fortunately in 1912 he is able to gain clerical work at the Madras Port Trust. His immediate superior, an Indian, is impressed with the young man's genius, so he brings him to the attention of the firm's head, Sir Francis Spring (Stephen Fry). With their encouragement, Ramanujan sends a letter and packet of theorems to Cambridge Professor G. H. Hardy (Jeremy Irons). Hardy is so surprised and impressed when he reads the material that he invites the correspondent to come and pursue his research studies with him in England. The proffered funds are not large enough to bring his wife and mother, so the young man reluctantly leaves the anxious pair behind.

Upon his arrival at Cambridge the first person he meets is Hardy's collaborator J. E. Littlewood (Toby Jones), who greets him warmly. Hardy, of course, is also happy to welcome him, but such is not the case with most of the other professors, so imbued are they with their sense of white superiority over “the lesser breed without the Law.” (See Kipling's poems “Recessional” or “White Man's Burden.”) Thus they look down on the darker skinned student.

One of the dons especially becomes his enemy due to a

classroom situation. The arrogant professor, apparently wanting to show up the student he regards as an imposter, writes an elaborate equation on the blackboard. He calls upon Ramanujan to come forward and deal with it, whereupon the naïve man quickly expands upon it by writing out an even more elaborate equation. The students are amazed, but the embarrassed professor says nothing until the rest of the class has left. He then tears into Ramanujan, ordering him never to do that again. Thus we see that the Indian is very much the outsider at the University, this enhanced by his Hindu-related vegetarianism. Even though a couple of friendly students welcome him to their dining room, the young man cannot stay because everything is tainted with meat or its juices and fat, even the potatoes.

Hardy works closely with his protégé, recognizing that he is probably the most gifted mathematician since Sir Isaac Newton. He is concerned, however, at the process, or perhaps, lack of one, as to how the young man has arrived at his theorems. He keeps trying to get Ramanujan to provide the proof of them. But to the Indian his equations and their solutions are intuitive—they just come. However they cannot be published in any scholarly journal, Hardy explains, without including the proof. To this the student plaintively replies, “These steps you want, I do not know how to do!” Eventually, of course, under the guidance and prodding of his mentor, he is able to do so, and to his and the joy of Hardy and Littlewood, his paper is published.

Two years after his arrival in England, the nation becomes embroiled in war against Germany. This increases Ramanujan’s hardships: not only does he miss his wife and native country, but the students drafted into service resent his remaining behind to pursue his studies; and it becomes almost impossible for him to obtain fresh vegetables due to the tight rationing of food. Also one of his twin pillars of support, Littlewood, enters the army and is sent to France. The courtyard at

Cambridge is filled with tents where hundreds of wounded soldiers are brought for treatment.

Ramanujan's health declines. Not only is his body weakened by overwork and lack of good nutrition, but he also comes down with tuberculosis. It is during this period that Hardy at last becomes conscious of his protégé's physical needs and concerned for the overall welfare of the one who is in every sense his equal in their collaborative math work. Littlewood, aware of his friend's aloof coldness in regard to human relationships, had remarked that Hardy was using the Indian as much to advance his own studies as out of friendship. Hardy had been such a workaholic that, other than Littlewood his collaborator in things mathematical, he had made no friends among his fellow academics.

In one exchange the atheist Hardy and his Hindu believer protégé speak about God. The Englishman frankly says that he does not believe, whereas the Indian affirms that this is the source of his seemingly intuitive equations.

When Hardy visits Ramanujan in the hospital and discovers how ravaged is the young man's body, long buried human emotions arise, and he at last he comes to regard him as a friend as well as a valued colleague. Thus when, after the War, the homesick and physically weakened young man decides to return to India, their parting is bittersweet. The Indian tells Hardy, "I owe you so much." His mentor, and now friend, replies, "No, it is I who owe you." (Hence my above quotation from the apostle Paul.) The older man has indeed helped his protégé—Ramanujan's acceptance as a peer at Cambridge is proof of this—but the Indian's influence has led the Englishman to discover that the heart is as important as the mind if one is to be fully human.

The prejudice among the Cambridge dons made me think of two other persons depicted in film. First was Ramanujan's contemporary Mohandas Gandhi, who also bore the brunt of

British prejudice and wrote about it in his autobiography *The Story of My Experiment With Truth*. The second person is Harold Abrahams, one of two Olympic runners whose stories are portrayed in the film *Chariots of Fire*. A Jew, Abrahams also studied at Cambridge, a few years after Ramanujan had left. Apparently prejudice among the faculty was still widespread, as we see in a couple of scenes in which a professor disparages the student for his intrusion into the Gentile world. In the current film we hear Hardy's manservant, like all Englishmen steeped in his Kipling, reacting to Hardy's intent to bring the uneducated Ramanujan to England by chanting a couple of times, "Din, Din, Din, Gunga Din."

It is unfortunate that the Indian mathematician, unlike his contemporary the German physicist Albert Einstein, did not live long enough to see the tremendous advances in mathematics and physics that took place within the next few decades. The film's epilogue informs us that Ramanujan's theories have become important in the study of black holes. His life was brief, but, this film declares, well lived, influential on his mentor, and still contributing to the advancement of knowledge.

This review with a set of discussion questions will be in the June issue of VP.