

ALTERNATIVE SCIENCES : CREATIVITY AND AUTHENTICITY IN TWO INDIAN SCIENTISTS BY ASHIS NANDY

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ABSTRACT

Ashis Nandy's book titled, "Alternative Sciences: Creativity and Authenticity in Two Indian Scientists" is highly personal of two eminent Indian Scientists and elegantly poetic and philosophical. Nandy traces the life histories and scientific research of Bengali physiologist, Jagadis Chandra Bose and Tamil mathematician, Srinivasa Ramanujan in nineteenth century India. Though the title of the book may be misleading as to the search for a 'new science', the author tries to analyze not the content of science but the context/forces that shape modern science. This the author did meticulously by constructing a social, psychological and cultural episode showcasing the two scientists encounter with scientific creativity, religion and magic. The episode based on descriptions from family, friends, colleagues and collaborators paints two long essays in the book. Nandy while examining to a large extent the emotional, social and cultural environment of traditional India, simultaneously dissected myths that clouded the biographies of his two real live heroes.

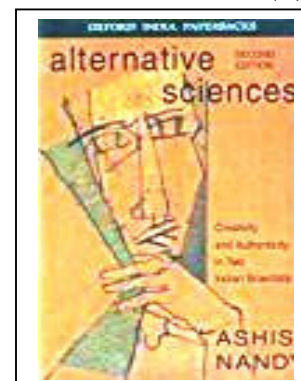
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The book is separated into three complementary parts: Introduction, Defiance and Conformity in Science, and The Other Science of Srinivasa Ramanujan. It begins with a meshed introduction of the two scientists and immediately depicts with the oxymoron "Alien Insiders" that culture and religion play a defining role in the life histories of his two subjects, though the scientists were Indian born; they felt like outsiders in their own culture and land. Nandy believes that the double sword of poverty and colonialism were responsible for a large part in suppressing creativity in which he said, *Biographers are happy to stretch the reasonable statement that Ramanujan might have been the greatest mathematician of all times but for his poverty and lack of formal education. Or that Bose could have been one of the most creative plant physiologists but for his acute sensitivity to the western dominance of science and his professional isolation in India.* Evidently, it may be obvious to question the author's eligibility to write on these scientists, but Nandy recognized this limitation and focused on a psycho-cultural study that would unearth scientific creativity by overlapping culture and science.

The second chapter details J.C Bose (1858-1937), a renowned physicist and botanist both in India and the West. He belonged to a Brahmo family and had an upper class upbringing. Nandy marred Bose's life with a search for recognition and determination by looking at his risk-taking

father, orthodox Hindu mother, Bengal culture and Western science. From childhood, Bose witnessed the contradicting moral positions of his parents but was most influenced by his father – Bhagwanchandra in the area of physics and botany. In a culture where the head of the household maintained distance from their children, it was the opposite in Bose's development. His mother – Bamasundari – was protective, obsessive and ritualistic of Bose, whom he saw as a rival. The Indian culture had taken a toll on young Bose's socialization placed within the contradictions of religion, poverty and a fall from upper class status due to poor financial decisions of his father. Bose had within a volcano of resistance and anger that was relieved only through hunting of animals.

Though many biographers would agree to this, Nandy, with the help of statistics based on research in India, showed that the absence of mechanisms for directing aggressive needs, and the lack of slow training in childhood could lead to the chaotic, irrational and unpredictable individual. Nandy describes Bose as directly opposing to Western science and shows the conflicts he faced because of his western education that many believed he would try to import in India. Yet again Bose was isolated upon his return from England. The Indian culture was not prepared for such an intellectual, even Croft and Tawney rejected his appointment at the Presidency College based on the opinion that Indian could be significant in the field



of metaphysics and languages, but natural sciences were a thing for Englishmen. Bose held that India has a role to play in world science and actively saw himself at the centre, he would even quarrel with bureaucratic on salary differences between English and Indian teachers.

Bose search for a different form of science rather than contributing to the existing body of science portrayed by Nandy may have shadowed Bose entire image. It was not that he wanted to build a separate Indian science with different methodologies or compete with superiority in the Sciences, rather Bose wanted recognition for science that could be drawn from imagination and Indian tradition of meditation and religion. He advocated science to be un-owned by one society or culture, meaning, it belong not to the West, East or South or anywhere. Nandy shows that creativity involves not just the ability to use one's personal fantasies and the myths of one's culture but rather doing so without being rigidly defensive and retaining a certain cognitive and emotional flexibility. It is here that Bose failure occurred. He would never openly acknowledge the support of others and would shy away from any criticisms of his work. Adult Bose was then seen as *anacharya* coupled with his authoritarian attitude. But even in his failure Bose made a valuable contribution. The author work on Bose while correct on his social environment may have erred in Bose search for an Indian science. Bose was enthusiastic that India has a part to play in the body of existing modern science but not as an alternative world science as described by Nandy.

The final chapter, though not as profound and in depth as the former speaks about Ramanujan, mainly due to the complexity and sphere of life of the mathematician. Srinivasa Ramanujan (1887 – 1920) was born in a poor Tamil Iyengar family. Ramanujan was his first name, but following South Indian custom, it was written second. Ramanujan family lived in small town, Kumbakonam, and most of his family was well-educated. His family was a typical South Indian tradition, where the mother has the utmost influence on the children upbringing. Komalatammal, his mother, was an astrologer and numerologist who kept tabs on Ramanujan education and work. But this proves fatal, as his mother was overly protective and conservative. She believed and shared her vision that though Ramanujan would achieve greatness, he would die early. Ramanujan was also battling with his feminine self-image believed to be a reincarnation of his grandmother.

Nandy shows that Ramanujan mathematics was an extension of magic, astrology and his Brahminic heritage which were all tools for controlling fate and *prakiriti*. The author attempts to justify the infiltration of magic in mathematics as it had existed traditionally and follows processes, the same way as science but did not offer much on the content and methods of Ramanujan mathematics. Most of Ramanujan work was done through private research or through meditation that lasted for at least three years. To this end, it would be obvious that isolation from the real world would neglect Ramanujan of existing research and discoveries of mathematics. Nandy explicitly concludes that Ramanujan was deeply engrossed with his mystical mathematics which he later found out were rediscoveries from over a century ago. But it was Hardy recognition of Ramanujan self-rediscoveries that drove him to England and later as a Fellow of the Royal Society. One can see a contemporary example of Allen Turing, though the end story is different, Turing was so much engulfed in his work, that his culture, friends and emotions had no bearing on his research. Insecurity and shyness may have prevented Ramanujan from establishing an Indian Science encompassing magic, but the author seems to have diminished this aspect. Instead, Nandy embodies this through cultural socialization, as I quote, *It is also true that Ramanujan's culture frequently valued a thing because it was produced by someone in particular, and not a person because he had produced something in particular.* Ramanujan himself, looking at death in the face, undoubtedly question his religious beliefs and his choices. The scenario one would like to envision as sparked by Nandy was that had his trip to England accompanied by his wife, or what might have happened had he remained in India.

Overall, the book demonstrates the impact of culture and society on science and scientist work. Much more than that, it shows an interdisciplinary methodology or approach – the use of psychology and sociology to study natural sciences. However, lacking in content, the book demonstrates the importance of the context of science. Even the purest of sciences – mathematics – involves an emotional touch that will allow for certain creative problem solving. The author explored in detail the cultural aspect of science and the drive to establish an indigenous science based largely on religion, magic and meditation. In closing, I must say that it was not a disease as in the case of Ramanujan or poverty or education as in the case of Bose that led to their defeat, but rather their social environment and culture surrounding their scientific thought and work.