

Scientific Temper and Indigenous Imagination; Chronicles of Professor Ramchandra's Quest.

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The spirit of scientific learning percolated to the Indian masses primarily as a byproduct of the process of Westernization. The credit can be attributed to historical process as well as personalities. This paper would argue that undoubtedly the socio-historical milieu did have a role but the contributions of Professor Ramchandra played the role of a catalyst. In promoting the scientific temper among the masses especially in Northern India. His contributions as a scientific educationist and translator did wonders to the indigenous learning methods. Professor Ramchandra scientific temper and an zeal to take vernacular learning to new heights was the central theme around which the development of scientific education in India can be chronicled.

By the closing decade of nineteenth century the Hindus, the Sikhs, the Muslims were attempting to shape a modernity of their own. The introduction of scientific and technical education, and laying of various technological projects had a tremendous impact on their lives. The educated Punjabi elites subjected tradition and faith to the scrutiny of reasoning and realism. However, that period also saw a section of Punjabi group accepting anything western and almost rejecting everything Indian. This sweeping trend of westernization was gradually replaced by a sense of nationalism. They began to feel that without an understanding of the achievements of the past, no nation can sustain its pride. It was at this juncture, many Punjabi professors, like Ramchandra (1821-1880) made significant contribution to the popularization of science among the people of Punjab and Northern India.

The nineteenth century was a period of critical evaluation and introspection of for most of the intellectuals, who were exposed to the philosophy of European Enlightenment through the British colonial expansion. The reaction to this stream of thinking essentially took three forms. The first was complete westernization, where traditional learning was considered to be totally irrelevant. The second manifestation was revivalism, in which modern scientific developments were telescoped into the past. The last response was of revitalization, according to which traditional knowledge needed to be resuscitated and strengthened, wherever necessary with the help of modern knowledge.

Professor Ramchandra who was one of the pillars of Delhi renaissance provides the most striking example of increasing Indian acquaintance with science. The renaissance, which started in Delhi before the revolt of 1857, brought a lot of changes in the atmosphere of Delhi. It was the result of Indian intellectuals contact with the western science literature and philosophy which were taught in the Delhi College- established by British in 1825 financed by various Muslim nawabs of north India. Delhi College, which was established for the promotion of Persian, Arabic and Urdu literature, later became the one of the important center of western scientific learning. When English was introduced in Delhi College on the recommendation of

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Charles Metcalf in 1828, one Muslim donor Hamid Ali Khan, son-in-law of Gazi-u-din Khan (Nawab of Lukhnow) objected to the introduction of English in College because he reminded British officials that this college was established for the promotion of Urdu, Arabic and Persian literature. But despite opposition, the British continued teaching English there because students of Delhi College developed a taste in European literature and science that was accessible only in English language.

Professor Ramchandra, one of the most prominent teachers of Mathematics and western Science, was also the product of Delhi College, which during the time of his admission had turned into one of the important center of western scientific learning. He was the staunch supporter of Felix Boutros who was a French and Principal of Delhi College during the late 1830s and early 1840s. Felix Boutros commitment to Urdu led to the formation of famous Delhi College Vernacular Translation Society in 1841, which was also known as “the society for the promotion of useful knowledge”. This society was virtually responsible for instilling a new spirit into the world of knowledge through its translation of European scientific works and helped the students learn to think in new ways. Ramchandra got a lot of inspiration from this society to pursue his works of teaching science in Vernaculars. Under the aegis of society, Ramchandra published a science newspaper in Urdu called Fawaid-ul-Nazarin. In it, he published regular science columns in vernaculars to aware readers about modern scientific developments. During one of the meetings of the Delhi society, Ramchandra entered into arguments with a Christian missionary, Father Smith, who was dismissive of translation as a meaningful process of acquiring knowledge. Ramchandra came out with an argument that was pregnant with historical consciousness, unusual for the period, he said:

"It is not that only Muslim gained through the translation of Greek works but Europe also acquired knowledge through translations only. The Muslims got it from the Greeks, which they later transmitted to the Europeans. This is how knowledge spread in Europe".

This way Ramchandra not only defended translation but also gave his own perception of the past. He could visualize the growth of knowledge in a cross-cultural perspective, countering thereby all those missionaries and colonial administrators who were denigrating the East as barbaric and uncivilized. He felt that the growth of modern scientific knowledge had been a cumulative process where all cultures had an equally important role to play. No one civilization could lay exclusive claims over it. Ramchandra was convinced that Vernaculars was best suited for the transmission of science as it was more instinctive and natural and for this reason he wanted most of the European knowledge to be translated into Urdu.

In 1844, Ramchandra was appointed as a teacher of European science in the Oriental Department of Delhi College. For the spread of western scientific knowledge among the students of Delhi College, he started Urdu journal called the Qiran-us-Sadain in 1856. It carried articles on new inventions, discoveries and research in modern science and technology in Urdu- the lingua franca of Punjab and Northern India. He successfully fulfilled his role as an educationalist. He adopted the most progressive element that was the insistence that science to be taught in Vernaculars. He had translated a number of important European books on science from English into Urdu. As an Urdu journalist, Ramchandra wrote regularly on the subjects of scientific

interest.

In 1850 he published in Calcutta his mathematical work on Problem of Maxima and Minima. The inspiration behind the work lay in the nineteenth-century understanding that the Indian tradition of mathematics was essentially algebraic. As part of the task of 'revitalization', Ramchandra sought to introduce the Indian people to the latest developments in calculus, in their native idiom. The book was published under the superintendence of Augustus De Morgan (a famous English mathematician) in London in 1859. According to Deepak Kumar, a leading figure in Punjab renaissance was Professor Ramchandra, who tried to revive the Indian spirit of algebra, from Bhaskara (ancient Mathematician) onwards. Ramchandra's treatise, though criticized in Calcutta Review, was well received in Europe due to the efforts of Augustus De Morgan who saw in it 'merit of a peculiar kind, the encouragement of which was likely to promote native efforts towards the restoration of the native mind in India. Accordingly the Court of Directors in London sponsored in 1859 a reprint of the work in England for circulation in Europe and in India. Also the Honorable members of court directors were pleased to sanction a khillat (dress of honour) of five pieces to be presented to Ramchandra and also a reward of Rs. 2000. Ramchandra's response was typical, "I am much thankful to the English government that they are so bent upon encouraging science and knowledge among the native of this country, as to take notice of a poor native of Delhi like myself".

The Treatise can be viewed as an indigenous response to the Macaulayan education programme, as well as in terms of the nineteenth century debates on the role of algebra, geometry, and mathematics in a 'liberal education'. As a critique of the Macaulayan education programme, its commitment was to advancing standards of Indian education as well as the cause of science among the Indian populace.

Ramachandra dedicated the Treatise to reviving the Indians spirit of algebra, so as to resuscitate 'the native deposition of these people', which had, he felt been eroded over the centuries. In a colonial environment, the realization that mathematics is done one way, but can as well as done another way, must be constructed both culturally and politically. The possibility that this could be fount of Ramchandra's enterprise is further strengthened when he makes for the teaching of science in local languages. Even though Ramchandra turned to a twelfth-century text like the Bija-Ganita of Bhaskara' (an ancient Indian mathematician) to serve as a starting point for his exploration into modern calculus Ramachandra was looking for both a tradition and a metaphor to guide the future development of science among the Indian populace. Being groomed in the traditional Indian education system, as well as tutored in an English school, Ramachandran was thus acquainted with traditional Indian mathematics, as well as with the modern traditions of mathematics. The major aim underlying his Treatise was to introduce the Indian people to modern developments such as calculus, algebra, without introducing any geometrical notation. De Morgan also saw its potential as a pedagogical device outside India.

The popular science writings of Ramchandra appeared in his journal Fawaid-ul-Nazrin between 1845-52. He always insisted that science must be taught in the vernacular. The demand had first been voiced by Raja Ram Mohan Roy, who also took an important step in catalyzing the process by translating works on science, from English to Bengali. Ramchandra had translated a number of important books on science, from English into Urdu. He wrote regularly on subjects of

scientific interests. Imbued with the ideology of Bacon, his articles focused on nineteenth-century developments in science and technology. The topics pertained to algebra, geometry, astronomy, electricity, magnetism philosophy and history of science. Ramchandra's second book—A New Method of the Differential Calculus appeared in 1861. These books were meant for Indians, whom Ramchandra felt were primarily brought up in the tradition of algebra. Through his lectures and published works, Ramchandra brought his pupils close to the springs of western education and learning. He was strongly opposed to making English a medium of instruction in schools and colleges. He was too much influenced by the western science and technology that on May 11 1852, he was baptized a Christian. This act aroused a lot of controversy, and his life was seriously endangered during the Indian Uprising of 1857. Mutineers attacked Delhi College because it was spreading western science and technology instead of reviving Urdu and Persian; mutineers burned Arabic literature along with all the western scientific literature. As a result after mutiny the British government decided not to interfere with the education system of India and decided to close the Delhi College. All the staff members of Delhi College were shifted to Government College, Lahore. The products of Delhi College became world-famous. They spread the light all over India wherever they go. Most of them went to Punjab and with their arrival, the renaissance began in Punjab.

In retrospect, I can say that Professor Ramchandra looked beyond the colonial educational policy, which was not concerned with how best India could be educated but primarily with the immunization of colonial ideology. The colonial rule was maintained through administrative control but also by mind-set created by ideological persuades. While struggling against the ideological sway of this system, Professor Ramchandra successfully strived to formulate and implement alternatives based on science and western education through the medium of Vernacular languages. Moreover he was conscious of the inadequacy of traditional and literary education to meet the needs of time. Though he could not be sufficiently critical of colonialism, yet he committed himself to the cause of western education in the Vernaculars and decided to do science on his own initiative. Through his writings, he created new values and patterns of expression. He endeavored to formulate a great synthesis of two cultures bringing on the forefront a synthetic renaissance and left deep impact on the common populace who also reacted to development of science and technology during colonial period.

This paper is not merely a chronicling of the historical facts associated with the evolution of scientific temper and science education in India but is an ode to the brilliance of Professor Ramchandra and his immense contribution in popularizing scientific education through vernacular medium and modern means.

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