

# Prafulla Chandra Ray: A Constructive Nationalist, Humanist and a Real Scientist

## Abstract

Acharya Prafulla Chandra Ray was the icon of selfless service to the nation, humanity and science as well. His scientific humanistic political, and social ideology give us insight to plan social and administrative policies for the upliftment of people and reconstruction of India after independence. Like Tagore, Acharya Ray also made a niche in the domain of science, literature, art, politics, mass movement and above all social reforms which meant humanism, his first and utmost target.

**Keywords:** Humanity, Nationalism, Scientific Edifice, Caste System.

## Introduction

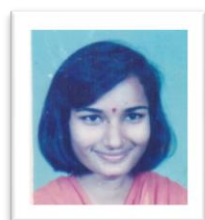
Scholars and historians ignored completely the contribution of Acharya Ray and his prominent students in reconstructing a new scientific India with its ancient values. Subhas was an outstanding leader and undoubtedly one of the finest product of Indian nationalism who was the great architect of modern India. In the present era of turmoil and caste divide when humanity is confronted with a challenge, it is worthwhile to highlight Prafulla Chandra Ray who had his steadfast devotion not only to science but motherland and her people also. Along with the literary luminaries in Bengal in the last half of the nineteenth century like Rabindranath Tagore, Aurobindo Ghosh and spiritual preacher Swami Vivekananda, Prafulla Chandra Ray also deserves mentioning for his distinguished contributions to India and science as well. He was undoubtedly a stalwart in the field of science, but as a man he possessed some rare qualities that made him bedazzle like a diamond. Science, nationalism and humanism coalesced into a new philosophy which guided and encouraged him, helping inculcate into him a spirit of altruism.

## Objectives of the Study

Pondering over his perspectives and practices, philosophies and human values is an exigency because his distinct philosophy of life is relevant to face the present crisis which thwarts our social fabric. Endowed with the attribute of scientific attitude, rationality and humanity, he appeared in the firmament of science as a great scholar. At that time Bengal saw many young people harvesting freedom with their revolutionary blood, indomitable spirit and valour, when the elderly persons like P.C. Ray (1861) and his contemporary Rabindranath Tagore who was senior to him by three months and many others at that situation were not far behind in the freedom struggle, though they lacked in the equal zeal and vigour of Khudiram, Bhagat Singh and Subhash. They proved their potency prominently through their nationalistic and humanistic thoughts which provided a ground, on which the edifice of freedom struggle was built. Theirs was the nationalism, not shallow and separatist, but constructive and humanistic in its approach. They dedicated themselves for the over-all progress of the Indian people, physical, spiritual and social. P.C. Ray was one of the torch bearers of scientific progress, trying to induct a scientific and rational spirit into the hearts of the people for the sake of humanity. He remained unaffected by any parochial and irrational idea which confronted humanity. Science always examines reality. So, as a scientist he never accepted a life, not examined through the prism of science and philosophy like Socrates who boldly heralded: "an unexamined life is not worth living."

## Review of Literature

"Atmcharita", "Samaj Sanskarer Samsya", "Essays and Discourses" and "Life and Experience of a Bengali Chemist" in two volumes by Acharya Prafulla Chandra Ray himself helped to construct his



**Shashi Sheikh**  
Assistant Professor,  
Deptt. of History,  
Barjora College,  
Bankura, West Bengal

actual image as a scientist activist who sacrificed all his energy and time for the betterment of the country. Uneesh Shatker Bangla Bhasay Bigyan Charcha written by Binay Bhusan Ray gives us an insight into the progress of science in India in 19<sup>th</sup> century. "Acharya Prafulla Chandra Roy" of Anil Bhattacharya is a biographical sketch of Acharya Ray, and "Oitijya, Uttaradhikar O Bigyani Prafulla Chandra" by Shyamal Chakraborty is a verbal portrait of this scientist who silently served his country in different way and tried to fight the real curse of India which has still been destroying India's very social fabric.

#### **Concept**

P.C. Ray's humanistic and nationalistic ideology laid the foundation stone for the forthcoming nationality first based on humanity and finally on the basics of science. As a renowned scientist of his time he never ignored his duties towards his society as well as humanity. He was always ready to serve his country. He sacrificed his life for the sake of creating scientific attitude among educated Indians and it would infiltrate down to the less literate, uneducated and poor people of our country.

#### **Research Methodology**

The paper is based on Qualitative research methodology. A concept is constructed by using original speeches, personal letters and autobiographical works. Secondary sources are cross checked with primary sources and then used as authentic sources.

#### **Findings**

Acharya Ray, born on 2<sup>nd</sup> August, 1861, in Raruli Katipara (now in Bangladesh), was a student of Alexander Pedlar, under whose supervision he reached the pinnacle of pharmaceutical industry of India. His parents, Bhuban Mohini Debi and Harsha Chandra Ray, imbibed into him such attributes that made him a progressive teacher with a purely scientific outlook. After 1879 he was seen actively engaged at his research works in the lab of Presidency College and his work on mercury nitrite and its derivatives made him globally known and recognised. He played a seminal role in creating a scientific atmosphere for the country which confronted with many odds and malaise plaguing the people. How millions of Indian people were blighted by superstitions at his times is finely observed by Aldus Huxley who in his essay "Banaras" has finely shown that millions of Indians had been gathering for four days at the banks of the Ganga for having their holy baths during the solar eclipse. Even Gandhiji would not have been able to gather such stupendous crowds for the struggle of freedom if he called upon them, a gibe Huxley made in this essay. So, he realised that Mother India needed a band of highly educated researchers who would dedicate themselves for science to eradicate social maladies and superstitions which plagued the country. He also expected from such scholars a spirit of altruism. They should have never engaged themselves at research work for money for a brighter future. One must have an inner thirst to unearth the hidden mystery of the unknown. He exhorted his scholars from this angle and was able to inculcate into them a true scientific, altruistic

and patriotic attitude. I would like to cite the names of some renowned scientists such as Meghnad Shah, Shantiswaroop Bhatnagar, Gyanchandra Ghosh and many others who followed his path sincerely.

It is intriguing that Acharya Ray had deep passion for history and its ensuing result was that he carried out an enormous task as a chemist to write a history of chemistry in India. For it, he had to go through the works extensively about the development of chemistry in ancient Egypt, Syria, Arabia and China, but did not have any single reference about India in regards of chemistry. Therefore, it is amazing why he broached the idea of compiling and writing the history of chemistry of our country through hard and prolonged labour. Illumined by the glow of science and propelled by the passion of history, he had to toil through the moth-consumed ancient manuscripts written in Sanskrit and Pali over a period of twelve years. Through proper analysis of Indian scientific heritage, he chronicled all the events and information in his famous book, "The History of Hindu Chemistry". While doing this stupendous enterprise, he came to know the reason with a tremendous shock why science in India had lagged behind and why there was no cultivation and continuation of science after Bhaskara. It is history that piqued his interest in learning Sanskrit and Pali.

The caste system in India was vehemently denounced and criticized by Acharya Ray who, unequivocally, averred that the social perpetuation of caste system in India had segregated the people with a very prominent dividing line between the priests and the lower classes and incurred the burden of arts only on the latter. In this respect he observed: "The caste system was established *de novo* in a more rigid form. The drift of Manu and of the later Puranas is in the direction of glorifying the priestly class which set up more arrogant and outrageous pretensions.....The arts thus being relegated to the low castes and professions, were made hereditary, a certain degree of fitness, delicacy and deftness in manipulation was no doubt secured, but this was done at a terrible cost. The intellectuals of the community being thus withdrawn from the active participation in the arts, the how and why of phenomena, the coordination of the cause and effect lost the sight of enquiry and the spirit of enquiry gradually died out among the nation naturally prone to speculation and metaphysical subtleties, and India bade adieu to experimental and inductive sciences. Her soil was rendered mortally unfit for a birth of a Boyle, a Descartes, a Newton and her name was all but expunged from the map of the scientific world."<sup>1</sup> Thus, he has shown how tremendously the caste system had affected the cultivation of science in our country and held Manu accountable for the declination of the rich culture of medicines and surgery of Charaka and Sushruta tradition. "According to Sushruta, the dissection of dead bodies is a sine-qua-non to the students of surgery and his high authority lays particular stress on knowledge gained from experiment and observation. But Manu would have none of it. The very touch of a corpse, according to Manu, is enough to bring contamination to the sacred person of a Brahmin.

Thus, we find that shortly after the time of Bhagvata, the handling of a lancet was discouraged and anatomy and surgery fell into disuse and it became lost sciences to the Hindus<sup>2</sup>, says Acharya.

He equally castigated the spread of the Vedanta philosophy among the educated section as it was a strong trammel to scientific aptitude among the people. "The Vedanta philosophy, as modified and expanded by Sankara, which teaches the unreality of the material world, is also, to a large extent, responsible for bringing the study of physical science into disrepute,"<sup>3</sup> he argued. Science asks piquant questions to have answers about the material world by decoding and unearthing the hidden mysteries through experiments and observations. Let's see how much apprehensive of the Vedanta Mr. Acharya Ray was. He said: "If one believes that the material world itself was unreal or 'Mya', it is impossible for him to harbour curiosity about it, let one seek truth about it."<sup>4</sup> He was the first person to oppose the Advaita philosophy. He averred that the Advaita philosophy which was held in high esteem by the learned section of Indians and the Hindu rituals of casteism were hurdles in the pursuit of truth<sup>5</sup>. To remove the decrepit dogmas from the minds of the students he would perform experiments before the students. Sometimes he would pick a piece of bone from the street, heat it in the Bunsen burner and then suddenly drop it into his mouth; all this was to show that after chemical reaction it changed into calcium phosphate and it did not matter which animal it came from<sup>6</sup>. This was how he taught chemistry, trying to make a scientific bent of mind of his students to jettison all kinds of prejudices. When he failed to inculcate a scientific attitude into some of his students he lamented. In his essay "Search For Truth", he has expressed his traumatic experience: "I have been teaching for half a century, in this period I have taught thousands of students that solar and lunar eclipses are not caused by the demons, Rahu and Ketu, devouring the sun and the moon; and these beliefs are false products of imagination. For half a century I have told this to the students. They listened and agreed. But during the eclipses, the moment the prayer processions come out in the streets, these educated people also join the processions and throw their food."<sup>7</sup> He again remarked: "The people cannot come out of this type of hypocrisy, if they do not accept truth openly."<sup>8</sup>

The soul-killing superstitions and the narrow caste prejudices perturbed him much when he saw the people caught up in the gyre of false and degenerated faiths. He wanted them break free of these false pretensions. The elite and the priestly class had to face the opprobrium of him. He penned down and made a scathing attack to them. He wrote, "Are we humans? All those Haris, Domes, Chamars, Malis, Bagdis and Maithals—who live like animals around your house in the darkness of ignorance.....what you have done for them over the centuries? You do not touch them, do not allow them to come close, you drive them away like dogs. You can take care of your pet dog on your lap, but if the healthy child of the cobbler crawls up your stairs, you roar in the name of your caste and religion."<sup>9</sup> He also

wrote about the inhuman attitude of the upper castes towards the poor lower castes, "If a chamar comes to our door begging for food, it is true that we have shoed him away. We have given him food, but before that we have told him a thousand times; you are a cobbler and untouchable, go away and wait under a tree in the garden—when we'll eat, you will get the leftovers. This way we have trodden millions of Indians under our feet for centuries."<sup>10</sup>

He even criticized the Congress leadership for their compromising attitude on the matter of casteism which became the hurdle in the way of creating national identity. He said, "In our country, we need 500 hundred stoves for 500 Congress delegates. Even that is not enough, the delegates of Madras will talk of sight-pollution, if a man from a lower caste looks at the cooked food of the Brahmin, the food becomes polluted. Would these pundits tell me if the food will become polluted if one looks from distance through telescope?"<sup>11</sup> For him the country was the first and last issue to think about. At the age of sixty he was too much dedicated to his research when he wrote to his scholar Meghnad Shah, "If I do not work for 6-7 hours in the laboratory, I find that I have passed the day in vain."<sup>12</sup> And while in seventies, he wrote to Ramanand Chatterjee about his complete satisfaction as a student of science. Though he called himself, "a scientist by mistake" he had immense love for literature.<sup>13</sup>

Though Acharya Ray was not an active politician, he could not distance himself from the waves of freedom struggle sweeping through the nation at that time. But he dreamt of seeing India economically independent rather than politically and to achieve this goal he realised that industrialisation in India was an only exigency. To accelerate the process of his ambitious project "The Bengal Chemical Pharmaceutical Works" took off just before the Swadeshi Movement and rapidly took the shape of a company. He observed that India was suffused with myriad of raw materials which remained unutilised, whereas Europe and America emerged as economically and industrially powerful countries by utilising their own natural resources. In this regards we can examine his views, "In Europe industry and scientific pursuits have gone hand in hand ....one helping the other.... The gigantic progress in industry achieved in Europe and America, is a history of the triumph of researches in laboratory...these thoughts were weighing heavy on me at the very threshold of my career at Presidency College. How to utilize the thousand and one raw products which nature, in her bounty, has scattered in Bengal? How to bring breads to the mouths of the ill-fed...?"<sup>14</sup> His passion for and hard work in establishing a nationalist industry 'Bengal Chemical' enthused many like-minded doctors and pharmacists like Dr. Amulya Charan Basu, Chandra Bhushan Bhaduri, Radha Govinda Kar, KulBhushan Bhaduri, Suresh Prasad Sarbadhikari, Chittaranjan Das and Subhash Chandra Bose who lay their heads and joined hands for the same aims. He iterated tirelessly that the progress of India could be achieved only by industrialisation. Several textile mills, soap and sugar factories,

chemical and ceramic factories and many publishing houses could not have been set up in Calcutta, had Prafulla Ray not been there, and directly or indirectly his co-operation had not been extended. We could see him directly involved in some establishments such as Bengal Potteries, Bengal Enamel Works, Calcutta Soap Works, National Tanneries, etc. Endowed with inspiring dynamism, vigour and zeal, Prafulla was a driving force behind the industrialisation of the country that began during that time. It is worthwhile to note that he used no profits from the successful industries and spent his share for the welfare of the workers.

In 1919 when the nation was burning in the flames of the infamous Rowlatt Act, a meeting was organised at the Town Hall of Calcutta. The main speaker was Deshbandhu Chitranjan Das who invited and requested Prafulla Chandra Ray to make a speech and he agreed. In an emotional tone he said, "There are occasions that demand that I should leave the test tube to attend the call of the country .... For science we can wait, for Swaraj we cannot."<sup>15</sup> He actively participated in the Non-Cooperation Movement by campaigning in favour of boycotting foreign goods. He began spinning Khadi with a charkha in his Calcutta University room. But he differed in opinions with Gandhi on the issue of supporting the retrospective Khilafat Movement. He never hesitated to air his critical views. It never meant that he was a separatist. He opposed the nationalism on the basis of religion, when the British rulers started the norm of separate elections for the Hindus and Muslims to the legislative forums. Though the Congress remained indifferent to it, a few angry Congressmen quitted in protest and started a new party, 'the Nationalist Congress' and convened a conference in Calcutta on 18 August, 1934. Prafulla Chandra criticised the Congressmen for being opportunist and held them responsible for the communal divide.

He was a great humanist and expressed his opinions also about the international issues. In 1935 Roman Rolland, the humanist writer convened a conference against the rise of fascism in Europe. A supporting letter, in which Acharya was a co-signatory with Rabindranath Tagore and Sarat Chandra Chattopadhyay, was sent from India. When Nazi Germany attacked Russia, a meeting was called in the Town Hall of Calcutta on 21 July, 1941. He said, "Over the past 20 years overcoming great odds, the Soviet Union has built anew a society. When that society is under attack, the Indians cannot remain indifferent. We are helpless and subjugated; but we express our best wishes. We shall wait for the day when the Soviet Union will defeat the enemies. The day will come." Prafulla Chandra was the first signatory in that statement titled as, "Soviet Achievements—Indian victorious Intellectual's Manifesto."<sup>16</sup>

Though an active scientist, Acharya never cocooned himself in his laboratories. He responded to his social obligations and actively participated in such activities. In 1921 there was a famine in the Khulna district. Despite repeated requests from all sections of the people, the colonial government remained silent

and at last refused to arrange any relief measures. Prafulla Chandra Ray formed a Khulna Relief Committee and led a sustained relief effort over months to collect money to feed the famine-affected people of the district at the age of 60. Again in 1922 a devastating flood inundated North Bengal, the government was a mute spectator. Subhash Chandra Bose formed the 'Bengal Relief Committee' and elected Acharya Ray the President of it. He appealed to his scientist students to come out of the laboratory in this hour of crisis and serve the humanity. Being enchanted with the values of this charismatic humanist, many students and youths toiled from morning to evening to raise flood relief fund under the leadership of Meghnad Shah. A correspondent for the Manchester Guardian wrote, "In these circumstances, a professor of chemistry, Sir P.C. Ray stepped forward and called upon his countrymen ..... His call was responded with enthusiasm. The public of Bengal in one month gave three lakhs rupees."<sup>17</sup> That was a huge amount donated for relief for the flood affected people at the call of a scientist humanist who was not a political figure. Even at the age of 70 he left no stone unturned, when flood again struck North Bengal in 1931. He formed a 'Sankat Tran Samiti' and monitored the relief works from the Calcutta University. For many years he helped the flood victims by forming cooperatives. The direct participation in relief works and helping the poor imbibed human values into the characters of his students. Meghnad Shah was so much touched by the miserable experiences of the flood affected people that after the independence of India he spent a considerable time and energy in river planning and gave shape to the Damodar Valley Corporation.

Acharya Prafulla Chandra Roy worked at a time when there was no scientific edifice in India. Being a professor of Presidency College or Calcutta University, he never led a luxurious life but gave away his all earnings in charity. He spent nine-tenths of his income to mitigate the sufferings of the people. He supported many poor but meritorious students. He also donated Rs.1,80,000.00 to the Calcutta University for the advancement of science and education. A loving teacher and a good student organiser could attract and drive his pupils for the sake of science, nation and above all humanity with his charismatic personality which was a combination of simplicity and high intellect. His simplicity attracted Gandhiji also who remarks, "It is difficult to believe that the man in simple Indian dress and simple manners could possibly be a great scientist and professor."<sup>18</sup> I pay my homage to him before ending this chapter with his message for the nationalists, scientists and above all humanists of all times. In his speech, "Social Reform in India", he said, "I appeal to my fellow-countrymen, high and low, rich and poor, Brahmin and non-Brahmin, orthodox and heterodox, to forget the pride and vanity of place and birth, and begin ministering to the limps, the neglect of which now drags us down to a life of humiliation. It makes the name of our Motherland a byword of contempt and reproach in the civilized world. India must wake up, shake off her degradation, put life and heart into

every class of her people, elevate her women and depressed classes and remove the galling restrictions of caste and all social inequalities. When this is done, she will enter into a new era of her life and then, like 'Prometheus Unbound', she will be recognized as a great power in the world and will have a unique place in the comity of nations."<sup>19</sup>

#### Conclusion

The Bhisma Pitamah of Indian Chemistry' was never weary of his age. Being a decrepit and sick man with chronic dyspepsia and indigestion, he never got tired whether in his laboratory or outside of it even in his eighties when people generally wait for the heavenly call. He was evergreen in mind and thoughts, enriched in experiences to guide the next generations. He opposed the nationalism on the basis of religion and caste and support the humanistic approach towards its people. He spent all his time for the sake of Indians and standing by them in their adversaries .He was also the innovative and energetic teacher to inspire his students to serve the country.

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