ACHARYA PRAFULLA CHANDRA RAY — IV

(*Continued from the issue of January 2014*)

P. C. Ray, The Industrialist

On the occasion of Prafulla Chandra Ray's 70th birth anniversary, the great Jagadis Chandra Bose began his tribute to Ray with the following words ([7], p. 5):

> Sir P. C. Ray has produced a deep impression in his dual capacity as a pathfinder and originator of work of great utility. From the earliest days he exhibited a special faculty for carrying out original investigations of a high order. It is impossible at the present time for others to realise the numerous difficulties and obstacles that confronted him. But these were never able to stand in the way of reaching the goal he had set before him; on the contrary they served as a stimulus to awaken to the utmost his latent powers.
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> In his long and distinguished career as a scientific investigator, . . . he has not only made important contributions in advancement of science, but has also evoked the true spirit of research among his disciples, many of whom now occupy very prominent positions in the scientific world. Such an achievement in the lifetime of one man is indeed remarkable but Sir P. C. Ray has done a great deal more.
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> He was one of the first to realise the importance of Indian industries for the economic advancement of the country. With this object in view he risked the very little he possessed; and the venture started in this modest way has now grown into perhaps the most successful chemical industry in the whole of India. By his personal faith and enthusiasm he has succeeded in enlisting for this work the whole-hearted devotion of his collaborators.

Among modern Indians, P. C. Ray was not only the pioneer of chemical research, he was also the pioneer of the chemical industry. The venture referred to by J. C. Bose is the Bengal Chemical and Pharmaceutical Works Ltd.,[1] popularly known as "Bengal Chemical". At a time when the aspirations of the Bengali middle class were limited to (usually petty) Government jobs under an alien administration or to the practice of law, P. C. Ray emphasised and demonstrated the importance of trade, commerce and industry. He impressed upon the youth of Bengal to shake off

1. The name of his company is somewhat long; but Ray decided on this name after considerable deliberation; he was particular that his enterprise must represent both the chemical and the pharmaceutical sides.

their lackadaisical attitudes, to understand the dignity of work, and to take up industrial and manual labour. He cautioned that "no political renaissance is possible without the full development of the intellectual and industrial resources of the country" ([4], p. 173). Bengal Chemical not only provided employment to some science graduates, it inspired a spirit of self-sufficiency in the society. It also triggered other industrial efforts. To anyone venturing in industry or business, P. C. Ray would advise ([1], p. 159):

— Do not give up, persevere.
— Have a sound apprenticeship before taking the plunge.
— One cannot succeed without zeal, ceaseless effort and dedication.

Valuable guidelines from the Acharya — to be constantly remembered in any serious pursuit, material or spiritual!

From his early life, Prafulla Chandra had been a witness to the frequent famines and the growing poverty in the country. The historian in Prafulla Chandra was keenly aware that, prior to the British rule, there flourished in India highly developed and opulent industries, the product of which were in great demand among other nations. During the colonial rule, Indian industries had been destroyed in the interests of British manufacturers. Under an alien rule hostile to native industries, people had lost the driving power, the initiative, to take up any venture.

Alarmed at the growing unemployment in Bengal, P. C. Ray felt the urgency of reviving the lost spirit of industrial enterprise. He realised that, in the absence of industries, people would perish of poverty. He knew that, for successful industrialisation, science had to be harnessed, *creatively*, by the Indian manufacturers. His Bengal Chemical demonstrated how to put scientific knowledge to industrial use. As he observes in his autobiography ([6], p. 92):

> The history of the gigantic progress of industry achieved in Europe and America is a history of the triumph of researches in the laboratory. In Bengal the one thing needful was not so much the establishment of Technological Institutes as the initiative, the dash, the pluck,[2] the resourcefulness in our youths that go to the making of a businessman or an entrepreneur or a captain of industry.

The one major factor for the heroic triumph of Bengal Chemical was the spirit of innovation, scientific and otherwise, of the Acharya and his team. We now give a few glimpses of the flow of events and ideas at the inception of Bengal Chemical.

2. One is reminded of the statement of Swami Vivekananda: "What my nation wants is pluck and scientific genius." (*Complete Works*, Vol. VI, p. 363)

From the very beginning of his professional career at Presidency College, P. C. Ray noticed the occurrence of numerous raw materials scattered around in various locations of Bengal. He wished to make use of this bounty for commercial productions and "bring bread to the mouths of the ill-fed, famished young men of the middle classes" ([6], p. 92). As a realistic first step, he considered the possibility of producing items which could be manufactured in Bengal on a small scale, would find a ready market, would not require a big capital, and which would not interfere with his academic duties. He first thought of extracting citric acid from lemon juice but soon realised that the project would not be commercially viable. He then hit upon the idea of going in for drugs, chemicals and pharmaceuticals with the added objective of making India self-sufficient in these crucial items. Many chemicals and chemical products which can be manufactured in India were being imported and consumed at a high cost; Ray realised that there was a good opportunity for indigenous production of the basic chemical ingredients of the pharmaceutical industry. With a meagre capital of Rs. 700, saved from his (then) paltry salary, Ray commenced his industrial venture. Ray decided to begin with the manufacture of sulphuric acid, the "mother of all other industries" ([6], pp. 93-94).[3] But, in his own words ([6], p. 94):

> When I began my preliminary trials, I had no previous experience in this line to guide my path nor any tradition to follow, — no mariner's compass to help me to steer my course.

D. Waldie and Co. of Cossipore (a suburb of Calcutta) had begun to manufacture sulphuric acids and other mineral acids on a large scale and initially they supplied Ray his requirements. Ray found out that most of the other local manufacturers were able to produce sulphuric acid and its by-products only on a miniature scale, through primitive and wasteful methods. He would soon take charge of one such acid factory (at Sodepur near Calcutta) and apply his scientific knowledge to produce the acid in a more efficient way. He was assisted in this venture by Chandrabhusan Bhaduri, the demonstrator at Presidency College "who had an instinctive insight into problems involving chemical engineering" ([6], p. 96) and his younger brother Kulbhusan Bhaduri, a gold medalist and M.A. in Chemistry.

Ray also started preparing sulphates of iron and phosphates of calcium. For the former, he could obtain large quantities of scrap iron at a negligible cost. Cattle-bones, the main raw-material for producing phosphate of soda, were also easily available in Calcutta. Ray's first experiment of producing a large mass of bone-ash for preparing the superphosphate of lime by burning a pile of cattle-bones was performed in a plot of land at Maniktala near Muraripukur "destined to be the scene of the

3. Ray once quoted the German chemist Liebig's statement that "the industrial progress of a country was measured by the output of its Sulphuric Acid" ([4], p. 143). A visit to a large sulphuric acid plant in Glasgow had also convinced Ray of its significance.

famous bomb manufactory of the 'Partition of Bengal' anarchists' days" ([6], p. 98).[4]

Having solved the problem of locally manufacturing the required chemicals on a large scale, Ray commenced the production of pharmaceutical drugs in 1893. From the beginning, he was very particular about the quality of his products. However he had to wait for ten years before he could implement his scheme of chemical and pharmaceutical production on a much bigger scale, with an adjunct "acid" unit. In the meantime, he plunged into a study of books and journals to understand the intricacies of pharmaceutical preparations. Ray gives an instance ([6], p. 103) of how his studies supplemented his practical efforts in the field. Initially, his preparation of a syrup of iodide of iron used to turn slightly brown[5] whereas the corresponding imported drug kept its light green colour intact for a considerable time. One day, while browsing a journal, Ray came across the hint for solving the problem — a minimum quantity of hypophosphorus acid added to the ferrous iodide solution acts as an excellent preservative. This helped him retain the light green colour for any length of time.

Initially, Ray had the up-hill task of selling his medical products. The local dealers in drugs insisted that while *Bilati* (imported) drugs from reputed firms commanded a ready sale, *Deshi* (indigenous) drugs would be refused by the customers. At that difficult juncture, Ray got valuable support from his batchmate Dr. Amulyacharan Bose, a successful medical practitioner. Dr. Bose too was "full of patriotic impulses" and had the realisation that unless new employment opportunities (like the scheme envisaged by Ray) were opened out to the middle-class youth, there would be economic ruin bringing about a national disaster. Dr. Bose not only fetched some capital for Ray's enterprise, he launched a vigorous campaign among the medical fraternity in favour of Ray's products. Ray remarks ([6], p. 104):

> There is perhaps some point in the saying: "set a thief to catch a thief."

Doctors with nationalist feeling like Dr. Radha Gobinda Kar,[6] Dr. Nilratan Sircar and Dr. Suresh Prasad Sarbadhikari began to prescribe the drugs manufactured by Ray's enterprise.

4. P. C. Ray describes the burning incident ([6], p. 98): ". . . [the bones] were piled up as in a brick-kiln, and set fire to late in the evening. At midnight the entire mass was ablaze and the policeman of the beat ran to the spot and suspecting some foul play exclaimed ईहां क्यालास् जलाताहै — *ihṅā kyā lās jalāta hai* — a corpse is being cremated (in the wake of a murder). In order to disabuse him of this notion a pole was thrust into the burning pile, and only when clusters of loose bones came out, was the policeman convinced of the bona fide of the transaction and went on his way."

This fire would usher an industrial resurgence in Bengal. In the very next decade, the same site would be a witness to the activities of revolutionaries (and visits of the police) whose flames would engulf the whole nation.

5. This was due to the ferrous iron absorbing oxygen from the air and getting slightly oxidised to the ferric state and also due to the iodide liberating minute traces of iodine.

6. Dr. Kar, along with Dr. Sircar, founded the Carmichael Medical College, now renamed R. G. Kar Medical College.

Ray had begun with the standard (western) pharmaceutical preparations then in vogue. Dr. Bose, who had an instinctive faith in the therapeutic properties of the traditional Ayurvedic drugs, gave a new direction to Ray's enterprise. Consulting several *Kavirajas*, Dr. Bose collected for Ray the formulae and recipe for Ayurvedic preparations and Ray's unit began to produce these drugs. Again, Dr. Bose undertook a regular campaign in favour of these drugs, himself taking the lead in using them in his prescriptions. Indeed, it was found that an indigenous syrup like *Vasaka* acted more effectively than the corresponding universal medical syrup. The newly introduced indigenous drugs began to make headway in the market. The efficacy of these drugs was explained in modern scientific terms. At the Indian Medical Congress in Calcutta (1898), Ray's unit displayed their preparations of Indian drugs which attracted the attention of doctors from different parts of India. A strong representation was made by the Council of the Medical Congress urging the official recognition of some of these drugs, and the British Pharmacopoeia authorities finally included them in the "Addendum".[7] A section of the doctors made it a point to include the preparations of Ray's unit in their prescription whenever possible. Thus Bengal Chemical of P. C. Ray (the author of *History of Hindu Chemistry*) demonstrated the merits of some of the indigenous Ayurvedic medicines.

Orders for drugs from Ray's unit began to increase. After performing the exacting college duties,[8] Ray used to "migrate" every afternoon, at 4.30 p.m., from his college laboratory to the pharmacy's laboratory to work at a stretch from 4.30 p.m. till 7 p.m., clearing all files. A strenuous life; but Ray remarks ([6], p. 106):

> When work is coupled with a keen sense of enjoyment it does not tell upon your health; the very idea of locally manufacturing pharmaceutical preparations, which hitherto had to be imported, acted like a tonic.

However misfortunes befell his young venture. Satischandra Sinha (M.A. in Chemistry and husband of Amulyacharan's sister), who was giving valuable assistance to Ray in producing chemicals and checking their quality, succumbed to an accidental poisoning by hydrocyanic acid leaving behind his aged parents and a young widow. P. C. Ray could not help but feel personally responsible for the tragedy,[9] as Satischandra had forsaken the legal profession to plunge heart and soul

7. The use of some of the indigenous drugs in place of the corresponding official drugs was strongly recommended by O'Shaughnessey (the Irish physician who introduced the telegraph in India) as early as in 1841, and subsequently by Kanai Lal Dey and Udoychand Dutt (cf. [6], pp. 104-05).

8. Recall that, during this time (the period from the mid-1890s), P. C. Ray was also deeply involved in research on nitrites (he discovered mercurous nitrite in 1895) and the painstaking research on ancient Indian Chemistry, apart from his heavy teaching duties.

9. Writes P. C. Ray ([6], p. 108): "The deep anguish of mind of Amulya and myself cannot be described. We felt as if we were personally responsible for the loss of a valuable life. Thirty-two years have elapsed since the tragic incident; but as I write these lines, a shudder, like an electric shock, passes through my frame."

in Ray's infant concern. Ray had already lost his father in 1894 and had to arrange for an amicable clearance of his father's debts by the sale of a portion of his family estate. The sulphuric acid factory at Sodepur was in a bad shape needing capital which Ray did not have and, reluctantly, Ray had to scrap it incurring some losses (though gaining in experience which would prove to be a valuable asset later). Finally, Amulyacharan contracted the infamous plague (1898) while treating a patient and passed away.

Withstanding all these blows, Ray continued his activities with "a grim, dogged determination" and Bengal Chemical registered a steady growth. Its reputation increased rapidly. As funds were needed (the capital stood at about Rs. 3000 in 1901), Ray decided to convert it into a public limited liability company. The company named "Bengal Chemical and Pharmaceutical Company Ltd." was formed in April 1901 by P. C. Ray, along with Chandrabhusan Bhaduri, Bhutnath Paul, Dr. Kartick Chandra Bose, Charu Chandra Bose and the widows of Amulyacharan and Satischandra ([8], p. 73). Bhaduri introduced innovations and procured modern devices like steam pans, disintegrators, vacuum stills, filter presses, enabling production on a large scale. Bhutnath Paul, proprietor of a large medical store (Messrs B. K. Paul and Co.), took care of the business side. A patriotic person, Bhutnath Paul had encouraged and helped Ray during his initial struggles in the pharmaceutical field. Being a medical man, Dr. K. C. Bose filled the void created by the demise of Amulyacharan.

Within a year, the Company attained a capital of Rs. 23,500 and began to recruit men of extraordinary administrative ability, intellect and technical acumen, the most prominent among them being Rajsekhar Bose (the famous writer "Parashuram") and Satis Chandra Dasgupta. Rajsekhar Bose (M.A. in Chemistry) joined Bengal Chemical as a chemist in 1903 and soon became its Manager and Secretary. Under his leadership, Bengal Chemical would establish itself as a flourishing house of research and manufacturing. An important quality of Bose was his exceptional ability of training others. He retired in 1933 but continued to be on the Board of Directors till his death (1960). Dasgupta was the Factory Superintendent for many years; he retired in 1925 to join Gandhiji's national movement.

From the first decade of the 20th century, Bengal Chemical began to materialise P. C. Ray's vision of a large-scale industrial establishment. New land was acquired at Maniktala (in Calcutta). With the benefit of Ray's experience at the Sodepur factory, a large sulphuric acid plant was set up at Maniktala during 1904-07.

Dr. Morris Travers, the first Director of the Indian Institute of Science (IISc, Bangalore), visited the Chemical Works during the construction period. In a report to the Calcutta University, Travers observed that the construction and management of the Works was done by former students of P. C. Ray from the chemistry department of Presidency College. He wrote ([6], pp. 110-11):

> The design and construction of the sulphuric acid plant and of the plant required for the preparation of drugs and other products involved a large amount of research work of the kind which is likely to be of the greatest service to this country and does the greatest credit to those concerned.

A bird's eye-view photograph of the Maniktala factory, printed in P. C. Ray's textbook on Chemistry (1909), created an enthusiastic stir among the public in those early days of chemical industry in India. It must have, in a subtle way, inspired more youngsters to take up chemical research and industry-related activities, at least in Bengal.

When, as a young man with D.Sc. from Edinburgh, Ray was desperately seeking a job in the Education Department, the Director of Public Instruction (DPI) of the colonial Government had made the snide remark that if he were such a clever chemist he could probably start industries himself and employ others as assistants on the salary of a DPI ([4], p. 171). Ray achieved that and much more. Ironically, during the First World War (1914-18), the British Government itself would approach Ray's enterprise for supplies for its war efforts! The request was made not directly but through the President of the London Chemical Society. Ray, who had a cherished relation with the Society, readily obliged and supplied large quantities of sulphuric acid, nitric acid, sodium thiosulphate, caffeine, fire extinguisher (devised by Dasgupta), surgical cotton, etc.

In spite of the apathy of the colonial Government to the difficulties faced by industries in India in the aftermath of the War, Bengal Chemical continued to prosper and expand. In the early 1920s, a huge sulphuric acid plant was set up at Panihati (in the North Parganas district of West Bengal). Later, branch factories were established in Bombay (1934-38) and Kanpur (1949).

Sir John Cumming had observed in 1908 ([6], p. 111):

> The Bengal Chemical & Pharmaceutical Works, Ltd., is one of the most go-ahead young enterprises in Bengal. . . . The enterprise shows signs of resourcefulness and business capacity, which should be an object lesson to capitalists of this province.

As P. C. Ray put it ([5], p. 318):

> The Bengal Chemical and Pharmaceutical Works have shown what Indian intelligence and local training can do, and they should be considered the true pioneers of a new industrial era in which enterprise is not supported by the charity of the Government or of unpractical philanthropic enthusiasts, who have more money to spend than ideas about the development and growth of industry and commerce. Tata has shown us what enterprise plus capital can

> do; the Bengal Chemical and Pharmaceutical Works have shown India what enterprise plus resourcefulness can do. They are both wonderful examples to an eager nation . . .

Apart from Bengal Chemical, P. C. Ray patronised several industries, many of which were established at his initiative. To mention some of the industrial and commercial ventures with which he was associated: Bengal Potteries, Bengal Canning and Condiment, Bengal Enamel Works, Bengal Salt Manufacturing Company, Bengal Paper, Bengal Steam Navigation, Acharya Prafulla Chandra Cotton Mills at Khulna (now in Bangladesh), National Tanneries, a weighing machine manufacturing unit (Bharati Scales and Engineering Company), the publishing house Chuckervertty, Chatterjee and Company Ltd,[10] Khadi Pratisthan, etc. With the increasing scarcity of other employment opportunities, Ray's enterprises came as a godsend for the youth of Bengal. But, though an industrialist, P. C. Ray raised his voice against relentless capitalism and mechanisation and the ruin of village life (cf. [6], pp. 379-94).

P. C. Ray represented a blending of the simplicity of the East with the vigour of the West. As G. J. Fowler remarked ([7], p. 396):

> In Sir P. C. Ray we have a representative of what is best in Eastern and Western civilisation. . . .
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> . . . by his business acumen and energy he has been able from small beginnings to build up the most successful enterprise in manufacturing chemistry in India. He may therefore claim to be able to meet the active Western world on its own ground.
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> Having thus won by his own efforts personal freedom and a measure of wealth, he has chosen, not the path of ostentation or display, but of simplicity and charitable service. In this he follows the best traditions of the East.

Though Acharya Ray advocated the use of modern science for practical applications and the creation of wealth, he did not get carried away by everything that goes in the name of science. An anecdote narrated by Dr. P. C. Ghosh ([8], p. 260) vividly illustrates the Acharya's attitude in this regard. One morning, at the

10. Acharya Ray encouraged three of his former students, Ramesh Chandra Chakravarti, Mukunda Lal Chakravarti and Ahindranath Chatterjee to start a publication and book-selling business. All of them belonged to the first batch of students (1910) taking the M.Sc. (Chemistry) degree of Calcutta University. The three friends began the business on a modest scale under the guidance of Acharya Ray who used to drop in to find out if they had any difficulty and gave advice whenever required. The enterprise, registered in 1919 as the Chuckervertty, Chatterjee and Co. Ltd., began to do very well and continues to flourish. Acharya's celebrated *Life and Experiences of a Bengali Chemist* was published by this Company. To get a feel of the atmosphere of the era, we mention here that Ramesh Chakravarti, who was of a religious bent and had retired from the Company (after serving for a number of years) to lead a secluded life, had returned from his seclusion for a time when the Company was not doing too well.

Khadi Pratisthana in Sodepur (near Calcutta), Mahatma Gandhi saw Acharya Ray cleaning his teeth in the traditional way with a *Neem* twig and remarked:

> You are using *Neem* stick, but you manufacture tooth powder from the Bengal Chemical.

Straight came Acharya Ray's reply:

> That is meant for the fools; we manufacture it, otherwise they would use foreign products.

The Acharya often reminded his associates, "We are Indians first, and Bengalis afterwards." While his own enterprises were based in Bengal, the cause of any indigenous commercial venture, whether from Bengal or from Bombay, was dear to his heart. We mention an incident in this connection narrated by Meghnad Saha ([8], pp. 211-12) which took place in a ship, run by the Scindia Steam Navigation Co.[11] Apart from P. C. Ray, Meghnad Saha and a few others like Dr. Jivraj Mehta of Bombay, Prof. N. K. Siddhanta of Lucknow and the anthropologist B. S. Guha, most other Indian passengers were young boys from Bengal, Punjab and other provinces going to England for study. A few British ICS officers, who were also in the same vessel, engineered a complaint regarding the quality of food and service on board and instigated the inexperienced Indian students to prepare a petition urging the shipping authorities to cancel the permit for the Indian company. When the students brought the petition to P. C. Ray for his signature, Ray asked them if they had ever travelled to Europe. They had not. P. C. Ray said:

> My young friends, this is the seventh trip I am making to Europe, and before this I had travelled by the P. & O. and ships of other European companies; I

11. The Swadeshi Movement included efforts to revive the glorious tradition of ship-building and maritime activity in ancient India; but powerful British vested interests were determined to crush such enterprises. The Bengal Steam Navigation Company, started in 1905, collapsed in the face of paralysing obstacles. In several of his articles in the *Bande Mataram* during March 2008, Sri Aurobindo gave strong support to the Swadeshi Steam Navigation Company, established by V.O. Chidambaram Pillai (1872-1936) at Tuticorin in October 1906, and condemned the shameless persecution of the Company by the British bureaucracy. Sri Aurobindo, who had hailed Chidambaram Pillai "for having shown us the first complete example of an Aryan reborn" (*SABCL*, Vol. 1, p. 797), described the Tuticorin navigation venture as "a step which meant the beginning of the end for the British commercial monopoly in India" (*SABCL*, Vol. 1, p. 803). (I am grateful to Prithwindranath Mukherjee for drawing my attention to the *Bande Mataram* articles.)

The Scindia Steam Navigation Company, founded in 1919 by Narottam Morarjee and Walchand Hirachand, was the first large scale Swadeshi shipping company. Mahatma Gandhi used to refer to this company in his columns on the Swadeshi movement in *Young India* and *Harijan*. The first ship of the company sailed for the UK on 5 April, 1919. It was a crucial step in Indian shipping history. 5 April is therefore observed as The National Maritime Day. In the next issue we shall recount an anecdote about an inland steam navigation company with which Acharya Ray was involved.

> can assure you that the food and other arrangements here are as good as on any British or other foreign boat.

After a long argument, the boys realised their mistake. With their consent, P. C. Ray tore the petition to pieces and threw it into the sea.

The Acharya remembered with gratitude people who helped him. Dr. P. C. Ghosh recalls ([8], p. 260) that, acknowledging the contributions of Rashbehari Ghosh, Acharya Ray used to say:

> Had there been no Rashbehari Ghosh, there would have been no Bengal Chemical today.

We end this part by recalling another eye-witness account of the Acharya's reverence for other idealists, narrated by Monoranjon Gupta, a sub-editor of the weekly *Sanjibani* edited by Krishna Kumar Mitra.[12] Sometime in 1927, Gupta mentioned to the Acharya that, in spite of economic difficulties, the weekly continued to observe the vow taken by its editor K. K. Mitra of not accepting advertisements for foreign soap. Hearing this, the Acharya looked at Gupta's face "with steadfast eyes and breathed a sigh". Slowly, he said ([3], pp. 85-86):

> If possible, please see the advertisement of Bengal Chemical's Syrup Vasaka and Hypolime in the old files of *Sanjibani*. Krishnababu had helped us enormously; for, those were at a nominal cost.

(To be continued)

AMARTYA KUMAR DUTTA

12. Krishna Kumar Mitra (1852-1936) was a renowned Brahmo leader, educationist, social reformer, journalist and Swadeshi activist. He married Lilavati, a daughter of Raj Narayan Bose (the maternal grandfather of Sri Aurobindo and one of the makers of modern Bengal). It was at his initiative that C. R. Das became the defence counsel of Sri Aurobindo in the Alipore Bomb Case; it was at his residence at 6, College Square, that Sri Aurobindo stayed after his release in May 1909 till his departure from Calcutta.

K. K. Mitra hailed from the village of Baghil in Mymensingh (now in Bangladesh). His father had organised an armed resistance in the village against the oppressive English indigo planters. In 1883, Krishna Kumar launched the nationalist Bengali weekly *Sanjibani* to raise the latent nationalist consciousness of the people. The *Sanjibani* regularly published articles exposing the abominable exploitation and repression of tea-garden workers in Assam by the British owners, forcing the Government to provide some legal protection to the workers. Krishna Kumar took part in the agitation of the indigo farmers in 1890. He was active in the anti-Partition movement; he was one of the nationalists deported from Bengal in 1908.

Monoranjon Gupta mentions ([3], p. 148) that, in order to attract students to Chemistry, P. C. Ray used to visit the classes of some schools with bottles of aromatic chemicals, encouraging the students to inhale the fine fragrance in the bottles and assuring them that by the study of chemistry they will be able to produce such chemicals. And one of the schools that Acharya Ray used to visit for many years was the City School where K. K. Mitra taught for a long period. Mitra's daughter Kumudini edited a monthly journal *Suprabhat* which published P. C. Ray's famous article "The Bengali Brain and its Misuse" (reprinted in [5]); Sri Aurobindo's review of the article appears in *SABCL*, Vol. 3, pp. 432-33..

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Our sense of the greatness of our past must not be made a fatally hypnotising lure to inertia; it should be rather an inspiration to renewed and greater achievement.

Sri Aurobindo

(*The Renaissance in India*, CWSA, Vol. 20, p. 87)