

ACHARYA PRAFULLA CHANDRA RAY — III

(Continued from the issue of December 2013)

P. C. Ray, The Historian of Ancient Indian Science

SRI AUROBINDO writes in “A Rationalistic Critic on Indian Culture — 3” (SABCL Vol. 14 p. 67):

To say that Indian philosophy has led away from the study of nature is to state a gross untruth and to ignore the magnificent history of Indian civilisation. If by nature is meant physical Nature, the plain truth is that no nation before the modern epoch carried scientific research so far and with such signal success as India of ancient times. That is a truth which lies on the face of history for all to read; it has been brought forward with great force and much wealth of detail by Indian scholars and scientists of high eminence, but it was already known and acknowledged by European savants who had taken the trouble to make a comparative study in the subject.

The greatest among Indian scholars and scientists who have researched and written on ancient Indian science is Dr. P. C. Ray, the “Master of Nitrites”. In his highly acclaimed monumental work *History of Hindu Chemistry*,¹ P. C. Ray makes a systematic and thorough presentation of the knowledge of chemical science and technology recorded in extant ancient and medieval Indian treatises. The book, published in two volumes in 1902 and 1909 respectively, was the fruition of a dedicated painstaking research spanning 12 years. It is perhaps P. C. Ray’s most lasting contribution for posterity. Prior to Ray’s treatise, no account of the knowledge of ancient Indians could be found in modern books on the history of chemical science. Ray’s book and *History of Hindu Mathematics* by B. Datta and A. N. Singh (published in two volumes in 1935 and 1938) remain the richest source-books for information on ancient Indian Chemistry and Mathematics respectively.

The genesis of Ray’s treatise is itself an interesting history. From the late 18th and early 19th centuries, European and Indian Indologists had been making a vigorous study of ancient Sanskrit texts. Thus began an awareness about some of the advances made by ancient Indians in areas like Philosophy, Mathematics, and to some extent Medicine. But as P. C. Ray records in his Preface to the first volume of *History of Hindu Chemistry* (1902):

1. In early Indological discourses, the adjective “Hindu” was inclusive of Jain and Buddhist, and may be read as a synonym for “ancient Indian”.

One branch has, however, up till this time, remained entirely neglected, namely Chemistry. Indeed, it may be assumed that on account of its complex nature it has hitherto repelled investigators.

P. C. Ray, who always had a fascination for studying the development of the knowledge about chemical substances in various nations, was aware that the medical prescriptions of the Ayurvedic system of treatment based on Charaka and Sushruta, practised by the *Kavirajas*, used certain metals, their oxides and other derivatives. Curious to know about the progress in chemical science in ancient India, Ray undertook a systematic examination, from this chemical standpoint, of original Sanskrit texts quoted in the *Materia Medica of the Hindus* by Udoychand Dutt. The investigations brought him in correspondence with the illustrious French chemist and science historian M. Berthelot.² The 70-year-old doyen of the chemical world wrote a letter (1897) appreciating Prafulla Chandra's own chemical researches and expressing his strong desire to know all about ancient Indian contributions. He even made a personal appeal to Ray to help him with information on the subject. In P. C. Ray's words ([6], p. 117):

The moral effect, the letter produced on me, was profound. Here was perhaps the then foremost exponent of our science, approaching the allotted span of life, according to the Hebrew scriptures, showing youthful unbounded enthusiasm to know all about a new chapter in the history of chemistry, and I, a young man, was progressing rather slowly. I received almost an electric impulse and was stirred to fresh activity.

P. C. Ray hurriedly prepared a short monograph (1898) on Indian Chemistry based chiefly on *Rasendrasara Samgraha* (which he later realised to be a treatise of minor importance) and submitted it to Berthelot. The French savant carefully went through Ray's manuscript and elaborated upon it in an article in the *Journal des Savants* (April 1898) and gifted Ray his 3-volume work on the chemistry of the Middle Ages which discussed mainly the Arabian and Syrian contributions. Ray felt the need of supplementing Berthelot's work with one on Indian Chemistry. A glowing mention of Ray in another article of Berthelot in *Journal des Savants* (October 1897) stimulated him further. Narrating the impact, Ray writes ([6], p. 118):

A thrill as it were passed through my body. Here was I, a junior professor (or rather assistant professor) of Chemistry almost unknown to fame, and there

2. Pierre Eugene Marcellin Berthelot (1827-1907) is noted for the Thomsen-Berthelot principle of thermochemistry and his contributions to the understanding of the nature of organic compounds; he synthesised many organic compounds from inorganic substances. He is the foremost among science historians who worked on the origin and progress of chemical science in the West.

the foremost chemist and historian of chemistry speaking of me as a *savant*. The idea soon took possession of my mind that I was destined for some higher production. I was not at all appalled by the gigantic nature of the task.

Ray launched a vigorous search for source materials on ancient Indian knowledge of chemical entities from libraries of the British Empire. He was ably assisted by Pandit Navakanta Kavibhusan. Organised libraries were rare; old hand-written insect-eaten manuscripts lay scattered in various places like Madras, Tanjore, Ulwar, Kashmir, Benares, Kathmandu and Tibet. As Ray says ([6], p. 118):

Any one who has experience in collecting Mss. in India knows what ravages the white ant, the silver fish and other insects commit on them. The damp climate of Bengal is specially unfortunate in this respect.

Often, 3 or 4 manuscripts of the same treatise had to be collected since sometimes the introductory and sometimes the concluding pages were found eaten up by worms; and besides one compares different manuscripts as a check against errors or discrepancies in a specific manuscript.

As the relevant ancient manuscripts began to pour in, in Ray's words ([4], pp. 76-77):

I was filled with the ecstasy which a prospector feels when he suddenly comes across a vein of precious metal after years of fruitless efforts. The discovery of such unexpected and forgotten mine of wealth amply sustained me during the 12 years of the best period of my life although much difficulty was felt in apportioning my time between the demands of the library and the laboratory.

After the texts were assembled and studied, the strenuous task of writing an organised account from scattered materials had to be taken up. But as Ray remarks ([6], p. 119):

. . . when the work itself is a source of pleasure, nay, enjoyment as I have said before, it does not tell upon the health, on the contrary, it has a bracing effect.

After 5 years of concentrated work, the first volume of *History of Hindu Chemistry* came out in May 1902. It immediately created a sensation both in India and abroad. In the *Calcutta Journal of Medicine* (October 1902), Dr. Mahendra Lal Sircar³ hailed

3. Dr. Mahendralal Sircar (1833-1904) is the founder of the Indian Association for the Cultivation of Science (IACS), the oldest institution of science set up in colonial India to be run by Indians. C. V. Raman did his research at IACS during 1907-33; it is here that the Raman Effect was discovered. At a civic reception after receiving the Nobel Prize (1930), Raman said: "I owe a debt of gratitude that can never be repaid. It was the late Dr. Mahendralal Sircar, who, by founding the Indian Association for the Cultivation of Science, made it possible for the scientific aspiration of my early years to continue burning brightly." An outstanding doctor, social reformer and a visionary, Dr. Sircar was a physician to Sri Ramakrishna.

the appearance of the volume authored by “so skilful and zealot a chemist” as P. C. Ray, “not only as a matter of duty but with sincere delight”. Dr. Sircar observed that it is rare in India to come across such a historical research work on ancient Indian science whose author is “guided by a full knowledge of that science” ([6], p. 120). Appreciation for the book and its author appeared in journals like *Knowledge*, *Nature* and the *American Chemical Journal*; and in newspapers like *The Englishman*, *The Pioneer* and *The Times of India*. Berthelot wrote a highly appreciative review covering 15 pages of the *Journal des Savants* (January 1903). A revised and enlarged edition of the first volume was printed and published by Bengal Chemical in 1903.

During this 5-year period of intense historical research, P. C. Ray’s original chemical research continued, without break, at Presidency College. He published 12 research papers on nitrites during the years 1897-1901 in London’s *Journal of the Chemical Society* and *Proceedings of the Chemical Society*. He had managed to divide his time between historical studies and chemical research, between the library and the laboratory. However he was losing contact with contemporary chemical literature. To keep himself updated with the gigantic strides in the world of Chemistry at the turn of the century, Ray postponed his work on the second volume for a few years. He also made a tour of Europe in 1904. Finally, Ray prepared and published the second volume in 1909. P. C. Ray once told his student J. C. Ghosh, “All that I have written throughout my life appears to me to be trash. But people will perhaps remember my book *History of Hindu Chemistry*.” [cf. ‘Prasanga-Katha’ by Syamal Chakrabarti in P. C. Ray’s *Atmasharita* (Bengali), Dey’s Publishing (2011), p. 27.]

Here we may remind ourselves that, during this first decade of the 20th century, apart from writing his 2-volume *History of Hindu Chemistry*, publishing around 30 research papers on Chemistry in international journals, completing the difficult work of writing an elementary textbook on Chemistry and of course, taking his chemistry classes, P.C. Ray was also occupied with the development of his chemical and pharmaceutical concern (Bengal Chemical). All this was achieved by a person who had frail health, became a chronic dyspeptic (and hence a permanent “valetudinarian”) from the age of 13, and was a victim of insomnia. Incredible, but true.

Meghnad Saha writes ([8], p. 213) that as a result of the years of arduous work, P. C. Ray’s health had completely broken down. Ray was warned by his friend and physician Dr. Nilratan Sircar⁴ to regulate his mode of life, which he did.

In 1897, P. C. Ray had been asked by the Bengal Government to join Rajshahi College (now in Bangladesh) as its Principal. But, apart from the relatively better research facilities and the intellectual atmosphere of Presidency College, the library of the Asiatic Society of Bengal was indispensable for his research on ancient Indian Chemistry. Besides, he was averse to executive work which would leave him very

4. Nilratan Sircar (1861-1943), an eminent doctor, philanthropist, educationist, entrepreneur and nationalist, was another prominent Renaissance figure.

little time for research and studies. Thus, although the post of the Principal involved a much higher pay, position and comfort, P. C. Ray made a representation to allow him to continue to serve as a *junior* professor in the Provincial Service at Presidency. His plea received a sympathetic response from the authorities as Dr. Martin, the DPI [Director of Public Instruction], was aware that “Dr. Ray is a distinguished Chemist engaged in original research in the Presidency College” ([6], p. 159).

P. C. Ray gave several lectures on ancient Indian Chemistry like ‘Antiquity of Hindu Chemistry’ and ‘Chemistry in Ancient India’ (at Madras University in February 1918) and ‘Makers of Modern Chemistry VI’ (at Dacca University in 1925). Some of Ray’s essays and lectures are valuable (almost eye-witness) accounts on science education and research in India (especially Bengal) during the 19th and early 20th centuries. The titles of some of his essays and discourses like ‘Scientific Education in India’ (1899), ‘Progress of Chemistry in Bengal’ (1913), ‘Forty Years of Progress of Chemistry at the Presidency College’ (1915), ‘Pursuit of Chemistry in Bengal’ (1916), ‘Higher Science in the Universities’ (1918), ‘The Place of Science in the Vernacular Literature’ (1918), are self-explanatory. In the rest of this section, we mention a few aspects of ancient Indian chemical technology like production of steel, distillation of zinc, preparation of caustic alkalis and sublimation of sulphides of mercury that P. C. Ray highlights in his lectures.

Ray discusses the marked progress made in metallurgy at an early age in India. The art of making and tempering steel was first discovered in India; the famous Damascus blades were made from Indian steel. The wrought-iron pillar near Delhi, the huge iron girders at Puri, the ornamental gates of Somnath, and the 24-foot wrought-iron gun at Narwar “bear silent but eloquent testimony to the marvellous metallurgical skill attained by the Hindus” ([4], p. 93).

Ray quotes the reference in *Rasarnava* pertaining to the identification of metals by the colouration of the flames ([5], p. 82):

Copper yields a blue flame, that of tin is pigeon-coloured, that of lead is pale-tinted . . .

Ray remarks ([5], pp. 82-83):

We are not aware of similar tests being applied anywhere at such an early period as a qualitative test for metals.

Ray points out that Indians were the first to extract zinc from its ore calamine (*rasaka*) and that the process described in the *Rasaratnasamuchchaya* “is so highly scientific that it can be quoted almost *verbatim* in any treatise on modern Chemistry”. Ray remarks ([4], p. 94):

. . . the skill displayed as also the marvellous powers of observation recorded therein extort our wonder and admiration.

Ray refers to the elaborate account of the process of sublimation, distillation, etc., and of the apparatus required for the process. The invention of the above processes is ascribed to the great chemist Nagarjuna. Ray quotes a verse which says that as mercury gets adulterated with lead and tin, the impurities are to be removed by subjecting the mercury to triple distillation ([5], p. 82).⁵

In a lecture at the Benares Hindu University, P. C. Ray says ([9], pp. 269-70):

To the student of science Benares is linked with the origin and foundation of the surgical branch of medicine.

As Ray points out, tradition

assigns to Benares the singular honour of being the birth-place of *Susruta Tantra*.

In his *History of Hindu Chemistry*, Ray had reproduced from *Sushruta Tantra* an entire chapter on 'Ksharapakavidhi' (preparation of caustic alkali). Cauterisation of bad wounds by means of caustic alkali was a well-established procedure in ancient India.

Sir Humphry Davy, who discovered potassium in 1807, had said ([5], p. 88):

The ancients did not know how to distinguish between potassium carbonate and sodium carbonate.

Quoting Davy's above remark, P. C. Ray says ([5], p. 88):

But in our *Ayurveda* this sharp distinction has been clearly stated.

Ray points out that in the work of Sushruta, potassium carbonate is called *yavakshara* and sodium carbonate *sarjidakshara*. Sushruta also makes a clear distinction between *tikshnakshara* (sharp or caustic alkali) and *mridukshara* (mild alkali). Ray also clarifies that Sushruta does not give any explanation for the difference between caustic and mild alkali. The scientific explanation (viz., the presence of carbon dioxide in the latter) was given for the first time by Joseph Black in 1755, more than 2000 years after Sushruta.

5. Archaeological evidence seems to suggest that "the process of distillation and condensation was known to the ancient Indians as early as the beginning of the first century A.D". (cf. P. C. Ray (ed): *History of Chemistry in Ancient and Medieval India*, Indian Chemical Society (1956), p. 80)

Sushruta describes at length the method of preparing alkalis, of rendering them caustic by addition of lime and gives direction for preserving caustic alkali in iron vessels. After quoting Sushruta's process, Ray remarks ([5], p. 87):

This method, you will look for in vain in any European treatise before the 16th or the 17th century. The process as given in the *Susruta* is so scientific that it can be bodily transferred to any modern text-book on chemistry.

In the lecture at Benares, Ray mentions ([9], p. 270) that Berthelot could not believe that so exact and scientific preparation of caustic alkali, as enunciated in Sushruta's text, could have been known at such a remote period. Ray remarks, "Perhaps this [Berthelot's disbelief] is indirectly the highest compliment which could be paid to our Susruta."

Again, P. C. Ray emphasises the use of metallic preparations in Indian medicines from a very early period. "Kajjvali" (black sulphide of mercury) was prescribed by Vrinda (9th century AD or earlier); its manufacturing process is elaborately described by Chakrapani. The preparation was not known in Europe before the 17th century. Indeed, the "knowledge of pharmacy which the Arabs brought to Europe was derived from the Hindus" ([5], p. 90).

Dr. Ray quotes the following passage from *Rasendra Chintamani* of Dhundukanatha to illustrate how the ancient Indians emphasised the indispensability of experimental methods ([5], p. 81):

They are alone to be regarded as real teachers who can show by experiment what they teach. They are the deserving pupils, who, having learnt the experiments from their teachers can actually perform them. The rest, both the teachers and the pupils, are merely stage-actors.

One should, however, remember that P. C. Ray was intolerant of any idle glorification of the past. In a speech at Rajshahi, Ray thundered ([4], p. 181):

For nearly a thousand years the Hindu nation has been as good as dead. As the son of a rich man having wasted his paternal property has to live a life of penury, but is full of conceit and vanity because of the wealth once possessed by his ancestors, so is the Hindu of the present day.

In view of various historical facts that are coming to light, the validity of the first sentence is debatable, but the passage gives us an indication of the agony of the author of *History of Hindu Chemistry* at the fallen state of his country. Indeed, in some of his utterances, one can see a reflection of the general spirit of self-depreciation and indiscriminate fault-finding that characterised the early stages of the Renaissance in India.

Ray believed that the scientific spirit of ancient India declined as a consequence of the hardening of the caste system. Another factor, in his opinion, was the turn given to Vedanta philosophy by Shankara as a result of which the material world came to be regarded as an illusion causing a loss of the natural curiosity. Here again Ray seems to have been influenced by an Europeanised standpoint in looking at Indian history, an approach that needs a critical re-examination.

But, amidst his strictures, the nation-builder in Ray always radiated a few words of hope. In the first *Faraday Lecture* delivered before the Chemical Society on June 17, 1869, Jean Baptiste André Dumas had exclaimed ([5], p. 90):

What an awakening for Europe! After two thousand years she found herself again in the position to which she had been raised by the profound intellect of India and the acute genius of Greece.

Reminding his audience of the place of honour thus assigned to India by the illustrious French chemist, P. C. Ray concluded his January 1916 lecture at Calcutta University with the following words ([4], p. 51):

I hope it will be hers once more to hold aloft the torch of Science and assert her true place in the comity of nations.

P. C. Ray, The Litterateur and Chronicler

The most valuable book of P. C. Ray after the *History of Hindu Chemistry* is his classic *Life and Experiences of a Bengali Chemist*.⁶ We shall henceforth abbreviate it as *LEBC*. We see in *LEBC* P. C. Ray as a literary writer, a historian, an educationist, an economist, a social thinker, a philosopher and a concerned lover of his country. The book is dedicated to the youth of India with the hope that it would inspire a work-culture in them. In the Acharya's own words,

To The Youth of India

This volume is affectionately inscribed in the hope that its perusal may in some measure stimulate them to activities.

6. P. C. Ray was uncomfortable with the narrow provincialism in the title. He writes in the Preface, "As there are two or three chapters which relate exclusively to Bengal, I have been reluctantly compelled to substitute Bengali for Indian. It will be found, however, that most part of the subject matter is applicable to India as a whole. Even the economic condition of Bengal applies *mutatis mutandis* to almost any province in India." Also note that he dedicates the book to the youth of India.

The book appeared in two volumes in 1932 and 1935 respectively. In volume 1, his autobiographical narrative is blended with historical information and observations on various matters educational, industrial, economic and social, etc. Lyrical and lucid, thought-provoking, rich in information, anecdotes, quotations and wit, the book is a delight to read. H. E. Armstrong, while reviewing it in *Nature* (1933), observed:

From beginning to end, the message of the book is one of the highest endeavour — pulsating with vitality and intellectual force.

As another reviewer remarked in *The Madras Mail*, “The reader will be staggered by the diversity of Dr. Ray’s interests and the extent of his activities.” Besides, the autobiography “contains much thoughtful advice to the younger generation, based on his own keen observation and ripe experience” (*The Chemical Age*, London).

Apart from being an inspiring autobiography, the book is an important first-hand document of the socio-intellectual history of Bengal and gives insights into the renaissance in the 19th and early decades of the 20th century. We quote a few excerpts to convey something of the book’s flavour.

Like Swami Vivekananda, P. C. Ray strongly disapproved of the prevalent trend of the best minds taking up the legal profession to the exclusion of any other pursuit. With his characteristic sub-acid humour, Ray writes ([6], pp. 153-54):

The only field in which the Bengali brain hitherto found full play was the legal profession. Forensic talents of a brilliant order had been developed in connection with this branch. The great-grandsons of those who had founded the modern school of logic (*navyanyaya*) at Nadia, and carried to perfection the dialectic skill, took to law as kindly as fish does to water. Logic chopping naturally gave place to legal quibbling. The quick-witted sons of the Gangetic delta found in the law courts which sprang up like mushrooms, a congenial occupation. All the best talents were diverted to it. Although the bar soon became overcrowded and starvation stared the junior men in the face, . . . the youth of Bengal was seeking economic ruin for himself and his fair province by the insane pursuit of one and the same profession to the neglect of several others.

The acute observer and faithful chronicler then records the intangible influence of his contemporary J. C. Bose on the Bengali youth:

It was at this critical period in the history of the intellectual development of Bengal that Bose’s achievements found full recognition in the world of science. Its moral effect on the youth of Bengal was at first slow, but none the less most pronounced.

We mention here that P. C. Ray never failed to acknowledge the contributions of two eminent lawyers Sir Taraknath Palit and Sir Rashbehari Ghose to the Science College in Calcutta.⁷ During a lecture under the auspices of the South Indian Teachers' Union, Ray remarked ([4], p. 114):

I have always quarrelled with lawyers, because they divert with their seductive power the best intellects and induce the flower of our youths to the profession of law. But I have made my peace with the lawyers, because two leading lawyers of Calcutta have been the means of founding a noble institution. I hope the leading lawyers of Madras would follow in their footsteps and I shall be glad to make my peace with them on very easy terms.

While narrating the event of his being offered the post of Principal, a job which would have adversely affected his research in chemistry and the history of chemistry, P. C. Ray observes in *LEBC* ([6], p. 158):

To many a Principalship of a first grade college which involves executive power as also free commodious residential quarters is regarded as a coveted prize post. The charm of wielding executive authority is so innate in human nature that many a man of literary and scientific tastes and activities has been known to ruin his career and rust away.

Chapter XVI of *LEBC* (Vol. 1) begins with "Use and Misuse of Time", a crucial theme for someone who was simultaneously doing research in chemistry, doing research on ancient science history and setting up chemical industries. He writes ([6], p. 209):

I have always regarded my study room as my sanctum but it is often a difficult task to preserve its inviolability. Even our educated men feel no hesitation in intruding, no matter whether one is intent upon a book or deep over a problem.

Ray then quotes Macaulay's statement "Literature has saved my life and my reason" and points out that Macaulay (unlike Ray) could keep four hours of his mornings (5 a.m. - 9 a.m.) to himself, enabling him to read ancient literature. Ray then refers to Newton ([6], p. 210):

Newton was almost in a state of trance on the eve of his propounding the gravitation theory. Imagine what would have happened if he had been constantly disturbed by exacting visitors.

7. The former donated his entire life's earning of Rs 15 lakhs and the latter gave a cheque for Rs 10 lakhs.

Next, Ray narrates the bitter experience of Coleridge who was suddenly called out on business as he was putting on paper hundreds of lines of ‘Kubla Khan’ that he composed in a reverie, lines he could not remember afterwards. He quotes Emerson’s complaint, “At times the whole world seems to be in conspiracy to importune you with emphatic trifles.” P. C. Ray then narrates how he is “literally besieged by people, especially young men, seeking information and advice on a variety of subjects, including the means of earning one’s livelihood”. Over and above this, he was “flooded with letters from every part of India”. Ray reflects that he cannot complain as he had brought much of such distractions on himself by his multifarious activities. He writes ([6], p. 211):

I try to put the best possible face on it and emulate my *exemplar*, Marcus Aurelius, whose motto was, “Equanimity” and whose “meditations composed in the tumult of a camp are still extant” (Gibbon).

Ray also advises his readers to carefully read Benjamin Franklin’s *Autobiography* for a key to the “happy participation in multifarious activities” and quotes Franklin: “The precepts of order requiring that every part of my business should have its allotted time” ([6], p. 211).

Prafulla Chandra’s flair for analytical writing had come out during his student days at Edinburgh University when he took part in an essay competition on ‘India before and after the Mutiny’. William Muir (a distinguished administrator who was a judge in the competition) referred to three essays, including Prafulla Chandra’s essay, as “bearing marks of rare excellence” ([6], p. 63). After Prafulla Chandra published his essay as a booklet, *The Scotsman*, a leading journal, observed ([6], pp. 66-67):

It is a most interesting little book. It contains information in reference to India which will not be found elsewhere and it is deserving of the utmost notice.

We shall again refer to this essay in Part V.

Admiring Acharya Ray’s versatile intellectual accomplishments, the British scientist Dr. H. E. Armstrong had remarked ([7], p. 11):

In type Sir Prafulla Ray is perhaps more like a Frenchman than an Englishman in his receptive habit of mind . . .

P. C. Ray was steeped in Shakespeare and as Prof. R. K. Dasgupta remarks ([8], p. 145):

What is really amazing about his knowledge of Shakespeare is that he could make his words a part of his mental furniture and could quote him with ease to give force to his arguments.

While we will not be able to discuss his essays on Shakespeare, we give an example of how effectively he makes one of his points regarding the factors hindering research in Bengal by an allusion to a character from Shakespeare ([4], p. 49):

Moreover, the average Professor in an affiliated College is an overworked man. The head of the institution Shylock-like exacts from him the drudgery of the routine work and it is only by sacrificing the holidays that he can expect to do some [research] work; . . .

Prof. R. K. Dasgupta writes about P. C. Ray's writing style ([8], p. 146):

It has the simplicity which marked his personality and habits of life. He wrote with a clarity and a force because he wrote with a passion and a will. His prose has the orderliness of an orderly mind. And above all it was the prose of one who wanted his words to produce some useful action.

In his review of P. C. Ray's book *The Bengali Brain and its Misuse*, Sri Aurobindo, while expressing reservations about some of its contents, observed: "Nevertheless the article is ably written . . ."⁸

(To be continued)

AMARTYA KUMAR DUTTA

8. *The Harmony of Virtue: Early Cultural Writings*, SABCL, Vol. 3, p. 433.

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Indian civilisation must be judged mainly by the culture and greatness of its millenniums, not by the ignorance and weakness of a few centuries.

Sri Aurobindo

(The Renaissance in India, CWSA, Vol. 20, p. 120)