

## **PROJECT REPORTS**

### **CALCUTTAN SCIENCE 1784-1930 AND THE AWAKENING IN INDIA\***

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Several reputed scholars, who have written on the so-called 'Bengal Renaissance' of the nineteenth century, have neglected the science component and the related contributions in this movement. A much enlarged concept of Science including the natural/material, spiritual as well as the social varieties with 'scientific' methodologies has been adopted in their survey.

Many non-Bengalees and even non-Indians have actively contributed to 'Bengal Renaissance', staying in and around Calcutta, whereas the majority amongst the Bengali-speaking population abstained from the reformist, nationalist and syncretist movement. This majority pursued a separatist ideology for more than a century and eventually seceded from the rest of India in 1947. This gives the genesis for an alternative title, as it is provided here.

Undoubtedly, the 'mini-Renaissance' of the period 1784-1930 around Calcutta/ Kolkata was truncated, incomplete and much smaller in magnitude than the European Renaissance. Yet, the superlative, universal and syncretistic contributions of William Jones, Rammohun Roy, Sri Ramakrishna, Swami Vivekananda, Rabindranath Tagore, Kazi Nazrul Islam, Jagadis Chandra Bose, C.V. Raman, Sister Nivedita etc. (all Calcuttans) were such that these were not even dreamt of in the European Renaissance. This syncretistic tradition and spirit has suffered a temporary decline since the 1930's but is bound to be resurrected in the not-too-distant future.

The study was carried out under the following chapters:

- I. Introduction
- II. Preamble: From the Antiquity up to 1784 AD

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- III. The Orientalists and Calcuttan Science (1784-1839)
- IV. The first Science Movement in Colonial India (1808-1840) and the pivotal Contributions of James Prinsep
- V. Rammohun Roy and his Intellectual Compatriots
- VI. The Scientific era of the Triumvirate (1841-1891)
- VII. The Muslim Response to the Indian Awakening in the Nineteenth Century and Thereafter
- VIII. Sircar and Lafont: the two pioneers of Calcuttan Science (1860-1910)
- IX. Pioneer scientists of Calcutta in National service (1880-19300)
- X. Science and Spirituality: A Calcuttan Dialogue
- XI. Vedantic Socialism in the Vision of Swami Vivekananda
- XII. Whither Kolkata whither *Bharatbarasa*

In order to highlight the link between the 'Calcuttan Science' and the intellectual awakening (a term more appropriate than 'renaissance') of modern India, we have interpreted Science in a wider conceptual framework, denoting not only modern S&T or the natural sciences, but also scientific/logical/critical/rational philosophy and methodology with regard to the material, spiritual as well as the social sciences, thereby accepting all trends of thought which are legitimately termed as 'scientific' and putting questions marks on the trends of thoughts which are not acceptable as scientific at present.

Chapter II entitled 'Preamble: From the Antiquity upto 1784 AD', starts from the antiquity narrating in nutshell the age-old cultural/political legacies in the ancient (Hindu), medieval (Muslim) and early British eras.

Chapter III discusses in detail 'The Orientalists and Calcuttan Science (1784-1839)', and specifically, the contribution of the founder of the Asiatic Society, the 'Oriental Jones', also of Wilkins, Colebrooke, Wilson, Prinsep and other illustrious members of the Society. The early scientific works, executed and published by the Society, have been discussed in some depth.

Many misconceptions have been cleared with quotations from Kejariwal, David Kopf, A.L. Basham etc., which establish that the motives of the early pioneers were indeed praiseworthy. Their works provided a sense of pride in the ancient Indian traditions and self-confidence to the young Indian builders of the modern era. How Rammohun, Tagore and recently others have distinguished between the evil 'intentions' of the British Raj and some of the beneficial 'consequences' that took place during their rule are taken into account.

Chapter IV delineates ‘The First Science Movement in Colonial India (1808-1840) and the Pivotal Contributions of James Prinsep’. The early scientific work in the Society was championed by a number of members such as William Carey, David Hare etc. James Prinsep was the central figure during the next phase of the work (1820-1840). Apart from his internationally famous work on the decipherment of the forgotten *Aśokan Brāhmī* script, Prinsep received acclaim and FRS for his diverse scientific work in thermometry, chemistry, metallurgy, archaeo-metallurgy, meteorology, physics, numismatics, epigraphy etc. His career and publications in an article published in the *Journal of the Asiatic Society* have been reviewed.

The work of Raja Rammohun Roy (1772-1833) who was undoubtedly the central figure in the Bengal Renaissance and Indian Awakening and wrote remarkable letter of 1823 appealing to Lord Amherst to institute the modern science traditions of Bacon and Newton in India has been also highlighted.

Chapter V entitled ‘Raja Rammohun Roy and his Intellectual Compatriots’ first provides a brief treatise on the life and works of the great savant. The celebrated definition of ‘Renaissance’ includes: “rational evaluation of the past, revolt against ecclesiastical authority, man’s intellectual freedom and belief in a law-governed universe and a deep interest in reason and scientific knowledge, emphasis on education and new creative arts and literature”.

Saamyendranath Tagore gave justification to Rammohun’s contribution which excelled over the European Renaissance on several counts: (a) comparative study and synthesis of the three principal world religions into one Unitarian monism, and (b) support to the democratic struggles for freedom all over the world. Saamyendranath could have added the third point of excellence: (c) syncretism of three Sciences – Natural, Spiritual and Social.

Rammohun provided the inspirational leadership to various groups as well as the subsequent generation of Derozio, Derozians, Vidyasagar, Akshaya Kuamr etc. Max Muller called Rammohun the ‘Furst’, the ‘Great Leader’. Mahatma Gandhi failed to appreciate Rammohun’s leadership, but Rabindranath Tagore called him *Bhārat Pathik*, indeed the Father of the Nation.

Chapter VI entitled ‘The Scientific Era of the Triumvirate (1841-91)’ records the glorious scientific / philosophical contributions of the three science enthusiasts: Akshaya Kumar Datta, Iswar Chandra Vidyasagar and Rajendra Lala

Mitra, as well as of some of their illustrious contemporaries such as Krishnamohun Bandyopadhyay and the famous literateur Bankim Chandra Chattopadhyay.

Chapter VII entitled 'The Muslim Response to the Indian Awakening in the Nineteenth Century, which has changed the misconception of the Hindu bias in the movement, alineating the Muslim consciousness. Chapter VIII entitled 'Sircar and Lafon: The Two Pioneers of Calcuttan Science (1860-1910)' supported the old tradition by the next generation: Pramatha Nath Bose, Asutosh Mookerjee (an able mathematician), Jagadis Chandra Bose, Prafulla Chandra Ray, C.V. Raman etc. of whom a critical appraisal is presented in Chapter IX 'Pioneer Scientists of Calcutta in National Service (1880-1930)'. All of them were intimately connected with the IACS founded by Sircar and Lafont.

We believe that Sir Asutosh's death, Raman's exit from Calcutta and the ageing of the early pioneers such as Jagadis Chandra, Prafulla Chandra and Rabindranath marked the turning point in the 1930's and the decline of the primary of Calcuttan Science and its contribution towards the Indian Awakening.

Chapter X, 'Science and Spirituality: A Calcuttan Dialogue' is largely based on the actual dialogues between Dr. Mahendralal Sircar, Sri Ramkrishna and Swami Vivekananda. Chapter XI, 'Vedantic Socialism or *Sāmya* in the Vision of Swami Vivekananda' captures the grand Vedantic vision of egalitarianism surging forward across the ages, past the historic class-conflicts, Marxist struggles and the recent collapse of the faulty communism in the erstwhile Soviet Russia. It is a matter of pride that one city generated during the 19<sup>th</sup> Century, such wonderful sciences of diverse hues: natural, spritual and social.

The final Chapter XII begins with the introspective questions : how and why this city could achieve some success (and some failure) in leadership during this period of awakening (1784-1930), and what has led to the subsequent decline. We would draw upon our own philosophical discussions on the principle of causality, trying to ascribe reasons for our various successes and failures: why, how and 'why not' questions. Whereas the external (social, economic and political) factors are understandable, the internal (human or individual) factors are often intractable. How to engineer the emergence of leaders like Rammohun, Sri Ramakrishna and Swami Vivekananda? Can we clone a Renaissance?

The decline in Bengal and Calcutta can be better explained by a host of socio-economic and socio-political factors:

- (a) The momentum of progress, particularly in the fields of education, science and technology, was not sustained in the province of Bengal beyond the 1930's.
- (b) The communal divide, famine, communal riots, the 1947 partition, the refugee problem, the unparalleled influx of not only the Hindus but also the Muslims from Bangladesh.
- (c) The extremely inadequate financial support from New Delhi and poor political management in West Bengal.
- (d) Decline in the standards of education, science and technology at all levels, emigration of intellectuals and dwindling of patriotism and civic morality.
- (e) Diminishing industrial entrepreneurship, flight of capital from Bengal and communist movements produced a vicious cycle.
- (f) Confusion about political ideology: development versus egalitarianism; capitalism versus communism versus mixed economy; agriculture versus industrialism; democracy versus extremism; English, computer culture erroneously equated with cultural imperialism and colonialism.
- (g) Divisive factors all over India: the ideological confusion as stated before in (f); an added dimension of Hindutva versus pseudo-secularism; linguistic regionalism and chauvinism; caste-class-communal-sex inequalities and conflicts; reservation protectionism versus meritocracy; flight of the hungry poor and the meritorious intellectuals away from the provinces and even the country.

The above-mentioned and many more divisive factors have been heavily compounded and multiplied by the single factor of population explosion. These divisive factors and the ideological confusions have overwhelmed not only the city and the Bengali-speaking population but also India, the sub-continent and South Asia as a whole.

Kolkata in the present state of affairs (2009) can hardly help itself, let alone inspire or guide Bharatbarsha any more.

Truth and human destiny or goal must be holistic and global. The Oracle of Delphi used to give his balanced judgment sitting on a tripod with three legs. Taking this cue, the celebrated scientist-historian Joseph Needham suggested that the ideal human civilization should rest on a 'tripod' with three (not one less in number off) legs: Science, Spirituality and Socialism. We subscribe to his view,

anticipated earlier by Swami Vivekananda, and wish to extend it a bit further (Davies 1990)

Socialism should be of the Vedantic variety called *sāmya*, as articulated by Swami Vivekananda (vide Chapter XI). Permanently wedded to Spirituality, Democracy, 'egalite, liberate and fraternite', it would be one notch above the earlier French, Russian and Chinese socialistic experiments, and ensure equal privileges to all human beings, deriving benefit from the progress of Science and Technology. The 'tripod' may be converted to a table with many (more than three, more the better) legs to provide better stability. We may suggest true or genuine Secularism in a multi-religious, multi-ethnic, multi-lingual society as the fourth leg.

The pioneers of the nineteenth century renaissance movement in Bengal did recommend a syncretistic and holistic approach. But sadly, this point has not been appreciated by many of their so-called 'followers'.

"Our nation Bharata (the poet Muhammad Iqbal and Sir Syed Ahmad did not hesitate to call it 'Hindustan') is still 'in the making'. So is Kolkata. The goal of a city must be in harmony with the national and universal goal. The interaction between a part and the whole must be symbiotic and harmonious. What was triggered by the city Kolkata in the year 1784 AD for the whole of Bharatbarsha must receive its fulfillment in the 21<sup>st</sup> century, and be rendered into an eternal awakening. We wish to end with this note of optimism.

The city and the neighbourhood still possess intellectual, artistic and spiritual talents. This region still holds rich promise for genuine scientific and spiritual activities. If these traditions are combined with innovations, industrial and agricultural growth, as well as reasonable equi-distribution of wealth and privileges, the city and the region may yet serve and even lead the nation for another golden era, as in the glorious past.

#### References and Notes

1. Dasgupta, 2007, This is a splendid account of some of the spiritualists, scientists and literatures in the 19<sup>th</sup> century Bengal, unfortunately not covering the 1900-1930 period.
2. DebRoy, 2003, The brilliant articles published by the reputed Bengali Periodical Desh, 02 July 2003; DebRoy successfully argued that the decline in West Bengal has been on account of the inefficient administration by the successive governments and other civic bodies in the state, and not because of the so-called Bengali 'character'.

### Bibliography

- Banerjee, Surendranath, *A Nation in the Making*, Oxford University Press, Calcutta 1925, Reprinted 1963.
- Biswas, Arun Kumar edited, *History, Science and Society in the Indian Context*, The Asiatic Society, Calcutta, 2001, pp. 6-10.
- Biswas, Arun Kumar, Science, Spirituality and Socialism: A Tribute to Joseph Needham, in *The Life and Works of Joseph Needham*, edited by Sushil Kumar Mukherjee and Amitabha Ghosh, The Asiatic Society, Calcutta, 1997, pp. 93-110.
- Dasgupta, Subrata, *The Bengal Renaissance: Identity and Creativity from Rammohun Roy to Rabindranath Tagore*, Permanent Black, Delhi, 2007.
- Davies, Mansel edited, *A Selection from the Writings of Joseph Needham*, 1990, pp. 418-426
- DebRoy, Bibek, *Desh*, 2 July 2003, pp. 40-43.
- Gangopadhyay, Sunil, *Desh*, 2 July 2003, pp. 31-39.
- Huxley, Aldous, *Ends and Means*, Chatto and Windus, London, U.K., 1957. First published 1937.
- Roy, Ranajit, *The Agony of West Bengal: A study in Union-State Relations*, New Age Publishers Private Ltd; Calcutta 1971.