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Science and Nationalism in Bengal 1876-1947: Asutosh Mookerjee and Mathematics*

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The current title is a part of the larger project, 'Science and Nationalism in Bengal 1876-1947' and this is the sixth of the series. Asutosh Mookerjee is a celebrity in his own right in the field of education, but his contribution to mathematics has been more specific like his contributions to conic geometry. It is well known that he was a versatile scholar in Bengali, Sanskrit, Mathematics and law. This work was contemplated to highlight his excellence in mathematics. This has been put in the nationalist perspective under colonialism as the colonial government did not encourage higher studies in sciences. The lurking fear of the government was that in a country of natural abundance like India, it would lead to her economic development and possibility of an industrial revolution here. This would challenge the supremacy of Manchester and Sheffield. So, rudimentary science and technology were allowed in the Indian universities to man the colonial scientific establishment. Naturally, the highly talented graduates of science felt deprived of achieving excellence in science.

Asutosh was born in the colonial milieu. He was a child prodigy. He solved all the theorems of Euclid before he completed his school studies. In the years in Presidency College, he went on to study Laplace in the original in Latin and French. He also studied continental mathematicians in his field and showed alternative ways of solving problems of conics. He was a frequent contributor to the *Journal of Asiatic Society of Bengal* where he published a dozen learned papers. He also produced a monograph titled "The Elementary Aspects of Geometry of Conics". Thus he proved equal to Mainardi, Monge, Boole, Sylvester and Potts. To him achieving excellence in mathematics was his freedom struggle.

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In 1906, he was chosen the Vice-Chancellor of Calcutta University and remained so till 1914. He was appointed as Vice-Chancellor a second time from 1921 to 1923. During these tenures, he nationalized the colonial syllabus of Calcutta University in all subjects, particularly in language, literature and history. He was primarily responsible for the establishment of Science College at Rajabazar. He created the chairs of Palit Professor of Physics and Chemistry and invited eminent Indians to adorn those posts. He successfully combined the heritage of Calcutta University with new knowledge.

The work was carried out under the following chapters along with an appendix containing selection of his mathematical papers in the *JASB*.

I. Sir Asutosh Mookerjee - A Biographical Sketch
II. Asutosh Mookerjee: Vice-Chancellor of Calcutta University (1906-1914)
III. The Mantle
IV. Exercises in Mathematics
V. History of the Calcutta Mathematical Society (1908)
VI. Science as a Freedom Struggle
VII. Conclusion
VIII. Appendix

In the colonial days, as S.N. Bose in one of his autobiographical essays avers, achievement of excellence in science was their kind of freedom struggle. It is known that in colonial days the Government did not promote higher studies in science for Indians. They were wary of Indian's achieving excellence in science and staging a parallel industrial revolution in India and there by gain self-sufficiency in the production of manufactured goods. It was a grim struggle for Indians to hit the target and they tried their best to cultivate science on their own. Asutosh, a child prodigy in mathematics carried on relentless efforts to master mathematics. His academic career proved the point.

But he felt like his predecessors that by individual effort alone the goal could not be reached. An Indian school of mathematics had to be hoisted. Before him, Mahendralal Sircar had founded the Indian Association for the Cultivation of Science in 1876 and Satis Mukherjee founded the

Dawn Society in 1902. Asutosh established the Calcutta Mathematical Society (CMS) in 1908 which was followed by the establishment of Bose Institute by Jagadish Chandra Bose in 1916 and the Indian Chemical Society by Prafulla Chandra Ray in 1922. The CMS survives even today, continuing the Indian scientific tradition of the early twentieth century. Lord Curzon appointed Asutosh a member of the University Commission in 1902 and in 1906 he was made the Vice-Chancellor of the University of Calcutta. He held this office till 1914 and re-appointed between 1921 and 1923.

Almost throughout the whole period of his Vice-Chancellorship Bengal witnessed the anti-partition swadeshi movement at its height. The nationalists criticized that Calcutta University, controlled by colonial education, lacked human resource developing and nation-building orientation. It was, according to Satis Chandra Mukherjee, over literary, all-too-academic, unscientific and anti-industrial and only produced clerks for the Raj. The movement for National Education started with Satish Chandra Mukherjee founding the Bhagavat Chatuspathi in 1895. It mainly dealt with cultural heritage of India and was transformed into the Dawn Society in 1902, which served as a model for a national university between 1902 and 1906.

The education provided by the Calcutta University missed national objective. The scope of national education was further curtailed by the Universities Act of 1904 by which Government nominated European members controlled the Senate and the Syndicate of the Calcutta University. Their aim was to prevent any nationalist ideology from entering into administration and curriculum of Calcutta University. They also tried to disaffiliate many private colleges established by swadeshi intellectuals under the Calcutta University.

The government found in Asutosh Mookerjee the person it was looking for. Asutosh was not in favour of a national university to counteract the activities of Calcutta University. According to him, Calcutta University had set up an academic tradition, which should be preserved, and western education imparted by it should also be utilised in national interest. He was in favour of reform and not a revolution in Calcutta University. The Government felt that Calcutta University would be safe under his care and would not become a political battleground. However, Asutosh Mookerjee implemented most of the nationalist agenda within the framework of the

University. He set up new departments in arts and science in the two campuses at College Street and Rajabazar and opened the departments of vernacular languages and Ancient Indian History. Many eminent educationists, both foreign and Indian, were appointed as Professors of various departments. He personally supervised the framing of syllabus of all departments, presided over their Boards studies. Concerned with student welfare, he pursued their interest in both teaching and examination.

Asutosh Mookerjee was the Vice-Chancellor for a second term between 1921 and 1923. During this time he became the president of the two PG Councils of arts and science. He was also the most influential member of the Senate and the Syndicate since 1889. He was the moving spirit of the University. He successfully combined at Calcutta University the benefits of western and national education, without being involved in politics. He thus caused a renaissance at Calcutta University. It served a national purpose no less than the national university founded by the National Council of Education though the nationalist spirit was more manifest in the latter. In engineering and technology the National University had greater achievements. Calcutta University still had a colonial hangover and Asutosh had not been able to change its character totally.

Asutosh promoted Post-graduate science through the Calcutta University. When the Bengal partition was annulled in 1911 and Sir T.N. Palit handed over his house at 92 Upper Circular Road and a donation of 4 lakhs to Sir Asutosh, the latter quickly converted it to the Calcutta University Science College. He created two prestigious posts of Palit Professor of Physics and Palit Professor of Chemistry. He invited Sir J.C. Bose and Sir P.C. Ray to occupy these two posts but Bose declined as he had already founded the Bose Institute. Bose's chair was next given to Sir C.V. Raman. But soon after these appointments, Asutosh was removed from the post of the Vice-Chancellor of Calcutta University. He was re-appointed for a second term between 1921 and 1923.

Thus Asutosh paved the way for a parallel science in India and contributed to the scientific edifice in post-colonial India. But this claim has been rebutted by recent work on Science and Nationalism in India by John Lourdusamy. He argues that under the hegemonic imperial science, Indian science was only a derivative discourse. It was peripheral and not parallel.

Thus the originality and brilliance of Indian scientist like J.C. Bose and P.C. Ray have been undermined. Asutosh has been an instrument of imperial will. It has already been shown how Asutosh finally turned the tables and nationalized Calcutta University. He successfully combined the heritage of Calcutta University with nationalist aspiration.

Conclusion

It may appears strange that in a colonial situation of constraint and privation, so much talent and spirit of independence have been shown by a galaxy of renaissance men from Rammohan to Rabindranath. But it is also true that fire drives fire. The collective creativity of such men burst forth to make it a glorious renaissance. Sir Asutosh was a child of his times. His talent blossomed in adverse circumstances. He was a mathematical genius but his endeavour was a challenge to adversity. He took painstaking steps to write the crest of global mathematics. That is a reason why his efforts have been linked to a struggle for freedom. In these pages his career has been so sketched to etch out his nationalist figure. He remained the pivot of our educational progress in India and scientific achievements in particular. In the disciplinary field of mathematics he bestrode the two world like a colossus. His versatility showed itself in original work, university administration and foundation of the mathematical society. His other achievements as a justice of Calcutta High Court and doctor of Law and a national aptitude for language made him a complete personality. We have tried to show in the last chapter that he has been wrongly assessed by some scholars as a by product of imperial science pursuing a derivative discourse. His intensive brilliance and originality has been deliberately obfuscated. But he remains as has been shown in this work the father of parallel science in India. India in fact had a great mathematical heritage since the day of Āryabhaṭa, Brahamagupta and Bhaskaracārya. This was the country which invented ‘zero’ and formulated binary method. Geometry of Conies originated from works like Śulbasūtra. Asutosh bridged the old world with the new, east and the west. His theorems are also read in the west even today. Thus he achieves both the goals in life, excellence in mathematics and nationalist agenda pioneered by Mahendralal Sircar. Like Sircar he also left a progeny in the Calcutta Mathematical Society which is celebrating its centenary this year.

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