

The National Council of Education forerunner of Engineering Education in Bengal 1906-1956

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Abstract: British education policy was geared to the needs of colonial administration rather than to the interests of India's socio-economic development. Though the origins of technical education in India can be traced back to the establishment of the Madras Survey School in 1794 military and political imperatives dictated the exclusion of Indians. The policy changed after the 1850s owing to the increased demands of technically qualified personnel for the Public Works Department. Roorkee College (popularly known as Thomason College of Civil Engineering) was established in the United Provinces in 1847. The College of Civil Engineering in Calcutta opened its doors in 1856. In 1905 educated Bengalis, infuriated by the decision of the British Government to partition Bengal, launched a movement for the boycott of imperial academic institutions. The National Council of Education, founded in 1906, was the expression of a pioneering effort to establish educational institutions imbued with the spirit of constructive nationalism. It had two wings – the Bengal National College and the Bengal Technical Institute, dedicated to the promotion of technical education in Bengal. Electrical Engineering, which was taught as part of the Mechanical Engineering curriculum, was hived off and established as an independent department in 1920. It quickly became the preferred option for students with 215 students graduating from the electrical engineering department between 1920 and 1929 compared to only 117 students from the Mechanical Engineering Department.

Key Words- NCE, BTI, Electrical Engineering, Industrialization.

Introduction

Technical education in India is an interesting area of historical studies. The British education system in India was successful in producing men to run the colonial administration and in directing the economy for exploitation by Britain. The colonial education system experienced a haphazard unplanned because of many different agencies involved in building. It lacked

adequate primary and secondary education facilities, and made limited provision for technical education.

Technical Institution: Early Stage

Madras survey school (1794) was the first technical school established by the British Government¹. In those days surveying was taught in Bengal in two colleges, the Mohammedan College (1781) and the Hindu College (1817). The British technical education policy at that time was against to the native Indians because of military and political necessities. Until the middle of the nineteenth century, the East India Company, were largely engaged in expanding political control. Once political dominion had been established, the British undertook to consolidate their position. Works were at first carried out by military personnel under the control of Military Board at Fort William, but in 1854-55, a department of Public Works (PWD) was established. With the expansion of its activities, the British required a large number of subordinate surveyors, mechanics, and overseers. Trained local youths were obviously cheaper than technical personnel from abroad. To fulfill this demand, schools and colleges were established. From its inception, the PWD influenced the growth of engineering education in India in several ways. Their first and most important distinction lay in their courses, which were structured to serve the immediate requirements of the department, rather than provide training for the higher ranks of the profession. For this reason, civil engineering remained the favored subject. Indeed, all the colleges opened during the nineteenth century were called 'civil engineering colleges'(exceptional Madras)², while other branches like electrical, mechanical and mining engineering- remained neglected until the 1930s.

The initial Four Pillars: Roorkee, Sibpur, Poona, Madras

Between 1847 and 1866 the British Govt. of India was opened four colleges, one each Roorkee, Calcutta (Sibpur), Madras (College of Engineering) and Poona (College of Science). Thomason

¹ B.V. Subbarayappa, 'Western Science in India up to the End of the Nineteenth Century A.D.', in D. M. Bose, S.N. Sen and B.V. Subbarayappa (eds.), *A Concise History of Science in India*, Indian National Science Academy, New Delhi, 1971, p. 548.

² *Quinquennial Review on the Progress of Education in India*, Government Press, Calcutta, 1904, QR India, 1897-1902, vol. 1, pp.248-9.

College (currently name Roorkee IIT) was opened at Roorkee, in UP in 1847, inspired from Glasgow engineering college. Thomason College of Engineering provided a model to establish other three colleges. In Bengal the College of Civil Engineering was started in 1856 at Calcutta, with its temporary location at the Presidency College. The Civil Engineering section of the Presidency College maintained its separate identity until it merged with the College of Civil Engineering in 1861³. In 1880 the college has got her own land at Howrah, shifted from Calcutta to Sibpur. With a new name Government Engineering College, Howrah. For postal problem the name was changed after few years, known as Civil Engineering College, Sibpur (18th May 1887).⁴

Giant steps to Build a National University: National Council of Education

The facilities of technical education at end of 19th century consisted of 4 engineering colleges at degree level, about 20 survey and technical institutions and some 50 industrial schools. In Bengal the first decade of twentieth century provided critical for science and technology where political topography was radically altered by two events, Firstly, the Bengali bhadralok formed a large intellectual proletariat, who turned unemployed in the prevalent dispensation and this became a productive ground for agitation and political militancy⁵. Secondly, the self-esteem of the newly emerging class crushed by the partition of Bengal in 1905⁶. The Dwan Society, established by Satish Chandra Mukherjee, was thinking in terms of a 'national' education in literacy, scientific and technical subjects, and in the wake of the political stimulus provided by the partition of Bengal, it was transferred into National Council of Education (NCE) in November 1905. The NCE had the support of the cream of the intelligentsia and the most prominent Bengalis of the time. The council was intended to be a National University, free of European control and aid, and aimed at a fusion between the best of the East and West. It formulated an ambitious scheme touching upon all aspects of education, literary, scientific and technical.⁷ But cracks soon began

³ S.P.Gupta, *Modern India and Progress in Science and Technology*, Vikas, New Delhi, 1979, p. 122.

⁴ Bengal Engineering College Century *Souvenir*, 1956, p.23.

⁵ S Irfan Habib and Dhruv Raina, 'Bhadralok Perceptions of Science, Technology and Cultural Nationalism', *Indian Economic and Social History Review*, Vol. 32, no. 1, pp. 95-117.

⁶ The term, as Sumit Sarkar points out, was first used in the 'Bengal District Administration Report, 1913-14'; see Sumit Sarkar, *The Swadeshi Movement*, People's Publishing House, New Delhi, 1975, p. 150.

⁷ Benoy Kumar Sarkar, *Education for Industrialization: An Analysis of Forty Years of Jadavpur College of Engineering and Technology, 1905-45*, Chukerverty, Chatterjee and Co., Calcutta, 1946, p. 73.

to appear. Influential persons like Taraknath Palit, Neelratan Sarkar and P. N. Bose wanted the council to confine itself to scientific and technical education. This was not acceded to by the majority of council members, so on the very day the NCE was officially registered, a second organization, its rival, was ushered into existence. This was the society for the promotion of Technical Education (SPTE). In 1906 Bengal Technical Institute (BTI) was established by SPTE for the promotion of technical education⁸ and in the same time NCE established the Bengal National College and School. The Bengal National College (BNC) hoped to grow into a 'poly-facultied university', competent in replacing the Calcutta University gradually⁹.

BTI as an Independent Institution

The aim of the BTI as announced was to impart scientific and technical education to the 'Indian people to further their industrial progresses'. J.C. Bose, P.N. Bose, P. C. Roy, B. N. Seal served the BTI while the BNC had the support of Rabindranath Tagore, Gurudas Banerjee, Ramendra Trivedi, Aurobindo Ghose, Benoy Kumar Srakar and many others. The institute started at 92, Upper Circular Road, Calcutta under the principal of Sri Pramatha Nath Bose¹⁰. The institute started with two departments – the Intermediate and the Secondary with 3 years and 3.5 years period of study respectively. Beside these there was a Mechanical Apprentice of 2 years duration with carpentry, Foundry, Smithy, Turning Mechanical and Electrical Fittings and Electroplating. There was also a two-year survey and Draftsmanship course.

In 1911, the secondary programme of the BTI was extended to cover a period of four years. The City and Guilds of London Institute recognized the BTI, and exempted students of Electrical and Mechanical Engineering from appearing at the Preliminary Examination of the Institute¹¹.

Electrical Engineering: Suitable Choice

⁸ Benoy Kumar Srakar, '*Education for Industrialization*', p.44.

⁹ Dhruv Raina and S. Irfan Habib, 'Technical Content and Social Context: Locating Technical Institutes', in Patrick Petitjean, C. Jami and Anne Marie Molin (eds.) *Science and Empires*, Kluwer Academic Publishers, Dordrecht, 1992, pp. 121-36.

¹⁰ *National Council of Education, Bengal: A History and Homage*, Jadavpur University, 1956, p. 27.

¹¹ *NCE Annual Report, 1912*, Calcutta: NCE, Bengal, not dated, p. 19.

In 1921, it was decided to expand the scope of studies in engineering. A Syllabus Revision Committee was formed with Dr. P. C. Ray as chairman. The new curriculum included Chemical Engineering, besides Mechanical and Electrical. In the next year, in view of the difficulty of securing competent teachers, especially in the Mechanical and Electrical Engineering Departments¹², it was decided to send four students in Germany for higher training with a contract of service on their return¹³. Under the scheme, in 1923 three scholars were sent to Germany for higher training under the contract with the Council¹⁴. The advantage of such scheme started coming soon. The Electrical Engineering Department was strengthened by the appointment of Suren Roy, Masters' from Harvard. He was the first scholar with an Electrical Engineering degree to be appointed by the NCE¹⁵. In 1924 the college is housed in its own lands and buildings at Jadavpur. In 1925, the City and Guilds of London Institute Examination allowed the students of BTI to enter for the Grade II Examination in both Electrical and Mechanical Engineering without appearing the Grade I Examination¹⁶. In this year the Council set up its own installation of electric lighting. The faculties of the Electrical Engineering Department, with the help of their students, successfully installed the power utility system at the Jadavpur campus¹⁷. During this period Electrical Engineering commanded the predominant choice of the scholar.

By 1929, 215 students obtained the Electrical Engineering Degree, compared to 117 in the Mechanical Engineering branch.¹⁸ The demand for the EE, ME, and Chemical Engineering among the Bengali intelligentsia was steadily on the increase. Indian economy was in tune with the world-economy in regard to the techno-industrial upswing¹⁹. The CET (the BTI had come to

¹² *NCE Report, 1919-21*, Calcutta: NCE, Bengal, not dated, p. 5. As a separate department electrical engineering (EE) was started in 1920, before that EE was assimilated within the mechanical engineering department. What is Electrical Engineering? Electrical Engineering encompasses all these activities associated with the generation and the use of electricity. BY the last quarter of eighteen century and first two decade of twentieth century we had saw that the basic elements of first generation telephone, electric light, and electric power systems had been invented and were being developed at a rapid pace in cities in Europe and also in the sub-continent of India.

¹³ *NCE Annual Report, 1922*, op.cit, pp. 5-6.

¹⁴ *NCE Annual Report, 1923*, Jadavpur: NCE, Bengal, not dated, p. 13.

¹⁵ Benoy Kumar Sarkar, op.cit, p. 248.

¹⁶ *NCE Annual Report, 1925*, Jadavpur, NCE, Bengal, not dated, p.5.

¹⁷ *NCE Annual Report, 1926*, op.cit, not dated, p. 9.

¹⁸ Benoy Kumar Sarkar, op.cit, pp. 147-148.

¹⁹ Benoy Kumar Sarkar, op.cit, pp. 179-204.

Year	Engineering Department	Number of enroll Students
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be renamed the College of Engineering and Technology, from the year of 1928) engineers and technicians played a vital role in that industrial uprising and this was evident in the list of participants at the exhibition jointly organized by the NCE and Calcutta Corporation in 1935. Some prominent industrial products, manufactured by the ex- student of the college, displayed there - Electric Lamps (S. K. Roy and *Bengal Electric Lamps Works Ltd.* and, N. N. Majumder and *India Electric Lamp Manufacturing Co. Ltd*), Banshidhar Pal (1910) became Chief Engineer of *Lahore Electric Supply*; Hemendra Kumar Roy (1921) became Managing Director of the *Bengal Electric Lamp Works Ltd.*; Phanindra Mohan Basu (1922) was the Superintendent *Power House, Delhi Cantonment.*; Dhirendra Saha (1926) was the Chief Inspector of the *Lighting Department*, Calcutta Corporation; Sudhansu Chakrabarty (1927) was the Exchange Inspector of *Bengal Telephone* and many others, this time a favorite destination of engineers was the Bengal Electric Lamp Works Ltd (Bengal Lamp)²⁰. The College's Electrical Engineering Laboratory consisted of different types of modern electrical machines and instruments for demonstrating the application for the general rules and principles of Electrical Engineering. There was also a moderately equipped laboratory for Communication Engineering, where various experiments on Radio, Telegraphy and Telephony were carried out. In the Electrical Workshop facilities were

	Mechanical	Electrical	Chemical	
1930	11	16	6	490
1931	21	32	5	668
1932	16	18	3	581
1933	7	15	5	622
1934	10	17	3	554
1935	27	21	9	511
1936	26	30	13	512
1937	11	22	10	512
1938	18	26	7	769
1939	22	16	8	779
1940	15	23	5	1021
1941	18	38	11	1245
1942	22	34	9	1251
1943	27	44	11	1268
1944	43	33	9	1158
1945	82	24	14	1250
Total	376	409	128	

²⁰ NCE Annual Reports, 1939, 1940, 1941, 1942, op.cit, not dated.

provided for repairing, designing and building up of electrical generators and motors, etc²¹. In the year 1945, the Massachusetts Institute of Technology (Boston), the University of Michigan, the Carnegie Institute of Technology (Pittsburgh) and Cornell University (Ithaca, NY) recognized the honours graduates of the Jadavpur College as qualified enough to join their Post-Graduate classes.²²

In 1955 the Jadavpur University bill was introduced in the West Bengal State Legislature and the bill was passed by the Legislature Assembly on 22nd September 1955 and by the Legislative Council on 7th October 1955. On receiving the Governor's assent on 12th November the bill became the Jadavpur University Act, 1955 (West Bengal Act XXXIII of 1955): Section 12 of the Act was amended by West Bengal Ordinance No. 1 of 1956 and by the Legislature in February 1956.²³ Thus the Jadavpur University was established. In this development the National Council of Education is the mother and the University its child.

²¹ *College of Engineering & Technology, Bengal, Prospectus Session 1941-42*, Jadavpur: Secretary, NCE, not dated, p. 6.

²² Benoy Kumar Sarkar, op.cit, pp. 62-63.

²³ *National Council of Education, Bengal: A History and Homage*, op.cit, p. 38.