

Pramathanath Bose and Indian Geology

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The 150th birth anniversary of Pramathanath Bose is being celebrated. Pramathanath took admission in St. Xaviers College, Kolkata after passing Entrance Examination from Krishnanagar College and later completing F.A. in 1874 he joined London University when he obtained Gilchrist Scholarship. From there he became a science graduate in 1878 and in 1879 he qualified in the test conducted by the Royal School of Mines.

In 1880, he returned to India and was appointed in the Geological Survey of India. However, because of his involvement in the nationalist politics, he did not get promotion beyond the rank of Deputy Superintendent. In 1903, when his subordinate Holland was appointed the superintendent, he resigned from his service. He discovered the iron mines at Dhulli and Rajhara in Madhya Pradesh. It facilitated the establishment of the factory at Bhilai in free India. In 1901, he was appointed professor of Geology in Presidency College. His greatest achievement was the discovery of the iron ore mines at Gurumahishani in the Mayurbhanj district (1903-04). During that time, Jamshedji Tata was interested in establishing an iron and steel industry in eastern India. When Jamshedji came in contract with Pramathanath, the latter requested the former to establish iron and steel industry at Sakchi, now known as Jamshedpur. He also traced the coal mines at Raniganj, Darjeeling and Assam; copper mines in Sikkim and minerals in Burma.

He played a leading role in the anti-partition movement in Bengal. When the National Council of Education was established, he became the first principal of the Bengal Technical Institute and later became its Rector. He delivered many lectures in the Dawn Society and in the Indian Association for Cultivation of Science. Pramathanath realised that the actual way to India's improvement was to make her prosperous. He also tried to improve Indian trade and commerce. He was also interested in the study of science in Bengal. In this connection, he wrote a text book on 'Natural History' (*Prakritic Itihas*). He also composed three volumes of *A History of Hindu Civilization under British Rule*. Another mentionworthy volume is *Swaraj Cultural and Political*. He passed away in 1935.

The study of science started in Bengal even before Pramathanath. Rammohan Roy published his famous work in geometry *Darghirjya*. In *Sambad Kaumudi*, he wrote various essays like

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“Maccher Chokh” (Eyes of Fish), “Tarar Alo” (Light of the Star), etc. It was not easy for the Indians to study science under the British rule. In this aspect too, Rammohan was the pathfinder. After Rammohan, Akshay Kumar Dutta wrote *Bajhya Bastur Shohit Manab Prakritir Sambandha, Bichar* and in the *Tattabodhini Partika* several essays on natural history about the animal world. After that, Rajendralal Mitra established the technical school and published *Bididhartha Sangraha* which served as the encyclopedia on different branches of science. In 1876, Dr. Mahendralal Sircar established Indian Association for the Cultivation of Science—a national institution for the study of science. Here higher education on science was imparted and also attempt was made to popularise study of science. Pramathanath delivered lectures on Geology towards the later years of Mahendralal’s life. Satish Mukhopadhyay published *Dawn* magazine in 1897 and established Dawn Society in 1902. Here too, the study of science and technology continued. Many essays on the study of science were published in the *Dawn* magazine. Pramathanath was actively involved with this work in the later part of the nineteenth century when Jagadish Chandra Bose and Prafulla Chandra Ray were illuminating Indian science. Pramathanath stands pre-eminent in the field of Geology, a totally different branch of science. His achievements were recorded in the Bulletin and Memoirs of the Geological Survey, which are still not published. It is high time that these should be compiled and published in this birth anniversary.

Pramathanath wanted to explore Indian mineral resources through the study of geology and thus wanted to improve Indian’s mineral resources. He carried on geological exploration in the Narmada valley in Madhya Pradesh and left a written account regarding it. He was the first Indian geologist who obtained a degree in Geology from England and helped in the study of Geology in India. During that period there was not much facility in the field of geological survey. Even then he involved himself in this work with great courage. Petrology, Stratigraphy, Palaeontology and Mineralogy were some of the branches of Geology where Pramathanath contributed. He also tried to trace unstratified rocks from Madhya Pradesh, Darjeeling, Sikkim and Tennaserim in Burma.

Stratigraphy is the scientific study of the strata of the earth. Pramathanath determined the period when these strata were formed. He discovered the South Gondwana Stratum in Madhya Pradesh and also in Bihar, Orissa, Darjeeling and Assam. Here he also discovered strata of metamorphosed coal.

Palaeontology is the study of fossils, i.e. the remains of the animals, plants, etc. in a metamorphosed form among the rocks. Pramathanath discovered fossils from Madhya Pradesh, Shivalik region in north of the Himalayas and Burma. He wrote about these discoveries through the chemical analysis. He determined the actual age and nature of the minerals. These are his epoch making

inventions. Before him nobody could leave any notable mark in the geological science. It was from his discoveries that we came to know of the mineral resources of India.

He discovered coal from Kalimpong, copper from Sikkim, manganese and iron ore from Durg valley and extracted mineral oil from rock in the Kashmir valley. He traced out layers of coal in different areas. But all his discoveries only benefited the British Government and the British industrialists. In 1903, he resigned from the government service and devoted himself in the task of India's material improvement. During his stay in England, he saw how the Industrial Revolution helped England to be prosperous. In the same way through his geological discoveries he wanted to usher in Industrial Revolution in India. He needed Indian industrialists imbued with Swadeshi ideals. After discovering iron mines at Gurumahisani at Mayurbhanj, he inspired Jamshedji Tata to establish an iron and steel industry at Sakchi. Harris the biographer of Tata, admitted the role of Pramathanath in the rise of the Tatas. Thus Pramathanath is also remembered in the history of TISCO as well as in the history of industrialisation in India along with the Tatas. It was through his inspiration that Jamshedji established Indian Institute of Science and appointed the Indian technologists, who were educated in Britain for TISCO.

Pramathanath wanted to do away with social orthodoxy and caste system from India and thus help her to progress. He realised that without industrialisation this was impossible. He dedicated his contribution in the geological science to the Indians. He repeatedly requested the Indian industrialists to come forward and help industrialise India. The main source of inspiration of his interest in the study of science was the ideals of swadeshi and freedom struggle. Pramathanath was not only the first renowned geologist in India but he was also one of the earliest of the first class geologists of the world. He was able to earn international fame in spite of colonial hindrances.