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EDITORIAL

SCIENCE LEARNING: THE WIDER PERSPECTIVE



The history of science and technology in the Indian subcontinent can be traced back to the Palaeolithic era (about 150,000 years ago) when a range of stone tools were in existence. This was followed by the flourishing period of Harappan culture (2500-1750BC) during which

beginnings were made in exquisite pottery, metal working, glazing, animal husbandry, agricultural implements and practices. Commercial trade links were also established with the neighbouring cultures in the Central and Western Asian regions. The subsequent vedic period (1500BC to 1200 AD) saw rapid advances in the understanding of biological sciences, astronomy, mathematics, various forms of materials, medicine including Ayurveda and surgical techniques, agricultural practices and evolution of technological skills specifically with respect to working with metals, ornamental pottery and tiles. The scientific activity was essentially individualistic in pursuit of the ultimate truth. From the sixteenth and seventeenth centuries, the Portuguese, Dutch, French and British established commercial and colonial interests in India. In order to exploit the natural resources and local talent to the full, the British introduced modern scientific methods and education in India.

Calcutta, being the capital of India from 1772 to 1911, was somewhat privileged in terms of education, development of infrastructure and many other aspects. The British took many steps on education and entertainment in order to rule the country effectively. Calcutta, being the

capital of India from 1772 to 1912, was somewhat privileged in terms of education, development of infrastructure and many other aspects. These pioneering gestures include the first newspaper (The Bengal Gazette) printed in Calcutta in 1780, the first official newspaper (The Calcutta Gazette) established in 1784, "The Asiatic Society" (1784) for "Oriental Research", the first Bengali magazine 'Digdarsan' published from Serampore (1818), the Hindu College (Presidency College) in 1817, the Calcutta University in 1857, the Indian Museum in 1875, and the leading English Newspaper 'The Statesman' in 1875. Finally, the first science research laboratory of the country (Indian Association for the Cultivation of Science) was established in 1876 in Calcutta. All these helped in the enlightenment of the people of the country.

Bengal has been on the forefront of evolving, shaping and enriching Indian culture in all its dimensions including science. Bengal has been the unique land with rich heritage of literature, philosophy, science and religion which shaped Indian civilization. Bengal is the territory of great scientists like Acharya J.C. Bose, Acharya P.C. Ray, C.V. Raman, S.N. Bose, Meghnad Saha, and P.C. Mahalanobis who made signal contribution to the field of science. Rabindranath Tagore earned a coveted place in the hearts and minds of all Indians through his original contribution in literature (the first Nobel Laureate in Asia and Africa in 1913 in Literature for his book-Gitanjali-Song offerings). "Bande Mataram" written by Bankim Chandra Chattopadhyay became our national song revealing the nationalistic spirit across the length and breadth of India. Besides, personalities of extraordinary dedication and accomplishment like Satyajit Ray, Mother Teresa, Amartya Sen and Abhijit Banerjee, who are revered throughout the world. Asima Chatterjee and Archana Sharma had been the role model as women scientists who have also made a

mark in the global map in their field of research and teaching.

The present system of education in India was introduced in the early years of 19th century. A major benefit to Indian science during British rule was the spread of education in English, the language of modern science. The learning of science got a fillip in 1857 when three universities were created in India i.e. Calcutta, Madras and Bombay. The Universities of Punjab and Allahabad were also created later on. All of these universities had been modeled after the University of London and all of them were examining universities and not teaching universities. In 1876 a rich physician, Dr. Mahendra Lal Sircar, set up the first scientific research institution in Calcutta, known as the Indian Association for the Cultivation of Science, which became the focus of scientific activities in pre-independence India. Then only the foundations for basic science were expanded and academic science in the universities received great attention.

The nation is always grateful to Sir Asutosh Mookerjee the then Vice-Chancellor of the University of Calcutta for initiating modern science education in India. Rabindranath had a very good bonding with Asutosh regarding the academic development of our country. He had a wide and diverse interest in science. Sir Asutosh Mookerjee find out a galaxy of Indian scientists, who showed their talents and made immense contributions towards the development of a global profile of Indian science. The development of post graduate teaching and research in science and technology at the University of Calcutta opened a door for the Indians to learn science. The Indian research institutes like Indian Association for the Cultivation of Science in Calcutta (in 1876), Tata Institute (1908) now known as Indian Institute of Science in Bangalore and the Bose Institute (1917) in Calcutta are landmarks in science development but none can reach that level before independence as compared to the developments initiated by Asutosh at the University of Calcutta.

A new era was opened in the history of science in India when the country became independent on August 15, 1947. There was a remarkable expansion of facilities for scientists and the research began and prospered in many fields. India is now a member of (i) the Nuclear club, (ii)

the Space club, and (iii) the Antarctica exploration club. It has the world's third largest pool of trained technologists, next only to the USA and the Soviet Union, though it is still a developing nation. Now it is the role of Indian scientists including the women members to do much more to catch up with the advanced countries.

The President of India, Her Excellency Smt Droupadi Murmu, inaugurating the Visitor's Conference 2023 at Rashtrapati Bhavan on 10 July 2023 categorically mentioned that *education is vital for the progress of the individual, society and country. She stated that providing equitable and inclusive higher education to youth from socially and economically disadvantaged groups is one of the National Education Policy- 2020 priorities.* She stated that the NEP aims to make India a Global Knowledge superpower. She expressed confidence that higher educational institutions will play an essential role in achieving the goal of establishing India as a developed nation by the year 2047.

The President also pointed out that our daughters perform better when given the opportunity. She also noted that the participation of girls in technology institutions is also increasing. She said that efforts must be made to promote the presence and excellence of female students in Science, Technology, Engineering and Mathematics (STEM). She was happy to note that the Union Ministry of Education, coordinating with all stakeholders, is making continuous efforts in this direction.

The President said that *“knowledge centres should become hubs of the knowledge economy. They should move forward with the ambition of developing cutting-edge technologies. She added that our Technology Institutes have to take the initiative in areas like artificial intelligence”.* The President said that the younger generation see their role models in their teachers and successful personalities. The ideals and examples set by them through their conduct are very important. *She finally stressed that the character-building of youth should be given priority in higher-learning institutions. Morally strong youth, educated in modern knowledge-science and technology would build a better society and nation.* □

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