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EDITORIAL

SEMINAL CONTRIBUTIONS OF BOSE INSTITUTE TO MODERN INDIAN SCIENCE

The great civilization that took shape in the fourth millennium BCE in the Indian sub-continent, the Indus Valley Civilization, set the stage for many of its illustrious successors. Although we do not know much about the scientific developments during that period, relics from that era suggest a highly developed and technologically sophisticated civilization. Science and technology during the first millennium BCE and first millennium CE attained commanding heights. Next few centuries saw a gradual decline in the scientific prowess and hit rock-bottom during the East India Company rule. A journey to revive Indian science and rediscover the rich heritage started in the late nineteenth century at the hands of the iconic scientist, Jagadish Chandra Bose. His demonstration of wireless transmission and in the process, the crafting of the first semiconductor device spawned two of the most disruptive and blockbuster technologies in the world. As Nobel laureate Cecil Powell observed——"J. C. Bose was at least 60 years ahead of his time. In fact, he had anticipated the existence of P-type and N-type semiconductors"——he was too much ahead of his time to get due credit for these disruptive technologies. In fact, his discoveries of electrical responses in plants upon stress and signal transmission through electrical activity, which were the forerunner of the action potential and nerve transmission, were also way ahead of his time.

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Acharyya founded Bose Institute, which he christened as the temple of science, with a goal to create an institution where world-class science will be carried out. His dream was indeed fulfilled, may be partial, as path-breaking discoveries emerged from the institute. Many of these discoveries are now forgotten, carried out by unsung heroes of modern Indian Science. Debendra Mohan Bose succeeded Acharyya JC Bose as the second Director of the institute and served for nearly three decades. Apart from his seminal work on

the pi-meson and pioneering the use of photographic emulsion for detection of subatomic particles, he restructured and developed Bose Institute into a modern research institute. The purpose of this issue of Science and Culture is to rediscover and catalogue these forgotten events and underline Bose Institute as a premier contributor to modern Indian Science. ❐

Gautam Basu
Pradeep Parrack
Siddhartha Roy
Guest Editors

Gautam Basu is a Senior Professor of Biophysics at Bose Institute where his research focus is structural and computational biology. He recently translated "Driving Mr. Albert: A Trip across America with Einstein's Brain" by Michael Paternity into Bengali. He is interested in history of science and associated with the J. C. Bose Unit of Bose Institute. He regularly participates in science camps held for school children.

Pradeep Parrack, Professor of Biochemistry at Bose Institute, retired from active research in February 2017. He is interested in the history of science and continues his association with Bose Institute, being engaged in various activities with the publication division of the institute. He has been editing and publishing a Bengali monthly *Maskabari* for the last seven years, and has translated several stories from English to Bengali. His anthology of poems "*Kono Obhijyog Nei*" was published in 2001.

Siddhartha Roy, Senior Professor and the Director (officiating) of Bose Institute, served as the Director of CSIR-IICB and the founder Director-in-charge of NIPER-Kolkata. He is the Founder-President of the Chemical Biology Society (India) and a member of the Governing Board of Directors of International Chemical Biology Society. He has made important scientific contributions in the fields of NMR and transcription regulation. He received many honors, including the Bhatnagar Prize, JC Bose National Fellowship and Fellowships of INSA and IASc.

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