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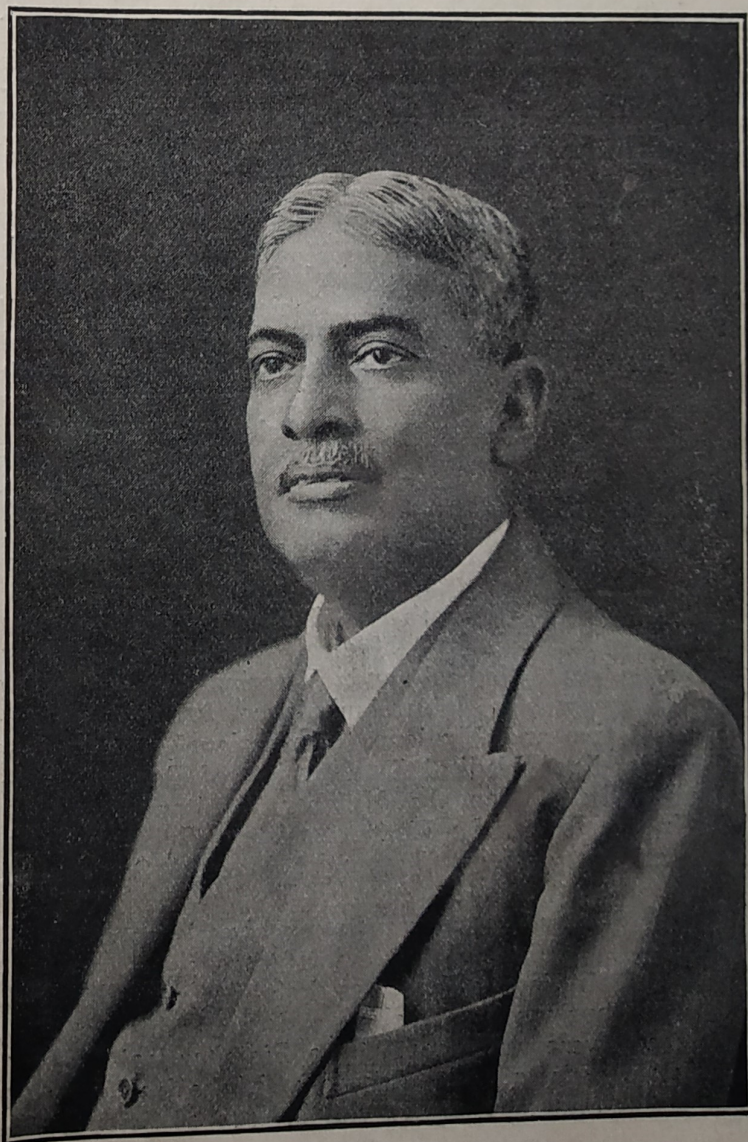
No. 9

In Memoriam :

THE death of SIR UPENDRANATH BRAHMACHARI on the 6th February, 1946 at the age of 73 removes a remarkable personality in world science. It is an irreparable loss to India. He was one of the earliest workers who helped to raise Indian scientific contributions to a world level.

Sir Upendranath was born on the 10th December, 1873 at Jamalpur, E. I. Ry. (Dt. Monghyr); where his father, the late Dr. Nilmoney Brahmachari spent the whole of his official career in the Medical Service of the Railway, being held in great esteem by both Europeans and Indians. The name "Dr. Nilmoney" was a household word among the members of the staff of the East Indian Railway, even several years after his retirement from service.

Sir Upendranath took his B.A. degree from the Hooghly College in 1893 where he was awarded the Thwyates Medal for standing first in Honours in Mathematics. For sometime he could not make up his mind whether he should go up for higher studies in mathematics, chemistry or medicine. This thought continued for sometime in his mind, even after entering upon his medical studies. And finally when he decided to study medicine with higher chemistry, he left mathematics with a sigh. The combination of the knowledge of higher chemistry with medicine no doubt helped him in his future researches. During the course of his studies in medicine in the first year he took his Master's Degree in Chemistry in 1894 from the Presidency College, Calcutta, in the first class,



Born : Dec. 19, 1873

Died : Feb. 6, 1946

obtaining the University Silver Medal. He passed the M. B. examination in 1898 standing first in Medicine and Surgery for which he obtained the Goodeve and McLeod Medals. He passed the M. D. examination in 1902 and obtained the Ph.D. degree in Physiology in 1904, his thesis being "Studies in Hæmolysis." Sir Upendranath was a Coates Medallist and Winner of Griffith Memorial Prize of the Calcutta University, a Minto Medallist of the Calcutta School of Tropical Medicine and Hygiene and Sir William Jones Medallist of the Royal Asiatic Society of Bengal.

Sir Upendranath's versatile knowledge and intelligence attracted the attention of the professors of the Medical College of Bengal, and after his graduation, many of his professors wanted him to be their assistant. After hesitating for sometime he decided to be a physician. He joined the Provincial Medical Service in 1898. For a short time he worked under Sir Gerald Bomford who regarded him as a living dictionary of medicine. He was so much impressed with young Brahmachari's capacity for research and assiduity in the discharge of his duties that he very soon got him appointed as teacher of Pathology and Materia Medica in the Dacca Medical School. At Dacca, he did researches with Sir Neil Campbell, Superintendent of the Medical School. Subsequently he was appointed teacher of Medicine in the Campbell Medical School, Calcutta. He was elevated to this coveted post within a short period after entering service. This post he occupied for nearly 20 years. He carried on most of his researches in Kala-azar at the Campbell Medical School. It was here that he made his monumental discovery of Urea Stibamine. He retired from Government service in 1927 as Additional Physician to the Medical College Hospital, Calcutta. He was for sometime financed for his researches by the Indian Research Fund Association.

Sir Upendranath was one of the leading physicians of India : President, Indian Science Congress, 1936 ; Professor of Tropical Medicine, Carmichael Medical College, Calcutta ; President, Indian Chemical Society ; President, Indian Committee, International Society of Microbiology ; President, Society of Biological Chemists, India ; Head of the Department of Bio-chemistry, Calcutta University ; President, Royal Asiatic Society of Bengal (1928 and 1929) ; President, Indian Association for the Cultivation of Science ; Vice-President, National Institute of Sciences of India, 1935 ; Member of the Syndicate and President of the Board of Studies in Medicine of the Calcutta University ; President, Indian Science News Association, Calcutta ; Chairman of the Board of Industries, Bengal. He was a Fellow of the University of Calcutta for over 40 years ; Fellow, Royal Asiatic Society of Bengal ; Fellow, Royal Society of Medicine, London ; Fellow, Royal Society of Tropical Medicine and Hygiene, London ; Hony. Fellow, State Medical Faculty of Bengal and International Faculty of Sciences, London.

Sir Upendranath was Chairman, Indian Red Cross Society and Blood Transfusion Service, Bengal ; Secretary, Medical Section, Royal Asiatic Society of Bengal for several years ; President, Medical and Veterinary Research Section, Indian Science Congress (1930) ; Chairman, St. John Ambulance Association, Bengal (1937) ; Member, Council of Tropical Medicine and Hygiene, International Congress of Medicine, London (1913) ; Member of the Council of Medical Registration of Bengal ; Member, Governing Body of the State Medical Faculty of Bengal ; Member, Sanitary Board, Bengal ; Vice-Chairman, Board of Trustees, Indian Museum ; Hony. Assistant Surgeon to the Viceroy and Governor General of India ; President, Indian Provincial Medical Services Association.

Sir Upendranath won for himself an international reputation as a research worker. Since the beginning of his official career he carried on extensive researches in connection with tropical diseases such as kala-azar, malaria, black-water fever, etc. He also made many contributions in chemistry. Some of his earlier researches were devoted to bio-chemistry and these were published in the *Bio-chemical Journal*. Recognising his turn of mind towards bio-chemistry, Sir Ashutosh Mukerjee, Vice-Chancellor, Calcutta University, gave him a well-equipped room in the College of Science, University of Calcutta for his researches.

Early in his official career, he discovered in 1901 the prevalence of *quartan fever* in Bengal which was considered in those days to be extremely rare in India.

March, 1946

IN MEMORIAM : SIR UPENDRANATH BRAHMACHARI

In course of his researches in kala-azar he discovered colloidal metallic antimony and showed its therapeutic value in the treatment of the disease. He was the first to use successfully metallic antimony in a state of fine subdivision intravenously and of sodium antimonyl tartrate in the treatment of kala-azar. His subsequent researches in connection with the chemotherapy of antimonial compounds in kala-azar infection which were published in successive series of papers in the *Indian Journal of Medical Research* and which formed the basis of all subsequent modern treatment of the disease are well known. It is most creditable that he carried out his researches "in addition to his other heavy official and private medical work."

In the course of his research he drew attention to a remarkable undiscovered skin manifestation of the infection with *Leishmania Donovanii* which was named by him *Dermal Leishmanoid* and which was previously mistaken for leprosy.

His most outstanding work was the discovery of *Urea Stibamine* (1921), an organic antimonial which stands today pre-eminent in the treatment of and campaign against kala-azar and "has deprived the disease of its terrors." This discovery which "is a striking record of the value of well controlled research" is "a great work in the control of terrible disease." Sir Walter Morley Fletcher, Secretary, Medical Research Council, once remarked during his visit to Assam, "I had the pleasure of seeing the organized use of Dr. Brahmachari's antimony compound (urea stibamine) in the treatment of kala-azar, and the great saving of life resulting from it." There is no doubt that *Urea Stibamine* is one of the most remarkable discoveries that have been made in tropical medicine during recent years.. From a creative point of view, its discovery is as great as that of salvarsan and its derivatives by Ehrlich in the treatment of syphilis.

Sir Upendranath was the founder of the Brahmachari Research Institute and it is creditable to him that all his researches after his retirement from service were being carried out with his own private means without any financial aid from outside. After his retirement, he carried out researches in diseases such as kala-azar and malaria, the chemistry and pharmacology of quinine compounds, and other subjects.. His papers, after his retirement from service in 1927, numbering 35, have been published in the *Transactions of the Royal Society of Tropical Medicine and Hygiene*, *Journal of Pharmacology and Experimental Therapeutics*, *Journal of the Indian Chemical Society*, *Journal and Proceedings, Asiatic Society of Bengal*, *Extrait du Comptes Rendus du Congres International de Medicine Tropical d'Hygiene*, *Indian Journal of Medicine and Hygiene*, *American Journal of Tropical Medicine and Hygiene*, *American Journal of Tropical Medicine*, and *Indian Medical Gazette*. The number of his original scientific contributions exceeds 150.

His "Treatise on Kala-azar" is "the premier work on the subject". In 1926, he wrote the chapter on kala-azar in Dr. Carl Mense's *Handbuch der Tropenkrankheiten*. There is hardly any world literature in tropical medicine where Sir Upendranath's contributions are not eulogistically mentioned.

As a teacher and educationist, Sir Upendranath's work was of the highest order and he always worked to the best interests of the institutions to which he had been attached.

For upwards of 30 years he strove to maintain the dignity and standard of teaching and examinations, as a teacher of medicine in Government service, as an examiner in medicine and science to the University, as a member of the Syndicate, as a member of the Faculties of Medicine and Science in the University of Calcutta, and in framing the Calcutta University Regulations from the beginning of the Universities Act of 1904. As a member of the Governing Body of the State Medical Faculty of Bengal and of Bengal Council of Medical Registration, he took a very prominent part in the framing of their regulations when these bodies came into existence.

As a philanthropist, Sir Upendranath made substantial contributions. For his humane work, he was nominated Hon. Vice-President, Indian Red Cross Society. His charitable gifts

amount to nearly two lakhs of rupees. Among the various institutions which have benefited from his philanthropy may be mentioned the Calcutta University, the Asiatic Society of Bengal, Medical College of Bengal, Indian Association for the Cultivation of Science, Indian Science Congress, Viceroy's Relief Fund, His Majesty's Silver Jubilee Fund, Ashutosh College, Calcutta, Indian Red Cross Society, Jadabpur Tuberculosis Hospital, Central Glass and Ceramic Institute, Lady Jackson's Darjeeling Victoria Hospital Fund, Board of Industries, Bengal, etc., etc. It may not be known that a generous donation from Sir Upendranath was responsible for starting the publication of "SCIENCE AND CULTURE" and his purse was always open when "SCIENCE AND CULTURE" needed money.

We would quote a few lines from a speech of his in which he spoke of research workers as follows :

"In dealing with research workers there should be no jealousy, no distinction of caste or creed, no differential treatment on the part of those who have the privileged position of recommending sanction of money for research. There should be only one object, namely, the well-being of mankind. No personal opinion or bias should retard the progress of scientific research, even if the attitude of a research worker be not to one's personal taste or inclination."

There is a bust of Sir Upendranath in the rooms of the Royal Asiatic Society of Bengal, and tablet with a plaque in the walls of the room in the Campbell Hospital where urea stibamine was discovered. This tablet contains the following extracts from the presidential address at the Annual Anniversary Meeting of the Royal Asiatic Society of Bengal, 1929-30 :

"I shall never forget that little room where urea stibamine was discovered, the room where I had to labour for months without a gas point or a water tap, and where I had to remain contented with my old kerosene hurricane lamp for my work at night. The room still remains, but the signs of a laboratory in it have completely disappeared. To me it will ever remain as a place of pilgrimage, where the first light of urea stibamine dawned upon my mind."

Sir Upendranath had an unquenchable thirst for knowledge and he possessed a large library of scientific literature. He had a great taste for English literature, of which he had a good collection in his library. Genius has been defined as "an unlimited capacity for taking pains". Sir Upendranath was an embodiment of this attribute.

His unbounded energies found expression in some hobbies, one of which was gardening. He had a large collection of orchids and plants of exotic species. He made a valuable collection of photographs of eminent scientists in the world. The development of Indian industry also claimed his attention.

"SCIENCE AND CULTURE" had the pleasure of recording his achievements during his lifetime (Vol. I, No. 7, December, 1935). Although Sir Upendranath is no longer in our midst, we pay our tribute to his memory today and we hope his life will serve as a beaconlight to generations of scientists to come.