## **OBITUARY**



Prof. Anil Kumar Ghosh (1940- 2018)

Prof. Anil Kumar Ghosh, a renowned teacher of the Geology Department, Calcutta University, economic geologist par excellence and President of the Geological, Mining & Metallurgical Society of India breathed his last on 20th November 2018 in a nursing home at Kolkata after prolonged illness, deeply mourned by his wife Jayanti, daughter Julie, son in law Indranil, grandson Ishan, as also his extended family of friends, fellow teachers, students and admirers. In his demise Ghosh left behind a void in the academic firmament difficult to fill in.

Born at Kolkata in 1940 into an elite and cultured family, Anil Kumar Ghosh had a brilliant academic career securing first position in M. S c (Geology), Calcutta University in 1961, and the prestigious University Gold Medal. He joined the faculty of Calcutta University as lecturer in 1962, and was groomed in the academic ambience of eminent professors like N.N.Chatterjee, S.N.Sen, Anirudha De, A.K. Saha, A.K.Banerjee. He had a long stint in the Post Graduate Department of Geology helming the Department from 1990 to 1992 as Head of Department. He rose to the rank of Professor in 1998. Even after his superannuation in 2005 he remained as a Guest Teacher till 2017, so much for his popularity as a gifted versatile teacher. He also taught marine geoscience in the Marine Science Department of Calcutta University since its inception in 1984 till 2008. He envisioned and took a lead role in establishing "Marine Science" Department in Calcutta University. He was also Emeritus Scientist of the Department of Science & Technology during 2006-2007, and Emeritus Fellow of the University Grants Commission during 2007-2009. He successfully took over the mantle of his legendary predecessors, became a leading light of the academia, and brought laurels to the Geology Department enshrining it as a 'Seat Of Learning'.

Ghosh's field of specialization was Economic Geology. His principal contributions were on ore geology, geochemistry, ore genesis, exploration and metallogeny of land based and marine deposits. He had been associated mainly with the study of base metal deposits. Starting with the sulphide deposits of Sikkim, in later years, he extended the horizon to polymetallic nodules on seafloor. He had immense interest in the zinc-lead deposit located in the Ganesh Himal region of Central Nepal. He had exceptional expertise in the studies and textural analysis of sulphide ores under microscope. He identified pyrite framboid in ores of Ganesh Himal and helped in proving a synsedimentary origin of the deposit. Further, trace element data of metabasics in the Gorubathan ore (Pb-Zn) field, Darjeeling foothills, as studied by him do not rule out the possibility of a linkage of these rocks with the volcanism in a sedimentary environment contributing to the ore budget in the area. With the help of Ralph Thrope of Geological Survey of Canada, he attempted at dating of ore deposits and correlating the Lesser Himalayan deposits. His studies on Indian and Pacific Ocean manganese nodules have suggested that diagenetic supply of transition metals is the major process for the origin of economically important nodule deposits in equatorial belts of these two oceans. Large phillipsite crystal as nodule nucleus from the Central Indian Ocean Basin was reported for the first time.

Prof. Ghosh did his Ph.D on sulphide mineralization in Singhbhum copper belt in 1967. This was followed by a two year stint (1970-1972) in Technische Hochschule Aschen in Germany on post-doctoral research. He also guided four Ph. D scholars and several post-doctoral research projects, and was an examiner of Ph. D dissertations in several universities. He was actively associated with several major research projects, and inter-institute collaborative research programs in India and abroad which took him twice to Technische Hochschule in Germany (1979, 1990). He visited China on invitation of Chinese Academy of Science in 1996 on INSA exchange of Scientists program. He also visited Imperial College of Science & Technology at Lndon(1991) to attend a Conference on Exploration of Uranium Minerals

Ghosh participated in a sea expedition on board of British ship M.V.Farnella in 1984-85 in the Central Indian Ocean as a part of national effort to demarcate Manganese nodule rich areas in Indian Ocean Basin. This sterling contribution by Ghosh and his fellow scientists on board culminated in India being awarded with Pioneer Investor status by UN Commission for Law of the Sea (UNCLOS).

Anil was a disciplinarian to the core which is fundamental to scientific research. This he strived to inculcate in all his students, - a scientific temper and interest. Amiable in nature and soft spoken he was a popular and dedicated teacher, and mentor to many in their academic activities. As a motivational teacher, he was always lavish in encouragement and selfless assistance to all in the quest of knowledge and related endeavors. Many of his students are now holding high positions in different organisations. His chamber in the Ballygunj Science College, Kolkata turned into "Sanctum Sanctorium" for all with academic interests.

A multifaceted persona as he was, Anil's arena of activities extended much beyond four walls of class rooms and laboratory. He had an incredible ability to organize scientific institution avowed to promote research and study. He was associated with Geological, Mining and Metallurgical Society of India (GMMSI) since his post graduate days and became elected as its President in 2006. A spectacular achievement of Ghosh was revival of this Society which was debilitating from abysmal financial crisis and lack of leadership with

the active support of his fellow teachers, students and well-wishers, – a Herculean task no doubt. GMMSI turned into a vibrant body of geoscientists and budding geologists, regaining its past glory of activities, namely holding scientific meetings and endowment Lectures, organizing National Seminars and symposia, revitalization of its flagship journal "Indian Journal of Geology , publication of its Special Issues . Ghosh rendered Yeoman's service for the cause of geoscience. But as a true scientist he preferred anonymity to noise of success.

Ghosh was a votary of conservation of rocks as template of geological past for future earth scientists. Through series of articles he was spearheading the move for establishing "Charnockite" as National Rock.

His ceaseless pen never tired of writing scientific research articles, priceless books, and even travelogues, both in English and Bengali with equal élan, - a testimony to his exceptional communicative skill. He had to his credit forty eight (48) research articles, published in peer reviewed journals, both national and international, ten (10) technical reports, and co-authored three highly acclaimed books on marine geoscience, namely 'Mineral Wealth of the Ocean' (A.A.Balkemo,2000), and 'Indian Ocean Nodules Field (Elsevier/Indian edition Oxford & IBH, 2008), which are noted for large readership and wide circulation. He also edited two highly informative books, - 'Mineral Resources, Development in West Bengal '(West Bengal Academy of Science & Technology, 1982) and a 'Special Issue' of Indian Journal of Geology, Vol.74 (2002) dedicated to Dr.A.K. Banerjee. These publications will ever remain as vital source of reference for young scientists and research scholars.

In recognition of his meritorious contributions to geoscience, and scholarly achievements as an outstanding scientist and teacher, Prof. Ghosh was conferred several prestigious awards, namely Prof. N.N. Chatterjee Gold Medal of Asiatic Society (1969), Coggin Brown Gold Medal (1997), Dr. D.N.Thakur Gold Medal (2002) of Mining,

Gelogical & Metallurgical Institute etc. Till his last days he kept himself abreast of developments in geoscience. He used to be actively associated with several premier scientific societies and organisations including West Bengal Academy of Science & Technology and Nepal Geological Society as Fellow; Explorers Institute as Vice President; Mining, Geological & Metallurgical Institute and Indian Association of Marine Geoscientists as Member. Ghosh believed that science thrives through debates, discussions and interactions.

Anil's was a happy family with his inspiring wife, Jayanti always by his side. He was a proud father as his daughter, Dr. Julie Basu Ray, too, joined the Faculty of the University of Arakansas in USA upholding the academic tradition of the family.

Dr. Ghosh's contributions to economic geology, especially marine geology will ever remain etched in the annals of geoscience. He left a legacy of excellence in academic research and training and in institution building to his posterity. In these trying times, when academics (both teachers and students) are split into politically surcharged groups, Ghosh stood tall rising above all petty politics and never allowed non-academic distractions to overcast his quest for knowledge, firmly upholding his principles, unwavering in his commitment to science, a rare personality these days. In his passing away the student community has lost a mentor and scholarly teacher, Calcutta University a versatile academic, and geoscientific community a scientist par excellence, while his friends are left languishing with the fond memory of this multifaceted persona.

Geological Society of India pays its homage to this icon of academia and geoscience.

(With inputs from Chanchal Chakravorty, Chittaranjan Bhattacharya)

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