Jour. Geol. Soc. India (2023) 99:737
https://doi.org/10.1007/s12594-023-2375-0

NEWS AND NOTES

G.R. Udas Memorial Lecture, 21st March 2023, Department of Environmental Studies, Savitribai Phule Pune University, Pune

R. A. Duraiswami* and N.R. Karmalkar
Geological Society of India, Western Regional Centre, Pune - 411 007, India
***E-mail:** raduraiswami@gmail.com*

Received: 4 April 2023 / Accepted: 6 April 2023

Dr. P. Krishnamurthy, formerly Regional Director, Atomic Minerals Directorate for Exploration and Research (AMD), Department of Atomic Energy, Government of India, Hyderabad delivered a lecture titled "Dr. Gajanan Rajaram Udas: My Guru and an Exceptional Director of AMD' at the request of the Geological Society of India, Western Regional Centre, Pune.

In his memorial lecture, Dr. P Krishnamurthy stated that Dr. Udas joined the Centre of Advanced Study in Geology, University of Sagar, Madhya Pradesh as a visiting scientist after the completion of his PhD thesis in 1965 under Prof. Sukheswala, St. Xavier's College, Mumbai on the 'Carbonatites of Amba Dongar, Gujarat, the first one to be discovered in India in 1963 with rich fluorite deposits.

The first part of the lecture dealt with the nostalgia of Dr. P. Krishnamurthy joining a PhD programme under Dr. Udas's guidance with a professional approach in seeking new carbonatite-alkaline rock associations along the lower Narmada valley around the Rajpipla hills. This work led to the discovery of a small fluorite deposit at Hingoria along with a differentiated suite of K-rich basalts and K-rhyolite plugs and sheets. Dr. P. Krishnamurthy was also part of Dr. Udas's research on the newly discovered carbonatite complexes at Sevathur and Samalpatti during 1965-1966 by Dr. Borodin and Dr. D.N. Holt under the Tamil Nadu's UNDP's Mineral Development programme along with V. Gopal. Dr. Udas was also seeking a genetic link between such complexes and the syenites and their spatial links to the NE-SW-W trending charnockite-non-charnockite (craton-mobile belt) boundary proposed by Fermor from Coimbatore in the SW to Koraput in Odisha through Salem and Dharmapuri and the Prakasam Alkaline Province of Andhra Pradesh.

The second part of the Memorial lecture dealt with the extraordinary challenges Dr. Udas faced after taking over as Director AMD in 1974. These included the shifting of the AMD headquarters from New Delhi to Hyderabad and establishing a new office, laboratory (physics, petrology, spectrograph, XRF, and other geochemical laboratories) and residential complexes for the scientists and staff. The global ban on India after the Pokhran implosion denied critical raw materials to India, such as Nb-Ta ores for the Nuclear Fuel Complex for manufacturing Zr-Nb claddings for the nuclear fuel in the Indigenous Heavy water moderated natural Uranium reactors. Dr. Udas faced these challenges with a team of very dedicated senior scientific officers namely A.V. Phadke, T.M. Mahadevan, K.V.M. Jayaram, K.B. Anatha Raman, N.S. Bhalla and others which led to the speedy recruitment of human resources, creation of special Nb-Ta Groups and recovery of columbite-tantalite from the well-known Bihar mica belt. Such work, akin to war-time activities was completed and the ban was countered achieving self-sufficiency in these metals for the nuclear power programme.

Dr. Udas was also responsible for seeking new types of uranium deposits (other than the metamorphic-vein types) outside the Singhbhum U-Cu belt after 25 years by dispersing the available resources optimally to other parts of India. Such a search was based on sound discussions on concepts developed through discussions (Spatial and temporal association of diverse U-deposits) with teams consisting of experienced and bright young minds visiting different new discoveries made elsewhere in the world keeping in mind the potential of new areas. In order to increase drilling inputs with limited resources, contract drilling was initiated with Govt. agencies like NMDC and MECL. Airborne survey was revived after 25 years and other geophysical inputs were also strengthened during his tenure of seven years as Director, the longest duration so far in AMD. These led to sandstone-type deposits in the Siwalik Foothills of Himalayas (e.g., Morni, Astotha, and others) and in Meghalya (e.g., Domiasiat), vein-type deposits in erstwhile Madhya Pradesh (e.g. Bodal, Bhandaritola, Jajawal and others). The start and momentum he gave to AMD were continued by successive Directors in augmenting the Atomic Mineral resources of India.

Currently, India has over 3 lakh tonnes of proven U_3O_8 resources identified from the Precambrian uranium provinces of Singhbhum, Cuddapha basin and the Cretaceous sandstones of Meghalaya plateau, with the Cuddapah uranium province hosting one of the largest, low grades (c. 0.04%), carbonate-hosted Proterozoic uranium resources of the world.

Dr. Uda's vision of self-sufficiency in Atomic Mineral resources that began in the mid-1970s has yielded rich dividends. His exceptional vision, services and dedication to make AMD a top-class exploration agency had been fully recognised. As a mark of his contributions to AMD and DAE, the new block in the College House complex of AMD, Begumpet was named after him in the Golden Jubilee Year of AMD in 1999 by the then Chairman of AEC, Dr. Chidambaram.

Dr. P. Krishnamurthy was thanked and facilitated for delivering the Dr. G. R. Udas Memorial lecture. Prominent geoscientists, AMD officers, faculty, research scholars and students attended the lecture in person and online mode. The meeting ended with a vote of thanks after highlighting the role of Dr. P. Krishnamurthy in fostering a good rapport between the AMD and SSPU resulting in the signing of a memorandum of understanding between the two organisations that have encouraged research scholars taking up several doctoral theses on carbonatite and related rare earth-rare metal association and starting of a new course of nuclear geology and rare metal-rare earth offered for the past couples of years at the Department of Environmental Studies, Savitribai Phule Pune University, Pune.