

NOTES

GROUP DISCUSSION ON KIMBERLITES AND RELATED ROCKS OF INDIA

Geological Society of India organized a Group Discussion on *Kimberlites and Related Rocks of India* between 22nd and 26th November 2005. The programme was conducted in three phases. The first phase consisting of inaugural session and technical presentations was held at the auditorium of the Department of Mines and Geology, Bangalore. The second phase organized on 24th and 25th November 2005, comprised field excursion to Wajrakarur

President, Geological Society of India welcomed the delegates. During his address he reminded the geoscientific fraternity about the dismal show of the country in the field of diamond production and called for concerted efforts in identifying diamond bearing rocks and their exploitation. He pointed out that apart from the conventional mantle source of diamonds, attention must be paid towards the non-conventional sources like impact generated diamonds.



Dr. B.P. Radhakrishna releasing the volume on kimberlite indicator mineral chemistry (brought out by the Geological Survey of India). Prof. R.H. Mitchell (Lakehead University, Thunder Bay, Canada) and Dr. S.K. Bhushan (Geological Survey of India, Hyderabad) on either side.

Kimberlite Field. The third phase consisting of presentations and concluding session, was held at National Geophysical Research Institute, Hyderabad on 26th November 2005. The financial assistance for this Group Discussion was made available by Department of Science and Technology, New Delhi and Geological Survey of India, National Mineral Development Corporation Ltd., National Geophysical Research Institute, Hyderabad and MSPL Ltd. as co-sponsors of this programme.

About eighty delegates and seventy invited participants attended the inaugural session. Dr. B.P. Radhakrishna,

Dr. B.P. Radhakrishna also felicitated Prof. R.H. Mitchell, the well-known kimberlite petrologist and the Chief Guest at the meeting on his election as Honorary Fellow of the Geological Society of India. Dr. S.K. Bhushan, Deputy Director General, Geological Survey of India, Southern Region, Hyderabad inaugurated the meeting by lighting a lamp. In his inaugural address Dr. Bhushan highlighted the work carried out by the Geological Survey of India and lauded the efforts of Geological Society of India in organizing this meeting, which he opined as very timely. Prof. R. H. Mitchell expressed his gratitude for inviting him



Dr. B.P. Radhakrishna felicitating Prof. Mitchell on his election as Honorary Fellow of the Geological Society of India.

to this programme and also expressed his keenness to meet the geologists working on kimberlites, interacting with them and also to see some of these rocks in India. Dr. V.P. Dimri, Director, NGRI, Hyderabad addressed the gathering and informed about the preparations underway for holding the 9th International Kimberlite Conference at NGRI during February, 2007. During this inaugural session Dr. B.P. Radhakrishna formally released a publication on

indicator mineral chemistry from the kimberlites of Andhra Pradesh and Karnataka generated by the EPMA method and brought out by the Southern Region of the Geological Survey of India. The publication incorporates about one thousand mineral analyses of almost all the important indicator minerals like garnet, ilmenite, olivine, pyroxene, spinel, rutile, perovskite etc. This basic data and its interpretation may help in evolving criteria for the



Delegates at the kimberlite core-library and museum of the Geological Survey of India at the Wajrakarur camp.

recognition of diamondiferous and non-diamondiferous pipes integrated with other geological data Dr M S Rao proposed the vote of thanks

The first technical session of the group discussion covered regional aspects where six presentations were taken up. The second and third sessions, with fifteen papers, focused on various aspects of kimberlites and lamproites of Dharwar Craton. The fourth session was held on 23rd November with ten papers covering the kimberlites and related rocks of Bastar and Bundelkhand cratons. The fifth session contained the papers that dealt with topics like geochemistry of kimberlites, melt inclusions in kimberlites and synthesis of diamonds under sub-natural conditions. The sixth and final session held at S Balakrishna Hall of the NGRI was devoted to the very important topic of alluvial diamonds and their sources. Two major presentations, one dealing with alluvial and placer deposits in India and the other dealing with the South African alluvial diamonds were made. The vast potential in discovery of more such deposits in the palaeo-gravels, in beach sands and in off-shore deposits in India was emphasized. During this session, a brief presentation on high resolution electrical resistivity tomography (HERT) in visualizing the shape and disposition of kimberlite pipes as well as a synoptic view of exploration prospects for kimberlites in Peninsular shield was also presented. A total of fifty one papers were incorporated in the abstract volume.

During the field excursion the delegates were taken to different kimberlite clusters (Chigicherla cluster, Kalyandurga cluster and Wajrakarur cluster) of Wajrakarur Kimberlite Field. The geologists of Project Diamond, Op Andhra Pradesh, and Southern Region of the Geological Survey of India conducted the field excursion. Due to time constraints other kimberlite clusters of south India could not be visited. This part of the programme provided a good opportunity for the Indian delegates to have a one-to-one interaction with the foreign experts. An important aspect of the field excursion was the visit of the delegates to the kimberlite park, kimberlite museum and kimberlite core-library at the Wajrakarur camp of the Geological Survey of India. In this camp, delegates were shown samples from all the kimberlites and lamproites of the South Indian Diamond Province. In a small laboratory set-up in the camp, the delegates could also see the kimberlite indicator minerals of this region and diamonds recovered from the kimberlites of Wajrakarur Kimberlite Field.

The final and concluding session attempted to summarize the outcome of the deliberations in the Group Discussion as well as field excursion and arrive at some tangible programmes of work involving all the organizations and their individual capabilities. The session began with a masterly analysis by Prof. Mitchell on the kimberlite research scenario globally and his impressions of the work carried out in India. He emphasized the importance of conventional optical petrography supported by facilities for back scattered electron imaging in the study of complexly textured and diverse rocks under the kimberlite terminology. He suggested that suitable petrological models are the basis for further exploration. Prof. Viljoen in his summing up of impressions stressed on the structural controls in kimberlite emplacement which are also in some way linked to the emplacement of dykes and dyke swarms, as exemplified in the kimberlite fields fringing the Cuddapah Basin as well as in the Kapaal Province of South Africa. He speculated whether the underthrusting of the Indian plate in the north has resulted in an upward tilting of the southern shield that has resulted in deeper levels of erosion, exposing hypabyssal and rootzone material. All the participants in the group discussion were given an opportunity to voice their opinions, reactions, suggestions for further work on kimberlites and related rocks in our country. A point that time and again emerged was the failure of optimal utilization of the strengths in various institutions of the country engaged in geological research like national survey organizations, national laboratories, universities and other centers of higher learning due to lack of vision and coordinated action, mismanagement of human resource potential available and not following up global developments due to lack of exposure of working level scientists to other belts in the world. The discovered kimberlite occurrences in the country with incidence of diamonds like in the Chhattisgarh field have not become producing mines because of social and political exigencies. It was assured that the Geological Society of India would continue its efforts to bring various organizations/institutions on to a common platform to evolve collaborative efforts of various sub-disciplines to achieve our objective – to attain a better and deeper understanding of the genesis of kimberlites and related rocks and to exploit their economic potential in the best interests of the country.

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