Magmatism, tectonism and mineralization*

More than a hundred eminent scientists from various national laboratories, Geological Survey of India, IITs, universities, public and private sector units and State Directorates of Geology and Mines across the country and many research students of geology from various academic institutions participated in the national seminar on ‘Magmatism, Tectonism and Mineralization’. A total of 48 research contributions (oral and poster) were presented during 10 technical sessions. The deliberations included 17 invited and 30 regular presentations. In addition, R. Dhana Raju delivered the 4th Professor C. Mahadevan Memorial Lecture of the South Asian Association of Economic Geologists (SAAEG) on I-, M-, A- and S-type granitoids, their attributes and mineralization, giving Indian examples.

In the session dealing with ‘Mineralization in dynamic magmatic system’, Mihir Deh provided an excellent correlation between Precambrian Supercontinent cycles and juvenile crust formation, and discussed the time relationship and possible locations for the exploration of gold. K. S. Misra, based on field evidence, explained the eruption of Cretaceous volcanic sequences of Peninsular India, highlighting the intricate relationship between extensional tectonism and decompressional melting events at different levels. V. Balaram presented new dimensions of geochemical researches based on advanced analytical techniques in the field of mineral exploration. S. K. Bhusan presented field relation, mineralogy and geochemistry of Neoproterozoic felsic magmatism in Rajasthan, with its implications on petrogenesis and geodynamics. Kanchan Pande provided a detailed account of understanding the ore system through 40Ar–39Ar and 187Re–180Os geochronology. O. P. Goel reviewed the field occurrence of ophiolite rock suite of Manipur–Nagaland regions and its future prospects for chromite deposit. C. Manikyamba discussed the ocean island basalts of Dharwar craton with its implication on the understanding of Archean plume tectonomagmatism. S. L. Ramesh discussed the geochemistry and petrogenesis of gabbros from Amba Dongar region of the Deccan volcanic province. R. K. Srivastava explained the evolutionary mechanism of carbonatite and silicate-rock association from Shilong plateau. V. V. Chalapathi Rao gave mineralogical and geochemical account of Archean to Neoproterozoic alkaline–potassic–ultrapotassic–mafic–ultramafic magmatism of Peninsular India, concluding that this rock association is more prevalent in the Eastern Dharwar Craton. V. V. Seshu Sai discussed the occurrence of astrophyllites in the Podili alkali granite of Prakasham District. Gurmeet Kaur gave the age constraints and geochemical feature of mafic magmatic rocks in the parts of Betul mobile belt. L. Gopeshwar Singh presented the petrographic features of volcanic–plutonic association of Dharan region of the Malani igneous suite. D. Majumdar provided geochemical features and mineralization potential of porphyry granitoids from the Kuthoor–Bagori region and correlated them with Dharwar and Singhbhum cratons. A. N. Singh outlined the fluid inclusion, ore petrographic and sulphur isotopic evidences of Imilma gold occurrence, which supported the magmatic origin. S. P. Singh explained the field observations in favour of collapsed cauldron-type granite breccia influenced by pulses of felsic and metasomatic activities in Mohar region of Bundelkhand massif, which probably caused base-metal mineralization. P. K. Singh presented the distribution patterns and economic potential of PGE in ultramafic and mafic rocks in the Ikuana region of Bundelkhand massif. Abhimanyu Singh described the geology, petrography and geochemistry of Proterozoic stanniferous granite of southern Bastar Craton, identical with other specialized granites of the world. Parijat Roy discussed the geochemistry and origin of Archean anorthosites, with its implications on PGE metallogey of Khamman region.

In the session on ‘Structure and tectonics in relation to mineralization’, M. M. Mukherjee discussed the Late Archean regional deformation, metamorphism and structural controls on gold–quartz–sulphide mineralization in the south Kolar schist belt. A. R. Bhattacharya explained the ductile shear deformation and mineral formation along the Main Central Thrust of Himalaya. M. K. Panigrahi, based on several lines of geological and geophysical evidences, reviewed the genesis of the granitoid-affiliated palaeoproterozoic copper–molybdenum deposit at Malanjkhand. P. Konwar opined that the Mishmi block of Meghalaya could be a tectonic roof. Swati Deol described two phases of gold mineralization associated with arsenopyrite commonly hosted in calc-silicates, quartz-albite and tourmaline-rich rocks from Bhukia–Jagura region of south Rajasthan, which can be a promising gold-prospect region. T. C. Vinesh explained the various controlling factors of manganese nodule formation in the Central Indian Basin. N. R. Devi presented microstructural architecture of Mesoproterozoic lower metapelitic formation of the Shillong Basin. K. M. Muhammad Shabeer discussed the exploration potential of base-metal deposits associated with ultramafic rocks along the Attur–Salem fault zones. A. Kumar provided structural details of shear-zone evolution exposed in the basement and supracrustal rocks of Puri–Bhubaneswar and adjoining regions of Bundelkhand massif.

In the session on ‘Metamorphism, anatexis and role of fluids in ore genesis’, C. S. Dubey discussed the P–T–t path, active tectonics and orogenic precipitation in erosional unloading of Sikkim Himalaya and the insights on critical-wedge mechanism. R. Krishnamurthi presented fluid inclusion record and genesis of auriferous quartz vein of Atapadi area proximal to mafic–ultramafic supracrustal rocks within Bhavari Shear Zone, southern Indian granulite terrain.

In the session on ‘Tectonomagmatism and mineralization in the Himalayan do-
Rashtriya Vigyan Sanchark Sammelan*

A special addition to the Indian Science Congress this year was the Science Communication Meet. It was catalysed by the Indian Science Congress Association (ISCA) and supported by National Council for Science and Technology Communication (NCSTC), and Department of Science and Technology (DST), New Delhi.

Addressing the inaugural function of the Meet on 4 January 2008, the Principal Scientific Advisor to Government of India, R. Chidambaram said that the lack of basic knowledge is the cause for misconceptions about nuclear technologies. He added that nuclear power is an inevitable option to satisfy future energy needs of the world in the context of depleting fossil fuels and that climate changes also force the need for nuclear technology. Speaking about the importance of science communication, he stressed on the need to disseminate science information at various levels. He stated that C. V. Raman and S. Chandrasekhar demonstrated extraordinary skills as science communicators, which created a lot of interest among the masses. According to him, science communication goes beyond the frontiers of visual media. He prevailed upon the communicators not to bring their prejudices into science communication; issues like IPR and technology-controlling regimes hinder exchange of information. Chidambaram quoted Alvin Toffler and said that technology is power and science communication can be used as a tool for development, global peace and environmental protection.

Anuj Sinha (Advisor, NCSTC) spoke on the focal theme ‘Challenges in communicating science and technology in regional languages’, which was apt and timely. Most of the papers were submitted by academicians, journalists from both print and electronic media, and they highlighted in general, the lacunae, pitfalls and possible solutions. Some of the papers were on content analysis, while others chronicled the history and evolution of science communication in their respective regions. Presentation of the papers and the roundtable discussions provided concrete recommendations, the

* A report on the Rashtriya Vigyan Sancharak Sammelan (Science Communication Meet), 95th Indian Science Congress, held from 3 to 7 January 2008 at Andhra University, Visakhapatnam.