

## NOTES

### WORLD-CLASS MINERAL DEPOSITS AND EARTH EVOLUTION

This note is intended to draw the attention of the readers of the Journal to the Special issue of the *Applied Earth Science Journal* of August 2003, Volume 112, Number 2, pp.102-120, Maney Publishing (Transactions of the Institutions of Mining and Metallurgy: Section B: incorporating Proceedings of the Australian Institute of Mining and Metallurgy).

This issue is devoted to 'World Class Mineral Deposits and Earth Evolution' and contains the extended abstracts of presentations at the Geological Society's Fermor Flagship Meeting, held at Cardiff University and the National Museums & Galleries of Wales between the 18th and the 21st of August 2003. The aim of the 2003 Fermor Meeting was to highlight the importance of applied and fundamental research on mineral deposits by bringing together geologists from academia and industry to underline the linkage between earth system science and mineral deposit research. The Fermor Meeting is held every three years in memory of Sir Lewis L. Fermor, who in his long and highly distinguished career, was director of the Geological Survey of India, Vice-President of both the Geological Society and the Mineralogical Society and President of the Institution of Mining and Metallurgy. His pioneering work on Indian geology is well known.

The Editors Iain McDonald et al. have compiled a broad range of quality papers on world class mineral deposits and earth evolution. It is a well-edited and classified volume of extended abstracts of presentations show-casing important mineral deposits with an author index at the end. A brief review of each session is provided. The contributors are mostly from UK, Australia and South Africa in addition to other representatives from USA, Russia, Germany, Mongolia, China, Indonesia, Turkey, Czech Republic, Canada, Finland, Denmark, France and Chile. The papers are supported by maps, illustrations, tables, schematic cross-sections, stratigraphy and include the classic Bushveld complex and Witwatersrand gold deposits of South Africa. Some papers contain isotopic data and SEM images. The volume has a picture of fossil hydrothermal tubeworm from Carboniferous Ballynoe barite and the photograph of the world's largest silver mine of Cerro Rico, Bolivia.

Mineral deposits are the source of metals, industrial minerals and materials. They are the primary sources of

wealth generation and serve as valuable windows through which to view aspects of earth evolution. Because mineral deposits form at various, complex and critical stages in earth history, they preserve key evidences for early magmatic and tectonic processes, the state of the atmosphere and hydrosphere and evolution of life over geological time as pointed out by the editors in the foreword. This issue has seven scientific sessions' presentations, each with at least one major international keynote speaker.

**Session 1: Tectonic evolution and metallogenic potential throughout earth history:** this session deals with the changing styles of mineralisations through geological time and constraining past tectonic evolution. This session has 14 extended abstracts of presentations notably including one on India by A.J. Rogers et al. – 'The Tectono-Magmatic Evolution of the Hutti-Muski Greenstone Belt and Relative Timing of Gold Mineralisation'. This paper describes the tectono-magmatic evolution of the HMGB, Dharwar craton, one of the important gold deposits of India.

**Session 2: Evaluation and sustainable utilisation of mineral resources:** this contains nine presentations dealing with mainly sustainability, environmental management and minimising environmental impact of exploration and mining.

**Session 3: Catastrophism and the development of mineral resources:** this includes five presentations and one on the famous Witwatersrand gold deposit of South Africa. This session of presentations deals with the impact of extra-terrestrial triggers or impact cratering as a fundamental geological process in hosting significant mineral resources.

**Session 4: Sediment-hosted mineral deposits: do they constrain the ancient atmosphere and hydrosphere?** There are ten presentations in this session. It deals with the formation of different sediment-hosted deposits and in understanding the outstanding issues of earth history and how the atmosphere and hydrosphere have changed over geological time. Interestingly, it also deals with the significant concentrations of free oxygen, profound implications for the weathering of rocks and evolution of

life. Some abstracts presented in this session are devoted to Banded Iron Formation (BIF), manganese and copper deposits of the world.

**Session 5: Origin and evolution of life:** Evidence from ancient mineral deposits: there are six presentations in this session comprising new research into the evolution of life and clues from ore deposits as evidenced in VMS, SEDEX and epithermal-type deposits.

**Session 6: New techniques for understanding mineral deposits:** as the title suggests this session includes new analytical techniques to enhance the complete understanding of the genesis of different mineral deposits, origin and timing of mineralising fluids. It has 13 presentations.

**Session 7: Earth processes and exploration for super-giant mineral deposits:** in this last session there are 13 papers. This presentation session dealing with the role of fundamental earth processes in generating different types

of super-giant deposits. This session contains all mineral deposits including super-giant PGE deposits, diamond and silver. These are highly sought after by major and junior exploration companies as these deposits generate huge long-term returns for their developers.

In the final paragraph of the foreword to this issue, the editors acknowledge Sir Fermor's bequeathed funds to the Geological Society to support research on mineralisation, mineral deposits and Precambrian geology, which were very dear to his heart. This particular volume is a useful collation of work presented by world-class specialists on world class mineral deposits and earth evolution and hence of great interest to all students and researchers in Economic Geology in India.

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## ANNOUNCEMENTS

**FIELD CONFERENCE ON TRIASSIC OF SPITI VALLEY UNDER IGCP-467:** A field conference is being organized by Dr. M. Orchard, Canada (Global Leader) and Prof. Leopold Krystyn, Vienna on the Triassic of the Spiti Valley under IGCP Project 467 during 25 June and 2 July 2004. Pre-field discussions will be held at Manali. The excursions to crucial sections, where new contributions have been made in the fields of biostratigraphy and lithostratigraphy will be conducted with the base camp at Kaza. It is proposed to bring out a publication incorporating the latest contributions to the Triassic of Spiti. The Registration fees inclusive of boarding and lodging and literature is Euro 600.00. Those desirous to join may contact Prof. Krystyn at the following email address: Leopold.krystyn@univie.ac.at

**NATIONAL SEMINAR ON GEMMOLOGY AND TRADE FAIR:** Jointly organised by the South Asian Association of Economic Geologists, Delhi Chapter, and the Department of Geology, Aligarh Muslim University, Aligarh, this Seminar and Fair are scheduled during 18-19 December 2003 at Delhi. For details, please contact: Dr. A.K. Sinha, Organizing Secretary-cum-Treasurer, National Seminar on Gemmology, 167 Pragati Apartments, Paschim Vihar, New Delhi - 110 063; Phone 011-25110733 (R), 26415825 (O); Email: draksinha2003@indiatimes.com

**PARTICIPATION OF YOUNG RESEARCHERS IN DST GROUP MONITORING MEET:** With a view to provide an opportunity to present their research work before a peer group and get guidance and encouragement from them, it has been decided to select a few (10 in numbers) Young Researchers in the forthcoming DST meeting of PAC-ES / Group Monitoring Meet being organized at Department of Geology, Banaras Hindu University, Varanasi during first week of December, 2003.

Young Scientists/Researchers interested to present their recent research findings during the Varanasi Meeting of DST may send their Bio-data and Abstracts for presentation latest by 10<sup>th</sup> November, 2003 to Dr. K. R. Gupta, Adviser (Earth System Sciences), Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi - 110 016; Email: guptakr@alpha.nic.in