

BOOK REVIEW

PROCEEDINGS OF WORKSHOP ON EASTERN GHATS MOBILE BELT:

Geological Survey of India, Special Publication No.44, 1998, 314p. Price: Rs.200.

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Granulite facies terrains form major components of most Precambrian shield areas and are widely distributed in space and time. Knowledge on evolution of the deep continental crust and its interaction with underlying mantle is vital to our understanding the formation and stabilization of continents. The classic Precambrian Eastern Ghats Mobile Belt (EGMB) continues to remain at the forefront of active research. Seminal questions concerning the evolution and geodynamic history of EGMB can now be better addressed due to ever increasing quantification in petrology through the refinement of thermodynamic databases, development of precise techniques for characterization of P-T-t path, and rigorous modeling of complex metamorphic and magmatic processes.

The present volume, which came out of a workshop on the Precambrian Eastern Ghats Mobile Belt held in mid-1994 and resulted in a range of refereed papers, deals with the difficult problem of trying to arrive at a unified geodynamic model for the evolution of EGMB. The volume provides its readers the flavour of ever increasing research quest in EGMB. The contributions to the volume come from a range of disciplines and the articles cover (a) regional geology, geophysics and tectonics, (b) magmatism, (c) metamorphism, (d) geochemistry and geochronology, (e) mineral resources and (f) geomorphology to access the current state of knowledge on EGMB. Although the contributions mainly come from Indian authors, this volume should be of immense value to many readers well beyond its geographical limits.

There is an excellent introductory paper by Ramakrishnan, Nanda and Augustine which provides an overview, invoking significant role of compression and more likely collisional tectonics for orogenic evolution of Proterozoic Eastern Ghats Mobile Belt. The sequence of remaining 24 papers are very useful to prospective researchers. The diagrams, tables, geological maps and profiles are particularly valuable.

The most striking feature of the volume is the introduction of the first coloured geological map of the Eastern Ghats Mobile Belt on 1:1,000,000 scale compiled by Nanda, Augustine, Panda and Ramalingaswamy under the guidance of Ramakrishnan. The brevity and clarity of this map is most welcome and it will be used for many years in future as a reference map by the active research workers on Eastern Ghats.

There are also excellent reviews on: geochronological constraints; on the evolution of the belt by Sarkar and Paul; P-T-t evolutionary history by Somnath Dasgupta; on the pattern of distribution of the anorthosites in relation to the regional tectonics by Leelanandam and Reddy; and the role of ductile shear zones for regional tectonic milieu in EGMB by Chetty and Murthy. Sarkar and Paul critically analyse the available geochronological data to decipher the major events at 2.6 ± 0.2 Ga, 2.1 ± 0.2 Ga, 1.45 ± 0.2 Ga, 0.95 ± 0.15 Ga and 0.6 ± 0.1 Ga during the protracted tectonothermal history of EGMB. Somnath Dasgupta recognises the UHT metamorphism in EGMB signifying anomalously high thermal input and advocates counter clockwise P-T path for the eventual exhumation of high grade granulites. For an interesting approach to polymetamorphic EGMB suite of rocks, reader can turn to the papers by Amalbikash Mukherjee, and Karmarkar and Fukuoka, in which the P-T trajectory of granulites and its tectonic implications receive careful attention. There is a coherent and balanced exposition on geochemical characteristics of high

grade rocks from parts of EGMB (Araku-Padua section, Divakara Rao et al.; Gamparai region, Charan et al.; Balimela-Rudakota area, Mallikharjuna Rao et al.; Machkund region, Subba Rao et al.; Visakhapatnam, A.T. Rao et al., Behrampur-Jaypore transect, Nanda and Pati; Gokavaram-Gangavaram area, Murthy et al.) that attempt to weave the tectonometamorphic history of granulite grade rocks with their protoliths. Papers related to paleomagnetic and geophysical studies by Lakshmiapatiraju and Nayak et al. provide interesting reading material. Another stimulating paper by Mishra is devoted to the economic mineral wealth in terms of broad metallogenic framework of EGMB. Acharya and Rao give succinct account of graphite deposits of Orissa in respect of lithological and structural controls. Geomorphological aspect of EGMB describing lithological controls on topography with implications for rejuvenation of river system is covered by Mahalik. A valuable contribution by Gopalakrishnan elaborates on the possible linkage of EGMB with south India and Antarctica using available geoscientific data.

In a nutshell, this volume is timely, well thought out and recognises the growing significance on petrological perspective of high grade granulites of EGMB. The editors have performed a remarkable effort to produce such a readable and comprehensive coverage in 314 pages. At a economical price of Rs.200, this volume represents a good value and I cannot imagine why anyone with even a peripheral interest in the topics covered should be without a copy.

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ORGANIC PETROLOGY by G.H. Taylor, M. Teichmuller, A. Davis, C.F.K. Siessel, R. Littke and P. Robert with contributions by D.C. Glick, M. Smyth, D.J. Swain, M. Vanderbrocke and J. Espitalie. Gebruder Borntraeger, 1998, 704p, Price: US \$116

This new handbook incorporates some revised parts of the Stach's Text Book on Coal Petrology, which has been updated. The first five chapters deal with nature, description, and origin of organic matter. Chapter 1 provides a historical survey. Many new references have been included, but many important publications on peat formation and peat composition, more so from the younger generation of the coal petrographers are wanting. It is not until Chapters 4 and 5 that the book titled 'Organic Petrology' introduces the basics of organic petrography, macerals, microlithotypes and lithotypes. Chapter 6 presents an interesting discussion on coals of various ages and the rocks containing organic matter. Only eight pages are devoted to Gondwana coals of the Southern Hemisphere. Chapters 7 and 9 discuss the methods and procedures as well as geological and technological applications. Fluorescence microscopy has been adequately dealt with. In the section on coal utilization, coal carbonization finds ample treatment. The book has 62 pages of references. The quality of coverage of the different macerals in the photomicrographs cannot be regarded as more than good. High quality photomicrographs of structured liptinite in fluorescent light in coal as well as petroleum source rocks and oil shales are however, absent. On the whole this new handbook will provide interesting reading to all the coal petrographers.