

BOOK REVIEWS

THE ARCHAEOAN AND PROTEROZOIC TERRAINS OF SOUTHERN INDIA, 1996: M. Santosh and M. Yoshida (*Editors*), *Gondwana Research Group*, Mem. No.3, Pages XII + 403.

The Gondwana Research Group which is just one year old has already made a name, by bringing out several books on the granulites of south India. The publications of the Research Group are marked by the excellence of get up and the wealth of new information they contain. The Group has now brought out another welcome contribution, this time focussing attention on the present status of our knowledge on the geological, petrochemical, geochronological and tectonic aspects of the Archaean and Proterozoic terrain of southern India. Such reviews, issued at periodic intervals, summarizing new data in a fast developing field have a value of their own and are welcome. There is, however, need to exercise great care and avoid recycling of material already presented in earlier publications.

The present volume contains about 16 contributions, not all of which can be considered as reviews. The first three are of a general nature, presenting a brief history of Gondwanaland, and the position of South India, Sri Lanka, Madagascar and Antarctica in Eastern Gondwana. All the continental segments have received the impress of Pan-African events during the 800-450 m.y. period. Continuity of shear zones in all the continental fragments has been traced. Windley and Razakamanana pose the question as to whether we are looking in South India at a basement of granulites which have retrogressed as a result of extensional collapse, rapid uplift, and erosion of upper crust. This question opens up new areas of research specially in the fields of petrology and structural geology.

Mahadevan speculates on the Deep Continental Structure of Peninsular Shield (Chapter four) basing his arguments on geophysical evidences. He makes the interesting suggestion that tectonic fragmentation of high-grade terrain has caused differential uplift of the fragmented blocks since late Proterozoic which have continued to Phanerozoic and even up to present.

Jayananda and Peucat present an informative summary of recent geochronological work on high-grade metamorphic terrain of South India. The older gneisses (Peninsular Gneiss) within the Dharwar cratonic nucleus are shown to have accreted in three major episodes at 3.4, 3.3-3.2 and 3.0-2.9 Ga. The eastern Dharwar craton is indicated to be a juvenile accretion around 2.6 Ga. more or less coinciding with the granulite event which has affected both the older and the newly added crust. The Pan-African tectono-thermal event around 550 Ma seems to have regionally affected the Madurai block south of Palghat-Cauvery Shear. This summary also furnishes a long list of valuable references to recent geochronological work.

Other papers in the volume are of restricted interest. Want of detailed geological maps and petrographic descriptions make it difficult to follow presented arguments. An account of alkaline magmatism in Peninsular India (Rajesh and Santosh) focuses attention on a latest phase of magmatic activity which has affected the mobile belts. Plutons more than 30 in number which are listed are deserving of further detailed petrographic and geochemical study. The role of fluids in granulite metamorphism is stressed by Janardhan and Anto. Source of the fluids is indicated to be underplated basalt with alkaline affinities.

A good description of Nilgiri charnockites is provided by Srikantappa. He considers the massif as an exhumed section of once deeply buried crust. Geological framework of Madurai Block, south of Palghat-Cauvery Shear Zone, based on a study of textural patterns is presented by Anand Mohan. This paper is important as it provides disequilibrium reaction textures and traces different stages of metamorphic evolution of the block. Santosh provides a description of the Trivandrum and Nagarcoil blocks at the southern tip of the Indian continent. The presence of calc- silicate rocks and marbles in a granulite terrain are of special significance and form the subject of detailed study in another paper by Santosh Kumar and Santosh. Microprobe analysis of garnet, clinopyroxene, wollastonite, calc-silicate minerals are provided. The occurrence of wollastonite and scapolite assemblages are interesting and merits further study.

The last section (pages 327-403) in the book is earmarked for a detailed description of quarry sites where different stages of granulite development can be studied. This section should prove particularly useful to persons interested in pursuing further studies of the high grade assemblages exposed in the region.

On the whole this compilation is a remarkably good effort at providing a summary of the geological features of a hitherto little known, but extremely interesting region of south India. The want of an author and subject index is however, a major shortcoming. It is also not clear why the editors have chosen to treat individual contributions as separate chapters and avoided giving abstracts. Abstract must form an essential part of a scientific communication.

The effort behind this gathering together of a large amount of data is to be commended. The quality of presentation and the promptness with which the publication has been brought out almost immediately following the workshop is deserving of praise. We trust the Research Group will concentrate in providing detailed geological maps of the terrains and in providing more petrographic details with well chosen photomicrographs. Such information is badly needed.

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TERRAIN CHARACTERISTICS OF KACHCHH, WESTERN INDIA

by S S Merh and J. N. Malik, Department of Geology, M.S. University of Baroda, Vadodara - 390 002, 1996, 47p, including figures and a coloured geological map of Gujarat.

This is a well got up volume on Kachchh (Kutch) district of Gujarat, an area which has come into prominence in recent years on account of its oil potential. It also happens to be one of the classic areas for Jurassic and Tertiary stratigraphy. An important part of the book is the set of 24 large sized maps given at the end which provide a wealth of information to active researchers enabling them to select problems for research. Two annexures, one dealing with the Allah Bund and the other giving a list of Historical Earthquakes in Gujarat and Kachchh provide valuable additional information. The authors are to be complimented for the effort taken in putting together a wealth of information on the geology and geomorphology of Kachchh.

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