

The reviewer requests the publisher, Cambridge University Press, to bring out as early as possible, a low-cost paperback edition of the book for Asia and Africa, as it did with the second edition.

‘Finally, because the name ‘Plant-book’ has been hijacked by another publication, I have been persuaded (rather reluctantly) to make the title of this work less vulnerable. In any case, I am told that most people refer to my book as Mabberley’. (Mabberley, p. xiv).

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50 Years of the Journal: Some Significant Landmarks. B. P. Radhakrishna and S. Viswanathan (eds). Geological Society of India, P.B. 1922, Gavipuram P.O., Bangalore 560 019. 2008. 888 pp. Price: Rs 800/US\$ 80.

Last year, the Geological Society of India (the Society) completed 50 years of glorious service to the earth sciences community. A lifetime of half a century may seem too brief for a society of geologists that deals with untold millions of years of earth's history. Nevertheless, these 50 years constitute a golden era in the history of basic research in earth sciences and the multifold societal applications thereof that immensely impact modern civilization. The early part of this period witnessed the emergence of fascinating paradigms that explain the basic working of the earth, such as the plate tectonics theory that has, to a large extent, helped

in rationalizing the complex mechanisms of crust formation and evolution on the planet. In more recent years, the concept that the behaviour of the earth can only be understood in terms of the coupling between the dynamic processes in the atmosphere, the solid earth, the hydrosphere, the cryosphere, the biosphere and the anthroposphere, has gained increasing appreciation. This new paradigm, in which the earth is seen as a coupled set of dynamical systems, constitutes an emerging scientific discipline known as ‘Earth System Science’ (ESS). Through its numerous publications: thematic monographs and memoirs, textbooks on the geology of different states of India, geological field guides and booklets in different languages to popularize the concepts of earth sciences, the Society has been relentless in the pursuit of its basic charter objectives, most importantly, ‘promoting the advance study and research in India in all branches of geology’. Further, through the organization of seminars, workshops and field excursions, the Society has contributed significantly to the exchange of views and information, and in providing an independent forum for synthesis and communication of results from national and international research. The beneficiaries are a wide spectrum of people that include: geoscience teachers, researchers, serving and retired professional geologists, research and postgraduate students as well as non-professional enthusiasts with a penchant for science and nature. By far, the greatest of the achievements of the Society has been its hallmark publication the *Journal of the Geological Society of India* (the *Journal*). Till date, this internationally acclaimed SCI journal comprises 72 volumes, including nearly 3500 research articles covering more than 40 sub-disciplines of earth sciences. A widely acknowledged record of sorts is that the *Journal* reaches all the fellows of the Society (currently in excess of 2500) and hundreds of libraries across the world in the first week of each month with immaculate regularity.

Released on the occasion of the Golden Jubilee of the Society, the book under review forms a commemorative volume of 50 selected papers from the *Journal*. Obviously, the task that the council of the Society assigned to the editors was by no means simple. Choosing 50 papers from among the thousands, organizing and placing them in the right perspective

and ensuring their preservation in this imperishable form for posterity is surely a challenging proposition. How fortunate the Society has been in that this stupendous task was willfully accepted and admirably executed by none other than its most illustrious fellow, B. P. Radhakrishna (in company with S. Viswanathan, a well-known geochemist). Radhakrishna is an erudite and accomplished earth scientist. He has had the most intimate association with the Society reaching back to the very beginning, its foundation, and continues to be an untiring guiding force in all its activities. Incidentally, for a long part of this journey, he had also served the Society as its President and Editor. This vast experience and wisdom is clearly reflected in the very approach to this book by the editors. As stated, the compendium includes ‘papers which have influenced new thinking and blazed new paths’ over the 50-year journey of the Society. Thus, this volume is not only symbolic of the success of the Society, but also a record of the priorities and progress of earth sciences research in the country in the past 50 years.

The first two articles are a reproduction of the heralding pages from vol. 1 (1959) of the journal. While the founder-editor describes the birth of the society and its objectives, the following essay highlights the importance of geological studies and the expectations from the society at large, as articulated in the inaugural address by K. D. Malaviya, the then Union Minister for Minerals and Oil. Clearly, the issues highlighted by the Minister remain highly relevant to this day. The rest of the articles are grouped into popular subject themes that have engaged the attention of geologists over the last 50 years. Papers in the ‘Precambrian geology’ section deal with one of the oldest crustal remnants of the planet, well-exposed and preserved in southern India, the Dharwar Craton, which covers large tracts of mainly Karnataka and Andhra Pradesh. Collectively, the rock formations in the region represent a geological record of nearly 3000 million years (Ma), in the time interval between ca. 3500 Ma and ca. 500 Ma BP. The papers summarize the important contributions, elucidating the spatial and temporal relationships between major rock units in the region; ‘greenstone belts’ and ‘granite–gneiss domains’. This aspect has been intensively investigated and

aggressively debated over the last 100 years, more so in the last 30 years. An article focuses on the famed iron formations of the craton, while another presents an interesting model for the initiation and development of the Cuddapah basin during the middle Proterozoic, around ca. 1900 Ma ago. The section on 'Petrology' includes 'landmark' papers describing a variety of rock types that are a manifestation of complex and varied processes in the earth's mantle and the crust as well as their interactions with the atmosphere. Emphasis is laid on rare rock associations such as the Champion gneiss, the Closepet granite, charnockites from different geological settings, anorthosite-gabbro, basalt, kimberlite, carbonatite and other alkaline rock complexes. In many cases, the geological settings and compositions reflect fascinating genetic pathways that have attracted the attention of petrologists from around the world and some of the rock units have been central to considerable international research in the realm of basic petrology.

The progress in geochemistry and geochronology is, to a large measure, technology driven. In terms of development/acquisition of analytical technologies, there has been a slow, but continuous progress in the country. The articles demonstrate the potential of precise geochemical and isotopic measurements in resolving some of the time-honoured geological problems. Further application of the geochemical and isotopic tools to understanding ore genesis is also evident in the papers under the 'Economic geology' section, that includes examples of the utility of Re-Os and Pb-isotopic systematics in tracing the genetic and temporal history of sulphide ore deposits.

The papers in the 'Structural geology' section are good examples of some early descriptions of large-scale structural fabrics that characterize regions such as southern India, Assam, the Cuddapah basin and parts of Rajasthan. These studies laid the basis for the ongoing research

addressing the genetic link between deformation, magmatism, metamorphism and mineralization in different geological situations across the country. The section on 'Himalayan geology' includes some of the most comprehensive summaries on the structure and tectonics of the Himalayan mountain belt integrating information from numerous multi-disciplinary studies. Articles describing the Recent evolution of large drainage systems such as those of Sharavathi and Cauvery rivers are included in the 'Geomorphology' section. The section on 'Geophysics' samples important early contributions paving the way to the ongoing effort toward imaging the deep crust and lithosphere utilizing and integrating different geophysical techniques. Papers describing the deep structure across 'cratons' and 'mobile belts', the Cuddapah basin and the Central Indian rift system illustrate some glaring achievements by Indian scientists in solid earth geophysics. An article summarizes information on Recent earthquakes and seismicity in peninsular India as a consequence of a well-organized campaign aiming at monitoring and understanding the phenomenon based on new arrays of modern seismic instruments and observatories. The basic concepts and problems in stratigraphy and palaeontology with Indian perspectives and examples are brought out in selected papers that also document popular studies on episodic geologic events and processes across important stratigraphic boundaries, such as between: (i) Archaean and Proterozoic, and (ii) Cretaceous and Tertiary. These sections reproduce papers on finding of rare fossils from India, such as the micro-fossils from the Archaean rocks and dinosaur eggs.

The cynosure of the book, however, is the exhaustive (42 page), but comprehensive and lucid introduction. This editorial presents a holistic picture of how the geological models and interpretations evolved over the last 100 years with

examples of important contributions from Indian geologists. Thus the editorial presents a contextual perspective for each of the articles included in the compendium. Indeed, this masterly editorial transports the reader back in time to the conditions under which the article originated, besides emphasizing their significance in the progress of earth sciences research in the country. However, an overwhelming feeling is that many other articles in the journal, that are equally significant by the same yardstick, do not find place in the volume. Thus, in the section on 'Geochemistry', it may have been appropriate to include contributions containing actual experimental results rather than those that made mere suggestions with wishful lists of tasks to be taken up. Definitely, there is no dearth of papers contributing valuable datasets and innovative interpretations in the journal. Also, elsewhere, some articles from the journal that received 'the best paper award' should have been included. A less serious issue concerns the appearance of new typographic errors. Despite these, this book scores abundantly as an excellent compendium that every student of geology should possess, a must for all undergraduate and graduate students and libraries of geology departments in colleges, universities and professional organizations across the country. At a stage, when geoscientists are poised to undertake newer challenges within the broader and unifying perspective of the ESS, a refreshing ride into the past and a glimpse of achievements by the forerunners encapsulated here can always be a valuable resource. The Geological Society of India deserves to be congratulated on the publication of such a valuable book.

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