
The book contains a collection of peer-reviewed papers, most of which were presented in a seminar on “Metallogeny in the Western Indian Craton”, held at Delhi University in December 1996. The book as a festschrift is dedicated to Professor Asoke Mookherjee, a distinguished economic geologist on his 65th birthday. The volume begins with an introduction by the editor who gives a short review on each of the 22 papers or chapters. This introduction is followed by an article on the ancient mining and metallurgy in Rajasthan in which S.M. Gandhi informs that almost all the ore deposits in Rajasthan were already discovered as far back as 400 BC. The remaining 21 papers are divided into two sections, namely Crustal Evolution with 9 papers, and Metallogeny with 12 papers.

In Section I, the first chapter gives a synoptic account of the Precambrian evolution of the least known Bundelkhand craton in which five phases of granite have been identified. For these arc-related granites the authors have not described the plates involved in collision as well as the polarity and time of subduction. The next chapter is a crisp review on the nature, origin and evolution of the Banded Gneissic Complex (BGC) of Rajasthan. The third paper on the geology of the Proterozoic Aravalli Supergroup is a comprehensive review of the stratigraphy along with a tectonic model for the evolution of the Aravalli basins. The author proposes the opening of the Aravalli basins as Transform Fault-Ridge-Ridge (FRR) rifts whose triple point is assumed to the west of Chittaurgarh. It is, however, difficult to understand as to why the FRR did not evolve to form RFF? Chapter 4 on the geology and mineralization of the Jahazpur belt deals with a controversial topic with regard to the relationship of 2600 Ma old granites with the surrounding metasediments. If the granite is basement, the metasediments are Proterozoic, whereas if the granite is intrusive the metasediments become Archaean which were classified as the Hindoli Group.

Chapter 7 on tectono-stratigraphic framework of the South Delhi Fold belt in the Ajmer-Beawar region challenges the generally accepted stratigraphy, merely on the basis of structural analyses and poorly defined isochrons. Chapter 8 is on mineral chemistry from two generations of amphibolites and associated gedrite-cummingtonite schists of the Ajabgarh Group from the North Delhi Fold belt. The authors discuss the origin of the Ca-poor, Mg-rich rocks through hydrothermal alteration by sea water. The following paper no.9 gives an exhaustive review of the Malani Igneous Suite (MIS). The emplacement of Malani granites and acid volcanics is considered anorogenic and coeval at 732 Ma and thus related to Pan-African event. Paper no.10 summarizes some important seismic reflection features of NW Indian shield, on the basis of a 400 km long transect between Nagaur and Jhalawar. The seismic reflections establish Jahazpur Thrust and clearly differentiate the crusts (BGC and Hindoli Group) on either side. The last paper (chapter 11) in this section tries to tie up the available geophysical information with the geological framework of the Aravalli mountain.

In Section II on Metallogeny, the first paper identifies several Precambrian metallogenic belts in Rajasthan, which the author relates to crustal evolution in a plate tectonic model. In the dismembered amphibolite-metasedimentary suite, occurring as enclaves in the Archaean gneisses and migmatites, the author recognizes an older (Sawadri Group) and younger greenstone (Tanwan Group). Rifting of the Archaean crust, compression of crustal blocks and subduction related magmatism, are considered to have a bearing on the type and variety of metallogeny in Rajasthan. Other belts such as Pur-Banera, Punagarh etc. are viewed as pull-apart or distensional basins formed as a result of retroarc regime of subduction.

The next five papers under Metallogeny Section deal with the base metal sulphide deposits.
The paper no. 13 gives an excellent account of the sediment-hosted, stratiform-stratabound sulphide deposits in Rajasthan, covering the geology and characteristics of all known deposits in NDFB, Bhilwara belt and Aravalli-Jharol belt. The paper no. 14 gives a new information on Kho-Dariba deposits from NDFB. Here, the authors stress upon structural control on Cu-mineralization that was initially stratigraphically controlled. The next paper no. 15 discusses the Rajpura-Dariba polymetallic deposits occurring as banded ore and vein ore in the metamorphosed impure carbonates and graphite mica schist.

The next two papers are on volcanic associated massive sulphides (VMS). Giving a critical review of the concepts of ore genesis, the paper no. 16 describes VMS deposits from southern, central and western part of the Aravalli Mountain Belt. These occurrences are divided into two major groups (1) Zn-Pb-Cu deposit and (2) Cu-Zn deposit. These deposits are considered to have formed in island-arc environments with Ambaji-Deri in a rift-related back-arc regime. In the supplementary paper no. 17 on VMS deposits, the author gives a quantitative estimation of alteration fluxes around them and also gives new data on alteration geochemistry of the Kalabar-Chitar in the northern part of the belt.

The paper (or chapter) no. 18 is on tectonics and metallogeny along the deep-crustal Phulad lineament zone. The next paper (no. 19) gives a brief review of three main tungsten occurrences at Balda, Sewariya and Degana. On the basis of old and new fluid inclusions data the authors infer that W-mineralization formed at high temperature and high salinity dominated fluids. In paper no. 20 new geochronological data (793±18 Ma) are presented on the Tusham.

The chapter 21 on uranium metallogeny gives a critical review of the occurrences of this radioactive element in the western Indian craton in the context of crustal evolution. According to the author, the Late Archaean granitoids were the principal source of U, later released to be hosted/concentrated in the sediments during the Proterozoic. The last two papers in this volume are related to geochemical exploration and the authors have given a good review of the status of the subject. These two papers seem out of place under the section on Metallogeny but exploration database and use of software in geochemical modeling are useful topic for mineral exploration. In conclusion, although there are new symposium volumes published recently and which deal with the same topic, the book largely succeeds in providing a comprehensive account of crustal evolution and metallogeny in NW Indian shield which will be useful to researchers.

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GRANITE INDUSTRY: EMERGING TRENDS AND DEVELOPMENTS.

As long as 90 years ago, Sir Thomas Holland, one of the greatest geologists who was also the most brilliant Director of the Geological Survey of India remarked, "If the extent of the use of building materials could be expressed by any recognized standard, it would form one of the best guides to the industrial development of a country". Granite is the best building material. People prefer granites for its three most important qualities; they are hard, durable and attractive specially when polished. The number of people using polished granite in India is steadily growing. Indian