

GEOLOGY AND GEOCHEMISTRY OF SULPHIDE ORE BODIES AND ASSOCIATED ROCKS IN MOSABONI AND RAKHA MINE SECTIONS IN THE SINGHBHUM COPPER BELT. By Prof. S. N. Sarkar and associates, Indian School of Mines, Dhanbad : 128 pages., 1986.

The Singhbhum Copper Belt has attracted the attention of generations of geologists owing to its fascinatingly complex geological, tectonic and metallogenic history. This Diamond Jubilee Monograph of the Indian School of Mines (I.S.M.), Dhanbad, by Prof. S. N. Sarkar and associates is a welcome addition to the literature on the Singhbhum Belt with special reference to the economically more interesting Mosaboni and Rakha Mine Sections and attempts to fill vital gaps in knowledge by presenting a wealth of data on the geology, structure, geochemistry and mineralisation in a single volume.

The publication is the culmination of a multi-disciplinary, multi-institutional Science and Technology Programme sponsored by the Ministry of Steel and Mines, Government of India, during the period 1979-85. It may be added at the outset that the Monograph epitomises and presents the present status of work in the Singhbhum Belt in the perception of Professors S. N. Sarkar (I.S.M.) and A. K. Saha (Presidency College, Calcutta) and their associates, who have to their credit decades of dedicated work on the geology of the area, in the broadest connotation.

The Monograph is divided into seven Chapters. The introductory Chapter traces the history of previous work starting from the early investigations of Ball and Stoehr in the year 1870.

The stratigraphy, tectonics and geochronology of the Singhbhum region and copper belt shear zone by Professors S. N. Sarkar and A. K. Saha in the next key Chapter presents a model of tectonic history of the copper belt thrust zone, which the reviewer feels ought to have been the concluding Chapter of the publication with integration of the geochemical, isotopic and other data presented elsewhere.

Chapter three deals with the sulphide ore bodies and their relation to structures in Mosaboni and Rakha Mines and brings out evidences to support the contention that the sulphide mineralisation in the belt is mainly strata-bound and structurally controlled in macroscopic, mesoscopic, and microscopic scales. Besides the petrography of the rock types some excellent and painstaking field-sketches from the underground workings on the pattern of sulphide mineralisation vis-a-vis the host-rock fabric are presented. The subchapter on ore mineralogy could have been as well integrated with Chapter 6, dealing with the chemistry of the sulphides based on EPMA analyses. Greater emphasis should have been placed on textural features and ore-silicate and ore-oxide relationships to underscore the primary thesis of strata-bound nature of the sulphides. In addition to the sketches, few micro-photographs could have enhanced the value of this subchapter.

The geochemistry of the ores as well as rocks in Mosaboni-Rakha Mine sections presents the results of trace analyses by AAS of Cu, Co, Ni, Pb, Zn, Ag, Cr, Mn and Sr in about 360 geochemical samples drawn from different levels across the ore-bodies from the underground workings. The data is presented graphically as profiles across different mine levels. Among the several conclusions drawn from the geochemical studies, mention may be made of the sympathetic variation of Ni, Co, Pb and Zn with the Cu-content across the ore-zones as well as the general abundance of Ni and Co in the wall-rocks. A surprising omission is the geochemical distribution patterns of molybdenum in the ore-zones and host-rocks, in view of

the ubiquitous though minor presence of molybdenite in the area. Further, no attempt has been made to correlate the major-element geochemistry of the host-rocks and the mineralisation itself.

A separate subchapter is devoted to the multivariate statistical study of the copper mineralisation in the central section of the Mosaboni Mine and throws light on the temporal sequence of mineralisation phases and remobilisation processes.

Rubidium-Strontium and lead isotopic studies of the soda-granites and sulphur isotopic studies on samples from Mosaboni area are presented in Chapter 5.

Chapter 6 presents 220 EPMA analyses of co-existing sulphide minerals and is a valuable addition to the special mineralogy of the sulphides of the belt. Chapter 7 includes two abstracts on fluid inclusion studies and two contributions on statistical and trend surface analysis.

One of the problems faced in such an ambitious multi-disciplinary multi-institutional programmes is that despite the vast amount of new data generated, there is perhaps little time left at the end for a more cogent integration into refined yet simple models intelligible not only to the scholar but also to the student of geology. The above comment, however, does not in any way diminish the service rendered by the present authors in making available to the geological community such a wealth of data, conceptions and perceptions of value which take us a step further in the understanding of the evolution of a multi-impress bearing belt such as the Singhbhum Copper Belt.

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**GEOLOGY AND MINERAL RESOURCES OF KRISHNA/GUNTUR/ADILABAD/
ANANTAPUR DISTRICTS, ANDHRA PRADESH.** Published by Directorate of
Mines and Geology, Government of Andhra Pradesh, Hyderabad (1988).

The Directorate of Mines and Geology, Government of Andhra Pradesh has released recently brochures on the Geology and Mineral resources of four districts, in Andhra Pradesh. The districts are Krishna, Guntur, Adilabad and Anantapur. This is a maiden attempt by the Department to bring out brochures, incorporating in it the scientific, technical and administrative data in a capsule form. The motto, ostensibly, is to help the (i) entrepreneur to conceive mining projects, (ii) administrator to foster micro-level planning and development, and (iii) professional Earth Scientists in identifying and taking up specific projects for in-depth study.

The brochure includes four Chapters of descriptive narration. They are : (i) introduction giving the location of the district, physiography and drainage (ii) geology of the district giving a synoptic account of the geological column (iii) mineral resources and (iv) existing and prospective mineral-based industries in the district. The text is accompanied by eight well compiled statements including the data on mineral resources of the district, status of mining and quarry leases as on 1.4.1987, production data on major and minor minerals, mineral revenue collections, important lease holders, important mineral based industries and status of geological investigations. Also included, thoughtfully, four maps for each district giving the administrative sub-divisions of the district into several mandals, a geological map, a map showing mineral deposits and communications and another showing the location of mineral based industries with reference to power lines.

The brochures have attempted to provide basic data that is essential to the administrator/planner/entrepreneur/scientist.

Each brochure is priced at Rs. 10/- per copy and is available from the Director, Department of Geology, Andhra Pradesh, Hyderabad 500 028.

The Directorate would do well to bring out similar brochures for the remaining districts of the State. Macro-level data should eventually trickle down to the micro-level for any purposeful application. These brochures are a step in this direction.

Hyderabad

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