

Introduction to Mineralogy and Petrology

By Swapan Kumar Haldar



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Mineralogy and petrology stand as the backbone of the geosciences. Detailed knowledge of minerals and rocks and the process of formation and association are essential for practicing professionals and advanced students. This book is designed as an accessible, step-by-step guide to exploring, retaining, and implementing the core concepts of mineral and hydrocarbon exploration, mining, and extraction. Each topic is fully supported by working examples, diagrams and full-color images. The inclusion of petroleum, gas, metallic deposits and economic aspects enhance the book's value as a practical reference for mineralogy and petrology.

Authored by two of the world's premier experts, this book is a must for any young professional, researcher, or student looking for a thorough and inclusive guide to mineralogy and petrology in a single source.

- Authored by two of the world's experts in mineralogy and petrology, who have more than 70 years of experience in research and instruction combined
- Addresses the full scope of the core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and soils, definition, origin, structure and classification of igneous, sedimentary and metamorphic rocks
- Features more than 150 figures, illustrations, and color photographs to vividly explore the fundamental principles of mineralogy and petrology
- Offers a holistic approach to both subjects, beginning with the formation of geologic structures followed by the hosting of mineral deposits and concluding with the exploration and extraction of lucrative, usable products to improve the health of global economies

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From the Back Cover

Introduction to Mineralogy and Petrology

Author: S. K. Haldar & Josip Tišljar

Introduction to Mineralogy and Petrology presents the essentials of both disciplines through an approach accessible to industry professionals, academic researchers, and students.

Mineralogy and Petrology stand as the backbone of the geosciences. Detailed knowledge of minerals and rocks, and the process of formation and association are essential for practicing professionals and advanced students. This book is designed as an accessible, step-by-step guide to exploring, retaining, and implementing the core concepts of mineral and hydrocarbon exploration, mining, and extraction. Each topic is fully supported by working examples, diagrams and full-color images. The inclusion of petroleum, gas, metallic deposits, economic aspects, hazards and sustainability enhance the book's value as a practical reference for mineralogy and petrology.

Authored by two of the world's premier experts, this book is a must for any young professional, researcher, or student looking for a thorough and inclusive guide to mineralogy and petrology in a single source.

Key features:

- Addresses the full scope of the core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and soils, definition, origin, structure and classification of igneous, sedimentary and metamorphic rocks.
- Features more than 250 figures, illustrations, and color photographs to vividly explore the fundamental principles of mineralogy and petrology
- Offers a holistic approach to both subjects, beginning with the formation of geologic structures followed by the hosting of mineral deposits and concluding with the exploration and extraction of lucrative, useable products to improve the health of global economies.

About the Author

1. Academic qualification: B. Sc (Hons) 1963, and M. Sc (Geology) 1965, Calcutta University, D. Sc, 1983, Indian Institute of Technology, Kharagpur, India.

2. Professional Affiliation: Life Member of Mining Geological and Metallurgical Institute of India, Indian Geological Congress and Indian Society of Earth Sciences.

3. Work Experiences: 50 Yrs Professional and Academic Experience in oil and base-noble metal exploration and mining at various capacities at ESSO, Hindustan Copper Ltd, Hindustan Zinc Ltd, Anglo American (P) Ltd, Gold Stream Mining NL/ IMX Resource Ltd, Australia and BIL Infratech Ltd, Guest Faculty Sukhadia University Udaipur.

4. Exploration Projects and Mines visited abroad:

His profession has often required visits and interaction with experts of zinc, lead, gold, tin, chromium, nickel and platinum mines and exploration camps of Australia-Tasmania, Canada, USA, Germany, Portugal, UK, France, Italy, The Netherlands, Switzerland, Saudi Arabia, Egypt, Bangladesh and Nepal.

5. Research Projects as Principal Investigator

(i) DST project in Geostatistical Applications, numerical processing, software development and derivation of parameters for mine planning of base metal deposits at IIT Kharagpur (1979-80) leading to PhD Degree (1983).

(ii) DST project: HR/UR/22/2002 on "Exploration modeling for base / noble metals with special reference to sediment hosted Zn-Pb-Cu-Ag deposits in the northwestern Indian Shield" at Presidency College Kolkata (2003-06).

(iii) DST Project: HR/UR/29/2007 on "Geology of Platinum-Nickel-Chromium mineralization: Resource evaluation and future potential", at Presidency College, Kolkata (2008-2010).

6. Examination conducted:

(i) Regular question papers for Mineral Exploration, Geo-statistics and Mining Geology for M. Sc Applies Geology of Sukharia University, Udaipur, Presidency University, Calcutta University, Indian School of Mines and Institution of Engineers.

(ii) Examined 4 M. Sc Thesis of Delhi and Calcutta University.

(iii) Examined including Viva of 5 PhD Thesis in Geostatistical Applications of Mineral Deposits at Indian School of Mines, Dhanbad, IIT Mumbai and Kharagpur.

7. Current Assignments:

Since 2003, Emeritus Scientist, Post Graduate Applied Geology teaching of Mineral Exploration at Presidency and Calcutta University, Kolkata, and industry related teaching at Indian school of Mines, Dhanbad.

8. Recipient: Dr. J. Coggin Brown Memorial (Gold) Medal for Geological Sciences (1993-94) by Mining Geological and Metallurgical Institute of India.

9. Authored 3 books and 40 publications:

1. Haldar, SK. Exploration Modeling of Base Metal Deposits, Elsevier Publication; 2007, p. 227.

2. Haldar, SK, Mineral Exploration - Principles and Applications, Elsevier Publication; 2013, p. 374.

3. Haldar, SK and Josip Tišljar, Introduction to Mineralogy and Petrology, Elsevier Publication; 2013, p. 356.

Dr Haldar has a unique professional blend of mineral exploration, evaluation and mineral economics with an essence of classroom teaching of postgraduate students of two celebrity Universities over the last 1 decade.

Annexure- I

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