BOOK REVIEWS

Ores of sedimentary affiliation have been recognized as distinct from sediment-hosted ores, and in which the sedimentary processes have participated in collecting, transporting or concentrating them. After elaborating on the types of sources and temporal relationships with sedimentation of host rocks, the author has broadly categorized these ores as either detrital (placers) or as concentrates derived by chemical action on ore constituents in the sedimentary rocks. Description of placers is provided in the context of tectonic, i.e. volcanogenic and passive continental margin-related placers (diamond, Au, Th, Zr, Ti) and temporal, i.e. lithologic variations in clastic sediments like predominance of grey-wacke during the Archaean, and quartz-rich sediments in progressively younger period rocks. A number of sedimentary differentiation processes based on solubility of concerned elements are explained in the second category of chemical-sedimentary concentration. The classic deposits of U, Mn, Fe, Pb, Zn, Ba apart from enrichment of several others like Cu, Cd, As, Pb formed through an agency of chemical action and the manner of their concentration, the physical and chemical parameters that control their extraction are topics well highlighted. In dealing with these deposits, the interdependence of tectonic–hydrospheric–atmospheric–biotic processes for the interactions is emphasized. The last two chapters are devoted to the role of various metamorphic processes – prograde, retrograde, thermal, shock and variations of these under different tectonic settings in the evolution of ores (Au, Mn, Fe, Pb, Zn), and to the role of weathering of rocks in the production of secondary concentrations of gold and diamond and in the formation of phosphates, bauxites, pyrochlore, cassiterite, laterites including auriferous and nickelian types.

A major asset of this book is that most of the ore genetic processes are discussed in terms of the physics and chemistry involved in their evolution, and not just empirically, in the style of earlier texts. As Mookherjee himself points out in his preface, Indian students will be 'a little disappointed with scarcity of Indian examples' but this book, as he hastens to explain, is on 'ore genesis' and not on 'ore deposits'. Readers will agree with him in this respect when they find that the treatment of the multi-faceted genesis of ores itself has taken him more than 600 pages of print. The list of references given is quite exhaustive and should be very helpful for those who wish to know more from the original contributors.

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Theory of Ordinary Differential Equations—With Applications in Biology and Engineering. Shair Ahmed and M. Rama Mohan Rao. Affiliated East-West Press Private Limited, 105, Nirmal Tower, 26 Barakhamba Road, New Delhi 110 001. 1999. 335 pp. Price: Rs. 220.

This book has three main parts to it. Chapters 1, 2 and 4 give a review of the theory of linear ordinary differential equations (ODEs), chapters 3 and 5 deal with their stability, while chapter 6 concerns applications to population dynamics. The introductory chapters are lucidly written and profusely illustrated with examples; all the definitions are set out carefully. The chapters on stability of ODEs form the strong point of the book. Some of the standard equations such as Lienard, Duffing and Van der Pol are discussed in detail.

The style of writing is user-friendly. Therefore a student with a basic course in ODEs and analysis should be able to access the book.

The reviewer finds a few points rather irksome. The book's title should more aptly emphasize stability of ODEs. It refers to applications in biology and engineering while the main chapter in applications is entitled 'Mathematical models in population dynamics'. The latter does have applications to biology but engineering applications are rather minimal. The scope of applications is therefore limited.

There are considerable number of exercises at the end of each chapter but no answers or hints are provided.

In spite of these foibles, this book is a useful addition to the subject of ODEs and would be welcomed by both students and researchers, particularly those dealing with stability theory.

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