

revise and update the contents of these papers prepared in 2008 with the latest data on the subject matter. The list of various species of organisms included in different articles will be immensely useful to those who try to make inventories on biodiversity from time to time. The list of endangered species will send a strong message to the readers about the need to protect them as well as the mangroves. Excellent photographs taken by experts add to the value of this compilation.

The book presents the history of mangroves, an atlas of mangrove species and organisms associated with mangroves, a gazetteer, an illustrated check-list, a textbook and a valuable guide, all kneaded into one which can whet the enthusiasm of nature lovers. Overall, the book is fairly comprehensive and can be considered as a good source of first-hand information about major findings on various topics of mangroves for researchers, teachers, students, administrators and planners. Very minimal inconsistencies enhance the value of the book. Editors of this book have to be congratulated for the mammoth effort they have undertaken.

The book has 56 articles written by experts. The contributions are organized under six themes, namely, (i) Status of conservation and management of mangroves in different states of India, (ii) Floral diversity and ecology, (iii) Faunal diversity and ecology, (iv) Mangrove utilization and environmental services, (v) Mangrove conservation initiation and people's participation, (vi) Policy and legal issues related to mangrove conservation. They cover the entire gamut of mangrove research. Of course, the length of each section varies based on the number of articles in that section. The senior editor of this treasure chest along with the co-authors, sets the stage admirably well with a detailed overview on the status of conservation and management of mangroves in different states of India. This article is followed by status reports on mangroves in Sundarbans, Tamil Nadu, Kerala, Karnataka and Maharashtra. It would have been nice if mangroves in Odisha, Andhra Pradesh and Gujarat also had been covered in this section. The section on floral diversity and ecology is an exhaustive one with as many as 16 articles covering the diversity of mangrove species, cyanobacteria, lactobacilli, fungi and yeast. Other aspects covered in this section include adaptation, phenology, reproduction, above-

ground biomass, standing carbon stocks and biochemical changes during rooting of air-layers.

The section on faunal diversity and ecology deals with interesting aspects such as diversity of insects, their relationship with special reference to herbivory in the mangroves, diversity of oribatid mites, mosquitoes, wood borers, burrowers and birds, besides predatory effects of crabs on mangroves. There are also innumerable invertebrates occurring in mangroves about which not much is known. Probably this book will prompt research on them. This section has also covered the emerald islands (Andaman and Nicobar), which have about 13% of the total mangroves in India, listing the gaps in our knowledge on the faunal diversity associated with the mangroves present there. The gaps pointed out in this section will also encourage researchers to undertake work on these aspects. Articles on the utilization of mangroves as wood, their anatomical characteristics, phytochemicals, their efficacy in preventing hair loss and enhancing the durability of wood besides the use of xylanase enzyme in improving paper quality highlight the innumerable uses of mangroves. An article on novel genes present in the mangroves sheds light on the prospects of developing greater stress-tolerant economically important crops. Conservation strategies followed in various areas with people's participation and initiatives on various endangered species raise hopes for developing mangroves in all the degraded places and in species revival. The section on policy and legal issues for conservation, stresses the importance of evolving a combination of legal and management instruments as the best approach. The role of remote sensing and GIS in mangrove conservation has also been pointed out. Most importantly, the policy options for coastal protection through conservation of mangroves have been emphasized strongly.

Simple style and language make the book a delight to read, especially for nature lovers. In view of the rich content, it will survive the passage of time.

S. AJMAL KHAN

*Centre of Advanced Study in Marine
Biology,
Annamalai University,
Parangipettai 608 502, India
e-mail: seyedajmal@gmail.com*

Deformation Microstructures in Rocks.

Soumyajit Mukherjee. Springer Geochemistry/Mineralogy, Springer-Verlag, Berlin, Heidelberg. 2013. 111 pp. ISBN: 978-3-642-25607-3. Price: €99.99 (Hard-copy).

The book under review presents morphological variations of few selected microstructures in the form of an atlas. The book discusses seven topics, viz. ductile shear sense indicators, brittle shear sense indicators, nucleation of minerals, fold developments in shear zones, grain boundary mobility, geometry of mineral inclusions and faults in micro scale with colour photographs and brief captions. The step-by-step clarifications at many places are helpful in the detailed description of rocks. The advanced illustration of grain-scale observations with only optical microscopy would generate interest among undergraduate students as well as researchers. The book starts with an introduction on mineral fish and ductile shear sense indicators. The second chapter, explains trapezoids as unique geometric shapes of micas and as brittle shear sense indicators. Newly published microscopic features, e.g. flanking microstructures, have been included in some chapters. However, some topics such as grain boundary migration which have been highly researched but the details are not presented in the book. The chapter on intrafolial folds has accommodated recent information on shear zone microstructures. The book describes how small-scale features connote 'big stories'.

Throughout the book major findings of fundamental observations of rocks under optical microscope have been well presented. If one goes through this book, the link between microstructures and tectonics becomes clear. In particular, all the figures are eye-catching, self-explanatory and easy to follow. The seven topics included in the book may not be the complete list of deformation microstructures. This book is an asset for learners, useful for self-study of microstructures and serves as a user-friendly guide for a one-semester course. I recommend the book for libraries of geoscience institutes.

RAJKUMAR GHOSH

*Indian Institute of Technology Bombay,
Powai,
Mumbai 400 076, India
e-mail: rajkumarghgeol@gmail.com*