

Practical Sedimentology

edited by **Douglas W. Lewis and David McConchie**, published by Chapman & Hall, 2-6, Boundary Row, London SE1 8HN, UK in 1995, ISBN 0-412-01217.

Review by **Christopher G. Kendall**

This book is designed to provide an introduction and review of the principles and interpretation of sediments in terms of their processes, environments and their deposits. This book is published with companion volume entitled "Analytical Sedimentology" by the same authors. Though the authors do not allude to, I suspect that this is a text used at the respective universities of Douglas Lewis and David McConchie, namely the University of Canterbury in New Zealand and University of New England in Australia. The book is a flawed masterpiece, representing an incomplete compendium of information on sedimentology. It begins with short introduction to the effects of tectonics, eustasy (mis-spelled by the authors as eustacy; remember it is ecstasy, not ecstasy), and climates as megacontrols of environment, the topics that preoccupy most sedimentary stratigraphers today. There is a discussion on depositional environments that lists many depositional settings, including soils, alluvial deposits, eolian deposits, lacustrine deposits, estuaries, deltas, beaches, tidal flats, shelves, and deep marine settings. The problem with this list is what is missing. For instance, when describing beaches and tidal flats, there is no discussion of the effects of the size of tidal excursion on the nature of the morphology of the coast. It would have taken one line to describe but no reference is made to this. Also the type sections for different depositional settings are great but also inadequate, in that their explanations are incomplete. I also note the great emphasis on clastic deposition and an incomplete description of carbonate depositional systems.

Chapter contents include listing and describing processes in sedimentation, discussing such things as surficial chemical processes including dissolution of precipitation, pH, oxidation and reduction, adsorption, desorption, and ion exchange reactions, reactions involving carbon dioxide, reactions involving sulfide and sulfate and temperature. Also listed and discussed are surficial physical processes including abrasion, transportation and deposition, passive suspension, entrainment flows, gravity transport, turbidity current, liquified flow, grain flow, debris, and diagenesis with reference to compositional changes, textural changes, biological processes, direct effects, indirect effects, and volcanic processes. Then there is a discussion of sedimentary structures, inorganic structures, and biogenic structures. This is followed by a description of textural detrital grains, including grain size, roundness, sphericity, surface texture, fabric, textural maturity, and sediment texture related to environmental impact assessment. Then comes a discussion of detrital sands, including common components, interpretation, compositional classes, clays and colloids, sedimentary carbonates, chemical sediments, environmental and scientific reporting.

What is missing from this list reflects the nature of the libraries of the two authors and their interests and experience. The references tended to be dated and seldom extended much beyond the early 80's, suggesting that this book represents an outgrowth from the notes that the authors assembled to teach to their classes and the current state of their reading. In principle, the intent of the book and the summaries, where complete, are good. However, I also got the feeling that the authors tended to gather information with no clear purpose beyond displaying it in the book rather than making it further information that is woven into the fabric of the text. There is no critical evaluation of the information that is placed in this book. While the listing and references to different topics in sedimentology, it would have been

nice to have some connecting information.

Sedimentology has evolved rapidly in the last two decades, so that this evolution tends to be inadequately handled in current texts. For the reason that either there is too much information in a text or the orientation of its authors is biased to one aspect of sedimentology rather than another. For these reasons, this book by Lewis and McConchie could fill a gap, providing an introductory text for those who may not have a background in sedimentology and need a source book to find further information. The text also provides a means of organizing the readers' ideas on sedimentology. However, I felt that the authors did not think too critically about what they were about, producing a book without really thinking too deeply about why. It isn't the book that is inaccurate or bad, but it is just incomplete. My advice for the next edition is that the authors take the time to consider more recent literature in their text, explain why they have included various sections in the text, and provide the connecting ideas between these sections. I will use some of the information in the text but what is not there worries me! When I first opened the book, I felt at last I had found a text that I could give to my students to provide an overview to sedimentology which was not too expensive. However, the gaps in the narrative made me recognize that this book is inappropriate as an introductory text for my sedimentological students. A helpful addition to the book would have been an index. The listing of references at the end of each chapter is extremely useful.