

of the landscape, by constantly maintaining the link between process and form. This is made possible by the arrangement of the book. Essentially, processes are divided into glacial and periglacial, fluvial and marine with only a small chapter devoted to the work of the wind. A much shorter introduction than in the Embleton and Thornes volume allows each of the three major sections to be treated at greater length. The effect is most marked in Hails's chapter which is a full and authoritative treatment of coastal processes. By contrast, Clark in *Process in Geomorphology*, asked to attempt a similar

geomorphology, rather than in the physics exercise in half the space, not unnaturally makes a more superficial presentation.

These two volumes are interesting for contrasts in style rather than in approach. Both have value. *Process in Geomorphology* will be useful to the readers to whom it is directed much more as a reference work than as a course primer; *Geomorphological Processes* could well satisfy the opposite function. □

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Sedimentary, my dear Watson!

Bruce Sellwood

Origin of Sedimentary Rocks. 2nd Edn. By H. Blatt, G. Middleton and R. Murray. Pp.782. (Prentice-Hall: 1980.) £20.10, \$30.95.

UNTIL the middle of this century, the study of sedimentary rocks fell largely under the two headings of stratigraphy and petrology. Sedimentology as a separate integrative discipline emerged no more than 30 years ago and a major surge in the subject has occurred over the past 20 years, much of the impetus for new developments coming from the demands of the oil and mineral extraction industries.

One of the first integrative modern sedimentological texts was *Origin of Sedimentary Rocks* (Prentice-Hall, 1972) which stressed the genesis of sediments and the processes of physical and chemical sedimentation. At that time the book was generally welcomed as a well organized, comprehensive and admirably clear text. After eight years, a totally revised edition has appeared. The new edition is almost 25% longer than the original but retains the successful structure and stylistic clarity of its predecessor. The book is divided into six parts and contains 19 chapters, each of which ends with a useful annotated reference list.

Part I introduces the scope of sedimentology, emphasizing the role of field investigation. Discussion of various facets of the geological cycle is undertaken in Part II.

Part III is a review of terrigenous clastic sediments, and commences with a new and welcome chapter on the geochemistry of natural waters. This is followed by coverage of weathering processes and products, mineralogy of sandstones, cementation and sandstone diagenesis, and sandstone classification. The chapter on cementation and diagenesis is also new and reflects the recent developments in this field which stem directly from petroleum reservoir studies.

Part IV considers the origin, diagenesis

and classification of limestones, dolomites and evaporites, while Part V tackles the disparate topics of chert, phosphates, iron-rich rocks and manganese nodules.

The final part is devoted to facies models. Although the nucleus of this section appeared in the first edition, it has been largely re-written and greatly expanded. It emphasizes the predictive nature of facies analysis and environmental interpretation and, although larger than the original version, is still briefer than it should be in view of the importance of accurate facies modelling to economic geology.

There are no attempts at facies modelling using electric-log analysis, which is a pity since these methods are so important in contemporary hydrocarbon exploration. Some diagrams in the first edition were unclear and have been re-drafted, but there are still a few over-reduced diagrams or diagrams taken from poor originals. Yet these are minor quibbles.

Overall, this is an excellent general source text for students and professionals. I hope it appears in paperback — soon.

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New mineralogy

D. Flinn

Principles of Mineral Behaviour. By A. Putnis and J. D. C. McConnell. Pp.257. (Blackwell Scientific/Elsevier/North-Holland: 1980.) Hbk £18, \$45; pbk £9.80, \$24.95.

THIS book is the first of a new Blackwell series entitled *Geoscience Texts*; it is also the first new mineralogy textbook for undergraduates to appear for a very long

time. Each year a number of ostensibly new texts appear but on examination they turn out to be updated or merely rehashed versions of books which have been with us for decades, or even since mineralogy began. Descriptive mineralogies in one guise or another are legion, and optical crystallographies seem to appear every year, all closely modelled on *Optical Crystallography* by Whalstrom which first appeared in 1943 and now is in its fifth edition (Wiley, 1979). For years I have had to refer my students, for accounts of mineral behaviour, to odd chapters in texts written for physicists, ceramicists, metallurgists and lately geochemists.

Now, at last, such accounts have been put together in one book and brought bang up to date for geology undergraduates. The book is descriptive, being concerned with kinetics rather than equilibria, but the necessary minimum of thermodynamics is clearly and simply presented. The approach is process orientated rather than mineral orientated even though the processes are all demonstrated in common minerals. The authors concentrate on polymorphism and on the sub-solidus behaviour of solid solutions and show how the end products depend more on the time available than on equilibrium relations. I hope that in future publishers will use the resources they now devote to publishing new optical crystallographies to updating this type of textbook and expanding it to cover other types of mineral behaviour such as crystal growth and crystal deformation. □

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Extended senses

Robert N. Colwell

Remote Sensing: Optics and Optical Systems. By P.N. Slater. Pp.575. (Addison-Wesley: 1980.) \$34.50, £20.70.

FOR years, remote-sensing educators and their students, as well as engineers and researchers in remote-sensing-related fields, have needed a comprehensive book which would explain, in a readily understandable way, both the principles and the design of various kinds of remote-sensing instruments, and the procedures best used in measuring the performance of such instruments. Professor Slater's book seeks to satisfy that need.

In this book, of 14 chapters and 9 appendices, a systematic treatment is given of the various optical and electro-optical systems that are currently used for remote sensing in the 0.4 to 16µm range, including the Landsat multispectral scanner, return beam vidicon and thematic mapper systems. (Microwave remote sensing — both active and passive — is reserved for