Sedimentary Environments and Facies

The book describes the present day sedimentary environments and discusses the recognition of ancient analogues. It emphasises processes and their products, the use of facies, facies associations and sequences in interpretation of ancient rocks and how environmental recognition illuminates understanding of past climates, oceanography, biological evolution and tectonics.

Contents: Facies; Alluvial and fluvial environments; Lakes; Deserts; Deltas; Clastic coastlines; Arid coastlines and evaporites; Shallow siliciclastic seas; Shallow water carbonate environments; Pelagic environments; Deep clastic seas; Glacial environments; Sedimentation and tectonics; Problems and perspectives.

Also of interest:

Carbonate Sediments and Their Diagenesis
Second Enlarged Edition
by Robin G. C. Bathurst

The first edition of this volume, published in 1971, responded to a need for a critical review of the various advances in carbonate sedimentology and their significance. Rapid expansion of the field since then necessitated the publication of a new volume which encompassed more recent information. In 1975 the author up-dated the original edition by the addition of a 38-page appendix. The resulting second enlarged edition also treated four fields – deep-sea sediments and their diagenesis, carbonate sediments in lakes, calcrete, and hydrogeology and karst – not dealt with in the first edition.

The main body of *Carbonate Sediments and Their Diagenesis* treats three fields – the deposition of carbonate sediments, their diagenesis, and the detailed microstructure of the sedimentary particles. Since limestones are rocks composed of the remains of shell sands, coral reefs and other tropical sea floor sediments made of calcium and magnesium carbonates, modern deposits of these in the Bahamas, the Persian Gulf and elsewhere are treated at length. Knowledge about the genesis of limestones and related rocks is critically analyzed, and new details of the microscopic structure of sedimentary grains are given, based on work with the electron microscope. A major portion of the book is devoted to a consideration of the physical and chemical properties by which the unconsolidated sediments are changed to solid rock.

CONTENTS: Chapters: 1. Petrography of Carbonate Grains 1: Skeletal Structures. 2. Petrography of Carbonate Grains 2: Oöids, Pisolites, Peloids and Other Micritic Fabrics. 3. Recent Carbonate Environments 1: General Introduction and the Great Bahama Bank. 4. Recent Carbonate Environments 2: Florida, Gulf of Batabano, Persian Gulf, British Honduras. 5. Recent Carbonate Algal Stromatolites. 6. Some Chemical Considerations. 7. Growth of Oöids Pisolites and Grapestone. 8. Diagenesis in the Subaerial, Fresh Water Environment. 9. Diagenesis on the Sea Floor. 10. Cementation. 11. Pressure-solution. 12. Neomorphic Processes in Diagenesis. 13. Recent Dolomites.

APPENDIX. Recent Developments in Carbonate Sedimentology.
Petrography of carbonate grains. Recent carbonate environments. Recent carbonate algal stromatolites. Chemical considerations. Growth of Oöids. Fresh water diagenesis, cementation and neomorphic processes. Diagenesis on the sea floor. Pressure-solution. Recent dolomites. Diagenesis under the deep sea floor. Lake sediments. Calcrete. Hydrogeology and karst.

Glossary of Sedimentological Terms not Defined in the Text. References. References in the Appendix. Index.

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