Origin Of Sedimentary Rocks

The earlier editions of this book have been used by successivegenerations of students for more than 20 years, and it is thestandard text on the subject in most British universities and manyothers throughout the world. The study of sediments and sedimentary rocks continues to be acore topic in the Earth Sciences and this book aims to provide aconcise account of their composition, mineralogy, textures,structures, diagenesis and depositional environments. This latest edition is noteworthy for the inclusion of 16 plateswith 54 colour photomicrographs of sedimentary rocks inthin-section. These bring sediments to life and show their beautyand colorful appearance down the microscope; they will aid thestudent enormously in laboratory petrographic work. The text hasbeen revised where necessary and the reference and further readinglists brought up-to-date. New tables have been included to helpundergraduates with rock and thin-section description andinterpretation. New 16-page colour section will mean students do not need tobuy Longman Atlas All illustrations redrawn to higher standard Complete revision of text - new material on sedimentarygeochemistry, etc

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copyright on the body of the work. As a reproduction of a historical artifact, this work may contain missing or blurred pages, poor pictures, errant marks, etc. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

This volume addresses the multi-disciplinary topic of engineering geology and the environment, one of the fastest growing, most relevant and applied fields of research and study within the geosciences. It covers the fundamentals of geology and engineering where the two fields overlap and, in addition, highlights specialized topics that address principles, concepts and paradigms of the discipline, including operational terms, materials, tools, techniques and methods as well as processes, procedures and implications. A number of well known and respected international experts contributed to this authoritative volume, thereby ensuring proper geographic representation, professional credibility and reliability. This superb volume provides a dependable and ready source of information on approximately 300 topical entries relevant to all aspects of engineering geology. Extensive illustrations, figures, images, tables and detailed bibliographic citations ensure that the comprehensively defined contributions are broadly and clearly explained. The Encyclopedia of Engineering Geology provides a ready source of reference for several fields of study and practice including civil engineers, geologists, physical geographers, architects, hazards specialists, hydrologists, geotechnicians, geophysicists, geomorphologists, planners, resource explorers, and many others. As a key library reference, this book is an essential technical source for undergraduate and graduate students in their research. Teachers/professors can rely on it as the final authority and the first

source of reference on engineering geology related studies as it provides an exceptional resource to train and educate the next generation of practitioners.

In the 75 years of the existence of this book the content and boundaries of sedimentary petrology have increased enormously. It is doubtful if there are any areas of the subject described by the original authors which have remained untouched by the relatively recent onslaught by countless sedimentologists, aided by a veritable armoury of sophisticated techniques. Particular areas have always waxed and waned in popularity and some subjects, such as heavy mineral studies which have been successively popular, then unpopular, appear of late to have had a new lease on life. The development and application of relatively old techniques, but now used in a sedimentological context, often brings an upsurge and revival of interest in some rocks. Isotope work has now become an integral part of the study of pelagic and phosphatic sediments, and carbonate cements. An understanding of burial diagenesis, a much neglected area, is slowly coming to the fore as electron microscopes and X-rays delve into the mineralogical and textural complexities of ancient sediments. Yet, despite the 'zapping' of minerals with electron beams and generating gases to pass into a mass spectrometer, to paraphrase an erstwhile research student of mine, the danger of this approach is that materials are analysed with scant regard to field relationships or petrographic control, thus much genetic information is missing when interpretations are attempted. Petrography is far from being archaic.

A unique, advanced textbook combining sedimentology and geomorphology in a comprehensive and integrated way.

"Physical Geology is a comprehensive introductory text on the physical aspects of geology,

including rocks and minerals, plate tectonics, earthquakes, volcanoes, glaciation, groundwater, streams, coasts, mass wasting, climate change, planetary geology and much more. It has a strong emphasis on examples from western Canada, especially British Columbia, and also includes a chapter devoted to the geological history of western Canada. The book is a collaboration of faculty from Earth Science departments at Universities and Colleges across British Columbia and elsewhere"--BCcampus website.

Origin of Sedimentary RocksPrentice HallSedimentary PetrologyAn Introduction to the Origin of Sedimentary RocksJohn Wiley & Sons

Advanced textbook outlining the physical, chemical, and biological properties of sedimentary rocks through petrographic microscopy, geochemical techniques, and field study.

Often thought of as a volcanically dominated planet, the last several decades of Mars exploration have revealed with increasing clarity the role of sedimentary processes on the Red Planet. Data from recent orbiters have highlighted the role of sedimentary processes throughout the geologic evolution of Mars by providing evidence that such processes are preserved in a rock record that spans a period of over four billion years. Aimed at advanced undergraduates but suitable also for graduate students and professionals, it covers processes of sedimentation, describes the characteristics of sedimentary rocks formed in major sedimentary environments, and discusses the fundamental principles of stratigraphy and basin analysis, including recent developments in the important fields of magnetostratigraphy, seismic stratigraphy, sequence stratigraphy, isotope stratigraphy, and sea-level analysis. The book presents

divergent views on controversial topics and is extensively referenced and up-to-date thus encouraging students to refer to recently published literature.

The present work. Authigenic Minerals in Sedimentary Rocks, is designed for the broad circle of lithologists, and also for the geologists and geochemists who are studying sedimentary rocks and ores. Its specific purpose is to stir up interest among lithologists and geologists in the geochemical environment associated with the formation of authigenic minerals in sedimentary rocks, to encourage work in tracing the sequence of formation of these min erals, and to direct attention to other genetic problems. The book by no means pretends to be a determinative atlas of the authigenic minerals in sedimentary rocks; its task is to draw the reader's attention to questions of origin and, at the same time, to equip him with systematic knowledge about the physical and, especially, the optical properties of these minerals. In addition, the simplified chemical reactions indicated in the book wiII permit one to distinguish similar minerals, and will also allow him to detect various mineral deposits in the field. Another purpose of the book is to acquaint chemists and geochemists with the properties of the minerals they study in making chemical analyses, minerals that com monly occur as polymineralic aggregates in the samples that are examined.

Introduction to Mineralogy and Petrology presents the essentials of both disciplines through an approach accessible to industry professionals, academic researchers, and students. Mineralogy and petrology stand as the backbone of the geosciences. Detailed

knowledge of minerals and rocks and the process of formation and association are essential for practicing professionals and advanced students. This book is designed as an accessible, step-by-step guide to exploring, retaining, and implementing the core concepts of mineral and hydrocarbon exploration, mining, and extraction. Each topic is fully supported by working examples, diagrams and full-color images. The inclusion of petroleum, gas, metallic deposits and economic aspects enhance the book's value as a practical reference for mineralogy and petrology. Authored by two of the world's premier experts, this book is a must for any young professional, researcher, or student looking for a thorough and inclusive guide to mineralogy and petrology in a single source. Authored by two of the world's experts in mineralogy and petrology, who have more than 70 years of experience in research and instruction combined Addresses the full scope of the core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and soils, definition, origin, structure and classification of igneous, sedimentary and metamorphic rocks Features more than 150 figures, illustrations, and color photographs to vividly explore the fundamental principles of mineralogy and petrology Offers a holistic approach to both subjects, beginning with the formation of geologic structures followed by the hosting of mineral deposits and concluding with the exploration and extraction of lucrative, usable products to improve the health of global economies

Sediment Provenance: Influences on Compositional Change from Source to Sink

provides a thorough and inclusive overview that features data-based case studies on a broad range of dynamic aspects in sedimentary rock structure and deposition. Provenance data plays a critical role in a number of aspects of sedimentary rocks, including the assessment of palaeogeographic reconstructions, the constraints of lateral displacements in orogens, the characterization of crust which is no longer exposed, the mapping of depositional systems, sub-surface correlation, and in predicting reservoir quality. The provenance of fine-grained sediments—on a global scale—has been used to monitor crustal evolution, and sediment transport is paramount in considering restoration techniques for both watershed and river restoration. Transport is responsible for erosion, bank undercutting, sandbar formation, aggradation, gullying, and plugging, as well as bed form migration and generation of primary sedimentary structures. Additionally, the quest for reservoir quality in contemporary hydrocarbon exploration and extraction necessitates a deliberate focus on diagenesis. This book addresses all of these challenges and arms geoscientists with an all-in-one reference to sedimentary rocks, from source to deposition. Provides the latest data available on various aspects of sedimentary rocks from their source to deposition Features case studies throughout that illustrate new data and critical analyses of published data by some of the world's most pre-eminent sedimentologists Includes more than 150 illustrations, photos, figures, and diagrams that underscore key concepts

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Carbonate rocks (limestones and dolomites) constitute a major partof the geological column and contain not only 60% of the world'sknown hydrocarbons but also host extensive mineral deposits. Thisbook represents the first major review of carbonate sedimentologysince the mid 1970's. It is aimed at the advanced undergraduate -postgraduate level and will also be of major interest to geologistsworking in the oil industry. Carbonate Sedimentology is designed to take the readerfrom the basic

aspects of limestone recognition and classificationthrough to an appreciation of the most recent developments such aslarge scale facies modelling and isotope geochemistry. Novelaspects of the book include a detailed review of carbonatemineralogy, non-marine carbonate depositional environments and anin-depth look at carbonate deposition and diagenesis throughgeologic time. In addition, the reviews of individual depositionalsystems stress a process-based approach rather than one centered onsimple comparative sedimentology. The unique quality of this bookis that it contains integrated reviews of carbonate sedimentologyand diagenesis, within one volume.

This fully revised and updated edition introduces the reader to sedimentology and stratigraphic principles, and provides tools for the interpretation of sediments and sedimentary rocks. The processes of formation, transport and deposition of sediment are considered and then applied to develop conceptual models for the full range of sedimentary environments, from deserts to deep seas and reefs to rivers. Different approaches to using stratigraphic principles to date and correlate strata are also considered, in order to provide a comprehensive introduction to all aspects of sedimentology and stratigraphy. The text and figures are designed to be accessible to anyone completely new to the subject, and all of the illustrative material is provided in an accompanying CD-ROM. High-resolution versions of these images can also be downloaded from the companion website for this book at:

www.wiley.com/go/nicholssedimentology.