

## Sedimentary Geology Prothero Schwab

These serve as a common interdisciplinary background for the second half of the text, which divides the discussion of earthquakes according to tectonic environment: strike-slip, divergent, and convergent.

Carbonate rocks (limestones and dolomites) constitute a major part of the geological column and contain not only 60% of the world's known hydrocarbons but also host extensive mineral deposits. This book represents the first major review of carbonate sedimentology since the mid 1970's. It is aimed at the advanced undergraduate -postgraduate level and will also be of major interest to geologists working in the oil industry. Carbonate Sedimentology is designed to take the reader from the basic aspects of limestone recognition and classification through to an appreciation of the most recent developments such as large scale facies modelling and isotope geochemistry. Novel aspects of the book include a detailed review of carbonate mineralogy, non-marine carbonate depositional environments and an in-depth look at carbonate deposition and diagenesis through geologic time. In addition, the reviews of individual depositional systems stress a process-based approach rather than one centered on simple comparative sedimentology. The unique quality of this book is that it

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contains integrated reviews of carbonate sedimentology and diagenesis, within one volume.

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"Ideas and concepts in sedimentology are changing rapidly, but field work and data collection remain the basis of the science. This book is intended as a guide to the recognition and description of sedimentary rocks in the field. It aims to help students and professional geologists know what to observe and record, and how best to interpret this data. The emphasis is on illustrating the principal types of sedimentary rocks, which is accomplished through more than 450 color photos and explanatory drawings. The introductory chapter defines the main types of sedimentary rocks, their classification, and their economic significance. The author then goes on to describe standard field techniques and provides a comprehensive summary of the principal characteristics of sedimentary rocks. Additional chapters cover each of the main rock types and describe how to interpret rocks and their features in terms of depositional environments." "This

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book is an ideal field companion for undergraduate and graduate students of geology, environmental sciences, hydrogeology, oceanography, and more. Professionals in petroleum geology and resource management, as well as budding geologists, will also find this to be an indispensable reference."--BOOK JACKET.

### Physical Volcanology

Basin Analysis is an advanced undergraduate and postgraduate text aimed at understanding sedimentary basins as geodynamic entities. The rationale of the book is that knowledge of the basic principles of the thermo-mechanical behaviour of the lithosphere, the dynamics of the mantle, and the functioning of sediment routing systems provides a sound background for studying sedimentary basins, and is a pre-requisite for the exploitation of resources contained in their sedimentary rocks. The third edition incorporates new developments in the burgeoning field of basin analysis while retaining the successful structure and overall philosophy of the first two editions. The text is divided into 4 parts that establish the geodynamical environment for sedimentary basins and the physical state of the lithosphere, followed by a coverage of the mechanics of basin formation, an integrated analysis of the controls on the basin-fill and its burial and thermal history, and concludes with an application of basin analysis

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principles in petroleum playassessment, including a discussion of unconventional hydrocarbonplays. The text is richly supplemented by Appendices providingmathematical derivations of a wide range of processes affecting theformation of basins and their sedimentary fills. Many of theseAppendices include practical exercises that give the readerhands-on experience of quantitative solutions to important basinanalysis processes. Now in full colour and a larger format, this third edition is acomprehensive update and expansion of the previous editions, and represents a rigorous yet accessible guide to problemsolving in this most integrative of geoscientific disciplines. Additional resources for this book can be found at: <http://www.wiley.com/go/allen/basinanalysis>

Developed with extensive community involvement and support from the US National Science Foundation, it is about our planet's dynamic surface, a place where Earth and atmosphere meet and life thrives. Key Concepts in Geomorphology takes an integrative science approach that applies principles of physics, chemistry, biology, and mathematics in the understanding of Earth surface processes and the evolution of topography over short and long timescales to solve problems important to people and societies. The authors also hone in on practical applications, showing how scientists are using

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geomorphological research to tackle critical societal issues (natural disaster response, safer infrastructure, protecting species, and more).

This market-leading textbook has been fully updated in response to extensive user feedback. It includes a new chapter on joints and veins, additional examples from around the world, stunning new field photos, and extended online resources with new animations and exercises. The book's practical emphasis, hugely popular in the first edition, features applications in the upper crust, including petroleum and groundwater geology, highlighting the importance of structural geology in exploration and exploitation of petroleum and water resources. Carefully designed full-colour illustrations work closely with the text to support student learning, and are supplemented with high-quality photos from around the world. Examples and parallels drawn from practical everyday situations engage students, and end-of chapter review questions help them to check their understanding. Updated e-learning modules are available online

([www.cambridge.org/fossen2e](http://www.cambridge.org/fossen2e)) and further reinforce key topics using summaries, innovative animations to bring concepts to life, and additional examples and figures.

A fascinating study of the thousands of new animal species that walked in the footsteps of the dinosaurs—and the climate changes that brought them forth. The fascinating group of animals called dinosaurs became extinct some 65 million years ago (except for their feathered descendants). In their place evolved an enormous variety of land creatures, especially mammals, which in their way were every bit as remarkable as

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their Mesozoic cousins. The Age of Mammals, the Cenozoic Era, has never had its Jurassic Park, but it was an amazing time in earth's history, populated by a wonderful assortment of bizarre animals. The rapid evolution of thousands of species of mammals brought forth many incredible creatures—including our own ancestors. Their story is part of a larger story of new life emerging from the greenhouse conditions of the Mesozoic, warming up dramatically about 55 million years ago, and then cooling rapidly so that 33 million years ago the glacial ice returned. The earth's vegetation went through equally dramatic changes, from tropical jungles in Montana and forests at the poles. Life in the sea underwent striking evolution reflecting global climate change, including the emergence of such creatures as giant sharks, seals, sea lions, dolphins, and whales. Engaging and insightful, *After the Dinosaurs* is a book for everyone who has an abiding fascination with the remarkable life of the past.

*Environmental and Low-Temperature Geochemistry* presents conceptual and quantitative principles of geochemistry in order to foster understanding of natural processes at and near the earth's surface, as well as anthropogenic impacts on the natural environment. It provides the reader with the essentials of concentration, speciation and reactivity of elements in soils, waters, sediments and air, drawing attention to both thermodynamic and kinetic controls. Specific features include:

- An introductory chapter that reviews basic chemical principles applied to environmental and low-temperature geochemistry
- Explanation and analysis of the importance of

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minerals in the environment • Principles of aqueous geochemistry • Organic compounds in the environment • The role of microbes in processes such as biomineralization, elemental speciation and reduction-oxidation reactions • Thorough coverage of the fundamentals of important geochemical cycles (C, N, P, S) • Atmospheric chemistry • Soil geochemistry • The roles of stable isotopes in environmental analysis • Radioactive and radiogenic isotopes as environmental tracers and environmental contaminants • Principles and examples of instrumental analysis in environmental geochemistry The text concludes with a case study of surface water and groundwater contamination that includes interactions and reactions of naturally-derived inorganic substances and introduced organic compounds (fuels and solvents), and illustrates the importance of interdisciplinary analysis in environmental geochemistry. Readership: Advanced undergraduate and graduate students studying environmental/low T geochemistry as part of an earth science, environmental science or related program. Additional resources for this book can be found at: [www.wiley.com/go/ryan/geochemistry](http://www.wiley.com/go/ryan/geochemistry).

A counterpoint to biodiversity, geodiversity describes the rocks, sediments, soils, fossils, landforms, and the physical processes that underlie our environment. The first book to focus exclusively on the subject, Geodiversity describes the interrelationships between geodiversity and biodiversity, the value of geodiversity to society, as well as current threats to its existence. Illustrated with global case studies throughout, the book

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examines traditional approaches to protecting biodiversity and the new management agenda which is starting to be used instead.

The fifth edition of a bestseller, *Air Quality* provides students with a comprehensive overview of air quality, the science that continues to provide a better understanding of atmospheric chemistry and its effects on public health and the environment, and the regulatory and technological management practices employed in achieving air quality goals. Maintaining the practical approach that has made previous editions so popular, the chapters have been reorganized, new material has been added, less relevant material deleted, and new images added, particularly those from Earth satellites. See *What's New in the Fifth Edition*: New graphics, images, and an appended list of unit conversions  
New problems and questions  
Revisions and updates on the regulatory aspects related to air quality, emissions of pollutants, and particularly in the area of greenhouse gas emissions  
Updated information on topics that affect air quality such as global warming, climate change, international issues associated with air quality and its regulation, atmospheric deposition, atmospheric chemistry, and health and environmental effects of atmospheric pollution  
Written in Thad Godish's accessible style, the book clearly elucidates the challenges we face in our fifth decade of significant regulatory efforts to protect and enhance the quality of the nation's air. It also highlights the growing global awareness of air quality issues, climate change, and public health concerns in the developing world. The breadth of coverage, review

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questions at the end of each chapter, extensive glossary, and list of readings put the tools for understanding in your students' hands.

Despite the modern dominance of computer graphics programs and digital cameras, the ability to draw geological structures manually remains a necessity in academic geology and beyond. Drawings serve for quick and simple documentation in the field or at the microscope. They can be applied as a language of their own as well as be adapted to suit specific requirements. Moreover, geological drawing improves observational ability and contributes to the understanding of geological structures and structure-forming processes. Geological drawing is assisted scientific thinking. Drawing Geological Structures provides undergraduate as well as graduate and practicing geologists with a thorough, step-by-step practical guide to the art of geological drawing. Beginning with the basics, the book covers thin sections, sample sections, samples and geological stereograms. The chapters provide examples of how drawings evolve and are complemented by exercises, allowing the reader to practice their drawing prior to going out into the field or working at the microscope. Users of this unique guide will develop their knowledge and technical vocabulary whilst also improving their drawing skills.

This text deals with the dredging of rock by large cutter suction dredgers. The rock properties influencing the mechanical cutting of rock and the wear of cutting teeth are examined, and to verify the model of mechanical rock excavation developed, case

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studies of dredging projects were performed.

The understanding of Earth processes and environments over geological time is highly dependent upon both the experience that can only be gained through doing fieldwork, and the collection of reliable data and appropriate samples in the field. This textbook explains the main data gathering techniques used by geologists in the field and the reasons for these, with emphasis throughout on how to make effective field observations and record these in suitable formats. Equal weight is given to assembling field observations from igneous, metamorphic and sedimentary rock types. There are also substantial chapters on producing a field notebook, collecting structural information, recording fossil data and constructing geological maps. The volume is in a robust and handy size, with colour coded chapters for ease of use and quick reference in the field. Geological Field Techniques is designed for students, amateur enthusiasts and professionals who have a background in geology and wish to collect field data on rocks and geological features. Teaching aspects of this textbook include: step-by-step guides to essential practical skills such as using a compass-clinometer, making a geological map and drawing a field sketch; tricks of the trade, checklists, flow charts and short worked examples; over 200 illustrations of a wide range of field notes, maps and geological features; appendices with the commonly used rock description and classification diagrams; a supporting website hosted by Wiley Blackwell.

The first field guide that allows amateur rock enthusiasts to identify basic rocks and

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rock formations in a systematic way Many of us are fascinated by rocks—but identifying them can seem daunting. It's often tricky even for geologists, who rely on experience, intuition, and in-depth familiarity with rock-forming components. *Rocks and Rock Formations* allows everyone, amateur or professional, to successfully distinguish these amazing masses of minerals, using only careful observation, a magnifying glass, a pocket knife—and a bit of patience. Jürg Meyer provides a structured approach to the identification of all rocks within the three groups: sedimentary, igneous, and metamorphic. Bringing together more than 530 diagrams and photographs to illustrate essential characteristics, Meyer highlights some basics on rocks—their mineral constituents, structures, textures, fossils, weathering patterns, and more—which are important for a determination. The main part of the book is a handy and thorough identification key, which takes into account all possible rock variations, mixtures, and structural differences. The concluding section of the guide delves into rock systematics. Assuming little prior experience or knowledge, *Rocks and Rock Formations* is an invaluable resource for rock enthusiasts everywhere. Suitable for beginners and amateurs

Helpful, systematic identification key Exploration of all types of rocks More than 530 diagrams and photographs

Key concepts in mineralogy and petrology are explained alongside beautiful full-color illustrations, in this concisely written textbook.

This is an accessible introductory text which encompasses both sedimentary rocks and

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stratigraphy. The book utilizes current research in tectonics and sedimentation and focuses on crucial geological principles. It covers a wide range of topics, including trace fossils, mudrocks and diagenetic structures.

Approaches the subject from a biological and evolutionary perspective rather than just identification.

The second edition of *Introduction to Mineralogy* follows the highly successful first edition, which became an overnight market leader. *Introduction to Mineralogy* consolidates much of the material now covered in traditional mineralogy and optical mineralogy courses and focuses on describing minerals within their geologic context. This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. For a combined, one-semester, junior/senior-level course in Igneous and Metamorphic Petrology. Also useful for programs that teach Igneous Petrology and Metamorphic Petrology. Typical texts on igneous and metamorphic petrology are geared to either advanced or novice petrology students. This unique text offers comprehensive, up-to-date coverage of both igneous and metamorphic petrology in a single volume—and provides the quantitative and technical background required to critically evaluate igneous and metamorphic phenomena in a way that students at all levels can understand. The goal throughout is for students to be able to apply the techniques—and enjoy the insights of the results—rather than tinker with theory and develop everything

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from first principles.

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](http://www.wiley.com/go/nicholssedimentology).

Written for a first course in sedimentary geology or sedimentary rocks and stratigraphy (with only an introductory geology/physical geology course as a prerequisite), Prothero and Schwab shows students how sedimentary strata serves geologists as a continuous record of Earth's history. The authors' conversational style, and focus on the important concepts make the book highly accessible to an undergraduate audience.

Sedimentary Geology Macmillan Higher Education

One of the leading textbooks in its field, *Bringing Fossils to Life* applies paleobiological principles to the fossil record while detailing the evolutionary history of major plant and animal phyla. It incorporates current research from biology, ecology, and population genetics, bridging the gap between purely theoretical paleobiological textbooks and those that describe only invertebrate paleobiology and that emphasize cataloguing live organisms instead of dead

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objects. For this third edition Donald R. Prothero has revised the art and research throughout, expanding the coverage of invertebrates and adding a discussion of new methodologies and a chapter on the origin and early evolution of life.

The theory of evolution unites the past, present, and future of living things. It puts humanity's place in the universe into necessary perspective. Despite a history of controversy, the evidence for evolution continues to accumulate as a result of many separate strands of amazing scientific sleuthing. In *The Story of Evolution in 25 Discoveries*, Donald R. Prothero explores the most fascinating breakthroughs in piecing together the evidence for evolution. In twenty-five vignettes, he recounts the dramatic stories of the people who made crucial discoveries, placing each moment in the context of what it represented for the progress of science. He tackles topics like what it means to see evolution in action and what the many transitional fossils show us about evolution, following figures from Darwin to lesser-known researchers as they unlock the mysteries of the fossil record, the earth, and the universe. The book also features the stories of animal species strange and familiar, including humans—and our ties to some of our closest relatives and more distant cousins. Prothero's wide-ranging tales showcase awe-inspiring and bizarre aspects of nature and the powerful insights they give us into the way that life works. Brisk and entertaining while firmly grounded in fundamental science, *The Story of Evolution in 25 Discoveries* is a captivating read for anyone curious about the evidence for evolution and what it means for humanity.

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

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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.

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

This new quick reference guide offers easy-to-read explanations for how infectious diseases spread, how to prepare for illness, and how to limit the burden of illness associated with group settings. Handy fact sheets describe specific types of infectious diseases in common terms, methods of transmission, recommendations for both immediate intervention and child care exclusion and re-admittance criteria.

Environmental Science for a Changing World captivates students with real-world stories while exploring the science concepts in context. Engaging stories plus vivid photos and infographics make the content relevant and visually enticing. The result is a text that emphasizes environmental, scientific, and information literacies in a way that engages students.

Relates the physical and geometric elegance of geologic structures within the Earth's crust and the ways in which these structures reflect the nature and origin

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of crystal deformation through time. The main thrust is on applications in regional tectonics, exploration geology, active tectonics and geohydrology. Techniques, experiments, and calculations are described in detail, with the purpose of offering active participation and discovery through laboratory and field work.

This bibliography on the procurement and exploitation of chert resources during prehistory does not aim to be exhaustive, although it is certainly extensive, but it intends to offer a broad range of publications for specialists from a variety of fields. Following an introductory discussion of lithic raw material procurement, the bibliography is divided into geological and archaeological studies. The publications listed are mainly in English but include others in European languages and encompass the years 1870 to 2001. Includes a chronological index.

Principles of Stratigraphy reaffirms the vital importance of stratigraphy to the earth sciences, and introduces the undergraduate to its key elements in a lively and interesting fashion. First recent text devoted to stratigraphic principles and applications. Contains details of the latest stratigraphic techniques. Includes numerous case studies and real-world examples. An Instructor manual CD-ROM for this title is available. Please contact our Higher Education team at [HigherEducation@wiley.com](mailto:HigherEducation@wiley.com) for more information.

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