

Structural Geology Third Edition Billings

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) and further reinforce key topics using summaries, innovative animations to bring concepts to life, and additional examples and figures.

Project Management for Engineering, Business and Technology is a highly regarded textbook that addresses project management across all industries. First covering the essential background, from origins and philosophy to methodology, the bulk of the book is dedicated to concepts and techniques for practical application. Coverage includes project initiation and proposals, scope and task definition, scheduling, budgeting, risk analysis, control, project selection and portfolio management, program management, project organization, and all-important "people" aspects—project leadership, team building, conflict resolution, and stress management. The systems development cycle is used as a framework to discuss project management in a variety of situations, making this the go-to book for managing virtually any kind of project, program, or task force. The authors focus on the ultimate purpose of project management—to unify and integrate the interests, resources and work efforts of many stakeholders, as well as the planning, scheduling, and budgeting needed to accomplish overall project goals. This sixth edition features: updates throughout to cover the latest developments in project management methodologies; a new chapter on project procurement management and contracts; an expansion of case study coverage throughout, including those on the topic of sustainability and climate change, as well as cases and examples from across the globe, including India, Africa, Asia, and Australia; and extensive instructor support materials, including an instructor's manual, PowerPoint slides, answers to chapter review questions and a test bank of questions. Taking a technical yet accessible approach, this book is an ideal resource and reference for all advanced undergraduate and graduate students in project management courses, as well as for practicing project managers across all industry sectors.

Explains in a clear and concise manner the factors involved in the description and classification of fossils and the practical applications of paleontologic data

Evolution of Geological Structures in Micro- to Macro-scales

An Introduction to the Science of Rocks

A Textbook of Geology

How Politics Explain Poverty

Basic Methods of Structural Geology

This state-of-the-art text offers students balanced coverage of the full range of topics, supported by a wealth of outstanding illustrations and photographs. The text opens with an overview of basic geologic principles that paves the way for a better understanding of structural geology. The topics of stress and strain, deformation mechanisms, and strain measurement provide a foundation upon which the text's remaining coverage is built. Self-contained chapters meet instructor's individual needs. A brief introduction to geophysical techniques, principally seismic reflection and refraction, Earth magnetism, and gravity, enhances a better understanding of crustal structures. This latest edition has been revised for greater clarity and to incorporate the most current technical information possible. *Provides balanced coverage of all topics, supported by numerous illustrations and photographs. *An introductory review of fundamental geologic principles and laws, geochronology, and principles of equilibrium gives students a strong foundation and prepares them for subsequent topics. *Essays in each chapter encourage further study in key subjects. Each chapter offers a short section on an ad

Atlas of Structural Geology features a broad and inclusive range of high-quality meso- and micro-scale full-color photographs, descriptions, and captions related to the deformation of rocks and geologic structures. It is a multi-contributed, comprehensive reference that includes submissions from many of the world's leading structural geologists, making it the most thorough and comprehensive reference available to the scientific community. All types of structures are featured, including structures related to ductile and brittle shear zones, sigma- and delta-structures, mineral fish, duplexes and trapezoids, shear related folds, and flanking structures in meso- and micro-scales. A stunning collection of the world's most beautiful and arresting geologic structures, the Atlas of Structural Geology is the ideal aid in the retention of key concepts in geology. Presents more than 250 top-quality, full-color photographs contributed by the world's most respected structural geologists Features a broad range of morphological variations of geologic structures, making it the most up-to-date and inclusive reference of its kind Edited by a structural geologist with 14 years of experience in related research and instruction Aids researchers in developing mathematical and analogue models on the peculiarity and uniqueness of the world's most iconic structures

Structural geology has developed at a very rapid pace in recent years. **Evolution of Geological Structures in Micro- to Macro-Scales**, covering a wide spectrum of current research in structural geology from the grain scale to the scale of orogenic belts and from the brittle to the ductile field, provides an overview of newly emerging concepts in a single volume. The book covers a wide range of advances in such broad fields as hydraulic fractures, normal faults, overthrusts, ductile shear zones, rock fabrics, folds, superposed folds and basement structures.

3-D Structural Geology

Geologic Maps

Project Management for Engineering, Business and Technology

Theory of Structural Geology

A Practical Guide to Preparation and Interpretation, Third Edition

In this book the task of summarising modern petrology from the genetic standpoint has been attempted. The scale of the work is small as compared with the magnitude of its subject, but it is nevertheless believed that the field has been reasonably covered. In conformity with the genetic viewpoint petrology, as contrasted with petrography, has been emphasised throughout; and purely descriptive mineralogical and petrographical detail has been omitted. Every petrologist who reads this book will recognise the author's indebtedness to Dr. A. Harker and Dr. A. Holmes, among British workers; to Prof. R. A. Daly, Dr. H. S. Washington, and Dr. N. L. Bowen, among American petrologists; and to Prof. J. H. L. Vogt, Prof. V. M. Goldschmidt, Prof. A. Lacroix, and Prof. P. Niggli, among European investigators. The emphasis laid on modern views, and the relative poverty of references to the works of the older generation of petrologists, does not imply any disrespect of the latter. It is due to recognition of the desirability of affording the petrological student a newer and wider range of reading references than is usually supplied in this class of work; for references tend to become stereotyped as well as text and illustrations. Furthermore it is believed that all that is good and living in the older work has been incorporated, consciously or unconsciously, in the newer.

Structural Geology Structural Geology 3Rd Ed. Elements of Petroleum Geology Academic Press

GEOLOGICAL FIELD TECHNIQUES 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. 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 is available at www.wiley.com/go/coe/geology

Geological Field Techniques

The New Geology

Pile Design and Construction Practice

Rich Democracies, Poor People

A Textbook for Colleges, Normal Schools, and Training Schools; and for the General Reader

The use of aerial photographs to obtain qualitative and quantitative geologic information, and instrument procedures employed in compiling geologic data from aerial photographs.

The book includes new material, in particular examples of 3-D models and techniques for using kinematic models to predict fault and ramp-anticline geometry. The book is geared toward the professional user concerned about the accuracy of an interpretation and the speed with which it can be obtained from incomplete data. Numerous analytical solutions are given that can be easily implemented with a pocket calculator or a spreadsheet.

Landscapes of the past have always held an inherent fascination for geologists because, like terrestrial sediments, they formed in our environment, not offshore on the sea floor and not deep in the subsurface. So, a walk across an ancient karst surface is truly a step back in time on a surface formed open to the air, long before humans populated the globe. Ancient karst, with its associated subterranean features, is also of great scientific interest because it not only records past exposure of parts of the earth's crust, but preserves information about ancient climate and the movement of waters in paleo-aquifers. Because some paleo-karst terranes are locally hosts for hydrocarbons and base metals in amounts large enough to be economic, buried and exhumed paleo-karst is also of inordinate practical importance. This volume had its origins in a symposium entitled "Paleo-karst Systems and Unconformities-Characteristics and Significance," which was organized and convened by us at the 1985 midyear meeting of the Society of Economic Paleontologists and Mineralogists on the campus of the Colorado School of Mines in Golden, Colorado. The symposium had its roots in our studies over the last decade, both separately and jointly, of a number of major and minor unconformities and of the diverse, and often spectacular paleo-karst features associated with these unconformities.

Applied Subsurface Geological Mapping with Structural Methods

Geologic Fracture Mechanics

Atlas of Structural Geology

The Complete Works of Josh Billings

Paleo-karst

Applied Subsurface Geological Mapping, With Structural Methods, 2nd Edition is the practical, up-to-the-minute guide to the use of subsurface interpretation, mapping, and structural techniques in the search for oil and gas resources. Two of the industry's leading consultants present systematic coverage of the field's key principles and newest advances, offering guidance that is valuable for both exploration and development activities, as well as for "detailed" projects in maturely developed areas. Fully updated and expanded, this edition combines extensive information from the published literature with significant material never before published. The authors introduce superior techniques for every major petroleum-related tectonic setting in the world. Coverage includes: A systematic, ten-

step philosophy for subsurface interpretation and mapping The latest computer-based contouring concepts and applications Advanced manual and computer-based log correlation Integration of geophysical data into subsurface interpretations and mapping Cross-section construction: structural, stratigraphic, and problem-solving Interpretation and generation of valid fault, structure, and isochore maps New coverage of 3D seismic interpretation, from project setup through documentation Compressional and extensional structures: balancing and interpretation In-depth new coverage of strike-slip faulting and related structures Growth and correlation consistency techniques: expansion indices, Multiple Bischke Plot Analysis, vertical separation versus depth, and more Numerous field examples from around the world Whatever your role in the adventure of finding and developing oil or gas resources—as a geologist, geophysicist, engineer, technologist, manager or investor—the tools presented in this book can make you significantly more effective in your daily technical or decision-oriented activities.

The second edition of Introduction to Mineralogy follows the highly successful first edition, which become 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.

Elements of Petroleum Geology, Fourth Edition is a useful primer for geophysicists, geologists and petroleum engineers in the oil industry who wish to expand their knowledge beyond their specialized area. It is also an excellent introductory text for a university course in petroleum geoscience. This updated edition includes new case studies on non-conventional exploration, including tight oil and shale gas exploration, as well as coverage of the impacts on petroleum geology on the environment. Sections on shale reservoirs, flow units and containers, IOR and EOR, giant petroleum provinces, halo reservoirs, and resource estimation methods are also expanded. Written by a preeminent petroleum geologist and sedimentologist with decades of petroleum exploration in remote corners of the world Covers information pertinent to everyone working in the oil and gas industry, especially geophysicists, geologists and petroleum reservoir engineers Fully revised with updated references and expanded coverage of topics and new case studies

Aerial Photographs in Geologic Interpretation and Mapping

A Study of Land Information

Yellowstone Treasures

Chapter B.

Principles, Concepts, and Problems

The chemical composition of natural water is derived from many different sources of solutes, including gases and aerosols from the atmosphere, weathering and erosion of rocks and soil, solution or precipitation reactions occurring below the land surface, and cultural effects resulting from activities of man. Some of the processes of solution or precipitation of minerals can be closely evaluated by means of principles of chemical equilibrium including the law of mass action and the Nernst equation. Other processes are irreversible and require consideration of reaction mechanisms and rates. The chemical composition of the crustal rocks of the earth and the composition of the ocean and the atmosphere are significant in evaluating sources of solutes in natural fresh water. The ways in which solutes are taken up or precipitated and the amounts present in solution are influenced by many environmental factors, especially climate, structure and position of rock strata, and biochemical effects associated with life cycles of plants and animals, both microscopic and macroscopic. Taken all together and in application with the further influence of the general circulation of all water in the hydrologic cycle, the chemical principles and environmental factors form a basis for the developing science of natural-water chemistry. Fundamental data used in the determination of water quality are obtained by the chemical analysis of water samples in the laboratory or onsite sensing of chemical properties in the field. Sampling is complicated by changes in composition of moving water and the effects of particulate suspended material. Most of the constituents determined are reported in gravimetric units, usually milligrams per liter or milliequivalents per liter. More than 60 constituents and properties are included in water analyses frequently enough to provide a basis for consideration of the sources from which each is generally derived, most probable forms of elements and ions in solution, solubility controls, expected concentration ranges and other chemical factors. Concentrations of elements that are commonly present in amounts less than a few tens of micrograms per liter cannot always be easily explained, but present information suggests many are controlled by solubility of hydroxide or carbonate or by sorption on solid particles. Chemical analyses may be grouped and statistically evaluated by averages, frequency distributions, or ion correlations to summarize large volumes of data. Graphing of analyses or of groups of analyses aids in showing chemical relationships among waters, probable sources of solutes, areal water-quality regimen, and water-resources evaluation. Graphs may show water type based on chemical composition, relationships among ions, or groups of ions in individual waters or many waters considered simultaneously. The relationships of water quality to hydrologic parameters, such as stream discharge rate or ground-water flow patterns, can be shown by mathematical equations, graphs, and maps. About 75 water analyses selected from the literature are tabulated to illustrate the relationships described, and some of these, along with many others that are not tabulated, are also utilized in demonstrating graphing and mapping techniques. Relationships of water composition to source rock type are illustrated by graphs of some of the tabulated analyses. Activities of man may modify water composition extensively through direct effects of pollution and indirect results of water development, such as intrusion of sea water in ground-water aquifers. Water-quality standards for domestic, agricultural, and industrial use have been published by various agencies. Irrigation project requirements for water quality are particularly intricate. Fundamental knowledge of processes that control natural water composition is required for rational management of water quality.

This international handbook is essential for geotechnical engineers and engineering geologists responsible for designing and constructing piled foundations. It explains general principles and practice and details current types of pile, piling equipment and methods. It includes calculations of the resistance of piles to compressive loads, pile group

Winner of the Project Management Institute's David I. Cleland Project Management Literature Award 2010 It's no wonder that project managers spend so

much time focusing their attention on risk identification. Important projects tend to be time constrained, pose huge technical challenges, and suffer from a lack of adequate resources. Identifying and Managing Project Risk, now updated and consistent with the very latest Project Management Body of Knowledge (PMBOK)® Guide, takes readers through every phase of a project, showing them how to consider the possible risks involved at every point in the process. Drawing on real-world situations and hundreds of examples, the book outlines proven methods, demonstrating key ideas for project risk planning and showing how to use high-level risk assessment tools. Analyzing aspects such as available resources, project scope, and scheduling, this new edition also explores the growing area of Enterprise Risk Management. Comprehensive and completely up-to-date, this book helps readers determine risk factors thoroughly and decisively...before a project gets derailed.

The Traveler's Companion to the National Park

What America Must Do to Give Every Child an Even Chance

Introduction to Mineralogy, Second International Edition

Engineering Geology

Structural Geology 3Rd Ed.

Introduction to geologic fracture mechanics covering geologic structural discontinuities from theoretical and field-based perspectives.

Every engineering structure, whether it's a building, bridge or road, is affected by the ground on which it is built. Geology is of fundamental importance when deciding on the location and design of all engineering works, and it is essential that engineers have a basic knowledge of the subject. Engineering Geology introduces the fundamentals of the discipline and ensures that engineers have a clear understanding of the processes at work, and how they will impact on what is to be built. Core areas such as stratigraphy, rock types, structures and geological processes are explained, and put in context. The basics of soil mechanics and the links between groundwater conditions and underlying geology are introduced. As well as the theoretical knowledge necessary, Professor Bell introduces the techniques that engineers will need to learn about and understand the geological conditions in which they intend to build. Site investigation techniques are detailed, and the risks and risk avoidance methods for dealing with different conditions are explained. * Accessible introduction to geology for engineers * Key points illustrated with diagrams and photographs * Teaches the impact of geology on the planning and design of structures

Poverty is not simply the result of an individual's characteristics, behaviors or abilities. Rather, as David Brady demonstrates, poverty is the result of politics. In Rich Democracies, Poor People, Brady investigates why poverty is so entrenched in some affluent democracies whereas it is a solvable problem in others. Drawing on over thirty years of data from eighteen countries, Brady argues that cross-national and historical variations in poverty are principally driven by differences in the generosity of the welfare state. An explicit challenge to mainstream views of poverty as an inescapable outcome of individual failings or a society's labor markets and demography, this book offers institutionalized power relations theory as an alternative explanation.

An Introduction to Geometrical Techniques

Principles of Paleontology

Essential Tools for Failure-Proofing Your Project

Geological Survey Research 1965

Glossary of Structural Geology and Tectonics

This instructive, engaging, highly readable manual is intended for the laboratory portion of an undergraduate course in structural geology. Guided by students' and instructors' suggestions, Dr Stephen Rowland and his new co-author, Dr Ernest Duebendorfer, have refined various exercises for the second edition, and have added discussions of numerous topics, including axial planar foliations and the dip isogon methods of fold classification. There are also three new chapters on: balanced cross sections; deformation mechanisms, fault kinematics and microstructures; and plate tectonics.

This combination of text and lab book presents an entirely different approach to structural geology. Designed for undergraduate laboratory classes, it provides a step-by-step guide for solving geometric problems arising from structural field observations. The book discusses both traditional methods and cutting-edge approaches, with emphasis given to graphical methods and visualization techniques that support students in tackling challenging two- and three-dimensional problems. Numerous exercises encourage practice in using the techniques, and demonstrate how field observations can be converted into useful information about geological structures and the processes responsible for creating them. This updated fourth edition incorporates new material on stress, deformation, strain and flow, and the underlying mathematics of the subject. With stereonet plots and solutions to the exercises available online at www.cambridge.org/ragan, this book is a key resource for undergraduates, advanced students and researchers wanting to improve their practical skills in structural geology.

The first and oldest national park in the world can be enjoyed mile by mile with this complete travel guide. Along with

fascinating facts and anecdotes, readers will learn of Yellowstone's geyser basins and the frequency of the geysers, out-of-the-way hikes, and flora and fauna. Easy-to-understand scientific explanations and diagrams complement an array of short walks, the right season for camping, and the park's campgrounds and facilities. Updated road logs highlight more than 100 historical points of interest, including the often misidentified locale from which artist Thomas Moran painted his "Grand Canyon of the Yellowstone" masterpiece and where five stagecoach robberies occurred along the Grand Loop Road. New text examines areas that have changed in recent years, including the reconstructed Canyon-to-Dunraven Pass and the newly completed North Rim Drive at the Grand Canyon. Additionally, numerous new photographs feature historical and contemporary images.

The Principles of PETROLOGY

Closing the Opportunity Gap

The Search for Life Among the Stars

Five Billion Years of Solitude

Structural Geology: Fundamentals and Modern Developments

Engineering Geology is a multidisciplinary subject which interacts with other disciplines, such as mineralogy, petrology, structural geology, hydrogeology, seismic engineering, rock engineering, soil mechanics, geophysics, remote sensing (RS-GIS-GPS), environmental geology, etc. Engineers require a deeper understanding, interpretation and analyses of earth sciences before suggesting engineering designs and remedial measures to combat natural disasters, such as earthquakes, volcanoes, landslides, debris flows, tsunamis, and floods. This book covers all aspects of Engineering Geology and is intended to serve as a reference for practicing civil engineers and mining engineers. Engineering Geology has also been designed as a textbook for students pursuing undergraduate and postgraduate courses in advanced/applied geology and earth sciences. A plethora of examples and case studies relevant to the Indian context have been included, for better understanding of the geological challenges faced by engineers.

Volume 51 of Reviews in Mineralogy and Geochemistry highlights some of the frontiers in the study of plastic deformation of minerals and rocks. This book reviews large-strain shear deformation and deformation experiments under ultrahigh pressures; the issues of deformation of crustal rocks and the upper mantle; the interplay of partial melting and deformation; the new results of ultrahigh pressure deformation of deep mantle minerals; the stability of deformation under deep mantle conditions with special reference to phase transformations and their relationship to the origin of intermediate depth and deep-focus earthquakes; a detailed description of fracture mechanisms of ice; of experimental and theoretical studies on seismic wave attenuation; the relationship between crystal preferred orientation and macroscopic anisotropy; recent progress in poly-crystal plasticity to model the development of anisotropic fabrics both at the microscopic and macroscopic scale; a thorough review of seismic anisotropy of the upper mantle covering the vast regions of geodynamic interests and the theoretical aspects of shear localization. All chapters contain extensive reference lists to guide readers to the more specialized literature. This volume was written for a workshop, in December 2002 in Emeryville, California.

Presents a comprehensive and up-to-date account of the fundamental aspects of structural geology, emphasising both classical concepts and modern developments. A detailed account of the techniques of geometrical analysis is provided, giving a sound background to principles of geological deformation and in-depth analysis of mechanisms of formation of geological structures. Many new features are included such as detailed discussions on rotation of rigid inclusions and passive markers, boudinage (including chocolate tablet boudins, foliation boudins and shear fracture boudins), structural implications of basement-cover relations and time-relation between crystallation and deformation. The book presents the methods of structural analysis from microscopic to map scale, describes modern techniques used in field and laboratory and offers a balanced picture of modern structural geology as it emerges from combined field, experimental and theoretical studies. Hardback edition (0 080 41879 1) also available £ 50.00

Plastic Deformation of Minerals and Rocks

Structural Analysis and Synthesis: A Laboratory Course in Structural Geology, Second Edition

Elements of Petroleum Geology

Identifying and Managing Project Risk

"A definitive guide to astronomy's hottest field." –The Economist Since its formation nearly five billion years ago, our planet has been the sole living world in a vast and silent universe. But over the past two decades, astronomers have discovered thousands of "exoplanets," including some that could be similar to our own world, and the pace of discovery is accelerating. In a fascinating account of this unfolding revolution, Lee Billings draws on interviews with the world's top experts in the search for life beyond earth. He reveals how the search for exoplanets is not only a scientific challenge, but also a reflection of our culture's timeless hopes, dreams, and fears.

While the achievement gap has dominated policy discussions over the past two decades, relatively little attention has been paid to a gap even more at odds with American ideals: the opportunity gap. Opportunity and achievement, while inextricably connected, are very different goals. Every American will not go to college, but every American should be given a fair chance to be prepared for college. In communities across the U.S., children lack the crucial resources and opportunities, inside and outside of schools that they need if they are to reach their potential. Closing the Opportunity Gap offers accessible, research-based essays written by top experts who highlight the discrepancies that exist in our public schools, focusing on how policy decisions and life circumstances conspire to create the "opportunity gap" that leads inexorably to stark achievement gaps. They also describe sensible policies grounded in evidence that can restore and enhance opportunities. Moving beyond conventional academic discourse, Closing the Opportunity Gap will spark vital new conversations about what schools, parents, educators, and policymakers can and should do to give all children a fair chance to thrive.

Geologic maps supply a wealth of information about the surface and shallow subsurface of the earth. The types of materials that are present in a

location and the three-dimensional structure of the bedrock both can be gleaned from a clearly prepared geologic map. Geologists, civil and environmental engineers, land-use planners, soil scientists, and geographers commonly use geologic maps as a source of information to facilitate problem solving and identify the qualities of a region. Maps reveal the position of many types of natural hazards, indicate the suitability of the land surface for various uses, reveal problems that may be encountered in excavation, provide clues to the natural processes that shape an area, and help locate important natural resources. Suitable for lab courses in structural geology as well as field geology work, Spencer describes representative examples of features found on geologic maps and outlines procedures for interpretation and projection. Geometric techniques are explained using a step-by-step approach. Coverage of mapping methods includes tools that provide necessary data, such as Google Earth, GPS, GIS, LiDAR maps, drones, and aerial photographs. Challenging and engaging exercises throughout the text involve students in the mapping process and stimulate an appreciation of the extent and precision of information presented in geologic maps. Regional geology is an important component of lab and field mapping projects. As such, the Third Edition includes new maps of the Gulf of Mexico Coastal Plain, Rocky Mountain Front Range, Yellowstone region, Moab, Utah, Shenandoah National Park, and Hawai'i. A new chapter devoted to tectonic maps also broadens students' exposure. Ed Spencer brings over 45 years of teaching experience to the text along with valuable insight and clarity into the interpretation and preparation of geologic maps.

Second Edition

A Practical Guide to Quantitative Surface and Subsurface Map Interpretation

Study and Interpretation of the Chemical Characteristics of Natural Water

Fundamentals of Historical Geology and Stratigraphy of India

Structural Geology