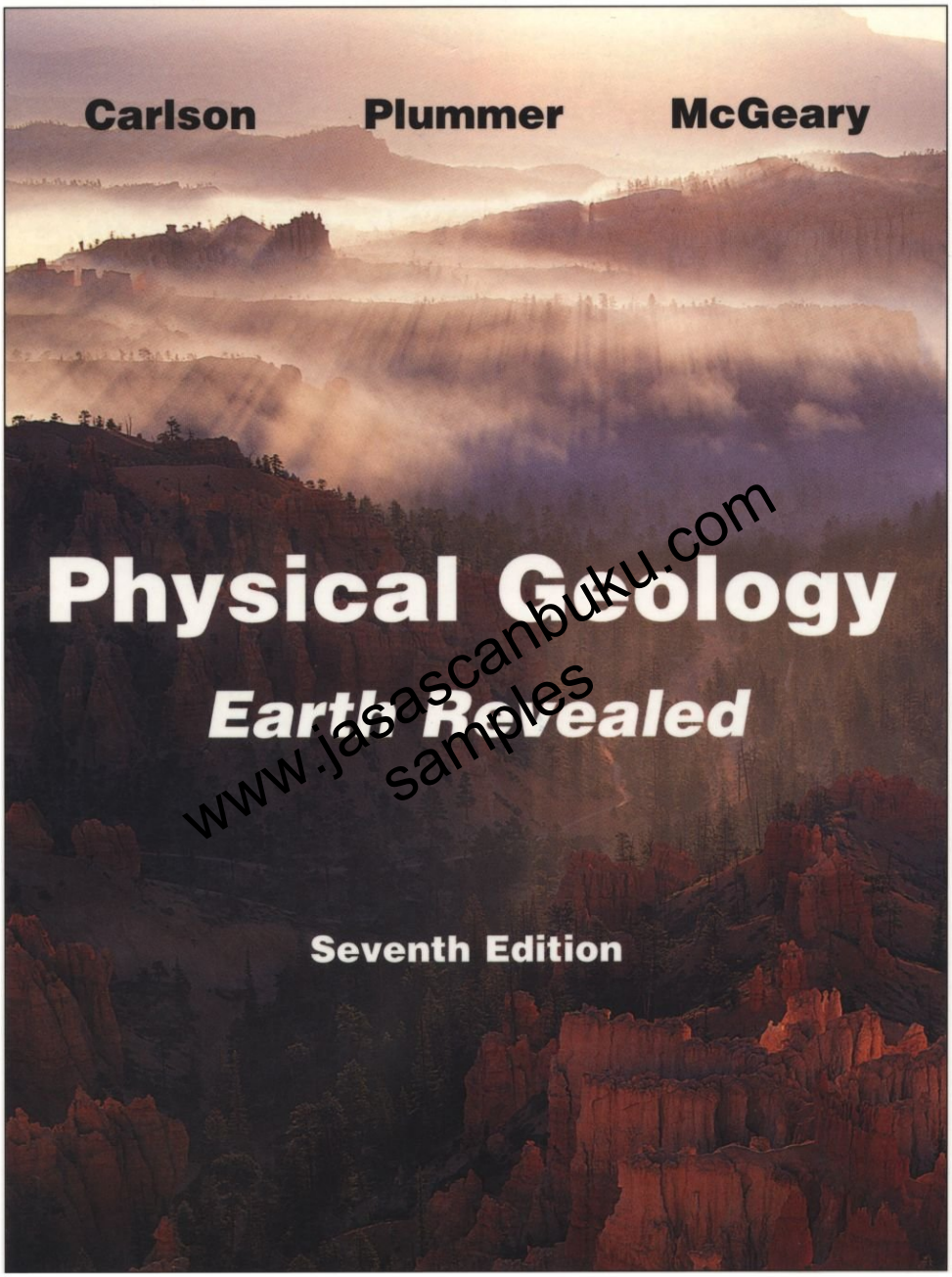


McGRAW-HILL INTERNATIONAL EDITION

Generalized Geologic and Tectonic Map of North America

SEDIMENTARY UNITS

Thick deposits in structurally negative areas

Paleozoic and Mesozoic active margin deposits

Synorogenic and postorogenic deposits

Paleozoic and Mesozoic passive margin deposits

Late Precambrian deposits
Of Middle and Upper Proterozoic ages

VOLCANIC AND PLUTONIC UNITS

Postorogenic volcanic cover

Ultramafic rocks

Granitic plutons
Ages are generally within the span of the tectonic cycle of the foldbelt in which they lie

SPECIAL UNITS

Former subduction complex rocks of the Pacific border

Exposed parts of Ouachita foldbelt

Probable western extension of Innuitian foldbelt
In cores of northern Alaska ranges

PLATFORM AREAS

Ice cap of Quaternary age
On Precambrian and Paleozoic basement

Platform deposits on Precambrian basement
In central craton

Platform deposits on Paleozoic basement
In Atlantic and Gulf coastal plains

Platform deposits within the Precambrian
Mainly in the Canadian Shield

PRECAMBRIAN

Basement igneous and metamorphic complexes mainly of Precambrian age

Grenville foldbelt
Deformed 880–1,000 m.y. ago

Hudsonian foldbelts
Deformed 1,640–2,600 m.y. ago

Kenoran foldbelts
Deformed 2,390–2,600 m.y. ago

Anorthosite bodies
Plutons composed almost entirely of plagioclase

STRUCTURAL SYMBOLS

Normal fault
Hachures on downthrown side

Strike-slip fault
Arrows show relative lateral movement

Thrust fault
Barbs on upthrown side

Subsea fault

Salt domes and salt diapirs
In Gulf coastal plain and Gulf of Mexico

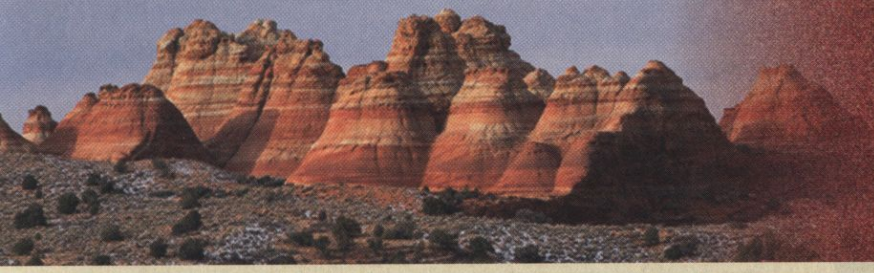
Volcano

World's oldest rock

Contours on basement surfaces beneath platform areas
All contours are below sea level except where marked with plus symbols. Interval is 1,000 meters

Modified from the Generalized Tectonic Map of North America by P.B. King and Gertrude J. Edmonston, U.S. Geological Survey Map I-688

CONTENTS



PREFACE

WHY USE THIS BOOK?

One excellent reason is that it's tried and true. *Physical Geology: Earth Revealed* is a classic in introductory geology classes that has evolved into a market-leading text read by thousands of students. Proportionately, geology instructors have relied on this text to explain, illustrate, and exemplify basic geologic concepts to both majors and non-majors. Today, the 7th edition continues to provide contemporary perspectives that reflect current research, recent natural disasters, unmatched illustrations, and unparalleled learning aids. We have worked closely with contributors, reviewers, and our editors to publish the most accurate and current text possible. The most exciting element of the new edition is the presentation of 300+ new illustrations, created by the artistic skill of Cindy Shaw. Ideas that shaped the development and articulation of new figures resulted from the numerous recommendations of a group of geology instructors.

APPROACH

Our purpose is to clearly present the various aspects of physical geology so that students can understand the logic of what scientists have discovered as well as the elegant way the parts are interrelated to explain how Earth, as a whole, works.

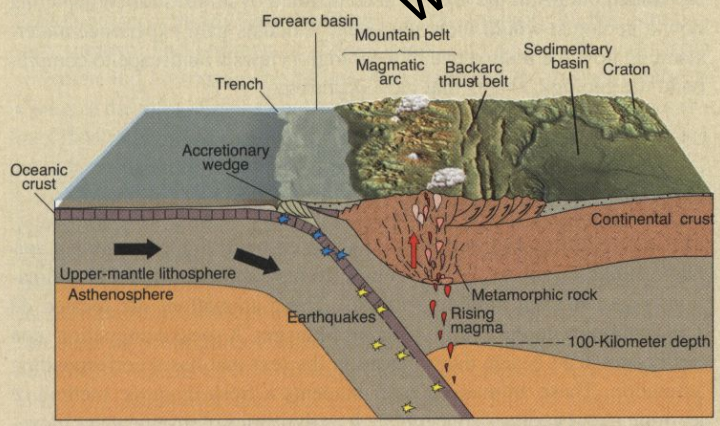
This book contains the same text and illustrations as the eleventh edition of *Physical Geology* by Plummer, Carlson and McGeary. The chapter order has been changed so that internal processes (plate tectonics, earthquakes, etc.) are covered in the first part of the book and external processes (rivers, glaciers, etc.) are described toward the end of the book. This ordering is favored by many geology instructors. As in the eleventh edition of Physical Geology, the theme of interrelationships between plate tectonics and major geologic topics is carried throughout this book.

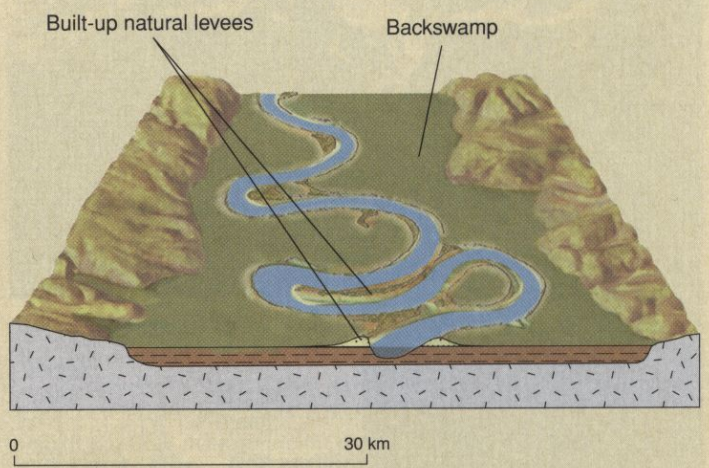
We recognize that many instructors organize their courses in different ways. Therefore, we have made groups of chapters and individual chapters as self-contained as possible, allowing for customization. Those chapters on surficial processes can be covered earlier or later in a course. Many instructors prefer covering geologic time at the start of a course. If you would like to customize this text to fit your course needs or provide an online text for your students, please contact your McGraw-Hill representative.

NEW TO THE SEVENTH EDITION

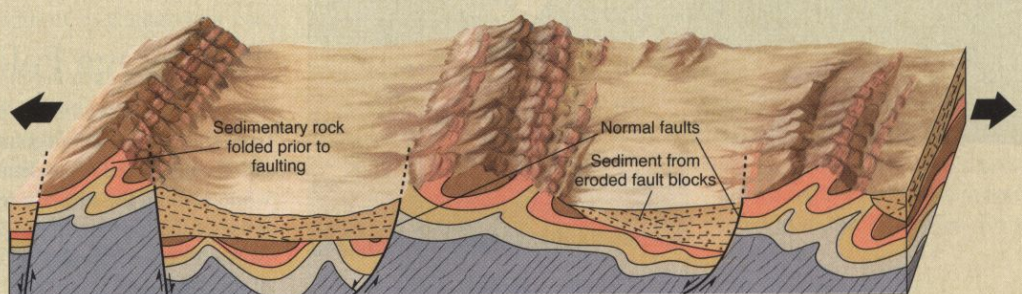
Superior Art Program

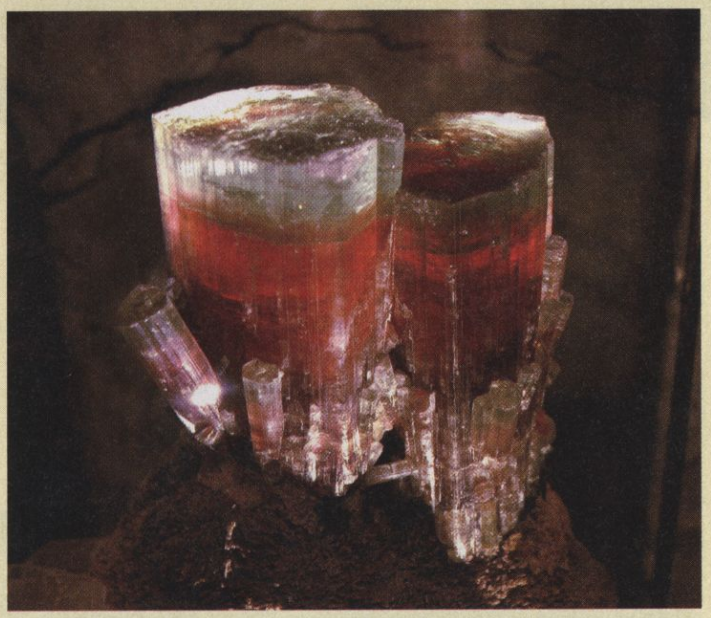
Geology is a visually oriented science and one of the best ways a student can learn it is by studying illustrations and photographs. This new edition includes an updated art program that will not only aid to understanding, but also engage a student's interest.





The revised and new pieces of art were created by Cindy Shaw from Richland, Washington. Cindy used her expertise as a geological illustrator to provide realistic and beautiful illustrations.





In this new edition, 300 illustrations have been revised or created from scratch. An art focus group composed of geology professors originally met with the authors and illustrator to determine which pieces needed to be updated. Once the pieces were rendered, the members of the focus group and other geology professors provided feedback on how to make the illustrations as effective and accurate as possible.

This edition also includes over 130 new photos. This book has been enhanced by the photographs of Dr. Parvinder Sethi of the Geology Department, Radford University, Virginia.

"A Geologist's View" Features

Seventeen photos in the text are accompanied by an illustration depicting how a geologist would view the scene. Students gain experience understanding how the trained eye of a geologist views a landscape to comprehend the geologic events that have occurred.

New Animations

McGraw-Hill is proud to bring you an assortment of 43 outstanding animations like no others. These include 20 new animations and 23 animations retained from previous editions. These animations are located on ARIS and also on the Digital Content Manager. A special animation icon has been placed beside every figure in the text that has a corresponding animation. These animations offer students a fresh dynamic method of learning about geology concepts such as dynamics of groundwater movement, isostacy, plate tectonics, and more.

Three Page Fold Out

This has been added to the back of the text for students' reference. The front side of the foldout contains a geographic map of the world. This fold out is constructed so students can easily leave it folded out and refer to it while reading the text. By referencing this fold out students gain a better sense of the location of the places that are mentioned within the text. The North America Tapestry of Time and Terrain Map is located on the back of this fold out.