

ORIGIN AND EVOLUTION OF EARTH

Principles of Historical Geology

Kent C. Condie • Robert E. Sloan

In this book, plate tectonics is placed at a central position and the history of Earth is considered not only from the more conventional surface approach, but also of Earth as a whole and as a member of the Solar System. Many subjects that we consider an essential part of Earth history and that are often omitted or only covered in a superficial manner in beginning historical geology texts are included to give the student a more in-depth and accurate picture of the complexities of the history of Earth and of life. Among these are the origin and evolution of the crust, mantle, and core as well as the atmosphere and oceans; comparative planetary evolution; a survey of important isotopic dating methods; the study of ancient climates; the origin and evolution of life; and the early history of Earth. New and exciting developments are introduced at appropriate places in the text. Examples are the nature of Earth's oldest rocks, the origin of continents, extraterrestrial impact and mass extinctions of organisms, rates of organic evolution, and recent developments on the origin of humans.

Our approach to historical geology attempts to define a standard core of essential material and to explain relationships between data sets and interpretations. Principles and concepts are more important in an introduction to historical geology than is the history of given region or group of organisms.

Unlike most historical geology textbooks, we assume the student has been exposed to other science courses, at least in high school if not in college. In particular, biology and physical geology are helpful prerequisites to the study of Earth history. Although this approach to historical geology is most suitable for science and engineering majors, we feel it can also be adapted for nonscience majors.

About the Authors

Kent C. Condie is professor of geochemistry at New Mexico Institute of Mining and Technology, where he has taught since 1970. Prior to that time he was at Washington University in St. Louis, MO. His textbook, *Plate Tectonics and Crustal Evolution*, which is widely used in upper division and graduate courses in the Earth Sciences, was first published in 1976 and has gone through four editions, the most recent in 1997. Condie has also written a treatise, *Archean Greenstone Belts* (Elsevier, 1981), and has edited two books, *Proterozoic Crustal Evolution* (Elsevier, 1992) and *Archean Crustal Evolution* (Elsevier, 1994). Condie's research, primarily dealing with the origin and evolution of continents and the early history of Earth, has over the years been sponsored chiefly by the U. S. National Science Foundation. He is author or co-author of over 250 articles published in scientific journals.

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Preface, vii

Chapter 1

Geologic Time and Fossils, 1

Introduction, 2

What is Time? 3

Some Basic Geologic Definitions, 4

The Fossil Record, 4

Modes of Preservation of Fossils, 4

Principles of Historical Geology, 9

Units of Historical Geology, 11

The Absolute Time Scale, 12

Principles of Radioactive Decay, 14

Isotopes Produced by Cosmic Rays, 17

Other Dating Methods, 19

Events That Can be Dated, 19

Precision of Accuracy of Ages, 22

Calibration of the Geologic Time
Scale, 23

The Geomagnetic Time Scale, 23

Rhythmic Bands, 25

Summary Statements, 27

Study Questions, 28

Important Terms, 28

Summary of Units, 29

Further Reading, 29

Chapter 2

Plate Tectonics, 30

Introduction, 31

Geological Evidence for Continental
Drift, 33

Paleomagnetism, 34

Sea-floor Spreading, 35

Plate Boundaries, 41

The Wilson Cycle, 46

Mountain Building and Plate Tectonics, 47

Isostasy, 48

Terrances, 48

Hotspots and Mantle Plumes, 48

Supercontinent Cycles, 52

Ancient Tectonic Settings, 52

Effect of Plate Tectonics on

Organisms, 59

Forces Driving Plates, 59

Summary Statements, 60

Study Questions, 60

Important Terms, 61

Further Reading, 61

Chapter 3

Origin of the Solar System, 62

Why Study the Solar System? 63

General Features of the Solar System, 63

Age of the Earth and Solar System, 64

Major Bodies of the Solar System, 65

Planetary Interiors, 72

Planetary Processes, 76

Planetary Tectonics, 81

Origin of the Universe and the Solar System, 85

Summary Statements, 93

Study Questions, 94

Important Terms, 94

Further Reading, 94

Chapter 4

Evolution of Earth's Crust, 96

Introduction, 97

The Possibility of a Magma Ocean, 97

The Earth's Thermal History, 98

The Origin of the Core, 100

The Evolving Mantle, 102

The Origin of the Crust, 105

Growth of the Crust, 108

Cratons, 112

Orogenic Episodes, 113

The Hadean Eon: The First 800 Million Years
of Earth History, 114

Summary Statements, 115

Study Questions, 115

Important Terms, 115

Further Reading, 116

Chapter 5

Earth's Atmosphere, Oceans, and
Climates, 117

Introduction, 118

Origin of the Atmosphere, 119

Possibility of a Primary Atmosphere, 120
The Secondary Atmosphere, 120
The Growth of Oxygen, 121
The Greenhouse Effect, 127
Comparative Evolution of the Atmospheres of Venus,
Earth, and Mars, 128
The Continuously Habitable Zone, 130
The Oceans, 131
Ancient Climates, 133
Summary Statements, 138
Study Questions, 139
Important Terms, 139
Further Reading, 140

Chapter 6

The Origin and Evolution of Life, 141

The Nature of Life, 142
The Origin of Life, 143
Experimental Studies, 144
Molecules to Organisms, 145
The First Cells, 146
The Environment for the Formation
of Life, 147
Prokaryotes and Eukaryotes, 148
Extraterrestrial Life, 150
Fossils, 151
How Evolution Works, 152
Modes of Evolution, 155
Evolutionary Laws, 162
Summary Statements, 165
Study Questions, 166
Important Terms, 166
Further Reading, 166

Chapter 7

Stratigraphy and Sedimentary Environments, 167

Introduction, 168
Sediments and Sedimentary
Rocks, 168
Sequence in Stratigraphy, 172
Unconformities, 172
Stratigraphic Correlation, 173
Sedimentary Facies, 177
Sedimentary Basins, 177
Transgression and Regression, 178
Global Sea Level, 179
Sediment Depositional Systems, 181
Paleoecology, 188

Paleosynecology: Community
Analysis, 192
Summary Statements, 193
Study Questions, 194
Important Terms, 194
Further Reading, 195

Chapter 8

The Precambrian Eon, 196

Introduction, 197
The Archean, 197
The Proterozoic, 206
The Origin of Metazoans, 216
The Ediacaran Fauna, 217
Rock Associations with Time, 217
Precambrian Plate Motions, 218
The Late Proterozoic Supercontinent, 220
Precambrian Climates, 220
Precambrian Mineral Deposits, 222
Summary Statements, 224
Study Questions, 225
Important Terms, 225
Further Reading, 226

Chapter 9

The Early Paleozoic Era: Cambrian and Ordovician Periods, 227

Introduction, 228
Paleogeographic Overview, 230
Tectonic Regimes, 232
The North American Craton, 237
Early Paleozoic Climates, 239
The Rapid Diversification of Early
Paleozoic Life, 241
Cambrian Life, 246
Ordovician Life, 251
Summary Statements, 258
Study Questions, 258
Important Terms, 258
Further Reading, 259

Chapter 10

The Middle Paleozoic Era: Silurian and Devonian Periods, 260

Introduction, 261
Paleogeographic Overview, 261
Tectonic Regimes, 264
The North American Craton, 265

The Great North American Reef System,	267
The Michigan Basin,	272
The Malvinokaffric Realm,	273
Mid-Paleozoic Climates,	275
Mineral Deposits,	276
Mid-Paleozoic Life,	277
Summary Statements,	284
Study Questions,	285
Important Terms,	285
Further Reading,	285

Chapter 11

The Late Paleozoic Era: Mississippian, Pennsylvanian, and Permian Periods, 286

Introduction,	287
Paleogeographic Overview,	289
Tectonic Regimes,	291
The North American Craton,	295
Late Paleozoic Life,	298
Cyclothems,	298
Late Paleozoic Coal Deposits,	302
Late Paleozoic Life,	303
Summary Statements,	319
Study Questions,	320
Important Terms,	320
Further Reading,	320

Chapter 12

The Early Mesozoic Era: Triassic and Jurassic Periods, 321

Introduction,	322
Paleogeographic Overview,	322
The Cordilleran Orogenic Belt,	325
The North American Craton,	332
Early Mesozoic Mineral Deposits,	335
Early Mesozoic Life,	336
The Origin of Mammals,	346
The Origin of Birds,	346
The Terminal Triassic Extinctions,	346
Summary Statements,	347
Study Questions,	348
Important Terms,	349
Further Reading,	349

Chapter 13

The Cretaceous Period, 350

Introduction,	351
Paleogeographic Overview,	351

The Cordilleran Orogenic System,	353
The North American Craton,	357
Cretaceous Climates,	359
Cretaceous Superplumes,	361
Oil, Gas, and Coal,	362
Cretaceous Marine Life,	363
Cretaceous Terrestrial Life,	367
The Mid-Cretaceous Extinctions,	370
Extinctions at the End of the Cretaceous,	371
Causes of Extinctions at the K/T Boundary,	373
Summary Statements,	378
Study Questions,	379
Important Terms,	380
Further Reading,	380

Chapter 14

The Cenozoic Era I: Tertiary Period, 381

Introduction,	382
Paleogeographic Overview,	382
The Cordilleran Orogenic System,	385
The Alpine Orogenic System,	393
The East African Rift System,	395
The Himalayas,	395
The North American Craton,	397
Tertiary Climates,	397
Stratification of Seawater,	401
The Messinian Crisis,	402
Oil and Coal,	403
Mineral Deposits,	404
Cenozoic Mammal Evolution,	405
The Evolution of Horses,	410
Marine Faunas,	412
Cenozoic Impact Events,	412
Summary Statements,	413
Study Questions,	414
Important Terms,	415
Further Reading,	415

Chapter 15

The Cenozoic Era II: Quaternary Period, 416

Introduction,	417
Tectonic Features of North America,	417
Plate Tectonics and the Future,	420
Pleistocene Glaciation,	421
Earthquakes and Volcanic Eruptions,	430

The Evolution of Humans,	433
Pleistocene Extinctions,	442
Resources and the Future,	444
Summary Statements,	447
Study Questions,	448
Important Terms,	448
Further Reading,	448

Photos of Fossils,	467
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Glossary,	472
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Index,	485
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Appendices, 452

- I.** Minerals and Rocks, 452
- II.** Stages and Zones, 455
- III.** Biological Classification, 458