THE GEOLOGY OF NORTH AMERICA—AN OVERVIEW

The Geology of North America
The Geology of North America
Volume A

The Geology of North America;
An Overview

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**Front Cover:** A nearly full Earth showing much of the western Hemisphere. Photo taken by astronauts on board Apollo 16, April 10, 1972. NASA image E-1358-99CT.
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Preface

The Geology of North America series has been prepared to mark the Centennial of The Geological Society of America. It represents the cooperative efforts of more than 1,000 individuals from academia, state and federal agencies of many countries, and industry to prepare syntheses that are as current and authoritative as possible about the geology of the North American continent and adjacent oceanic regions.

This series is part of the Decade of North American Geology (DNAG) Project which also includes eight wall maps at a scale of 1:5,000,000 that summarize the geology, tectonics, magnetic and gravity anomaly patterns, regional stress fields, thermal aspects, seismicity, and neotectonics of North America and its surroundings. Together, the synthesis volumes and maps are the first coordinated effort to integrate all available knowledge about the geology and geophysics of a crustal plate on a regional scale.

The products of the DNAG Project present the state of knowledge of the geology and geophysics of North America in the 1980s, and they point the way toward work to be done in the decades ahead.

In addition to the contributions from organizations and individuals acknowledged at the front of this book, major support has been provided to one of the editors (AWB) of this volume by Rice University, Houston, Texas.

A. R. Palmer
General Editor for the volumes published by The Geological Society of America

J. O. Wheeler
General Editor for the volumes published by the Geological Survey of Canada
Foreword

When the Decade of North America Geology Project got under way, it was planned that one of us (AWB) would write this book as a summary of all the volumes of *The Geology of North America*. As the DNAG Project evolved, it became evident that delays in the final publication of some contributions would seriously compromise this ideal plan. Also, we wanted to have some kind of overview of the geology of North America available in time for the International Geological Congress to be held in Washington in the summer of 1989. We therefore modified our original plan and prepared this multi-author volume.

Instead of a comprehensive and uniform synthesis, we now offer a series of papers that we hope cover many, if not most, key aspects of the regional geology of North America. Some of the authors of this volume are also authors and/or editors of some of the other volumes of this series. We encouraged the authors to make their chapters a personal statement, which left them free to choose their own paths between encyclopedic completeness and their own idiosyncratic perspectives. Thus, John Wheeler, in reviewing a manuscript co-authored by one of us (AWB) pointed out that some of the papers may represent more “a point of view” rather than an “overview.” Fortunately, it is precisely that diversity of points of view that is the strength of earth sciences in North America!

We expect our readers to be geologically knowledgeable people who want an introduction to the geology of North America that goes beyond the boundaries of their own individual areas of specialization. We also sense that this book may help foreign geologists find useful background for analogs from North America that may help to elucidate some of their own problems. Furthermore, we hope to see this book used as base for graduate and undergraduate seminars.

We encourage readers who wish to dig deeper to consult the other volumes of *The Geology of North America*. These and their tables of contents are listed in Appendix A. All of the chapters in this overview volume are accompanied by key references, some have additional references that are listed on microfiche in the back of the volume.

We are most grateful to all the authors who were under considerable pressure to produce a summary within about 12 months time. Many authors hoped for more time, but alas, in view of the deadline given by the date of the Geological Congress, this was not possible. We thank all authors for bearing as patiently with us, as we did with them.

The Editors
March 1989