
PREFACE

This volume is intended to provide earth scientists with a broad, multidisciplinary overview of the late Paleozoic to Recent geological evolution of the continents and shelves bordering the North Atlantic Ocean, the Norwegian-Greenland Sea, the Arctic Ocean, and the Mediterranean Sea.

The evolution of these seas has been the subject of many comprehensive studies and compilations, which discuss the evolution of oceanic basins on the basis of their magnetic sea-floor anomalies. The volume presented here combines this information with geological data from the adjacent shelf and onshore areas. It retraces the evolution of sedimentary basins developed during the rifting phases that preceded the opening of these oceans and highlights the scope of the associated intraplate phenomena. Moreover, the author presents a reconstruction of the late Paleozoic and early Mesozoic development of Europe, northernmost Africa and northeastern North America-Greenland and discusses the different orogenic cycles that accompanied the stepwise assembly of Pangea and the early rifting phases heralding its break-up.

This volume gives an account of almost continuously changing plate boundaries, of plate kinematics and interactions, and of the dynamics of basin evolution. Its contents are based on published literature and on data gathered by Shell Companies and its affiliates in the course of their exploration activities in the sedimentary basins of Western Europe, North Africa, and Canada.

P.A. Ziegler has undertaken the task of integrating this mass of information in this compilation. In spring 1986, he presented a summary of these studies during his American Association of

Petroleum Geologists Distinguished Lecturer tour to 26 universities and petroleum societies in the United States and in Canada. The content of these lectures has been made available to the public through the AAPG slide-tape program under the title "Evolution of the Arctic-North Atlantic Rift System."

The reader will appreciate that the scope and framework of this compilation does not always allow full documentation of the interpretations given in the attached maps and diagrams. Furthermore, some of these data cannot be divulged owing to their proprietary and confidential nature. Yet, despite these constraints, Shell wishes to contribute to the advancement of earth sciences in general and to the further understanding of the geological history of Europe in particular by releasing this book for publication.

P.A. Ziegler is the current chairman of Working Group 3 of the Inter-Union Commission on the Lithosphere; Working Group 3 is charged with the study of intraplate phenomena. This volume is designated publication no. 0144 of the International Lithosphere Programme. As such it represents Shell's and the author's contribution to this international, interdisciplinary research program, which seeks to elucidate the nature, dynamics, origin and evolution of the lithosphere.

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