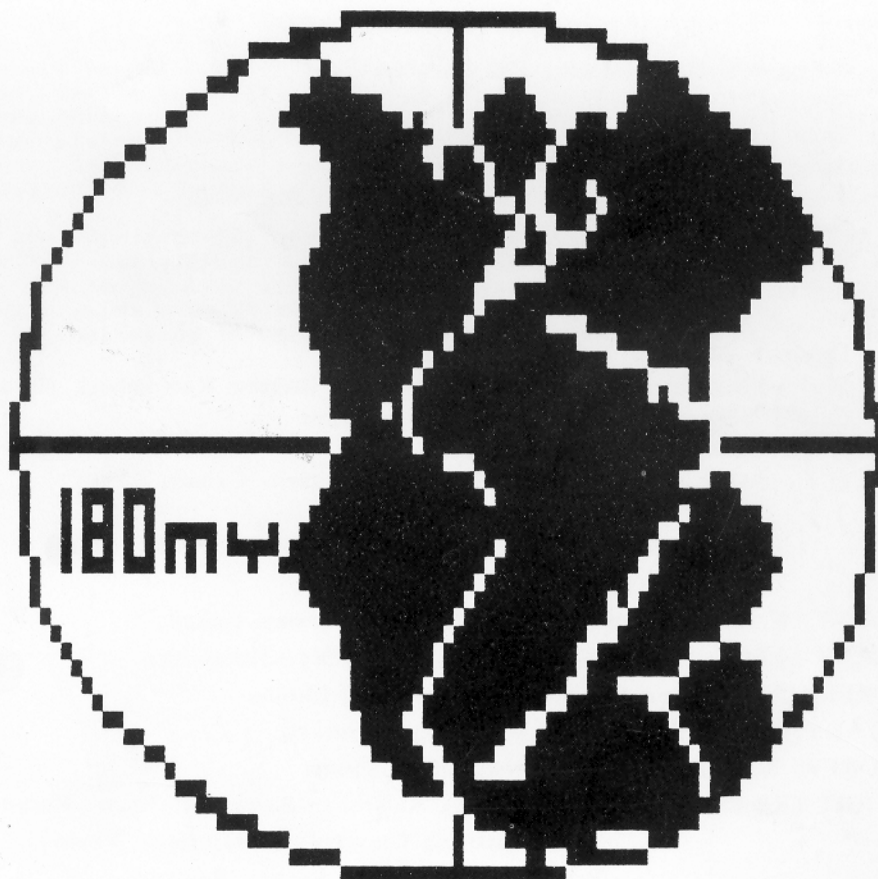


# ***EARTH SCIENCES HISTORY***

JOURNAL OF THE HISTORY  
OF THE EARTH SCIENCES SOCIETY

VOLUME 4, NUMBER 2, 1985

## **PLATE TECTONICS**



## **BIOGEOGRAPHY**

SPECIAL ISSUE EDITED BY  
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## PLATE TECTONICS AND BIOGEOGRAPHY

In 1984, the editors convened a symposium at the 150th Annual Meeting of the American Association for the Advancement of Science, held in New York City. The session on "Plate Tectonics and Biogeography" was sponsored by the Pacific Division of AAAS and Sections E (Geology and Geography) and L (History and Philosophy of Science) of national AAAS. Two years earlier, Drs. Harold L. Burstyn, U. S. Geological Survey (Reston) and Henry Frankel, University of Missouri (Kansas City), organized a symposium for the 148th Annual Meeting of AAAS in Washington, DC titled "What Happened to the Idea of Moving Continents After Wegener Proposed It?" Most of the papers in this special issue of *Earth Sciences History* are extensively revised and enlarged versions of the papers presented at the symposia. Two of the papers were not given in either New York or Washington, Rachel Laudan's essay on Frank Bursley Taylor and Paul Tasch's on Charles Darwin. The editors elected to include both to insure a balanced presentation.

The papers that follow explore the connection among scientific disciplines when dealing with common problems: the fossil record and the distribution of organisms. They examine in considerable detail how the present-day paradigm of plate tectonics came to be accepted. They also lay out the historical record, examine the philosophical consequences, and look at the emerging synthesis of plate tectonics and biogeography. The theories of early biogeographers, such as Alfred Russel Wallace and his contemporaries, were consonant with the views of permanency of ocean basins and fixity of continents, views promulgated by geologists of the period. In the early twentieth century a "drift" hypothesis that challenged the conventional wisdom of continents and ocean basins rigidly fixed in time and space was put forth. Reaction to the idea of mobile continents by geologists and geophysicists was mostly negative in Western Europe, Great Britain, Russia and elsewhere. Also, most biogeographers, especially in the United States, refused to accept the suggestion that continents were mobile. Some geologists and some biogeographers, especially those dealing with plants, felt otherwise. Both camps sought support for their views from the domains of biogeography and geophysics. Whatever its merits in explaining patterns of plant and animal distributions, the "drift" paradigm bogged down because of geophysical considerations. In the 1960s the theory of plate tectonics, mobile crustal plates, emerged to explain how continents change across time. Current geophysical theory has given biogeographers a compelling and powerful new tool to examine and explain plant and animal distributions and to test rival paradigms in evolutionary and systematic biology.

The editors and officers of the History of Earth Sciences Society and the editors of this special issue wish to express their appreciation to the Pacific Division, American Association for the Advancement of Science, for its assistance in preparing camera-ready copy for this issue of *Earth Sciences History*. We also thank Ellis Yochelson, U. S. Geological Survey (ret.), for his timely assistance in contacting authors and refereeing manuscripts for this issue.

Alan E. Leviton and Michele L. Aldrich, Editors

December 23, 1985