
BOOK REVIEW

Annual Review of Earth and Planetary Sciences— Vol. 10, Edited by G. W. Wetherill, A. L. Albee and F. G. Stehli. (Annual Reviews Inc. 4139 El Camino Way, Palo Alto, California 94306, USA), 1982, pp. 544. Price: \$22.00 USA; \$25.00 elsewhere.

This volume contains twenty good research review articles, covering a wide spectrum of Earth and Planetary Sciences. The prefatory article in each volume is an inspiring autobiography by an eminent scientist. In this volume, J. Tuzo Wilson vividly narrates how his career in geophysics was influenced by varied circumstances. R. L. Armstrong traces the myriad complexities of lithosphere failure in Pacific-type continental margins as exemplified by the Cordilleran core complexes of North America. Closely associated in space is the Basin and Range Province in the western Cordillera, which is described by G. P. Eaton with emphasis on geodynamics. K. C. McDonald provides an overview of the tectonic, volcanic and hydrothermal processes within mid-ocean ridges and stresses the need for a three dimensional model of spreading centres. K. J. Hsü outlines the significant contribution of deep sea drilling to the recent revolution in earth sciences inspired by seafloor spreading and plate tectonic theories. R. Van der Voo reviews the current state of paleomagnetism in relation to pre-Mesozoic plate tectonics and stresses that uncertainties abound as we travel back into the Precambrian. D. L. Turcotte highlights the need to understand magma migration mechanisms at plate margins, through detailed studies of ophiolites and mantle xenoliths in kimberlites. H. N. Pollock relates the terrestrial heat flow studies to tectonic evolution of continental lithosphere and makes a fervent plea for the integration of thermal, rheologic and petrologic parameters into a unified theory of continental evolution. I. G. Donaldson gives a fascinating account of modeling of geothermal systems and the complex factors which govern the estimation of energy reserve of a geothermal reservoir. Z. Suzuki outlines the recent advances made in earthquake prediction based on search for a precursor, and pleads for further intensive research.

D. Rumble III attempts a historical review of the "inert" and "perfectly mobile" components in metamorphism, particularly about the current understanding of the concepts of Korzhinskii and Thompson. N. Shimizu and S. R. Hart describe the application of ion microprobe techniques in geology and rightly

emphasize that although it is not yet a routine analytical tool, it promises to revolutionise the fields of geochemistry and cosmochemistry. F. P. Van Houten and D. P. Bhattacharyya summarise the stratigraphic record of Phanerozoic oolitic ironstones, identify the characteristic basins where they accumulate and propose a facies model for them.

K. Bryan reviews an active field of oceanographic research in which the poleward transport of heat from the equator by the earth's fluid envelope is studied. W. Lick explains how and where the invaluable source of fresh water in Great Lakes are contaminated so that the means to minimise adverse effects of these wastes are found. A. K. Behrensmeyer explains how the global tectonic and climatic patterns during the last fifteen million years have helped to shape the course of human evolution, in the same way the past environments influenced the evolution and extinction of various organisms.

There are four exciting articles on planetary sciences namely: Interior of the giant planets (D. L. Stevenson), Halley's comet (R. L. Newburn Jr. and D. K. Yeomans), Dynamical constraints on the formation and evolution of planetary bodies (A. W. Harris and W. R. Ward), and Regoliths on small bodies in the Solar System (K. R. Housen and L. L. Wilkening).

In the Cumulative Index of Chapter Titles given at the end, the various articles of this volume are listed under different subdisciplines such as geochemistry, oceanography, tectonophysics etc. If these articles are arranged in a similar manner in the text itself it would facilitate easy reading.

The present volume maintains the high standards of the earlier volumes. In each of the disciplines of the Earth and Planetary Sciences, there is a prolific growth of literature stemming from continuing research and the Annual Reviews such as this help the non-specialist to cope with these advancements. These volumes are therefore an invaluable asset to every earth science library.

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