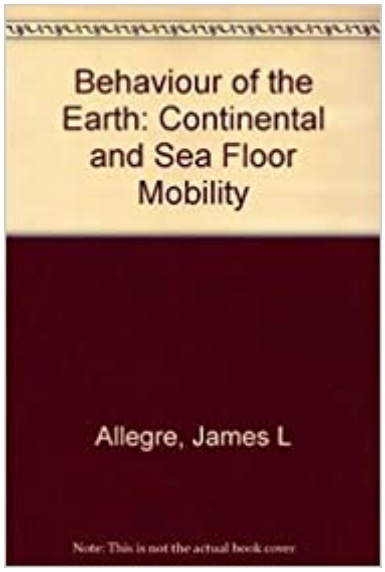
The Behavior Of The Earth: Continental And Seafloor Mobility



Synopsis

Well over a century after Darwin gave biology its unifying theory of evolution, the earth sciences experienced a similar revolution and the theory of plate tectonics took hold. Plate tectonics posed the idea that the earth's crust is divided into a number of large, thin plates always in motion relative to one another. In The Behavior of the Earth, world-renowned earth scientist Claude AllÃ¨gre sets forth the exciting events in this contemporary revolution from its first stirrings in the nineteenth-century and Alfred Wegener's original model of continental drift (1912) through the development of its full potential in modern plate-tectonic theory. Few scientific theories have been so all-encompassing, and none has surpassed plate tectonics in explaining such a wide variety of geological phenomena, from the origins of mountain building to the formation of the ocean floor. As it integrated our knowledge of the earth's surface with the investigation of its interior, plate tectonics fused two previously autonomous strains of scientific inquiry. Continental mobility changed for all time our view of the earth from a static globe to an evolving, living planet, and allowed us to see that changes in the earth's surface are but exterior manifestations of a dynamic interplay of forces within the crust and the mantle. AllÃ¨gre casts his lucid exposition of this scientific theory within the historical context of its struggle for acceptance. As he introduces us to the huge cast of personalities and researchers who contributed to the theory, he illuminates the complex role that the scientific community plays in the proliferation and acceptance of new ideas. AllÃ¨gre is as insightful in discussing the human motivation for scientific endeavor as he is skillful in presenting the science that results from this effort. Richly illustrated and including a glossary, this book offers the reader rare access both to the central theory of plate tectonics and to the constellation of problems and possibilities that preoccupy earth scientists today.

Book Information

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Customer Reviews

Text: English, French (translation)

Claude AllÃ¨gre is Professor of Earth Sciences, UniversitÃ¨ de Paris, and a 1986 recipient of the Crafoord Prize awarded by the Royal Swedish Academy of Sciences.

I started reading Vincent Courtillot's Evolutionary Catastrophes (volcanism) first in order to gain a handle on the mass extinction argument and found that this book challenges Walter Alvarez's book T. Rex And The Crater of Doom (comet or asteroid bombardment). Therefore, I started reading that at the same time; which got me to pull out and start skimming David Levy's Impact Jupiter (comet expert). In the meantime, I thought it prudent to start reading The Behavior of the Earth by Claude Allegre (plate tectonics), and picked up Steven Stanley's book Extinction (global climate change). Recently I saw via a Google search that Linda Elkins-Tanton now thinks that perhaps meteorite bombardment could have allowed hot magma to vent thus causing global climate change and hence the mass extinctions. This is fun!

The grumpiness and even hidebound intransigence of 'traditional geologists' who see their entire geological worldview literally swept away by the breathtaking scope of Plate Tectonic theory is a fascinating aspect of the human side of science shown in books such as John McPhee's. McPhee himself notes this, referring to geosynclines -- a mainstay of the 'old' geology -- as "a rational fiction", and that "he is following a science as it lurches forward from error to discovery and back to error" (referring to an early mis-constructions).A book I glanced through, _The Colorado Plateau : a geologic history_, by Daniel L. Baars, has an editorial-style Preface written by just such an annoyed 'old geologist', excoriating the "religious fervour" shown by adherents to the new theory. And I might add that, after reading several books with PT as a basis, I found this book (written in the '70s and re-printed), with it's 'old-style' terminology and complete lack of the plate-tectonic grand-scale overview of why such-and-such a geological feature is there in the first place, to be quite unreadable and boring in the extreme._The Behavior of the Earth: Continental and Seafloor Mobility_, on the other hand, is neither boring nor unreadable, while providing an excellent historical approach to presenting PT theory, from Wegener to the current period (1988 was the date of publication, but this

is no drawback from this general reader's perspective). It pays very welcome attention to the subject from a History of Science perspective, with careful attention to the scientists who provided each new advancement, while explaining the technical aspects of the theory with many pictures and diagrams. I found it an excellent supplement to McPhee's books, which mostly lack visuals to fill out his word-pictures, and I referred many times to the seafloor-spreading and ocean-basin maps while reading McPhee.rms

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