

# ***A Continent Revealed: The European Geotraverse***

*Edited by Derrick Mundell, Roy Freeman, and Stephen Mueller, Published by the Cambridge University Press. 1992. ISBN: 0-521-42948-X. 275 pages.*

## **Review by Christopher G. Kendall**

This book attempts to unravel the geological history and results of the European Geotraverse Study (EGT) of the continent of Europe, which has resulted in the development of the first comprehensive cross-section of the continental lithosphere. The book has been put together by a number of key geoscientists, who worked on the European Geotraverse Project, and represents the culmination of some ten years of experiments. This book is intended as a starting point for further work along the line of traverse. This Geotraverse is divided into three segments: the Precambrian Baltic shield of Fennoscandia, the Variscan realm, and the Alpine Mediterranean region. This well-defined program of linked experiments involving international collaboration between different countries and geological department's surveys, etc. was designed to attempt to understand the evolution of the continental lithosphere and its dynamics. Workshops, experimental programs, and networks of earth science study centers were put together and symposiums were held to present results and ideas. This volume represents the compilations from the study and is broken down into seven chapters, which are further subdivided. There's an initial chapter explaining why the traverse was made through Europe, with discussions of mobile Europe in terms of its plate tectonics, paleomagnetic and kinematic histories, how the orogen declined and fell, and a chapter on how Europe's crust evolved. Under the heading of Europe's lithosphere and seismic structure, there's a discussion of the seismic methods for exploring the crustal upper mantle of Europe, the seismic exploration of the crust along the EGT and the seismic exploration of the upper mantle of the EGT. This is followed by a chapter on Europe's lithosphere, its physical properties, mechanical structure, evidence from xenoliths for the composition of the lithosphere. Finally, there is a chapter on the integrated lithospheric cross-section.

Under the heading of "Europe's lithosphere, recent activity", a series of seismic maps and discussions are presented on the seismicity along the line of the traverse, the state of stress, recent crustal movements, recent volcanism, and transient heat flow. Under the heading of "tectonic evolution of Europe", there is a discussion that begins with the Precambrian and extends through to the Variscan and Phanerozoic structures. There's a discussion of Alpine orogeny, the fragmentation of the Adriatic microplate with a discussion of the evolution of the Southern Alps, the Po Valley, and the Northern Apennines, a discussion of Sardinia and the Atlas in Tunisia and finally, a chapter on the recent tectonics of the Mediterranean.

In the final section of the book, there's a discussion on the geodynamics of Europe; how geology works; what drives the geotectonic processes; what drove the processes in the past; and what lies in the future.

This book is well illustrated by clear maps and has involved a huge number of scientists from various institutions across Europe including Switzerland, Denmark, Spain, the U.K., the Netherlands, Germany, Italy, and even the U.S.A. It is a good collection of well-referenced information and would be a tremendous use for anybody who is studying the geological history of Europe, particularly along the line of the traverse from Scandinavia to Italy. It will also be useful to scientists when they need to have a better understanding on how the lithosphere has evolved through time in Western Europe.

The book is broad brush in its approach and should be in most oil company and university libraries. It's not necessarily a book for your own shelves, unless you have a specific interest in the behavior of the Earth's lithosphere, particularly in Europe. It's an interesting book and is packed with information. It's professionally put together and is clear from the cartoon on page 8 that the people who were involved enjoyed working on the project and didn't take themselves too seriously.