Geoscience Canada

Exploration Seismology Volume 1: History, Theory and Data Acquisition

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Volume 11, numéro 1, march 1984

URI : https://id.erudit.org/iderudit/geocan11_1br01

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Éditeur(s)

The Geological Association of Canada

ISSN

0315-0941 (imprimé)
1911-4850 (numérique)

Découvrir la revue

Citer ce compte rendu

Wren, A. E. (1984). Compte rendu de [Exploration Seismology Volume 1: History, Theory and Data Acquisition]. *Geoscience Canada*, *11*(1), 55–55.

Book Reviews

Exploration Seismology Volume 1: History, Theory and Data Acquisition

By R.E. Sheriff and L.P. Geldart
Cambridge University Press
253 p., 1983, $29.95

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In the current crop of textbooks on Exploration Geophysics, or more specifically, Exploration Seismology, it is refreshing to find a publication that does more than simply pamper the neophyte with things with which he is already familiar. The textbook under review here has something for everyone involved in the practical business of exploring for oil and gas.

The text has its origins in Chapter 4 of an earlier published work, *Applied Geophysics*, by Telford, Geldart, Sheriff and Keys (CUP, 1976). In writing that chapter, the present authors were restricted by lack of space from including much material they would have liked to include. The present expanded version discusses several important aspects of exploration seismology which are not systematically described in the literature. These include the early history of seismic exploration, the vector wave equation, transversely isotropic media, the Kirchoff formula, diffraction solutions, various types of surface waves, reflector curvature effects, resolution, three-dimensional methods, vertical seismic profiling and shear wave studies.

Since the subject matter to be handled is so extensive the work has been divided into two volumes. Volume 2, which is not reviewed here, deals with Data Processing and Interpretation.

In general, the text is well written and easy to follow. There is liberal use of illustrations which are mostly original, but a few well-worn figures reappear, such as the GeoQuest Fresnel – zone model (Fig. 4.25). The inclusion of a Sheriff specialty, the nomogram, is a welcome addition and raises the question, is there a market for a text on geophysical nomograms?

There are several commendable chapters which are worthy of mention. One of these is the first chapter on the History of Seismic Exploration. This may simply be a personal preference, but the chapter does tell us where we've been! The discussion on seismic costs gives an economic perspective. The chapter on the Theory of Seismic Waves is not original, but it is comprehensive, appropriate and well written. The discussion on diffraction theory is eloquent, but for the neophyte it fails to indicate clearly why the phase inversion occurs. The inclusion of specific problems is useful but no answers are given. The chapter entitled "Characteristics of Seismic Events" is one of the better sections of the book, and gives it almost a unique flavour. Finally, the Reference List is comprehensive and selective.

My feeling is that the authors have achieved their objective in providing a book intended both as a text for students in advanced courses and as a reference book for those people engaged in seismic exploration. In the authors' words, "The theoretician and student need to appreciate what is practical, and practitioners need to understand theory and the possibilities it may suggest." Sheriff and Geldart have struck the balance between the two. This book will provide a valuable addition to the libraries of those interested in contemporary applied seismology.

The Geology of Offshore Ireland and West Britain

By D. Naylor and P.M. Shannon
Graham & Trotman
174 p.; 1982; $53.00 US; cloth

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This book has been written by two Dubliners with considerable experience in petroleum geology, and an interest in presenting its regional geological findings in volumes of a distinctly academic aspect. The present publication is in a sense a successor of the earlier and less comprehensive *Geology of the North-West European Continental Shelf, Volume 1*, by P. Naylor and S.N. Mounteney, and covers principally the North Atlantic region, between Britain and Canada, but excluding Norwegian or North seas. Topics are divided into an Introduction, twelve chapters on regional geology, one on paleogeography, one on oil and gas exploration and two appendices.

The book is elegantly printed and very well illustrated with maps and cross sections, although there are curious inconsistencies. For instance, in Fig. 1.3 the original North Atlantic fit requires a considerable rearrangement of Iberia which is shown by an arrow, leaving the actual rotation to the reader. Then, the chapters on the adjacent Irish Sea and Celtic Sea Basins are separated by a lengthy treatment of North Atlantic geology, including parts of Canada. It appears that the book is intended for professional geologists, but yet the authors saw fit to include a short and facile appendix on exploration techniques more appropriate to a very elementary text on physical geology. Appendix 2 (the Glossary) also appears somewhat out of place, since it includes a hodge podge of somewhat specialized terms such as *acidization, condensate* and *secondary recovery* alongside with *dip, fault, bed* and, yes, even *oil*. Presumably it is ex-