

perhaps the author comes down too heavily against the operation of plate tectonics at these early stages in Earth history. The evidence here, particularly from palaeomagnetic data, is not yet sufficiently conclusive for plate mechanisms to be dismissed as a factor in the accumulation of the early crust. Again the concept of allochthonous terranes, with the possibility of large-scale transcurrent faulting, both during and after accretion, provides further degrees of freedom in the interpretation of the early mobile belts. Archaean orogenic belts will need to be reexamined in the light of this new model.

Each chapter is followed by a list of statements summarising its contents and a list of suggestions for further reading. A detailed reference list is given at the end of the book, followed by a comprehensive index. The text is profusely illustrated with line drawings throughout and the volume includes a large, coloured tectonic map of the world, suitable for the lecture room.

In spite of its comprehensive coverage and its excellent presentation, the main impression left after reading Condie's book is one of disappointment. The author fails to convey the sense of excitement which motivates most research workers as the developing concept of plate tectonics, with its many variations on a few simple themes, provides more and more convincing models to explain the complexity of orogenic belts, and permits the formulation of more coherent theories of crustal evolution. The author's view of plate tectonics, derived from a geochemical, rather than a structural or deformational standpoint, appears to be essentially static. Plate tectonics is a dynamic process describing events which are in progress at the present day. Potentially, from the evidence which it provides of the present interactions of crustal plates, we can deduce the processes by which one crustal type is altered into another, and can extrapolate these processes backwards through time to account for the present composition and structure of the whole of the Earth's crust.

Despite these reservations Condie's book clearly fulfills a need, and the success of the first edition has encouraged the publishers to improve the presentation of the second edition. No longer is it presented as camera-ready copy; line drawings are placed at appropriate positions in the text, rather than gathered together at the end of each chapter, and the author has been encouraged to carry out a thorough revision of his text with the introduction of much new material and updating of his references. Comprehensive coverage, attractive presentation and moderate price will surely commend this book to all students of the Earth Sciences.

A. J. Barber
N. Breen

REFERENCES

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Scotese, C. R., Kambach, R. K., Barton, C., van der Voo, R. & Ziegler, A. M. 1979. Palaeozoic base maps. *J. Geol.* **87**, 217–277.

Geophysics, then and now

Bates, C. C., Gaskell, T. F. & Rice, R. B. 1982. *Geophysics in the Affairs of Man*—A personalised history of exploration geophysics and its allied sciences of seismology and oceanography. Pergamon Press, Oxford. 492 pp. Price: hardcover £30.00; softcover £12.30.

When I first picked up this book my initial impression was that I would be bored by page twenty and would have little inclination to read on through the next 400 pages. The book has a dull look about it. The cover is dull and the pages are cluttered with footnotes and quotations, all in very small print. The illustrations are mainly grouped into six sets of postage-stamp size photographs distributed at intervals throughout the book, unreferenced to the text, of generally poor quality and often of doubtful relevance. For example, in the group of illustrations between pages 286 and 287, the pages of photographs are not numbered, a diagram showing the evolution of sensors for underwater warfare was obviously prepared for publication at two to three times the size printed here and is for the most part quite illegible. Also in terms of relevance to the text (in the same group of photographs), who is Linda Benedict, Junior Surveyor on Seismic Party 1741 of Geophysical Service, Inc. and what is the happy snap of her at work outside Evanston doing on the same page as passport portraits of John Slaughter (Director, NSF), Manik Talwani (Second Director, Lamont-Doherty) and Bettye Athanasiou (Life Member SEG)?

However, despite its many shortcomings in presentation, much of this book makes interesting and entertaining reading. It contains a wealth of information concerning events which have happened within the lifetimes of the authors. Much of what they write must be in part based on first-hand experience and familiarity with the circumstances of events as well as the people involved. This account of the birth and development of modern geophysics during the past few decades is admittedly personalised but much of its merit derives from the way in which the authors succeed in telling their story as from the view-point of an insider, someone directly involved in the events that occurred.

The book commences with a very brief description of how the science and technology of geophysics developed from earliest recorded knowledge until the end of the First World War. The inter-war years are seen as 'geophysics coming of age'. Then follows a chapter on how many well-known and eminent geophysicists spent the war years. Interesting though this chapter is, there is little evidence for much advancement in conventional geophysics during this period; seismology and oceanography were given more attention. Immediately post-war, exploration geophysics became again a field of active research and renewed application in the search for hydrocarbons and minerals. Over the same period, the foundations were laid for major international cooperation in such enterprises as the International Geophysical Year (1 July 1957 to 31 December 1958). The 1960s are seen as a period of significant interplay between science and government and of course the beginnings of revolution with development of plate-tectonic theory. The final historical chapter covers the 1970s and early 1980s, a period of boom in exploration geophysics following great technical advances in seismic exploration technology. At the same time, however, there were complex economic and political changes occurring with environmentalism on the one hand and OPEC on the other, radically influencing both governmental and corporate policy in resource exploitation.

The broad history having been covered, the authors then give a well-documented account of geophysics as a business with a detailed analysis of the pattern of growth of many of the major contracting companies so well known today to the practicing geophysicist. Finally, and again in a very personalised way, the realm of geophysics is given added perspective by introducing the views of a number of eminent contributors, either as short statements of actions in their careers which had given greatest personal satisfaction, or as a series of *vignettes*, such as that by W. Harry Mayne: 'Conception of the Common-Depth-Point (CDP) Method of Seismic Surveying'.

With so much good material within it the book must be judged as a successful enterprise. I know I will use it often for reference and as a source-book. I would have preferred it to be shorter, better illustrated and with less devotion to oceanography, which in my opinion is given more eminence than necessary as an allied science to geophysics. I warmly recommend it to all involved in geophysical research and exploration.

R. McQuillin

Inside information

Bolt, B. A. 1982. *Inside the Earth: Evidence from Earthquakes*. W. H. Freeman & Company, San Francisco. 191 pp., 75 figs. Price: hardcover £16.90; softcover £7.70.

In this book, Bruce Bolt throws light upon not only the obscurities of the Earth's internal form and composition, but also the mysteries of earthquake seismology, which can often appear as impenetrable as the Earth itself. To many, acronyms such as U.E.O. (unidentified earthquake onset) and the codes for seismic arrivals, such as PKiKP (a p-wave refracted through the Earth's outer core, reflected from the surface of the inner core and refracted back to the Earth's surface as a p-wave), serve only to increase the impenetrability of the subject, leaving them with the feeling that as long as there are a core and mantle down there somewhere, that is fine with them and the Earth. It is Bruce Bolt's intention to make the subject plain to readers whether they be students or 'curious laymen'. He has set himself the difficult task of explaining qualitatively, often by analogy, an essentially quantitative science. In this he generally succeeds admirably, but he finds it difficult in early chapters to avoid clumsiness in stepping around certain topics which are dealt with in later chapters or cannot be treated at length where they arise. Certain basic information about seismic theory and excerpts from important papers are presented in 'boxes' aside from the main text, which makes 'hem easy to refer to. Subjects are cross-referenced well, and the figures are clearly drawn and annotated.