

Petroleum geology

Introduction to Petroleum Geology. By G. D. Hobson and E. N. Tiratsoo. Pp. viii+300. (Scientific Press: Beaconsfield, March 1975.) £10.50; \$28.50.

OVER the past generation the greater number of textbooks on petroleum geology has originated in the USA, and the production of a well compiled and authoritative work by British authors is particularly to be welcomed at the time when the subject has achieved such a degree of national importance in Britain. Both authors have had long experience in this field.—G. D. Hobson on the academic and research side, E. N. Tiratsoo as a consultant with close involvement in the Middle East and Caribbean—and their combined expertise has been well applied.

The book covers the whole range of petroleum geology within the realms of exploration and production techniques, from the origin, accumulation and migration of petroleum, through exploration methods, formation logging and evaluation, the development problems, reserves assessment and—briefly—world-wide resources. It demonstrates a degree of assimilation of literature in this sphere which very few professionals would be able to match, and although the book is rather modestly stated to be “written to meet the requirements of students” there must be very few active geologists who would not find new and unfamiliar facts in its pages.

Although for the most part the book is adequately and clearly illustrated, it is unfortunate that a few of the diagrams (possibly reproduced in monochrome from coloured originals) are only legible with difficulty, and this might be given attention when a new edition is required.

Inevitably, some of the subjects described are controversial, but in such cases the authors have taken care to express both points of view, usually without taking sides.

There are a few points of special criticism: the discussion of map scales (p.135) shows a surprising absence of reference to the now almost universal use of metric values, the recommendation of mapping on 3-inches to a mile for example, is a remarkable idiosyncrasy. Some miscellaneous data are irrelevant or unnecessary—such as the different values of the gal at the poles and equator, (p.152) and the description of plane table equipment (p.137)—but, overall, the selection of information is appropriate. One may hope that in a later edition the section on seismic surveys might be expanded, but the book gives an adequate if rather short summary.

Hobson and Tiratsoo have produced a volume which should have a place on

the shelf of all serious petroleum geologists and others concerned with the technical problems of exploration and development of hydrocarbon resources; it will serve both as a very effective conspectus and as a guide to the extensive literature. **P. E. Kent**

Scattered electrons

High Energy Electron Scattering. (American Chemical Society Monograph.) By R. A. Bonham and M. Fink. Pp. vi+311. (Van Nostrand Reinhold: New York and London, June 1974.) £12.25.

THE content of this book is not as wide ranging as its title implies: the authors state in Chapter One that their interest is solely with high energy electron scattering from gaseous targets. Nevertheless, it does provide a comprehensive and lucid account of that branch of the subject, with emphasis given to the measurement of charge and momentum distributions in atoms and molecules.

The opening chapters contain a standard treatment of the relevant scattering theory and a review of theoretical methods of calculating atomic and molecular wave functions. Details are given of how elastic and total scattered electron intensity measurements may be used to obtain information on the radial distribution function and electron-pair correlation function of atoms; the experimental observations of electron correlation effects in atoms are discussed at length. The book continues with an account of the methods available for measuring the one and two-electron density function of molecules, and the results obtained from a number of molecules serve as useful illustrations. The use of intensity data to determine the three-dimensional one-electron density function is also discussed.

Consideration is given to the possibility of determining the momentum density distribution of atoms and molecules by measurement of the inelastically scattered electrons at large scattering angles from ionising collisions. That is followed by a section on high resolution, high energy impact spectroscopy with a review of the experimental results obtained. Finally, the book describes in detail the various experimental techniques used, with separate chapters on electron gun design, velocity analysers, electron detection devices, and atomic and molecular jets.

Most of the material presented is readily available elsewhere but it is useful to have the information collected in a single volume. Being completely self-contained, the book provides an appropriate balance between theory, experimental methods and results. **M. J. Capers**



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