find it difficult—as they apparently did—to understand what we mean by a "retarded" or "hyperactive" child, we should likewise be alerted to the cultural opacity of such of their words as are translated "naughty" or "persuade," or even "Study the thoughts of Chairman Mao" (who has never, to my knowledge, written anything very specific about raising kids). That kind of understanding can come about only through long-term fieldwork and comparative analysis. I hope some day this kind of work will be possible in China.

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Geology and Oil

Petroleum and the Continental Shelf of North-West Europe. Vol. 1, Geology. Proceedings of a conference, London. AUSTIN W. WOODLAND, Ed. Halsted (Wiley), New York, 1975. x, 502 pp., illus. $47.50.

The continental shelf of northwest Europe has developed as a major oil and gas province with remarkable rapidity, mostly within the last decade. Largely hidden beneath the sea, this region remained geologically little known and even less understood prior to the imperative of hydrocarbon exploration. The entire battery of exploration techniques has now been brought to bear on it, and a flood of new geological information has resulted. Synthesis of the new data is a monumental task but one fraught with challenge. This is the first major oil province to develop since the advent and general acceptance of plate tectonic concepts, and it furnishes a test of the utility of these concepts in guiding exploration and a case study of major plate movements as they affect a marginal shelf. Predictably, most of the 38 chapters in this book involve synthesis and many are concerned with interpretations based on plate tectonics.

The editor has arranged the chapters so as to begin with the most general topics and proceed to those of a more specialized nature. Within this framework regionality and chronology are secondary organizational principles. The first seven chapters deal principally with the geology of the submerged shelf around the British Isles on both the Atlantic and the North Sea margins. A second group of four chapters is concerned with the geology of the North Sea between Norway and the Netherlands. The remaining chapters deal largely with specific oil and gas fields, their discovery, reservoirs, and production histories. This section deals first with fields producing from the oldest reservoirs, which are in the Permian Rotliengedes beds, and then proceeds upward through the stratigraphic section to the lower Tertiary sands that form the youngest producing horizons. Scattered among the chapters in this section are some dealing with other pertinent topics such as the distribution of volcanic rocks and the thermal history of the region.

Any book that endeavors to present such a wealth of information as this one does must lean heavily on illustrations. Here the illustrative materials include maps, cross sections, charts, stratigraphic diagrams, and even a few photographic plates, and almost without exception they are clear, well executed, and well integrated into the text. This last feature will be welcome to the average reader, who will find himself bombarded with unfamiliar place and stratigraphic names. The format of the book is concise and pleasing. Typographical errors are few, and it is evident throughout that both authors and editor have labored hard and well.

Anyone with an interest in general or regional geology will profit from reading the more general chapters dealing with interpretation and synthesis. Those with a need for more specialized information will doubtless profit as well from the more detailed and specific papers. It appears beyond doubt that this volume is, and will continue to be, an invaluable compendium concerning the region it covers.

[Volume 2, Environmental Protection, edited by H. A. Cole, is now available. —Ed.]

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Non-Newtonian Fluids

Rheometry. K. WALTERS. Chapman and Hall, London, and Halsted (Wiley), New York, 1975. x, 278 pp., illus. $32.

Although *Rheometry* is not "the first book to deal exclusively with non-Newtonian fluid mechanics," as is claimed on the dust jacket, it is certainly one of the most comprehensive and digestible. The book is intended to be a textbook on the use of most commercially available rheometers, but it also provides some background on rheometry in general. The author has been careful to avoid excessive mathematical rigor, with the result that those concerned with the more practical aspects of the subject can use the material without first having to familiarize themselves with the theoretical background. Nonetheless, the necessary background in the first three chapters of the book is presented in a manner that is at times oversimplified and that presupposes some familiarity with the rudiments of tensor analysis. (The well-known book by A. S. Lodge, *Elastic Liquids*, could be used to complement these sections.)

Chapter 4 is devoted entirely to the measurement of the material functions of fluids with the Weissenberg rheogoniometer, at present the rheometer most widely used. The sections on possible sources of error in this and other chapters are especially valuable parts of the book. In these sections the author discusses the precautions that must be taken and the limitations that the experimentalist must be aware of when applying the basic theory to real situations, as well as modifications of the theory that must be introduced in order to take into account some of the sources of error.

Chapter 5 follows the same format and concerns itself with the measurement of the material functions with capillaries, slits, and similar devices.

In chapter 6, the author deals with the measurement of the complex dynamic viscosity and related functions with conventional rheometers, as well as with the new rheometers developed for this purpose (the orthogonal rheometer, the balance rheometer, the eccentric-cylinder rheometer, and others). Much of the material in this chapter, as well as some of the sections in other chapters, is presented here for the first time in a textbook.

Chapter 7 is a readable introduction to the theoretical and experimental aspects of the measurement of extensional viscosity, and it discusses some of the experimental difficulties that have been encountered and the ingenious devices that have been conceived to overcome some of them.

Another strong feature of the book is that it presents the most recent advances in the field, including improvements in the performance of commonly used rheometers, the advent of new techniques, and the development of completely new rheometers. For example, the last chapter deals with the novel rheometrical flow experiments that were not dealt with in the previous chapters and whose potential is now being explored.

In short, *Rheometry* provides a clear, comprehensive, and up-to-date introduction to the subject that will prove most useful, especially to those concerned with the more pragmatic aspects of non-Newtonian fluid mechanics and the experimental determination of the rheological properties of non-Newtonian flow systems.

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