

## BOOK REVIEWS

GEOLOGY OF COAL, by OTTO STUTZER AND ADOLPH C. NOÉ. 461+xiii pages, 198 figures, University of Chicago Press. 1940. Price \$5.00.

The book is in part a translation of the second edition of *Kohle* by Otto Stutzer, and in part a translation of a revision and abbreviation of certain chapters of that edition by Professor Stutzer. The translation, with a few modifications and additions, was nearly completed by the late Professor Adolph C. Noé of the University of Chicago at the time of his death. Competent scientific associates gathered up the loose threads and with certain editorial revision regarding the translation of German coal names the book appears as a highly authoritative and exhaustive treatise of coal, and one that is also easily readable and usable by Americans.

The botanical microscopic examination of coal and the petrography of coal beds; the chemical composition; the origin of coal and coal beds; the classification; the nature of associated rocks; the age, size, and extent of the deposits; the structural features; the factors that determine ease of recovery; the stratigraphy of coal deposits—all are treated in detail. Many interesting but less important features are described such as the weathering of coal, the origin of eye coal, coal breccia, coal pebbles, coal balls, pyrite and other minerals, oil in coal beds, relation to oil shales, and destruction of coal beds by water and ice. The sections on the processing of coal and the application of petrography thereto should prove new and valuable to many persons engaged in the coal industry.

The complex structures of the coal beds in various German fields are described and illustrated at length. In most of our bituminous fields we will not be mining coal under such complex conditions for many years, and perhaps, from a practical standpoint this subject has been dealt with too extensively. The section is certainly of considerable interest, however.

Professor Noé planned, it is believed, to write a final chapter on coal fields, production, and reserves of the world, but inasmuch as he was unable to do this, the editors decided to omit such a chapter. It is the only deficiency that the reviewer could detect and, perhaps, is better left out because of its statistical and, for the most part, short-lived value.

The line drawings and photographs are excellent and stimulating.

A. J. EARDLEY

OUTLINES OF STRUCTURAL GEOLOGY, by E. SHERBON HILLS, Lecturer in the University of Melbourne, published by Nordeman Publishing Company, Inc., New York, 1940. Price \$2.25.

The author has aimed to present a brief, yet reasonably complete and well-documented summary of structural geology with special reference to those aspects of the subject with which the field geologist should be acquainted. The book is small ( $4\frac{3}{4} \times 7\frac{1}{4}$  inches) with 172 pages including author and subject indexes. It contains the following chapter headings:

I. Non-diastrophic structures . . . . .	20 pages
II. Rock deformation: Mechanical principles . . . . .	24 pages
III. Major crustal structures . . . . .	25 pages
IV. Folds . . . . .	35 pages
V. Faults . . . . .	22 pages
VI. Structures of igneous rocks . . . . .	18 pages
VII. Petrofabric analysis . . . . .	16 pages

The subject of structural geology is defined and limited about as is done in the United States. Under non-diastrorphic structures, the field of structural geology that merges with sedimentation, he has properly limited himself to an explanation of the uses of primary sedimentary structures in determining position of beds, and in discussing compaction, slump, slide, and collapse structures.

The second chapter, on the mechanical principles of rock deformation, is a skillful presentation of stress and strain analysis, experimental deformation of rocks, and the meaning of plasticity and flow in rocks. The illustrations are new and instructive. The experimental and analytical data are nicely correlated with field observations. This chapter is up-to-date and much better, in the reviewer's opinion, than any similar one appearing in American texts.

A complete reversal of procedure in the teaching of structural geology is introduced in the third chapter. Here the major crustal structures, or tectonic elements, are presented along with brief but meaty expositions of their origin. Then follow chapters in detailed structural studies. Joints and cleavage are treated under folds. The reviewer looks upon this procedure as an interesting experiment but doubts that most instructors with the general run of undergraduates would do well with it.

Deserved emphasis is given in the next chapter to internal structures of igneous rocks. It appears to be an excellent short discussion for students.

The last chapter on petrofabric analysis is authoritatively up-to-date and very well written and illustrated. The reviewer believes that the undergraduate in American universities would have a difficult time with it, but that it will furnish a good introduction to the subject for graduate students.

The book seems to break a tradition of American texts of partiality to certain aspects of structural geology, or of overemphasis of trivialities that are of minor importance in actual field work. The survey of German, English, and American literature, and the selection and emphasis of subject matter is very pleasing to the reviewer. It seems remarkable in a book so small.

As a text for use in the United States it is not particularly well suited for three reasons. Part of the material is a little too difficult for most undergraduates. There is a deficiency in the practical side of the subject—no problems, little geometry of faults and folds and nothing on structure maps. In short, no laboratory work is suggested or outlined. Many examples are foreign, and in the United States instructors would like more attention given to our own structural provinces or structural types.

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