SCIENTIFIC BOOKS

COAL UTILIZATION

Chemistry of Coal Utilization. By H. H. LOWRY, editor, and a staff of 35 contributors. 2 volumes—Volume 1, pages 1–920; Volume II, pages 921–1868. New York: John Wiley and Sons, Inc. 1945. The set, $20.00.

No reviewer could be fully competent to review the two-volume treatise on coal and its utilization which the present work comprises. It was prepared under the auspices of a committee of the National Research Council over a period of eight years. The committee outlined the proposed review in 1938–1939, drew up a list of competent collaborators, collected all the contributions, sent these (until 1942) to two reviewers for criticism, thence to the author for reconsideration. Since 1942, the editor himself appears to have shouldered much of the responsibility for review of the texts as they were received, the reading of galley and page proof, preparation of the extensive book, name and subject indexes, corrections of incomplete or incorrect references, and the changes necessary to secure greater uniformity of style. The contract between the National Research Council and the publishers was drawn up with no royalties either to the council or the contributors to secure the lowest possible price for the report, and the costs of preparation of manuscript and illustrations were borne by the publishers and by a generous contribution from the Koppers Company. There results from these unselfish efforts on the part of all concerned a unique, comprehensive and critical review of the vast literature of coal and its utilization, never hitherto available in any language. Scientists and technologists in every phase of modern industry are under deep obligation to all those who have contributed to this outstanding effort.

Twenty-five years ago the writer made a picayune attempt to formulate the scientific aspects of fuel production and utilization in a small volume intended to cover the ground which has here been so comprehensively covered. To read from the finished product which these two volumes represent the current state of the science and technology of coal makes one realize two things: one, the temerity of a youthful author in 1920, and, secondly, the tremendous strides that have been taken in the intervening years to place the whole subject of coal utilization on a permanent, sound, scientific basis.

The first volume deals with the origin and classification of coal, its physical properties, such as hardness, strength, plastic swelling and other properties, its constitution as determined by halogenation, oxidation, reduction, hydrolysis reactions, the sulfur, nitrogen and mineral contents, the cleaning, water content and storage changes of coal and the action of solvents and temperature on the coal substance. Here are 24 chapters occupying nearly 900 pages of double columns with hundreds of diagrams and tables of data.

The second volume deals in 16 contributions with the gases, sulfur and nitrogen compounds, light oils and tar that result from coal carbonization, together with the combustion process in fuel beds, in pulverized coal, in the manufacture of producer and water gas. Direct generation of electricity from coal and gas (fuel cells) is reviewed with mainly pessimistic conclusions. The final three contributions deal with hydrogenation of coal and tar, synthesis of hydrocarbons and of alcohols from water gas.

A reviewer has to be eclectic in a survey of such size unless he has to spend several months in a detailed reading of such a work. He naturally turns to those phases of the work in which he himself is most interested and conversant with the subject-matter treated. The 15 to 20 per cent. sample that this reviewer has thus made gives him complete confidence that readers in the other areas will be completely convinced that, through the efforts of editor, contributors, publishers and the National Research Council, the science and technology of coal have here been accorded that outstandingly authoritative and comprehensive treatment that the Committee on Coal Utilization set before themselves as a goal. We are all, I repeat, deeply in their debt.

HUGH S. TAYLOR

PRINCETON, N. J.

METEOROLOGY

Descriptive Meteorology. By HURD C. WILLETT. Illustrated. viii + 310 pp. Academic Press, Inc. 1944. $4.00.

DESCRIPTIVE METEOROLOGY is an elementary text-book designed for an undergraduate course in meteorology, where the students have a knowledge of calculus and general physics. The author's main purpose in writing the book was to provide a text-book for his own course, and he has purposely omitted or given little attention to a number of topics which he believed unimportant in a course of this type.

The book begins with a general outline of the topics which are to be presented; this is followed with a set of definitions of various meteorological elements. With the foregoing as an introduction, it then takes up the eleven general topics which, as indicated in