Hydrology

Hydrologie de Surface. M. Roche. Gauthier-Villars, Paris, 1963. 430 pp. Illus. $15.50.

The author is an engineer, a hydrologist, with Électricite de France, and his book is cosponsored by the Office de la Recherche Scientifique et Technique Outre-Mer (ORSTOM). Basically the book is a manual of procedure intended to supplement Remenieras's *L'Hydrologie de l'Ingenieur*. Together the two provide a French language treatment of hydrology which presents the methods commonly used by French hydrologists, especially with respect to hydrological problems in tropical areas. It is gratifying to see some summarization of hydrology as it is practiced outside of the United States.

The greater part of the text is divided about evenly between the statistical treatment of data and techniques for instrumentation and measurement. Relatively little space is devoted to the analytical techniques that are stressed in American books on hydrology. One chapter is devoted to base-flow recessions, four pages to flood routing, and almost nothing to relations between storm rainfall and runoff. The brief chapter on analytical hydrology is devoted to the unit hydrograph. Other chapters treat the use of statistics in hydrology, precipitation, evaporation and evapotranspiration, basin morphology, hydrometry, hydrometric data, station networks, floods in large basins, the frequency of annual precipitation and streamflow, sediment transport, and special methods for desert regions.

Techniques used by ORSTOM in the French-speaking countries of Africa are emphasized. The American reader will find few basically new concepts, but he will note some significant differences in viewpoint, with respect to both instrumentation and methods of analysis. He will be interested, for example, in the emphasis on index watersheds, the formal mathematical treatment of some concepts of hydrology, and the use of chemical methods for gaging streams.

The book is liberally illustrated with examples from African watersheds, particularly on the Niger, and it provides an opportunity to compare tropical regimes with those of temperate areas. An appendix contains a brief summary of French equivalents for the common English terms used in hydrology.

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Interstellar Space

Soviet Science of Interstellar Space. S. Pikelner. Translated from the Russian by Mary Zirin. Philosophical Library, New York, 1963. 320 pp. Illus. $7.50.

The title of the book is somewhat misleading, because the author gives a fair account of past and present developments without restricting himself to, or even overemphasizing, the Soviet work. The five main chapters deal with planetary nebulae, diffuse nebulae, the interstellar gas, galactic magnetic fields, and evolutionary problems. The year of publication of the Russian text is not indicated, but new material published in 1958 and 1959 is included.

It is somewhat difficult to determine the audience to which the book is addressed. Hardly any equations are used. An elementary account of some basic physics and astronomy precedes the first chapter. But it is doubtful whether the rest of the book is suitable for the person who does not have already some knowledge of the basic physics involved. And it would seem that one who is able to grasp the contents of the book, might have profited from a somewhat more mathematical approach as well as from considerably more figures. Still, the book provides in a brief space much information, also on rather advanced topics, and appears quite suitable for scientists from related fields, who are interested in these subjects, and for students who are seeking a short summary of material that will be discussed more extensively in a course on the subject.

The style is generally satisfactory, but the translation seems only moderately successful. A case like the one on page 45 is not exceptional. It is stated that "We can expect deviations in hundreds of times," but from the context it is apparent that deviations by a factor of a hundred are meant.

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Notes

Industrial Science

Douglas Fisher's **The Epic of Steel** (Harper and Row, New York, 1963. 354 pp. $6.75) is a factual account of developments in the technology of iron and steel from prehistoric times to the present, which both the specialist and the general reader will find interesting. No other book provides such a complete description of the iron and steel industry in America from Colonial times to the Space Age. Fisher's scholarly, well-documented account brings home to the reader the extent to which the evolution of our culture was interwoven with, and dependent upon, developments in the steel industry.

The development of production methods and types of steel are emphasized, but I wish more attention had been paid to the transformations in steel and to man's mastery of the properties of steel through the control of its structure. Otherwise the book is quite complete—it even provides a description of the development of synthetic chemicals and plastics from the chemical by-products of the iron and steel industry's coke ovens. One chapter, "Steelmaking processes—twentieth century," contains an up-to-the-minute review of the many new variations in steelmaking processes. This book fills a gap in the written record, and it should be widely read.

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Physical Chemistry Data

Scientists, engineers, and technical information specialists will welcome the **Consolidated Index of Selected Property Values: Physical Chemistry and Thermodynamics** (Prepared by the Office of Critical Tables. NAS-NRC Publ. No. 976. National Academy of Sciences-National Research Council, Washington, D.C., 1962. 297 pp. $6). The volume provides a centralized guide to the detailed contents of six well-known and important physicochemical and thermodynamic data compilations. Listed are some 12,000 substances; index entries are arranged by formula, according to a logical system based on the periodic table. The names of properties and publications are coded and in semitabular format. Machine processing of this highly condensed material can be readily conceived, using the coded index entries. The consolidated index makes it possible to determine at a glance which of some 73 properties have been compiled, and in what publication the data for each substance are tabulated. As additional areas are included in future