

## For all NMR users

HIGH RESOLUTION NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY, VOLUME 1. By J. W. Emsley, J. Feeney, and L. H. Sutcliffe 663 pp. Pergamon Press, New York, 1965. \$17.50.

by John P. McTague

The field of high-resolution nuclear magnetic resonance spectroscopy has become immense in the past decade. Practitioners of this subject range from theoretical physicists to organic and biochemists. The present monograph attempts to "provide a detailed account of the basic theory . . . which will interest everyone actively engaged in NMR spectroscopy." A second volume will present a compilation of published applications.

Topics covered include the theory and calculation of chemical shifts and spin-spin coupling, the analysis of high-resolution spectra, and the effects of chemical equilibria and molecular conformational motion on spectra, as well as chapters on spectrometers and experimental procedures. There are several appendixes listing calculated frequencies and intensities of  $A_mB_n$  spectra and a very extensive compilation of volume diamagnetic susceptibilities of organic compounds.

It has been seven years since the appearance of the classic work on the same subject by Pople, Schneider, and Bernstein (*High Resolution Nuclear Magnetic Resonance*, McGraw-Hill, New York, 1959). The present work follows its format closely and is an excellent source of references to more recent (for example, double resonance) as well as past work.

Because of the wide range of material covered, the treatment is necessarily cursory. The extensive referencing minimizes this disadvantage to the research worker. However, students may find the theoretical sections unsatisfactory because of sketchy derivations and insufficient attention to an attempt to impart a "physical feeling" for the various processes involved.

While this volume does indeed con-

tain something of interest for all workers in NMR, its appeal will probably be greatest to physical chemists.

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## The earth's environment

HANDBOOK OF GEOPHYSICS AND SPACE ENVIRONMENTS. Shea L. Valley, ed. 700 pp. McGraw-Hill, New York, 1965. \$24.50.

by Robert L. Weber

A conveniently organized collection of data, formulas, definitions and theories about the earth's environment is presented in the graphs, tables, and text of this book. The information was compiled (1962-1964) by scientists of the Air Force and other government organizations, industrial and university contractors, and private individuals. The handbook was written to serve chiefly scientists and engineers working with aerospace systems. Due to this emphasis, some topics in geophysics are omitted, for example geology, oceanography, and seismology.

Many a science-minded person who is not working with aerospace systems may find in this handbook summaries of areas of knowledge of special interest to him. Chapter 21 ("Astrophysics and Optical Astronomy" by Shea L. Valley) is an especially good 29-page summary which nonspecialists

and students would find readable. Many other paragraphs of description and definition, along with appendix tables of constants and conversions, may be of use to physicists not necessarily associated with aerospace work. Examples of such topics are: the electromagnetic spectrum, transmission regions of optical materials, the earth's electric charge, atmospheric composition and optics, solar radiation, electromagnetic whistlers and planetary environments.

Data are presented in numerous tables and graphs, well displayed for easy reading. The binding seems a bit insecure for a 2.5-kg reference book.

Holders of the handbook are invited to return a card to receive future revisions of individual chapters and sections.

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## Experimental nuclear physics

EXPERIMENTELLE METHODEN DER KERN-PHYSIK. By P. Stoll, 178 pp. Springer-Verlag, Berlin, 1966. DM 10.80.

by H. H. Barschall

In the last few years the experimental techniques used in nuclear physics have undergone tremendous changes. Solid-state detectors and circuits, fast computers, and better accelerators are some of the new devices which have contributed to the improvement of the quality and quantity of nuclear data by orders of magnitude. These developments make it more difficult for the beginner to learn about the many experimental methods, both old and new, that the nuclear physicist uses, since there is a lack of up-to-date introductory texts. Consequently the student frequently has to learn from detailed articles written for the experienced research worker.

The present pocket book tries to fill this gap. The author, who is a professor at the Federal Institute of Technology in Zürich and who has taught

