

recent work done in this field are becoming increasingly incorporated into engineering practice, this book must certainly be welcomed by engineering students and also by other students of science who wish to keep abreast of modern scientific thought and developments.

The book is divided into three parts. Part 1 concerns itself with the rise of atomic physics, and develops the particular aspects of the structure of those media which seem continuous on casual inspection; it includes such topics as the kinetic theory of gases, relativity, the quantum theory and the structure of atoms. Part 2 introduces some of the ideas of wave-mechanics, while Part 3 is an introduction to nuclear physics.

To get the fullest advantage of this excellent book it is necessary that the student should have a good knowledge of classical physics and also should be well groomed with calculus and differential equations.

For those students who may wish to extend their knowledge beyond the scope of this book a useful set of references is provided at the end of each chapter, where there is also a summary and a set of searching questions.

The authors have certainly made a notable contribution to the furtherance of knowledge in this important field of modern physics, and one would hope that the book would be extensively used by many students of engineering, and others who may be interested in the phenomenal strides made in so short a time; it most surely deserves to be.

T. M. YARWOOD

#### Proceedings of the International Conference on Theoretical Aspects of Very High-Energy Phenomena

Held at CERN, 5-9 June, 1961. Edited by J. S. Bell, F. Cerulus, T. Ericson, J. Nilsson and H. Rollnik. (Sponsored by the International Union of Pure and Applied Physics.) Pp. v+426. (Geneva: CERN—European Organization for Nuclear Research, 1961.) n.p.

THE CERN conference on "Theoretical Aspects of Very High-Energy Phenomena" was held in connexion with present thinking on possible super high-energy accelerators for the post-1970 period. The report comprises about 40 papers mostly devoted to extrapolations of present-day ideas to higher energies than are at present available, but not, in general, directed to specific accelerators. The present report is not too rich in theoretical reasons for proceeding to higher energies, but this is perhaps not to be expected—in his summary lecture Prof. van Hove refers to the well-known drastic limitation of our power of imagination.

The report comprises the following sections: weak interactions; electromagnetic interactions; experimental results (including cosmic ray and CERN PS results); statistical model; diffraction theory; one-meson exchange; dispersion theory and Mandelstam representation; accelerators. The section on electromagnetic interactions is largely concerned with the electron storage rings building and projected at Frascati and Stanford; in addition to electron-electron colliding-beam experiments providing a sensitive test of quantum electrodynamics at high energies, electron-positron annihilation gives a large field of interesting and significant events as set out in the paper by Gatto. Higher-energy protons should provide tests of theories of weak interactions (particu-

larly by giving neutrino and muon beams) and should help to elucidate diffraction scattering and the asymptotic behaviour of cross-sections at high energies, on which so much theoretical speculation is at present bent.

R. G. MOORHOUSE

#### Symposium of Plasma Dynamics

Edited by Francis H. Clauser. (Sponsored by the Air Force Office of Scientific Research. Prepared under the auspices of the National Academy of Sciences.) Pp. ix+369. (London: Pergamon Press; Reading, Mass.: Addison-Wesley Publishing Company, 1960.) 84s. net.

THE symposium at Woods Hole, Massachusetts, in June 1958 boasted an impressive list of participants almost exclusively from the United States. No formal papers were given, but rather a series of discussions with introductory talks at the beginning of each session.

The chapters on the experimental investigation of plasma properties show the beginnings of many studies on waves in plasmas, the interaction of electron beams with ionized media, shock-waves in conducting media in the presence of a magnetic field in addition to diagnostic work on transient plasmas in a variety of geometries.

The theoretical contributions discuss instabilities with great clarity, and the heating and confinement of plasmas. Continuum and particle approaches are reviewed and compared, and the limits of their applicability considered.

A short chapter on aerodynamic effects when a plasma streams through a magnetic field together with longer contributions on extra-terrestrial magneto-hydrodynamics conclude the symposium. Interesting accounts of such phenomena in the solar system appear, and cosmic magnetic fields are reviewed also. Their influence on interstellar material has repercussions over a wide range of astrophysics. A vigorous debate on the simulation of galactic phenomena in the laboratory is reported, in which one conference aim—the frank expression of conflicting views—is realized to the full. This book presents clearly the concepts of modern plasma dynamics, forming a good introduction to the subject, complete with a valuable bibliography. It cannot, naturally, be taken as a summary of the present state of the art.

P. F. LITTLE

#### Yearbook of Astronomy 1962

Edited by J. G. Porter, in association with Patrick Moore. Pp. viii+216. (London: Eyre and Spottiswoode (Publishers), Ltd., 1961.) 15s. net.

THIS book is designed not so much for the amateur with his own telescope and observing programme but for the very many who can observe only with the naked eye, binoculars or small telescopes. To this end it succeeds admirably, and we look forward to seeing the *Yearbook* maintaining the high standard of this issue for many years to come.

The *Yearbook* may be divided into two sections. The first section provides a set of "Monthly Notes", mainly concerned with planetary observations and a set of star charts. The "Monthly Notes" are augmented by notes on various phenomena of interest, such as meteor showers, zodiacal light, etc. The star charts are arranged so that the stars move from the positions in one chart to the positions in the