in the expansions of the angular and radial prolate and oblate spheroidal wave functions in terms of the Legendre and Spherical Bessel functions. The values are given for the indices $m = 0(1)8$, $l = m(1)8$, and the parameter $h = 0(.1)1(.2)8$ to seven significant figures. The tables represent a significant contribution in cataloguing spheroidal functions in the file of known higher mathematical functions.

Solid State Physics: Advances in Research and Applications. Vol. 1. Edited by Frederick Seitz and David Turnbull. 469 pp. Academic Press Inc., New York, 1955. $10.00. *Reviewed by N. H. Nachtrieb, The University of Chicago.*

This is the first in a projected series of approximately twelve volumes designed to review the theoretical and experimental advances in solid-state physics and related areas which have taken place in the last 15 years. Largely theoretical in its scope, Volume I is concerned principally with quantum mechanical descriptions of the crystalline state. Three of its six uniformly well-written chapters are devoted to general and special methods of obtaining electronic wave functions for crystals, including the LCAO, Heitler-London, Wigner-Seitz methods, and the relatively more recent orthogonalized plane wave and augmented plane wave approaches. Separate chapters are devoted to the quantum defect method and to the plasma oscillation description of the collective behavior of electrons in solids. An analysis of the origin of the cohesive energy in metals is given, and the relative importance of contributions from the boundary correction, the Fermi energy, and holes in the electron density distribution is discussed with particular reference to the alkali metals; band overlap, with a resulting decrease in the Fermi energy, is given in qualitative explanation of the increased cohesion of the alkaline earth metals. No less well-written, but more definitive in scope, are two chapters dealing with semiconduction in valence crystals (silicon and germanium) and theories of order-disorder transitions in alloys.

Some duplication of subject matter is inevitable in a treatise of multiple authorship; far from objectionable, this is especially welcome in chapters which emphasize different methods of obtaining crystal wave functions from one-electron Hamiltonian operators. Throughout the entire book the style is critical, and limitations and approximations are carefully stated. An excellent beginning has been made for a series which promises to be of great value to solid-state physicists, chemists, and metallurgists.

Meteors: Proceedings of a Symposium on Meteor Physics. Edited by T. R. Kaiser. 204 pp. Pergamon Press Ltd., London & New York, 1955. $8.50. *Reviewed by S. F. Singer, University of Maryland.*

Meteorites and meteors are of unique interest because they represent the only bits of extra-terrestrial matter

with which we actually come in contact. This symposium held in July 1954 at the famed Jodrell Bank Experimental Station of the University of Manchester was attended mainly by astronomers and physicists. Since large meteorites were not discussed, the geochemists, metallurgists, and geologists stayed home. On the other hand since many of the discussions dealt with meteors which are observed in the upper atmosphere, many radio physicists and upper atmosphere physicists made contributions. Most of the papers dealt with meteors, with the effects they produce in the upper atmosphere, their luminosity, and ionization. Some papers discussed the effects of meteors on the upper atmosphere, in particular the contribution of meteors to the ionization in the E-layer of the ionosphere. Up-to-date presentations were given on the problem of interplanetary dust particles, which cause the zodiacal light and the solar F-corona. Papers were also presented on meteor orbits and meteor streams. The unique feature of the symposium was the large attendance and the many contributions by meteor physicists from eastern Europe and the Soviet Union. In all, nearly 40 papers were presented and are reprinted in this volume.

Books Received

THE ANALYTICAL THEORY OF HEAT (Reprint of 1st translation). By Joseph Fourier. Translated by Alexander Freeman. 466 pp. Dover Publications, Inc., New York, 1955. Paperbound $1.95.

GEOMETRY OF FOUR DIMENSIONS (Reprint of 1st Edition). By Henry Parker Manning. 348 pp. Dover Publications, Inc., New York, 1956. Clothbound $3.95; paperbound $1.95.

SYNCHROS, SELF-SYNCHRONOUS DEVICES AND ELECTRICAL SERVO-MECHANISMS (Second Printing). By Leonard R. Crow. 222 pp. The Scientific Book Publishing Co., Vincennes, Indiana, 1955. $4.20.

THERMODYNAMICS AND STATISTICAL MECHANICS: Lectures on Theoretical Physics, Vol. V. By Arnold Sommerfeld. Translated by J. Kestin. 401 pp. Academic Press Inc., New York, 1956. $7.00.

L'INTERPRÉTATION PHYSIQUE DE LA MÉCHANIQUE ONDULATOIRE ET DES THÉORIES QUANTIQUES. By Paulette Février. 211 pp. Gauthier-Villars, Paris, France, 1956. Paperbound $9.28.

GENERAL ASPECTS OF THE USE OF RADIOACTIVE ISOTOPES: DOSIMETRY. Vol. 14 of Peaceful Uses of Atomic Energy; Proceedings of the Internat'l Conf. in Geneva, Aug. 1955. 305 pp. (United Nations) Columbia U. Press, New York, 1956. $6.50.

THERMAL POWER FROM NUCLEAR REACTORS. By A. Stanley Thompson & Oliver E. Rodgers. 229 pp. John Wiley & Sons, Inc., New York, 1956. $7.25.

ELECTRONS, WAVES AND MESSAGES. By John R. Pierce. 318 pp. Hanover House, Garden City, New York, 1956. $5.00.

SURVEYS IN MECHANICS. Edited by G. K. Batchelor & R. M. Davies. 475 pp. Cambridge U. Press, New York, 1956.

ELEKTRISCHE VORGÄNGE IN GASEN UND IM VAKUUM (Hochschulbücher für Physik). By N. A. Kapzow. 699 pp. Veb Deutscher Verlag der Wissenschaften, Berlin, Germany, 1955.