propriate physical point of view and to derive a practical physical result with the use of the simplest analysis.

An interesting, though all too brief, biographical sketch of Debye by Raymond M. Fuoss prefaces the collection.

Though the method of production (adopted doubtless for reasons of economy) is satisfactory for the ordinary text material, it scarcely does full justice to the graphs and mathematical equations, which are in many instances a trial to the eyes. This appears to be the only drawback to an otherwise fine production.

The Theory of Metals (Revised second edition). By A. H. Wilson. 346 pp. Cambridge University Press, New York, 1953. $8.50. *Reviewed by R. Smoluchowski, Carnegie Institute of Technology.*

Since the time of its first publication in 1936, Wilson's "Theory of Metals" has become such a well known and useful book that its new, second, edition is bound to meet with greatest interest. The well known characteristics of the book's first edition are still here: mathematical elegance and attention to detail in treatment of basic fundamentals together with rather short or even complete absence of descriptions of less developed or controversial subjects. Just as in the first edition, the accent is on the behavior of electrons in a perfect lattice of a pure monovalent metal, electric conductivity, thermal and magnetic properties and metallic structures. As the author points out in the new preface many theories which looked hopeful in 1936 ran up against serious troubles in comparison with later more quantitative experiments or in application to more complex problems. This necessitated various changes with the result that as compared with the first edition certain sections became considerably enlarged and others are entirely omitted. In the latter category are the early chapters on phenomena dealing with surfaces (rectification in semiconducting contacts, photoelectric effect, etc.), superconductivity, and optical properties. This rather radical surgery is to be regretted since the various theories however imperfect they may be do represent the present boundaries of our understanding of solids and of metals in particular. In fact, the reviewer is inclined to believe that most of the present interest and theoretical activity in the field of metals is focussed on the more speculative and intuitive parts of the modern theory rather than on the all embracing general mathematical formalism. The book is published with great care and typographic neatness.

Physical Meteorology. By John C. Johnson. 393 pp. Technology Press (MIT) and John Wiley and Sons, Inc., New York, 1954. $7.50. *Reviewed by S. F. Singer, University of Maryland.*

The physics of the atmosphere is a subject to which major contributions have come from many other fields of science: astronomy, radio physics, physical chemistry, spectroscopy, etc. Dr. Johnson has succeeded admirably in extracting and presenting the results of work which is spread throughout a very wide literature. As a consequence we have here a book which deals in a refreshingly direct manner with a great number of topics in physics which find application to the atmosphere. Excluded are meteorological phenomena, dealing with atmospheric circulation.

I think this book will appeal very much as a text to any serious student of physical meteorology. The presentation is fairly elementary, interesting, well-illustrated and sufficiently complete. Each chapter is followed by problems, by selected and up-to-date literature references, and by a list of source books. The specialist will like the book as a reference volume since he is not likely to be a specialist in all the topics presented here. These include: a general treatment of the physics of refraction and scattering of electromagnetic waves in the atmosphere and by small bodies; a specialization to radar waves and visible radiation; applications to atmospheric visibility, radar meteorology, rainbows, to mention just a few. Radiation processes in the atmosphere; heat budget, cloud physics and applications to artificial precipitation. A brief review of properties of the upper atmosphere, ionosphere, and ozonosphere. A fairly detailed discussion of atmospheric electricity.

As can be seen from this brief list the topics range from the mathematical theory of diffraction to discussions of aircraft icing. However the emphasis is one which will appeal to physicists.

Radio Receiver Design. Part I, Radio Frequency Amplification and Detection (Second Revised Edition). By K. R. Sturley. 667 pp. John Wiley and Sons, Inc., New York, 1954. $10.00. *Reviewed by W. T. Wintringham, Bell Telephone Laboratories.*

The reviews in the engineering periodicals of *Radio Receiver Design,* Part I, following its publication in 1943, suggested that this would be a useful text both for practicing radio engineers and in the classroom. Its appearance in a second edition indicates that such optimism was justified. This book has been revised by adding certain new material and by rewriting whole chapters.

Radio Receiver Design, Part I treats antennas and receiver circuitry as far through receivers as the detector. Audio frequency amplifiers, power supplies, receiver measurements, and the design of television and frequency modulation receivers are covered in Part II. While there is no explicit statement of the fact, the author's treatment is directed solely to receivers for use in the broadcasting field. Despite the inclusion of extensive bibliographies in each chapter, there is no indication that the author is aware of the specialized receiver design art found, for example, in the communication industry. Similarly, there is no suggestion that the author is aware of such specialized receiving antennas as the rhombic, which is used in the fixed radio services. However, within its own area this would seem to be a useful text.