unpublished and even in part speculative material. As, in addition, the book was edited and published in the astonishingly short time of about ten months, it is remarkably up-to-date in all subjects covered, and in some chapters even adds much to previously published results.

The contents of this book strikingly illustrate that low temperature physics really is, as Gorter puts it, "a transverse section" through virtually every field of modern physics. Unfortunately this is the reason for an unavoidable shortcoming of the volume: the exclusion of several topics about which reviews have recently appeared in similar compendia covering other fields. Pippard's article on "Metallic Conduction at High Frequencies and Low Temperatures", and Van den Handel's on "Paramagnetism" in the latest volume of *Advances in Electronics and Electron Physics* are cases in point. Even more unfortunate are some omissions in the present volume not filled by previous publications. It is much to be hoped that a second volume of *Progress in Low Temperature Physics* will appear very soon, and that this will include review articles on important but presently slighted topics such as the theory of superconductivity, low temperature transport phenomena, especially the various oscillatory effects, and the ever troublesome problem of the temperature scale. However, carping on what *is not* in the book must not be allowed to detract from the high praise due authors, editor, and publishers for what *is* in it. This volume will be used as a basic reference for many years, and its possession is imperative for any low temperature physicist.

Sonics. By Theodor F. Hueter and Richard H. Bolt. 456 pp. John Wiley and Sons, Inc., New York, 1955. $10.00. *Reviewed by R. B. Lindsay, Brown University.*

It is a well-known characteristic of our age that progress in technology goes hand in hand with fundamental research. Until fairly recently this has been exemplified in acoustics mainly by the tremendous improvements made in the production, transmission and reception of sound signals, e.g., speech and music, as well as the greatly increased knowledge of the acoustic properties of materials and their proper disposal for use in architectural acoustics. The past two decades, however, have witnessed the blossoming of a vast host of new types of acoustical applications, of which the processing of suspensions in gases and liquids, the testing and cleaning of solids, and the analysis of the physical properties of fluids are only a few typical examples. The authors of the present volume have decided to coin a new word, "sonics", to include such aspects of acoustics. They define it as encompassing the "analysis, testing and processing of materials and products by the use of mechanical vibratory energy". It is their feeling that the technologists who employ sound in this way can profit from a unified exposition of the principles of acoustics, covering all readily obtainable frequencies and intensities, and their application to sonic techniques and equipment. They have succeeded admirably in their design.

When physicists write for technologists they have two common dangers to guard against. They may be too easily tempted to produce an exposition of rigorous, fundamental theory which is difficult for the practical user to understand and hence of very little use to him. On the other hand they may prepare what is little more than a handbook or compendium of formulas and recipes which the practical man is apt to employ without due judgment and discrimination and therefore often gets himself into much trouble. It is a pleasure to report that the authors of *Sonics* have not succumbed to either temptation. Their survey of general principles puts the stress on physical meaning and intuition, where it rightly belongs in a book of this kind, and instead of merely cataloging the vast list of special devices now available they provide typical and well-chosen illustrations for each technique discussed. The summary of theory, indeed, by focusing attention on gaps and weak spots in our knowledge provides a useful stimulus to further basic research. Hence the volume has much of value to offer the acoustical research physicist as well as the technologist.

The first three chapters discuss the fundamental acoustical principles. Chapters 4 and 5 are devoted to a thorough treatment of piezoelectric and magnetostrictive transducers respectively. Sonic processing, both methods and devices, provides the theme of chapters 6 and 7, while chapter 8 takes up sonic testing and analysis. There is a very valuable appendix on acoustic relaxation mechanisms in fluids.

The book is copiously illustrated with excellent diagrams as well as clear pictures of sonic equipment. One of the useful special features is the presence of a number of tables, each summarizing the various aspects of a given phenomenon. Thus the one on radiation pressure shows at a glance the expressions for this quantity for all types of commonly encountered physical situations. The technologist will particularly appreciate the large number of clear charts and the abundance of useful numerical data.

All who are interested in the applications of acoustics, both to the study of the properties of matter as well as to the modern applications of sound radiation in technology, will wish to have this volume readily available.

Molecular Vibrations. By E. Bright Wilson, Jr., J. C. Decius, and Paul C. Cross. 388 pp. McGraw-Hill Book Company, Inc., New York, 1955. $8.50. *Reviewed by D. E. Mann, National Bureau of Standards.*

Over the last 25 years, the vibrational spectra of a great variety of molecules have been investigated and a vast fund of experimental data accumulated. Although the basic theoretical methods and tools have been available for some time, detailed analyses have been carried through for only a small fraction of the molecules for which data are at hand. At least in part, this is because