

should prove of enormous value as collateral reading for standard courses in quantum mechanics. Its status in elementary physics instruction is however open to question.

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A frequent contributor of book reviews, R. Bruce Lindsay is Hazard Professor of Physics at Brown University.

At low temperatures

ELECTRICAL RESISTANCE OF METALS.
By George Terence Meaden. 218 pp.
Plenum Press, New York, 1965. \$11.50

by L. I. van Torne

The author states that this book was written to fulfill the needs of scientists and engineers who require a full and current presentation of the experimental facts together with a relatively concise account of the modern theory of the electrical resistance of metals and alloys. The author has achieved his goal, and students as well as scientists and engineers who need data or who measure electrical transport properties of metals should find this a valuable book.

In chapter 1 the author discusses the importance and utility of information concerning the electrical resistivity of metallic and semimetallic elements in the cryogenic temperature range. Chapter 2 is a comprehensive tabulation of electrical resistivity behavior of metallic elements at cryogenic temperatures. Chapter 3 gives a very brief outline of the theory of electrical resistivity in metals. A discussion of the Gruneisen-Bloch equation with regard to its limitations and utility for comparing resistivity data from different elements is given in chapter 4. Some remarks about the influence of alloying, plastic deformation, irradiation, high pressures, magnetic fields and specimen geometry on electrical resistivity are given in chapters 5 and 6. A review of electrical-resistivity measuring techniques at ambient temperatures and below and methods of achieving and controlling cryogenic temperatures are given in chapters 7 and 8. Rather complete author and subject indexes—often given in a cursory manner in books of this kind—allow the reader a

rapid means of finding a specific reference or item of interest.

In summary, this book contains a wealth of experimental data on electrical resistivity of metals at low temperatures and presents several methods of obtaining such data. However, in the author's words, "no pretense is made that any part of the theory is exhaustively covered."

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The reviewer does electron microscopy and diffraction work in crystalline materials at the Martin Company, Orlando, Florida.

Fibrous and filamentary materials

CERAMIC AND GRAPHITE FIBERS AND WHISKERS: A SURVEY OF THE TECHNOLOGY. By L. R. McCreight, H. W. Rauch, W. H. Sutton. 395 pp. Academic Press, New York, 1965. \$10.00

by R. P. I. Adler

Taken as a bibliography and a current survey of the state-of-the-art of whisker and fiber technology this book can serve as a practical starting point for materials scientists wishing to enter this field. The most valuable portions of the volume are a cross-indexed selection of 550 references, over 200 patents, and 58 organizations concerned with the theoretical and practical aspects of fibrous materials. The topics that are covered are: The Potential Strength of Materials (chapter 2); Applications of Fibers (chapter 3); Factors Affecting Fiber Strength (chapter 4); Reports on Organizations Conducting Fibrous Materials Studies (chapter 5); Evaluation and Discussion (Chapter 6); Conclusions and Recommendations (chapter 7); Patents on Ceramic and Graphite Fibers (chapter 8); Bibliography (chapter 9).

The first technical chapter presents a very brief comparison between the actual and theoretical strengths of selected filamentary materials. The obvious parameters of temperature and elastic moduli that influence the theoretical strength are pointed out while some relatively low strengths are attributed to fabrication and testing conditions. This is followed by

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