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book and should be in the library of anyone who has any interest in microtopography, thin films, or interferometry. After such praise it is ironic to note that the problem in thin-film measurement by multiple-beam interferometry currently plaguing the reviewer, the question of the accuracy of the reflecting-overlay contouring where the film and the substrate have widely different "sticking coefficients", is the only thing I could not find in the book!

Photoconductivity of Solids. By Richard H. Bube. 461 pp. John Wiley & Sons, Inc., New York, 1960. \$14.75. *Reviewed by Stuart A. Rice, Institute for the Study of Metals, The University of Chicago.*

THE book under review offers an excellent survey of the current state of understanding of the mechanism of photoconductivity. The emphasis throughout is on a quasi-theoretical interpretation and systematization of the observations. By quasi-theoretical I mean that the analysis is couched in the language of band theory, impurity levels, hole conduction, effective mass, and so forth, but the fundamental approach is to tie these concepts together in a workable parametric scheme rather than to attempt any a priori studies of the possible electronic states and their perturbations by impurities. In view of the difficulty of making direct calculations of electronic properties, this approach is especially useful and valuable. The scope of the treatment is easily assessed from the list of chapter headings which include: Electronic Processes in Crystals (a brief but adequate survey of elementary band theory), Photoconductivity Processes (an analysis in the spirit of the mechanistic approach to chemical reaction kinetics), Preparation of Photoconductors (containing an excellent discussion of the advantages and disadvantages of various experimental methods), Electrode Effects, Imperfection Photoconductivity, Energy Bands and Excitation Transitions, Free Carrier Scattering and Mobility, Traps and Trapping Effects, Recombination Processes, Theoretical Viewpoints on Photoconductivity (where the analysis has the phenomenological bent described above), and Related Topics. The extensive bibliography includes 1009 references.

This book serves not only as an excellent introduction but also will find extensive use as a reference text. It can be wholeheartedly recommended to all those interested in the solid state.

Ionization Phenomena in Gases. Conf. Proc. (Uppsala, Aug. 1959). Edited by N. Robert Nilsson. Vol. 1, 554 pp. Vol. 2, 656 pp. North-Holland Publishing Co., Amsterdam, Netherlands, 1960. \$34.50. *Reviewed by Nandor L. Balazs, Princeton University.*

THESE conference proceedings weigh nine pounds, four ounces and contain 227 articles. They are arranged in four parts with many sections to each one. (1) Fundamental Processes in Gas Discharges (collision processes, ionization in an electric field, radiation proc-