continuum theories of elasticity, plasticity, and viscoelasticity are presently receiving vigorous attention because of their great practical importance. Several chapters are outstanding contributions of this kind. A very complete account of cavity formation in the interior of an incompressible solid is given by H. G. Hopkins, "Dynamic Expansion of Spherical Cavities in Metals" (78 pp.). In this paper, spherical symmetry and uniform and adiabatic expansion of the gas bubble (in accordance with the Jones theoretical equation of state for TNT) are assumed; an elastic-plastic material is assumed, with account taken of work-hardening and rate-of-strain effects, and of large as well as of small deformations. W. T. Koiter presents a masterful review of his subject in "General Theorems for Elastic-Plastic Solids" (51 pp.). A review of various approximation methods, and a comparison of their predictions with the exact solutions to the Pochhammer-Chree equations, are given by W. A. Green in "Dispersion Relations for Elastic Waves in Bars" (36 pp.). The mathematical treatment of problems in viscoelastic solids is reviewed by S. C. Hunter, "Viscoelastic Waves" (53 pp.).

Secondly, several chapters in this volume review the increasing attention that is being directed to improving the continuum theory of solids so as to include "real" effects on a more fundamental basis. Two contributions are outstanding in this regard: "Thermoelasticity, the Dynamical Theory" by P. Chadwick (63 pp.), an account of recent developments in the irreversible thermodynamics of an elastic solid; and "Continuous Distributions of Dislocations" by B. A. Bilby (65 pp.). Bilby's review describes most exciting and important developments, for, in the last few years, an influx of powerful mathematical methods from topology and modern geometry has entered dislocation theory with possibly far-reaching results. To quote from this author, "it now seems possible to bring the ideas of the atomic theory with discrete dislocations into closer association with those of the macroscopic theory, and it is to be expected that the two disciplines will react on each other to their mutual advantage".

Physique nucléaire. By Michel Bayet. 404 pp. Masson et Cie, Paris, France, 1960. 65 NF. *Reviewed by Fay Ajzenberg-Selove, Haverford College.*

THESE appear to be the notes worked out for a specific course by a conscientious physicist who is not professionally familiar with nuclear physics. The level is roughly that of a senior or first-year graduate course. No knowledge of quantum mechanics is assumed. One third of the book deals with introductions to various theoretical topics such as elementary quantum mechanics, statistical mechanics, and relativity. The nuclear part of the volume is closely based on Evans, Halliday, and Kaplan. There are a number of criticisms that can be made: much of the theoretical introduction is irrelevant in content and level of presentation to the remainder of the book, although it may have suited the needs of a particular course;

RESEARCH SUPERVISOR

The solid state research program of our Central Research Division now includes investigations in the fields of thermoelectric materials, electroluminescence, infra red amplifiers, and the mechanism of electronic conduction in organic solids.

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Please address your replies to:

Charles R. Young
Employee Relations
AMERICAN CYANAMID COMPANY
1937 West Main Street
Stamford, Conn.

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the author does not show a deep understanding of the relative importance of various topics; there are a number of errors arising from his unfamiliarity with the field; there is no feeling conveyed of the experimental method in nuclear physics, although techniques are mentioned; no problems are listed; throughout there are surprising, and unpedagogical, variations in level of approach. This book may be of some use to exclusively French-reading physics students, although Halliday's excellent text has been translated into French. However, the book cannot be recommended to anyone who can read English.

Wave Propagation and Group Velocity. By Léon Brillouin. 154 pp. Academic Press Inc., New York, 1960. $6.00. *Reviewed by Nicholas Chako, Queens College.*

NOTWITHSTANDING the great interest in the field of wave propagation in material media and its many industrial and other applications, there exists, as far as the reviewer is aware, no treatise which covers in a comprehensive and unified form the theoretical aspects of this field, especially those dealing with propagation of waves in dispersive and absorbing media. This gap has partially been filled with the timely appearance of Professor Brillouin's excellent monograph, which contains, in the English version, the fundamental papers by Sommerfeld and the author [originally printed in Ann. Physik, **44**(1914)] and some of the author's later publications. The purpose of collecting these papers in a book could not be stated better than the author already has: All these modern developments (radiopropagation and signaling; ultra-acoustic, water, and seismic waves; waveguided waves, etc.) made it advisable to assemble here a systematic presentation of the original papers which are rather difficult to find nowadays . . . for these problems have come again into the foreground in connection with the propagation of radio signals and radar . . . and seem to have been ignored by many young physicists and radio engineers, who frequently spend too much time rediscovering some of the classical results. The above remarks apply as well to many fundamental papers by other famous scientists, especially, to Hamilton's epoch-making contributions to geometrical optics.

The papers gathered in this book, although limited in their scope by the special cases which they treat, are still of sufficiently general character to provide a broad basis not only for a clear comprehension of the phenomena of wave propagation in dispersive and absorbing media, but also they open the door to the student and research worker for understanding the recent developments and for dealing with more complex problems in this branch of science.

In the first chapter the author presents in a succinct, but clear, manner the distinction between phase, group, and signal velocity in a dispersive medium. This distinction, especially between the group and signal velocity, arose in connection with Einstein's statement