has not gone too far. Perhaps it was assumed that ingestion of nuclear information by the student would have occurred earlier; in which case a more sophisticated treatment, on the same level as the solid-state chapters, seems in order rather than the brief and descriptive discussion given. One feels a certain ingratitude in mentioning this point, since Sproull is a clear and thorough expositor whose book evidently represents a great deal of thought and teaching experience. It is not hard to foresee a future edition as the standard text in modern physics courses for engineering students.

Resonance in Organic Chemistry. By George Willard Wheland. 846 pp. John Wiley & Sons, Inc., New York, 1955. $15.00. *Reviewed by A. S. Friedman, National Bureau of Standards.*

Resonance in Organic Chemistry is a greatly expanded edition of the author's earlier book, *The Theory of Resonance and its Application to Organic Chemistry.* The author considers the molecular orbital treatment and the resonance treatment as parallel rather than mutually exclusive approaches to the study of the structure of chemical bonds. From the point of view of the organic chemist, however, the resonance theory may be clearer. The major portion of the book is therefore devoted to a discussion of the resonance concept of molecular structure and its application to organic chemistry. There is, however, a long (150 pp.) concluding chapter which reviews the mathematical bases of both the valence bond and the molecular orbital methods. The appendix contains a tabulation of interatomic distances and bond angles for almost 1000 molecules.

Vibrations Mécaniques. Acoustique. By P. Fleury and J.-P. Mathieu. 322 pp. Editions Eyrolles, Paris, France, 1955. 3000 fr. *Reviewed by R. B. Lindsay, Brown University.*

This is the third volume of a contemplated series of eight by the present authors on general and experimental physics. The multi-volume type of general textbook by a single author or pair of authors is a more common phenomenon in continental Europe than in Britain or America. It has certain obvious advantages which are worthy of attention, two among them being a helpful uniformity of presentation and level of difficulty over a wide range of subject matter, and a comfortable expansiveness of treatment not possible in the highly condensed one-volume text. On the other hand, diversity in presentation often possesses great pedagogical value. Without entering into a detailed argument on this subject, it is at any rate a pleasure to report that the book under review is a substantial introduction to mechanical vibratory phenomena and acoustics. The level of difficulty is approximately that corresponding to junior courses in American colleges and universities.

In the preface the authors assert that their aim has been to present as concretely as possible the principal

phenomena with the associated theoretical interpretation. The treatment has a definite experimental slant and indeed the text is liberally illustrated with descriptions of experiments and diagrams of experimental equipment. Some of the latter are indeed a bit old-fashioned from the standpoint of present day knowledge of acoustics. The mathematical development has been kept on a relatively simple level, demanding only elementary calculus and differential equations. The style is clear and in many respects elegant, reflecting considerable effort toward accuracy combined with simplicity of expression.

The book is divided into three main sections of approximately equal length. These are: 1) vibratory motions, 2) elastic waves, and 3) production and detection of acoustic waves. The material thus serves as an adequate introduction to basic acoustics from what may be called the classical standpoint. The references to acoustical advances in the past twenty-five years, e.g., ultrasonics, are relatively scanty. This is all the more unfortunate in view of the fact that the claim of acoustics to be a vital part of modern physics is inevitably based on the recent studies on the interaction of acoustic waves with matter in its various phases and the associated use of such waves in the exploration of the structure of matter.

There appear to be few serious errors or misprints. The reviewer was indeed sorry to see once more the hoary old bell-in-jar experiment described in the time-worn and wholly inadequate terms of sound not being able to pass through a "vacuum". The treatment of group velocity is also not as careful as it might have been.

American students of acoustics will find this a very satisfactory book in which to practice and improve their grasp of scientific French in preparation for handling more advanced research material in that language.

Briefly Noted

Application of Dimensional Analysis to the Relationship Between Velocity of Sound and Physical Properties of Organic Liquids, by Dudley Thompson and N. N. Bakhshi, is a pamphlet in which the authors apply dimensional analysis to the correlation of sound velocity in various organic liquids with their density, surface tension, viscosity and molecular weights. The relations obtained may be of use in the extensive theorizing now proceeding in this field. (26 pp.; Bulletin of the Virginia Polytechnic Institute; Engineering Experiment Station Series No. 100; June 1955; $0.25.)

Revised as well as brought up-to-date, the second edition of David Halliday's *Introductory Nuclear Physics* (493 pp.; John Wiley, New York, 1955; $7.50) seems even better adapted than its predecessor to the needs of an undergraduate or early graduate course in this subject. The treatment is largely descriptive (although a number of derivations are sketched), permit-