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stars charted in detail. It is this effect of science, the setting of new values and new victories, which he gives too scanty a treatment, but which may help solve the problems of boredom, over-leisure. Here is the path to a solution, and here is one more, and indeed a more worthy reason, why science training needs to be brought to wider and wider circles, not to an elite of future missile experts alone. Sir George Thomson's book is far from a bad place to begin a layman's introduction into the uses and beauties of physics.

Report of the Committee on the Measurement of Geologic Time, 1953-1954. NAS-NRC Publication 333. John Putnam Marble, Chairman. 193 pp. National Academy of Sciences—National Research Council, Washington, D. C., 1955. Paperbound \$1.75. *Reviewed by S. F. Singer, University of Maryland.*

This is probably the last publication of Dr. John Putnam Marble, Chairman of the Committee on the Measurement of Geologic Time. His death last June is a great loss, both professionally and personally, to his colleagues. He and eleven other distinguished geophysicists and geologists have put together this report which lists all of the work in this field published during 1953-54, summarizes it and gives complete references to the literature. The report of the Chairman constitutes a general summary of the work during the past two years and bears his delightful touches. Among other recent developments the report deals with new data on the lead isotope method of measuring geologic time, natural variations in stable isotopes, methods for measuring the C-14 content of materials, and the general chemistry of radioactive elements. It also discusses the tritium method, the argon-potassium method, deep-sea cores, and the recent researches on the age and origin of meteorites.

Modern Physics: A Textbook for Engineers. By Robert L. Sproull. 491 pp. John Wiley & Sons, Inc., New York, 1956. \$7.75. *Reviewed by Arthur Beiser, New York University.*

There is no shortage of texts whose purpose is to reveal modern physics to engineers, but Sproull's new book differs considerably from the norm. After introducing particles, nuclei, and atoms, and describing some of their properties, a careful discussion of the wave-particle duality is presented. Then the Schrödinger equation is stated and applied to square wells, the harmonic oscillator, radiation and absorption, and in some detail to atomic and molecular structure and spectra. Next, four chapters on the solid state, followed by material on physical electronics and nuclear physics (the former occupying more space than the latter). The striking difference in emphasis between solid-state and nuclear physics is certainly no accident here, but one may question whether in correcting the usual inequity the author

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.*

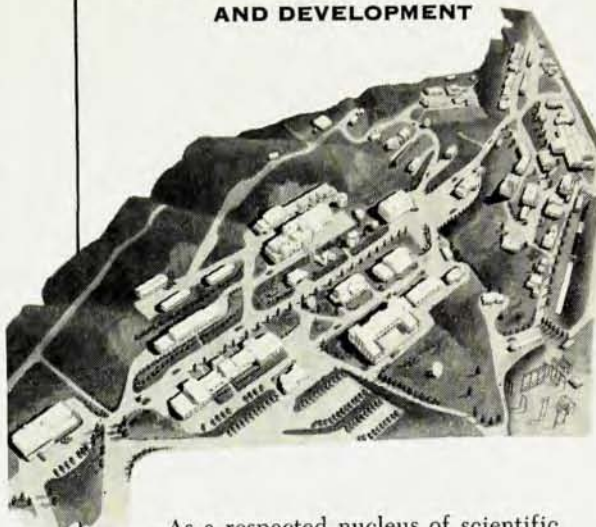
Resonance in Organic Chemistry is a greatly expanded edition of the author's earlier book, *The Theory of Resonance and its Application to Organic Chemistry*. The author considers the molecular orbital treatment and the resonance treatment as parallel rather than mutually exclusive approaches to the 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

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