by well-chosen diagrams. The short bibliography at the end contains references as late as 1959 and includes German, French, and American works on noise and its control.

Mechanics and Properties of Matter (2nd ed.). By Reginald J. Stephenson. 367 pp. John Wiley & Sons, Inc., New York, 1960. $7.50. *Reviewed by T. Teichmann, General Atomic, Division of General Dynamics Corporation.*

NEWTONIAN mechanics forms the basis for a large portion of classical physics, and engineering, and this book presents and develops the connection at the undergraduate level. The contents are not quite as ambitious as the title might lead one to think; some aspects of the mechanical behavior of solids, liquids, and gases are discussed, but not the "properties" of materials as they are usually understood these days.

All the standard topics are clearly discussed, including Newton's laws, gravitational attraction, relative motion, and elliptic orbits for particle motion; rigid mechanics; oscillations of systems of particles and elastic substances; and statics and elementary hydrodynamics. There are a number of examples in the text and the general treatment encourages the reader to work out the numerous examples at the end of the various chapters.

Special attention is given to a variety of problems not usually encountered in such detail in such a text. These include the transformations of special relativity, the scattering of nuclear particles, a detailed discussion of the rotation of rigid bodies, including Euler's equations and their application to the spinning top, and dimensional analysis.

The presentation is carried out in such a way that more advanced study of classical mechanics will not require a complete reorientation of the student, and the book should prove useful to both science and engineering undergraduates.

Graphite and Its Crystal Compounds. By A. R. Ubbelohde and F. A. Lewis. 217 pp. Oxford U. Press, New York, 1960. $5.60. *Reviewed by Stuart A. Rice, Institute for the Study of Metals, The University of Chicago.*

IN many courses in elementary (and even advanced) chemistry the student is led to believe that graphite is an inert form of carbon, somewhat related in electronic structure to aromatic molecules, but of little chemical interest in its own right. This very clearly written book should do much to rectify the situation. I have read it not as an expert on graphite (which I am not), but as a chemist interested in the properties of condensed matter. Not only have I learned many surprising facts, but also have had many ideas for research problems suggested by the material presented.

The text is divided into nine chapters, four devoted to pure graphite and the remaining five to compounds of graphite and their properties. In all instances, the

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material is organized much as in a review article, but with attempts at consistent interpretation in terms of crystal defects, electronic structure, etc. In my opinion the most serious defect in this book is the lack of detailed treatment of the theoretical investigations of the electronic structure of graphite. Even if these are regarded as incomplete, a much better feeling for that which is understood and that which is obscure would undoubtedly result from close study and integration of theory and experiment. In spite of this deficiency, the book can be wholeheartedly recommended to all physical chemists, inorganic chemists, and solid-state physicists.

Photo-Electronic Image Devices. Symp. Proc. (London, Sept. 1958). Edited by J. D. McGee and W. L. Wilcock. Vol. 12 of Advances in Electronics and Electron Physics, edited by L. Marton and C. Marton. 397 pp. Academic Press Inc., New York, 1960. $12.00. *Reviewed by W. T. Wintringham, Bell Telephone Laboratories.*

THIS volume, the twelfth in the series, "Advances in Electronics and Electron Physics", edited by L. and C. Marton, is the proceedings of a symposium on image tubes and related devices held at Imperial College of London University, September 3–5, 1958. The symposium was arranged under the enthusiastic leadership of Professor J. D. McGee. Representatives of almost every laboratory in the world working on image tubes and their application took part in the symposium. However, as Professor McGee points out, he was unsuccessful in persuading workers from the USSR to attend and present papers.

The absence of Russian scientists from this symposium is to be regretted. Praiseworthy results reported in the Russian journals indicate a high level of interest and of competence in the USSR in areas covered at the London meeting. Consequently, the cause of science would have been furthered by a free discussion of *all* of the work in progress on image tubes.

For somewhat more than thirty years scientists have been improving photoelectric camera devices and circuits. About ten years ago scientists working in other fields recognized that the tools devised for television might be useful in the laboratory as well as for entertainment. In particular, the fact that the quantum efficiency of a photocathode might be a hundred times greater than that of a photographic emulsion and the fact that television techniques might be used to increase the contrast between a bright image and its background suggested the advantages to be gained by borrowing from television.

This approach to the problem of increasing the sensitivity of image-recording systems is reflected in the fact that about one third of the papers in the symposium treat tubes derived directly from the television camera tube family. All of these tubes have the property of integrating and storing the effect of radiation incident on the photocathode. Hence the electrical