

**Properties of Matter**

By Dr. F. C. Champion and Dr. N. Davy. (Student's Physics, Vol. 3.) Second edition. Pp. xiv+328. (London and Glasgow: Blackie and Son, Ltd., 1952.) 27s. 6d. net.

FOR schools of physics which teach properties of matter at third-year honours level, this work should make an admirable text-book. It covers the usual subjects, such as gravitation, elasticity, surface tension, osmotic pressure and viscosity, and, in addition, it has chapters on the compressibility of liquids and solids and on seismic waves, which give the student a clear idea of the practical importance of general principles. The various subjects are treated extremely competently, and the physical approach is not subjugated to the mathematical, as so often happens with advanced text-books.

To the reviewer, the only jarring note occurs on the last page of the book, in a chapter on errors of measurement; this chapter discusses the various theoretical considerations involved in assessing the probable error of a quantitative result, and illustrates them by the steps involved in the determination of  $e$  and  $h$ . The result given for  $e$  in 1932 is  $(4.7787 \pm 0.0052) \times 10^{-10}$  e.s.u. The authors then state, without comment, that the value computed in 1941 was  $(4.8025 \pm 0.0011) \times 10^{-10}$  e.s.u. Is this not likely to produce in the student a sense of scepticism about the whole of the theory of errors? Surely the authors should have taken the opportunity of stressing the importance of applying the theory only when systematic errors have been eliminated.

**Mass Spectroscopy in Physics Research**

Proceedings of the NBS Semicentennial Symposium on Mass Spectroscopy in Physics Research, held at the NBS on September 6, 7 and 8, 1951. (United States Department of Commerce: National Bureau of Standards, Circular 522.) Pp. vi+273. (Washington, D.C.: Government Printing Office, 1953.) 1.75 dollars.

THIS book is a record of the proceedings of a symposium on "Mass Spectroscopy in Physics Research", sponsored by the National Bureau of Standards and held in Washington, D.C., during September 6-8, 1951. The thirty-five papers submitted at the conference together with the discussion ensuing from each paper are given in full, and the book ends with a comprehensive account of an informal discussion on experimental methods. A good knowledge of existing mass-spectroscopy techniques is essential in order properly to appreciate the papers.

An excellent opening paper by J. Mattauch summarizes the field of high-resolution mass spectroscopy with application to the measurement of absolute masses. This is followed by a number of shorter papers by some of the leading physicists in the field of mass measurement describing instruments, the results obtained and possible improvements to the existing equipments. A number of instruments using new techniques for mass measurement are described, for example, time of flight and cyclotron resonance. Isotope abundance measurements are briefly summarized, and techniques are described for some specific problems on the variations in the abundances of naturally occurring isotopes. Two large-scale mass spectrometers are described which have been used successfully for separating very small quantities

of pure isotopes for nuclear physics research. The last group of papers deals with a number of specialized subjects which serve to illustrate the wide field of application of mass spectroscopy in modern physics research. In the concluding section, on experimental methods, the use of the electron multiplier as a detector of positive ions is discussed together with the current ideas on high-vacuum gasket materials, ion-source plate spacers, etc. The omission of any papers on the analysis of solid materials by the mass spectrometer is a criticism of the conference rather than of the book.

The book is a valuable acquisition for any laboratory interested in the problem of mass measurement, and it indicates the extensive part played by mass spectroscopy in physics and chemistry research.

G. H. PALMER

**New Pathways to Piano Technique**

A Study of the Relations between Mind and Body with Special Reference to Piano Playing. By Luigi Bonpensiere. Pp. xxiii+128. (New York: Philosophical Library, Inc., 1953.) 4.75 dollars.

THIS book has been posthumously compiled from notebooks left by Mr. Luigi Bonpensiere. In it is developed a theory of 'ideo-kinetics' based on the author's private experiments. These purport to show that with proper training we can achieve far greater control over our bodily movements and much more rapid acquisition of complex skills than is possible by means of our usual methods of 'physio-kinetics'. In 'ideo-kinetics' the limbs to be used (for example, the hands in piano-playing) are completely disregarded and instead the person concentrates intensely on the image of the goal to be reached.

Mr. Bonpensiere was first trained as a technologist; but his claim to distinction lies in his contribution to art and musicology. Unencumbered by academic lore, he later turned his original mind to empirical problems of body-mind relations and carried out experiments which, if confirmed, may lead to remarkable conclusions. The material is unfortunately fragmentary and expressed in a strange terminology; but the reader willing to overcome these obstacles will find much in it which deserves close study. Although Mr. Bonpensiere illustrates the applications of his theory from piano-playing, the theory applies to every form of bodily skill.

Mr. Aldous Huxley contributes a vivacious and sympathetic preface, and his description of the author as "remarkably gifted" seems to be perfectly just. JOHN COHEN

**The Year's Work in Librarianship**

Edited by W. A. Munford. Vol. 15, 1948; pp. x+281. Vol. 16, 1949; pp. x+230. (London: Library Association, 1952.) 40s. each vol.; to members, 30s.

THE annual publication "The Year's Work in Librarianship" consists of a series of chapters by different authors, those dealing with national and university libraries, with special libraries, with library co-operation, with professional education and with subject bibliography containing most of the information of interest to the man of science as such. They are comprehensive and competent pieces of workmanship, factual rather than critical, but of more worth to the librarian than to his clients. The time-lag in publication seems excessive for a publication of this kind: Vol. 15, covering 1948, appeared in the spring of 1952, and Vol. 16, for 1949, at the end of 1952.