clude publications dated 1953. It is to be hoped that the student will have occasion to refer to them and thence to some of the original experimental papers. It would be well for him at least to learn the names of some of the investigators whose findings have been so ably summarized in this textbook.

In their preface, the authors state that "this book is designed primarily to meet the needs of the first-year medical student." They have been eminently successful in their work.

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Metabolic Interrelations. With special reference to calcium. Trans. of the Fifth Conference. Jan. 5–6, 1953. Edward C. Reifenstein, Jr., Ed. Josiah Macy, Jr. Fdn., New York, 1954. 386 pp. Illus. $5.

This volume provides that peculiar mixture of stimulation and disappointment that readers have come to expect. Spontaneous discussions lose a good deal in the recording, are repetitive and disorganized. Nevertheless, when the best brains of the country discuss the subject, a recording of the discussion is valuable. Some of the presentations are very good, and one might say that "fringe benefits" are included. It may be of satisfaction to less eminent readers to see how little progress is made and how few new ideas there are in some of the areas. One is also struck with the persistence of old ideas that seem to have little validity and how they influence the thinking of the group. Throughout this volume, for example, references to the equilibrium between the bone salt and solubility product occur repeatedly, in spite of the fact that Neuman insists, also repeatedly, that there is no single crystal type, the bone is not a single phase, and thus there is no reason bone should dissolve or be formed at any particular calcium and phosphorus level in the blood. There seems to be no serious disagreement upon this point. Yet, because the mechanism which does control bone formation or dissolution is obscure, most of the group still thinks in terms of a solubility product.

The chapter headings do not give a clear picture of the contents since some are short extemporaneous remarks while others are more finished presentations of the subject material. Calcium and phosphorus homeostasis, transport, and so forth, are discussed at considerable length, including the roles of the kidney, parathyroid, and vitamin D. Nutritionally minded people will find the section on "Adaptation to low calcium intakes,' by R. A. McCance, stimulating and frustrating. One of the more complete discussions is that of R. T. Follis upon "Diseases, particularly of the bone, associated with derangements of calcium and phosphorus metabolism." The transactions also provide some idea of the newer or revived interests in the field of calcium metabolism. The relation of citric acid and citrate metabolism to bone formation and vitamin D function is attracting considerable attention. The discussion on chelating agents, the mucoproteins, and radio calcium will bring readers with borderline interest somewhat up to date.

Anyone who has had his "off-the-cuff" remarks recorded will realize the editorial effort required to bring the proceedings to their present form. In spite of the limitations, this is probably the only way to make these conferences available to more than the limited group which can attend. The discussion remarks are well documented with reference to the literature. For most of us interested in calcium metabolism, they should be required reading. There may be a few fortunate individuals who can keep thoroughly abreast of all the current literature in the fields touched on in these transactions. They may be excused.

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Introduction to Atomic Physics. Otto Oldenberg. McGraw-Hill, New York–London, ed. 2, 1954. xiii + 421 pp. Illus. $6.

The second edition of Oldenberg's *Introduction to Atomic Physics* preserves all the positive features of the first. There are, in addition, two major changes. First, the material has been extended to include more of "modern physics," such as nuclear physics, cosmic rays, and high energy processes. There is also a short discussion of the solid state. Atomic physics *per se* is the subject of about two-thirds (280 pp.) of the book. Second, a number of technical improvements have been made; the electron charge and mass are denoted by the conventional e and m instead of the rather individualistic ε and μ; the number of problems has been approximately doubled and a selection of answers provided.

The advantages of the treatment are familiar to users of the first edition. The author sets out to present the concepts and experimental facts of atomic physics with an absolute minimum of mathematics. The second edition avoids calculus more scrupulously than the first, if possible. The connection between theory and experiment is continuously emphasized. This is particularly satisfactory in the chapters (8–10) dealing with the birth of modern atomic physics in the interpretation of α-particle scattering, the photoelectric effect and the hydrogen spectrum. The problems give the student opportunity to work by himself through arguments supplementary to the text and to obtain a feeling for the magnitudes involved.

The strength of this treatment is also its weakness. If a student is eventually to learn a fuller mathematical treatment of atomic physics, is it worth while for him first to run through whatever material can be treated without calculus? Most undergraduates majoring in science or engineering have more mathematical equipment than secondary school algebra. The limitations of the present textbook become more severe with increasing "modernity" of the subject matter. For example, the entire subject of space quantization