Thiohydantoins (J. T. Edward), Thiophosgene (H. Tilles), Recent Aspects of Olefin Sulfide Chemistry (L. Goodman and E. J. Reist), Desulfonylation Reactions (J. L. Kice), and the two chapters on the homolytic addition reactions of thiols to multiple C-C bonds (A. A. Oswald, T. J. Wallace, and K. Griesbaum). The discussion of the chemistry of olefin sulfides should have included their oxidation reactions even though the successful preparation of episulfoxides and episulfones is very recent (1966). The statement that episulfones cannot be isolated is misleading in view of the accessibility of these structures via the reaction of diazoalkanes and sulfur dioxide. Also, it is unfortunate that the discussion of the stereochemistry of the co-oxidation of thiophenol and indene does not clarify the fact that the reaction is not *trans* stereospecific in view of the reported isolation of appreciable yields of *cis*-2-phenylsulfinyl-1-indanol. The chapter on thiophosgene could have been enriched by a detailed account of a recommended procedure for the generation of this useful reagent in the laboratory. Less comprehensive, but thorough, discussions centered primarily around personal research are contributed by A. Fava (Isomerization of Organic Thiocyanates) and O. Gawron (On the Reaction of Cyanide with Cystine and Cystine Peptides). The chapter on Electron Correlation and Bond Properties in Some Selected Sulfur Compounds (H. A. Bent) presents an excellent review of generally recognized relationships between the electronic states of atoms and the physical properties of the resulting bonds, an extension of this discussion to cover sulfur bonds, and an original treatment of the tangent sphere model, anticoincidence, and the Hellman-Feynman theorem as applied to the bonds in certain sulfur compounds.

Two chapters of this book are disappointing. The discussion of The Alkaline Decomposition of Aliphatic Disulfides (J. P. Danehy) is inconclusive and is based on admittedly incomplete studies. No attempt is made to explain the zeroth-order dependence on cystine in its alkaline decomposition. The chapter by W. Drenth entitled Properties of 1-Alkynyl Thioethers is essentially a repetition of the discussion of four personal studies (with Loewenstein, Hogeveen, Stamhuis, and Hekkert) and is highly speculative.

The proofreading of the book could have been more careful. Errors, omissions, and other flaws were noted on 36 pages. But in spite of its shortcomings the volume is an indispensable addition to the library of the ever-expanding field of organic sulfur compounds.

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Papers on Elementary Particles

High Energy Physics. Vol. 1. E. H. S. BURHOP, Ed. Academic Press, New York, 1967. 511 pp., illus. $22.

The present volume is the first of three intended to provide a comprehensive and up-to-date account of elementary particle physics. It is a prime example of the misguided practice of combining under one cover unrelated essays by experts in various specialties. Although the authors have produced useful articles, the long delay (nearly two years) required to produce this expensive and beautiful book inevitably decreases the impact and interest of their essays. As the editor admits, "the content of each volume has been determined by the order in which the articles came to hand rather than by the natural order suggested by the rational development of the subject."

Because of this I shall discuss the contributions separately. The introductory article by V. F. Weisskopf gives a qualitative survey of elementary particle physics. This paper is a reprint from an earlier issue of *Science* [**149**, 1181 (1965)]. It has the decided virtue of recalling an earlier day when particle physics was considered as a single subject which could be understood, however imperfectly, by one person. It is a fine essay for the nonspecialist who wonders why physicists care. There follows a closely packed, 170-page article by G. Breit and R. D. Haracz on nucleon-nucleon scattering. Every expert in this field will have to consult this definitive work on the extensive phase-shift analyses by the Yale group, at least to make sure his papers are cited in the extensive (13 pages) reference section. The discussion of theory is inadequate, and in general the nonspecialist will tire while hunting for the main accomplishments and problems of the subject. The excellent article by J. Hamilton on pion-nucleon scattering rarely loses sight of the physical content of the mathematics. This paper, which is an amplified version of lectures that have appeared previously, in several places, shows successfully how experimental data may be understood by means of plausible approximations based on dispersion relation techniques. The selection of material and references is eclectic and is largely confined to the contributions of Hamilton and co-workers. T. A. Griffy and L. I. Schiff present a discussion of electromagnetic form factors. The treatment is similar to that of Drell and Zachariasen's *Electromagnetic Structure of Nucleons* (Oxford University Press, 1961), with changes to accommodate the steady progress in this area. (For example, the Dirac-Pauli form factors have given way to the Barnes-Sachs form factors. More accurate theories of the deuteron now permit a better determination of the neutron form factor.) Unfortunately the utility of this contribution suffers from the long time between manuscript completion and publication. Many important recent advances could not be included. In the final contribution, P. T. Matthews provides a lucid treatment of various unitary symmetry schemes. His discussion of SU(3) is fairly standard, but the unified exposition of theories dealing with "relativistic SU(6)" is really outstanding. This part evokes memories of the great gold rush of 1964–65. It is a pity that Matthews's article was not widely available during the great controversy surrounding this subject. Much has happened in this area since the review was written, but his discussion is less dated than might be expected. The mathematical appendix is very useful.

The publishers have not done the readers or authors a favor by the publication of this book. The excuse given, that "it is now extremely difficult to envisage a work both comprehensive and up-to-date, written by a single author," is disproved by Gasiorowicz's recent *Elementary Particle Physics* (Wiley), which is simultaneously comprehensive, organized, and very much up to date. The reviewer hopes that his colleagues will learn that their specialized essays will be read sooner, by more people, if they publish in the review journals.

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