using large type and including several drawings, the authors touch on essentially everything from the early spherical atom to subnuclear particles, mentioning types of accelerators as well as cosmic rays and fusion enroute. In fact, only some 40 pages, or less than half the book, are devoted to the subnuclear particles (really the results of current high-energy experiments) that are usually considered as inhabiting the "subnuclear zoo"; this section also includes discussion of the "unknown." The nonmathematical treatment is at approximately the level of a lecture (or so) given to high school students, preferably those interested in physics.

Accepting the rather vague and unspecified "ground rules" that seem to apply to semipopular treatments such as this, the book is technically adequate, having no gross errors or inaccuracies beyond what might be acceptable in leaving a generally correct impression. However, this reviewer does find it somewhat disturbing to read that "fermions are particles affected by forces" and "bosons are particles that carry forces," even as it is recognized that these statements rather crudely express an interpretation of certain observations. Furthermore, a statement that "a quantum number is a measurement of some characteristic of the particle—charge for example" is a little more inclusive definition than may be desirable. Unfortunately, the authors do not indicate as clearly as might be desirable that many of their "facts" concerning particles really reflect interpretations based on current theories, about which there are currently some differences of opinion. At the level of their approach, however, this is probably just as well.

Overall, this reviewer had difficulty in evaluating the purpose of the book or in describing an audience to which it might be directed, other than the original comment above. It attempts so much and its treatment is thus necessarily so broad that clarifying details are obviously not included. Similarly, the descriptions and explanations given in nonquantitative terms suffer from the corresponding necessary imprecision of both analysis and language. On the other hand, its coverage is remarkably good. Thus, although a case might be made for its inclusion in a high school or college library for rather casual reading, it cannot be recommended as a book one would like to obtain for reference or even to reread. It would certainly be rather inappropriate and of little use to someone with prior knowledge in the general field.

Hugh F. Henry has been head of the Physics Department of DePauw University since 1961. Prior to that time, his responsibilities at the Oak Ridge Gaseous Diffusion Plant included those of criticality safety and health physics. His publications in these general fields include the book Fundamentals of Radiation Protection, *which was published by Wiley Interscience in 1969. He spent a sabbatical leave during 1968-1969 at the National Reactor Testing Station in Idaho Falls, and spent a similar leave during 1975-1976, with his time divided between the National Radiological Protection Board and the U.K. Atomic Energy Research Establishment, both at Harwell, England. He is a member of the U.S.A. Standards Institute (USASI) Committee on Radiation Protection and has been a U.S. delegate to meetings of the International Standards Organization (ISO) in this field.*

Pulse Radiolysis

Author Max S. Matheson and Leon M. Dorfman

Publisher American Chemical Society (1969)

Pages 202

Price $8.50 paper; $14.75 hardback

Reviewer James B. Smathers

I was quite taken back when asked in 1978 to review a book written in 1967 and copyrighted in 1969. After reading through the book, though, I realized that indeed no mistake had taken place. What was an excellent review of the state-of-the-art in 1967 has become a well-written introductory treatment of the area of pulse radiolysis. The material is presented in a clear, concise manner and lends itself to be used as an introductory text on the subject. The obvious deficiency of references that extend only through 1968 is a detraction, the magnitude of which readers will have to determine for themselves.

Chapters 1 through 4 consider radiation sources, detection systems, and dosimetry. The dating of the book is particularly evident in these sections. Chapter 5 treats kinetics nicely. Chapters 6 through 9 treat aqueous systems, hydrated electrons, organic systems, and gaseous systems in turn.

In summary, the book, a paperback American Chemical Society monograph, is considered a worthy library addition for anyone interested in a basic background in pulse radiolysis.

J. B. Smathers (PhD, University of Maryland, 1967) is presently professor and head of bioengineering and professor of nuclear engineering at Texas A&M University. His experience includes eight years in research reaction utilization and nine years in the biomedical applications of nuclear energy.

Nuclear Methods in Mineral Exploration and Production

Editor Jerome G. Morse

Publisher Elsevier Scientific Publishing Company (1977)

Pages 280

Price $39.95

Reviewer William C. Peters

This book will appeal to scientists and engineers interested in applications of nuclear technology to the exploration, development, and processing of energy and nonenergy minerals. One of the Elsevier series, "Developments in Economic Geology," this book provides an overview of nuclear techniques that lend themselves to the rapid detection and identification of naturally occurring elements and minerals in field outcrops, mines, drill holes,