only two slim volumes have been published on this important subject: *Radiolysis of Hydrocarbons*, edited by A. V. Topchiev (1963) and *Aspects of Hydrocarbon Radiolysis*, edited by T. Gäumann and J. Hoigné (1968). Both remain useful sources of information and ideas, although they were incomplete even at the time of their publication.

The new book by Professor Földiak and his colleagues is comprehensive as well as up to date. It contains a fine introductory chapter on the fundamental physical and chemical effects following the deposition of energy from ionizing radiation and the experimental methods of measuring these effects. In the closing chapter, Földiak makes a penetrating analysis of the status of research in this field and of the industrial implications and applications. Between these two chapters are five others consisting of well-written, brief descriptions of a large body of experimental information, along with numerous tables, figures, and references. Qualitative explanations and correlations are offered at appropriate points, and there are some efforts to present unifying models, but the principal value of this book is to be found in its wealth of experimental information.

There are some minor flaws in this fine work. A reactor engineer might be disappointed to find only ten references to the radiation chemistry of the terphenyls. A polymer chemist should look elsewhere for detailed information on the chemical effect of ionizing radiation on polyolefins and polymerizable hydrocarbons. The section on the radiation chemistry of methane omits references to some of the most important electron spin resonance studies performed at 1.6 to 4 K. An author index would have been useful. In almost all other respects the book meets the worthy objectives of its Hungarian authors. They have produced a work of enduring value that belongs on the bookshelf of every radiation chemist.

Joseph Silverman is a professor and director of the Institute for Physical Science and Technology, University of Maryland, and its Laboratory for Radiation and Polymer Science. He obtained his PhD from Columbia University in 1951. He has been general chairman of the International Meetings on Radiation Processing in 1978 and 1980 and its overseas chairman in 1982.

Proceedings of the 36th Industrial Waste Conference—Purdue University

Editor	John M. Bell
Publisher	Butterworth Publishers, Inc., Woburn, Massachusetts (1982)
Pages	997
Price	$69.95
Reviewer	Stephen G. Margolis

This is a collection of 95 papers in 20 categories. Other than a passing reference (in the keynote address) to the Three Mile Island radiation release, the question of nuclear waste management is not specifically mentioned in any of the 95 papers. Its principal value to nuclear engineers, then, is to give a background perspective on industrial wastes generally.

Primarily, the papers concern the treatment of wastes produced chronically by the process industries. These wastes are produced in large volumes by a mind-boggling variety of industries. The wastes considered include swine waste, poultry carcasses, heavy metals, the explosives TNT and RDX, paper mill effluents—in short, a panoply of biological, chemical, and physical pollutants that have in common *only* the *absence* of radioactivity.

One paper, "Emergency Response to a Major Agricultural Chemical Warehouse Fire," by Ryckman et al. (pp. 212-223) deals with the procedures used in an acute incident—a warehouse fire—which required evacuation of a downwind area and a major postfire cleanup effort ($500 000 and 250 000 gal of contaminated water). The paper concludes that the incident was resolved with no injuries, no lasting environmental impacts, and no litigation. This is in sharp contrast to the typical acute nuclear incident. In the chemical fire cited, the key ingredients for successful resolution of the incident appear to have been timely action by a state authority, a cleanup consultant, and an insurance company, all having unquestioned jurisdiction and all located within 50 miles of the incident site.

Can nuclear engineers learn anything from this collection of papers? It appears that the way to stay off the network news is to take action that is timely, local, and informed.

Stephen G. Margolis is a professor in the Department of Electrical and Computer Engineering at the State University of New York at Buffalo. His 13 years of industrial experience were with Westinghouse Bettis, ASEA-ATOM, and EG&G Idaho. He had 12 years of university teaching experience, is the author of numerous papers, and is a coauthor (with Roger Mayne) of Introduction to Engineering.

Radiochemistry, Hot Atoms, and Physical Chemistry
[Vol. II of the Collected Papers of Willard F. Libby (deceased)]

Editor	Leona Marshall Libby
Publisher	Geo Science Analytical and the University of California at Los Angeles (1982)
Pages	540
Price	$15.00
Reviewer	Jeffrey I. Steinfeld

The publications of the late W. F. Libby are being edited by his widow, Leona Marshall Libby, in a series of paperbound volumes. In this volume, his papers on radiochemistry and physical chemistry are collected. Included are brief reminiscences by W. G. McMillan and John A. McCone, 31 papers on hot-atom and radiation chemistry, 53 additional papers on a wide variety of topics in physical chemistry, and transcripts of 14 unpublished lectures.

A collection of this type cannot, of course, serve as a definitive scholarly presentation of any of the wide variety

of subjects represented in the individual reprinted papers. What is presented, rather, is a portrait of the personality and scientific style of Professor Libby. The reader of this collection must surely be impressed by the range and diversity of topics that Libby was among the first to investigate, such as hot-atom and ion-molecule chemistry, high-pressure chemistry, heterogeneous catalysis, and intermetallic compounds such as indium antimonide, the importance of which for electro-optical devices did not become apparent until much later. Failures as well as successes are cited—for example, his recommendation of an air pollution control strategy that would have "filled the streets (of Los Angeles) with NO_x," and his promotion of rare earth cobalt oxides for catalytic exhaust converters, which was never adopted by the automotive industry. It is especially poignant that this collection, emphasizing Professor Libby's contributions to nuclear and radiation chemistry, and his essential role in developing gaseous diffusion enrichment technology, appears at a time of increasing worldwide public opposition to nuclear weapons, and when mistakes and deceptions on the part of government scientists regarding public health aspects of atmospheric weapons testing are just coming to light.[1]

In reading through this collection, I came away with the feeling that I would like to have been better acquainted with Professor Libby; in this, the goals of publishing this material have been successfully accomplished.

Jeffrey I. Steinfeld is professor of chemistry at the Massachusetts Institute of Technology. His specialities are physical chemistry, spectroscopy, and applications of lasers to chemistry. His only connections with nuclear technology are occasional collaborations with Los Alamos National Laboratory and purchasing electricity from Boston Edison's Pilgrim I nuclear power station.

REFERENCE

1. R. J. SMITH, "Atom Bomb Tests Leave Infamous Legacy," *Science*, **218**, 266, 545 (1982).