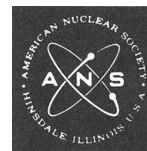


# BOOK REVIEWS

Selection of books for review is based on the editors' opinions regarding possible reader interest and on the availability of the book to the editors. Occasional selections may include books on topics somewhat peripheral to the subject matter ordinarily considered acceptable.



## UNIQUE AND COMMANDING

*Title* Radioisotopes for Aerospace, Part 1: Advances and Techniques

*Editors* John C. Dempsey and Paul Polishuk

*Publisher* Plenum Press, 1966

*Pages* xxx + 439

*Price* \$20.00

*Reviewer* S. H. Turkel

As the authors state in the Foreword, this book is a result of the growing conviction that the advances in isotope technology and the rapid expansion of isotope applications in aerospace merited the bringing together, for perhaps the first time, the basic essentials of this subject with the important sources, people, and potentials of this relatively new industry. This book, the Proceedings of a Symposium on Radioisotope Applications in Aerospace is, I believe, unique and commanding for its faithfulness in reproduction, its clarity and comprehensiveness in treatment and coverage, and its forecasting of the significant and critical elements of this vast subject.

This volume contains 26 papers surveying recent advances and techniques applicable to radioisotope applications in aerospace. Part 2 (to be published) will contain papers on systems and applications. Part 1 surveys the latest developments in detectors, electronics, radioisotope sources, and nondestructive testing, and the applications of radioisotopes to measurement problems and in advanced research and development work. The first group of papers gives a comprehensive look at the

state-of-the-art in nuclear detectors with emphasis on devices rugged enough for aerospace use, such as semiconductor detectors and a high temperature photomultiplier tube. An important paper on radiological health problems is included with papers covering radioactive sources, compact flash x-ray systems, several ways of measuring wear and corrosion with isotopes, and some techniques useful for planetary analysis.

As nuclear energy produced an inspiring breakthrough barely a generation ago, so this symposium and its remarkable account also represent a pioneering "first," comprehensively covering the basic principles, techniques, and applications of the use of nuclear radiation in aerospace. Previous attention had focused mainly on radiation effects upon materials, but here a new industry, still in its infancy, is admirably described and thoroughly treated. The care and clarity in writing of all the contributors have produced a fine report. It is to be highly recommended for reading by those individuals already in some aspect of the radioisotope industry, and those unacquainted with but interested in the techniques and applications of radioisotopes and the industrial operations of aerospace organizations utilizing them.

*S. H. Turkel (MS Physics CCNY, 1934) is a Technical Assistant at North American Aviation Company, Autonetics Division, Anaheim, California. At ANL (1943-46) he worked on reactor and neutron physics, experimental physics, and the determination of cross sections and other physical constants. Other broad experience was acquired at Oak Ridge, Johns Hopkins, Northrop, General Electric, Hughes Aircraft, and Aerospace Corporation.*

## MISLEADING TITLE?

*Title* Physics of Industrial Radiology

*Editor* R. Halmshaw

*Publisher* American Elsevier Publishing Company, Inc., 1966

*Pages* viii + 498

*Price* \$20.00

*Reviewer* Jere Austin

It would be unfortunate if this book should miss its intended audience in the United States because of the word *Radiology* in the title. Though technically correct, as the author points out, and he is backed up by our own unabridged dictionaries, United States custom seems to limit the word "Radiology" to the uses of radiation in diagnoses and cure of diseases. Industrial techniques of radiography, fluorography, xerography, etc., are, properly, branches of the science of radiology which can be divided into industrial and medical radiology. We in the United States would do well to adopt this nomenclature for the sake of clarity in communication and for possible benefits to be derived in information retrieval. One can visualize this title being indexed under *Radiology* and thus being overlooked by humans or machines searching for *Radiography*. Meanwhile, it is to be hoped that the word *Industrial* in the title will be sufficient to catch the notice of those whose business is industrial radiography in its various forms, for it will be a valuable addition to the radiographer's shelf.

Mr. Halmshaw is a well-known contributor to US journals. He is listed as Editor, though it is obvious that he has written the largest part of the book. His other writers are

also members of the Royal Armament Research and Development Establishment and between them have been able to draw on a considerable store of previously tested but unpublished data to enhance the value of the book.

In spite of thorough coverage of the subject, there are two omissions that are immediately apparent, at least to this reviewer. There is no mention of the use of color materials in radiography (pardon me, *industrial radiology*) and there is only one brief mention of neutron radiography. This should not detract from the value of the book, for both of these subjects are in the developmental stages, not universally used as yet, and there is probably not enough information available to warrant publishing in a permanent-type reference book.

Terminology throughout conforms to the British standard. This presents no problem to the US reader. One runs into slight difficulty in comparing British proprietary names, such as the identification of films, when specified, to appropriate US-equivalent brand names. In this respect, and because of the considerable depth of discussion of each subject covered, the book is not the type to be used as a quick-reference handbook by a field worker or technician, though any technician would enhance his professional value by absorbing its contents. It will find its greatest value in the hands of the person responsible for radiographic services: the one who has to be sure he is making the best use of the present state-of-the-art and is taking maximum advantage of his materials and equipment.

The most valuable parts of the book, to this reviewer, are chapters 8 and 9, both written by the editor. Here his discussion of the many and sometimes confusing aspects of radiographic definition, sensitivity, and image quality indicators, is worth the price of the book alone. Mr. Halmshaw presents a thorough discussion of all US and European types of image quality indicators, with an apparently unbiased presentation of the advantages and disadvantages of each.

Illustrations of radiographic images are a slight disappointment, in that positive prints rather than photographic copies are used. Positives were undoubtedly used to prevent loss of some fine detail in the

reproduction process, but the high quality of printing used in this ambitious book might have permitted use of photographic copies, and thus not require the reader to shift mental gears to mentally reverse the customary and familiar shading of images.

Each chapter is thoroughly referenced and the whole has been adequately indexed. It is an impressive work that will be valuable to the United States as well as the British nondestructive testing industry.

*Jere Austin discovered the value of radiography during World War II when radium was used successfully to determine the extent of cracking in a main engine cylinder liner of his Attack Transport. It was coincidental that, ten years later, as a member of the Hot Laboratory Operations Group, he became involved in and took charge of all radiographic inspection done at Brookhaven National Laboratory. In this capacity he has developed several new radiographic techniques.*

## ON THE SAWDUST TRAIL

**Title** Computer Calculation of Dose Distributions in Radiotherapy

**Publisher** International Atomic Energy Agency, 1966

**Pages** 215

**Price** \$4.50

**Reviewer** James S. Robertson

When one considers the complicated radiation dose patterns being used in modern therapeutic procedures he wonders how the radiotherapists ever got along without computers. It is not surprising, then, to note that radiologists are well represented in the *avant-garde* that is promoting the uses of computers in medicine. In general, the applicable computer techniques have been developed at a few advanced medical research centers, but they

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