

be helpful to trainees in radiotherapy. The material is clearly presented and covers the subject rather completely. The charts are very clear and easy to use. Almost all the charts are based on dose distribution from ^{60}Co , but the effects of radiations of other qualities are also discussed, and several charts at the end of the volume consider the effects of various megavoltage x rays on the resulting patterns of dose distribution.

This volume is highly recommended as a reference source and teaching manual for every radiotherapy department.

Harold Atkins is a member of the staff of the Medical Department at Brookhaven National Laboratory, where, since 1963, he has specialized in neutron radiography, neutron-capture therapy, and the development of scanning techniques for mapping in vivo radioisotope distributions. He received his radiology training at the hospital of the University of Pennsylvania and practiced radiotherapy and nuclear medicine at Yale University School of Medicine and at Columbia University College of Physicians and Surgeons. His MD degree (1952) is from Harvard Medical School.

RECOMMENDED FOR NONSPECIALISTS

Title Handbook of X-Rays
Editor Emmett F. Kaelble
Publisher McGraw-Hill Book Company, 1967
Pages x + 1028
Price \$35.00
Reviewer Benjamin Post

In recent years, the rapid growth of interest in x-ray diffraction and related techniques has been accompanied by a corresponding increase in the number of texts that deal with a wide variety of subjects in this general area. These volumes are designed primarily to meet the needs of specialists. Unfortunately, little

attention has been paid to the requirements of nonspecialists, of chemists, physicists, or metallurgists, who wish to use x-ray methods as an auxiliary tool in their work and who also wish to understand what they are doing. It is this latter audience at which the *Handbook of X-Rays*, edited by Kaelbe, is aimed.

An impressively wide range of topics is covered in 48 chapters written by specialists in various fields. Clearly, where so many authors are involved, it is inevitable that the level of treatment will vary. In general it appears to be good, and in many instances it is excellent.

The *Handbook of X-Rays* brings together in one convenient volume a mass of information about scientific areas where x-ray techniques are used. This information is generally not available to the nonspecialist or could be made available only after very long and tedious search through the literature. The book is divided into six parts. Part 1 deals with what are designated as "Fundamentals."

Part 2 deals with "Diffraction of X-Rays by Polycrystalline and Amorphous Materials." This is by far the largest section in the volume and includes 17 chapters covering a wide variety of topics related to powder diffraction methods

In Part 3, "Determination of Crystal Structure," the editor appears to have a peculiar understanding of what constitutes "determination of crystal structure." For example, the inclusion of Chapter 28, entitled "Indexing of Powder Patterns," in this part appears to be stretching the meaning of plain words a good deal. It clearly belongs in Part 2 and its inclusion in Part 3 appears to reflect an unfortunate attitude of the editor toward crystal structure analysis.

Parts 4, 5, and 6 deal with "X-Ray Emission Spectroscopy," "X-Ray Absorption Methods," and "Microradiography and X-Ray Microscopy." Most attention is paid, as might be expected, to emission methods. The treatment of fluorescence analysis techniques appears to be adequate.

One important omission does characterize the entire volume. In the past ten years, theoretical and practical interest in methods of investigating crystal perfection by x-ray diffraction techniques, lumped together in the broad category of

"x-ray topography," has grown to the point where at the present time there are probably as many investigators working in this area as in any other branch of the field. Yet nowhere in this handbook is there any serious discussion of crystal perfection studies by x rays. This oversight represents a serious shortcoming in the volume. Nevertheless, I recommend the volume highly, particularly to nonspecialists working with x rays.

Benjamin Post (PhD, Chemistry, Polytechnic Institute of Brooklyn, 1949) is a Professor in the Department of Physics at Brooklyn Polytech. Among his many research interests are chemical crystallography, low temperature x-ray diffraction, lattice vibrations, crystal structure analysis, and ultra high pressure methods. He was president of the American Crystallographic Association in 1966.

WASTE TREATMENT TREATED

Title Treatment of Low- and Intermediate-Level Radioactive Waste Concentrates
Publisher International Atomic Energy Agency, 1968
Pages 110
Price U.S. \$2.50
Reviewer Lee Gemmill

The general subject of treatment of radioactive waste concentrates had been discussed briefly at two symposiums sponsored by the IAEA in 1959 and 1965. To give an opportunity for further international discussion, the Agency convened a panel of thirteen experts from eight countries. The panel studied the problem in depth by reviewing operating practices and experiences and developing cost data on typical operations in various countries. The resulting document is an interesting recital of the methods used by many atomic energy sites in various parts of the world for handling and processing their low- and intermediate-level radioactive wastes.