

BOOK REVIEWS

ICHIBAN. John A. Auxier, Energy Research and Development Administration, 1977, 120 pp, \$4.75.

The effects of ionizing radiation on man is one of the most important issues of the nuclear age. Immediately after the end of World War II, studies were initiated to investigate these effects on the survivors of the Hiroshima and Nagasaki bombings. The top priority given to this program is typified by its name—Ichiban, which literally means number 1 in Japanese. While the effect of nuclear radiation on man was suspected shortly after Roentgen's discovery of x-rays and qualitatively known from the higher incidence of malignancy among American radiologists, very little quantitative information was available before World War II.

Ichiban is a critical review that documents a history of all the physical studies conducted by the Oak Ridge National Laboratory in conjunction with the Atomic Bomb Casualty Commission to determine the radiation doses received by the survivors of the Hiroshima and Nagasaki bombings. A well-planned survey of every possible survivor was carried out to accurately record all possible factors that might have had an influence on his radiation exposure. In addition, extensive studies of shielding effects on humans were done during the surface explosive tests of A-bombs in the deserts of Nevada up until 1962. These data finally made it possible to calculate individual dose estimates among survivors, designated as Tentative Doses in 1965 (T65D). This document offers a general description of the problems encountered, the sequence of studies performed, and the scientific findings that resulted in the present estimates of dose.

This publication is not meant to give an in-depth understanding of the Ichiban program and if this is desired, the reader is referred to other publications cited in the text. If the reader is interested in the painstaking data collection at various sites, as well as in experiments during Operation Plumbbob (1957), Operation Hardtack (1958), and Operation BREN (1961–1962), however, he should find satisfaction in reading this book.

Incidences of various malignancies among Japanese survivors, based on the T65D study, have been published through the Atomic Bomb Casualty Commission. It should be emphasized that T65D can be considered one of the most reliable experiments involving large human populations. These populations consist of a unique group of acute human exposures ranging from negligible to that considered greater than the mean lethal amount.

Ichiban is not a book for everyone's library but should be read by everyone who makes his living in a related field, regardless of his background. The knowledge derived from this study is invaluable to health physics, nuclear medicine, radiotherapy, and civil defense.

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DIAGNOSIS AND TREATMENT OF INCORPORATED RADIONUCLIDES. Proceedings of a Seminar Held in Vienna, December 8–12, 1975. STI/PUB/411, 1976, 637 pp, \$39.00.

In 1962, the IAEA and WHO jointly sponsored a meeting in Vienna on the diagnosis and treatment of radioactive poisoning. Since that meeting, significant improvements have

been made for diagnosing and evaluating body or organ content of radionuclides. The present report of the proceedings of the meeting held in December, 1975, also co-sponsored by IAEA and WHO, serves to bring information and knowledge in this field up to date.

The majority of papers are written in English, although some are written in French.

Presentations and discussions are mainly confined to the transuranic elements, especially plutonium, although tritium and isotopes of sodium, cobalt, promethium, zinc, and cerium are also investigated. The papers are divided into several sections. The first section contains papers relating to the metabolism of radionuclides, including elimination and retention. Formulae are given for calculating the total expected dose and excretion rate for four patterns of uptake.

The report contains more than adequate information about the factors governing the incorporation of various radionuclides including their physical and chemical characteristics and modes of contamination. The metabolism of plutonium is extensively discussed, and abundant data are given regarding the mode of absorption, transport, tissue deposition in different organs and excretion of this radionuclide.

Another section is dedicated to the assessment of incorporated radionuclides, including measuring techniques and calibration. The development and technical aspects of devices and detectors for the diagnosis of local or systemic contamination are discussed in some detail. Problems related to counting and localization of very low level activity and radionuclides with low energy are particularly stressed.

The next three sections treat the problem of removal of incorporated radionuclides, especially the transuranics, used in studies in animals and humans. This is a most interesting part of the symposium, for it depicts the limitations and uncertainties in the value of different therapeutic approaches. The use of local (surgical) or systemic means of incorporation are extensively and exhaustively discussed. Concerning the latter, emphasis is heavily placed on the use of chelating agents, notably calcium-DTPA and Zn-DTPA, for the treatment of contamination with transuranic elements. Their chemical properties, indications, mode of administration, pharmacologic and toxicologic characteristics are presented. Attempts to provide the reader with guidelines for specific treatments are outlined in some of the papers.

The final section is dedicated to medical first-aid treatment and medical care and supervision of workers. Of special value is the discussion of the multidirectional program developed by the Radiation Emergency Assistance Center and Training Site (REACTS). This program offers an approach for providing medical care and education for physicians and paramedical personnel involved in the handling of radiation exposures and accidents.

In summary, this symposium provides an extensive source of information on the metabolic behavior of radionuclides as well as on methods and techniques for diagnosing and evaluating body or organ content. Also documented are the recent advances in methods of handling patients and implementing the necessary therapeutic procedures.

These proceedings will be helpful to any physician or associated personnel who may be called upon to handle

patients where radionuclides have been accidentally incorporated.

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CROSS-SECTIONAL ANATOMY. Robert S. Ledley, H. K. Huang, John C. Mazziotta. Baltimore, Williams and Wilkins, 1977, 330 pp, \$69.95.

This atlas is divided into ten chapters that depict the normal cross-sectional computed tomographic (CT) anatomy of the cranium, orbit, lower face and neck, chest, upper and lower abdomen, male and female pelvis, and upper and lower extremities. The work is organized so that each pair of facing pages forms a unit devoted to a single CT cross-section. The first page of the layout provides a diagram and conventional radiograph to show the CT scan level and a labeled anatomic drawing to identify the anatomic structures in the cross-section in detail. The opposite page displays both color and black-and-white photographs of the corresponding CT scan of a normal volunteer. The majority of the CT scans were performed on a 4½ minute ACTA model 0100 scanner, but some of the head scans were obtained on the newer ACTA model 0200 FS.

The labeled cross-sectional drawings are a particularly fine feature of this atlas. These drawings are large and uncluttered. The labeling is in large print and organized by

structure rather than by number, so that important features may be readily identified on the drawings.

The authors acknowledge in the introduction to this atlas that many structures are shown in finer detail on the anatomic drawings than on the CT scans. In fact, the anatomic detail displayed on both the head and body CT scans is inadequate and unacceptable by "state-of-the-art" standards. Computed tomographic scans of the cranium discriminate poorly between grey matter and white matter and do not delineate well the internal capsules or the basal ganglia. The optic chiasm and suprasellar structures are poorly defined. The optic nerve is barely outlined on the orbital scans. Computed tomographic scans of the liver do not show the portal or hepatic venous systems. The seminal vesicles are not seen on CT scans of the male pelvis. Individual muscle groups cannot be separated on scans of the thigh.

The lack of structural detail on the CT scans of the head and body detracts significantly from the value of this atlas, because without detailed knowledge of normal CT anatomy, the subtle pathologic changes displayed on current CT scans cannot be recognized. We feel that potential purchasers should compare the quality of CT images available in their community with those provided in this atlas to determine whether this atlas will meet their particular needs.

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BOOKS RECEIVED

The receipt of the following books is acknowledged:

The SI for the Health Professions, Geneva, World Health Organization, 1977 (ISBN 92 4 154059). 75 pp. Price: Sw.fr. 5.-, U.S.\$ 2.25. French edition in preparation.

Echocardiography: Interpretation and Diagnosis, Jack J. Kleid, with the assistance of Stephen B. Arvan, forward by Ephraim Denoso. 460 pp, illustrated. New York, Appleton-Century-Crofts, 1978. \$36.50.

Medical Malpractice Law, 2nd ed, Angela Roddey Holder. 562 pp. New York, John Wiley & Sons, Inc., 1978. \$25.00.

Gallium-67 Imaging, Paul B. Hoffer, Carlos Bekerman, Robert E. Henkin, ed. 174 pp, illustrated. New York, John Wiley & Sons, Inc., 1978. \$22.00.

Medical Radionuclide Imaging, Proceedings of an International Symposium on Medical Radionuclide Imaging Held by the International Atomic Energy Agency in Los Angeles, October 25-29, 1976, Volumes 1 and 2. Volume 1: 617 pp, illustrated; Volume 2: 480 pp, illustrated. Vienna, International Atomic Energy Agency, 1977. Volume 1: \$43.00; Volume 2: \$33.00.