

BOOK REVIEWS

LOW-LEVEL RADIATION EFFECTS: A FACT BOOK. A. B. Brill, S. J. Adelstein, E. L. Saenger, E. W. Webster. New York, The Society of Nuclear Medicine, 1982, 136 pp, \$25.00, \$2.50 postage and handling

Any physicist or physician working in the field of radiology is expected to have some knowledge of the effects of radiation upon humans. In the minds of the public the absence of a succinct statement of the health effects of small amounts of radiation is taken to imply that scientists don't understand or, what is worse, are attempting to "cover up" those effects. Of course, there is no "cover up," and there is also no lack of scientific understanding. The health effects of small amounts of radiation are better understood than those of correspondingly small amounts of almost any potentially harmful environmental chemical. Relevant scientific study is not lacking. What is lacking is the dissemination of the results.

We are frequently asked to give immediate answers to questions regarding the significance of patient and personnel exposure to radiation. Also we are asked to speak to groups of health care professionals or the general public on the subject. *Low Level Radiation Effects: A Fact Book*, prepared by the Society of Nuclear Medicine Subcommittee on the Risks of Low-Level Ionizing Radiation, attempts to meet both of these needs. For immediate questions, this work provides a well-organized brief summary of recent radiologic data from refereed scientific literature and from the publications of advisory groups such as the National Council of Radiation Protection and Measurement (NCRP), the International Commission on Radiological Protection (ICRP), the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), and the National Academy of Sciences (NAS). Since it consists almost entirely of tables and graphs from the above-mentioned sources along with summary paragraphs, the *Fact Book* is very useful in the preparation of lectures. Most of the material is not suitable for direct slide reproduction because the tables reproduced from original sources are too "busy" to project well for the audience. This may be an advantage, however, since it forces the lecturer to edit and organize the material to tailor a presentation to the level of understanding of the audience.

The book is divided into seven sections. Chapter One, "Glossary, Units and Conversion Factors," is useful because nearly all data given in the rest of the book is in conventional units and should be converted to SI units for future technical audiences. Chapter 2, "Radiobiology," covers the fundamental principles of the field and provides a conceptual framework against which the data, provided in later sections, may be compared. Bearing in mind that one of the most important uses of this *Fact Book* is to provide material for presentation to general audiences, slides from this Chapter might be conveniently inserted in discussions of embryonic effects or studies of populations exposed to high background levels. Chapter 3, "Radiation Doses," can be used to help an audience appreciate the relative magnitudes of radiation exposures they may read about or encounter. Many individuals in the general public do not understand that the statement "He was exposed to radiation." should be met with the question "How much?" This point must be made before the need for the more subtle, but no less important, questions such as "What type?, over how much of his anatomy? over what interval of time?," etc. might be introduced.

Chapter 4, "Late Somatic Effects of Low Doses of Ionizing Radiation," gives data concerning cancer induction and embryonic effects, and Chapter 5 provides data on genetic effects. Chapter 6, "Risks, Statistical Facts and Public Perception" can be used to compare the risks of radiation exposure with more commonly encountered risks. For example, tables that list the risk of death or loss of life expectancy due to eating a slice of pie or smoking a single cigarette are certainly stimulants for audience discussion. The hypothetical fractionation of large doses of hazardous substances may not be appropriately correlated with a similar fractionation of the risk. There is evidence to show, however, that this procedure is also inappropriate for radiation exposure and risk. To do so is to make extremely conservative assumptions and the material in this chapter may be used to illustrate the point. Chapter 7, "Questions and Answers," is the most potentially useful chapter on a day-to-day basis for physicians and physicists. Its success depends upon the readers. It consists of three sets of questions and answers on the subject of x-ray pelvimetry, diagnostic radiology in women of childbearing age, and cardiac catheterization exposure. Each of these sets appeared in the *Journal of the American Medical Association*. It is hoped that physicians, physicists, and other interested parties will submit questions they have encountered in their professional experience along with suitable answers. Apparently the committee felt that a series of stock responses to commonly encountered questions are beyond the scope of this report. Rather, it was felt that a growing body of anecdotal material would lead to flexibility. Those who are interested in sharing their experience with questions related to radiation exposure are encouraged to contact the Subcommittee on Risks of Low-Level Ionizing Radiation.

In summary, *Low Level Radiation Effects* is a useful reference source for both physicians and physicists. The American Association of Physicists in Medicine is in the process of assembling a book that will contain similar material but will include more data on patient exposure and risk from areas of radiology other than nuclear medicine. In any case, the *SNM Fact Book* is a useful reference for a variety of situations. If seen as a fluid document to be updated at intervals, it could well be a very important vehicle for sharing information that is not necessarily part of current training programs but that is of great interest to technologists, physicists, and physicians, as well as patients.

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DIGITAL NUCLEAR MEDICINE. J. J. Erickson, F. D. Rollo, Eds. Philadelphia, J. B. Lippincott, 1982, 240 pp, \$19.50

The authors have attempted to "provide the most comprehensive presentation of the technical as well as the clinical aspects of computerized nuclear medicine;" however, it is difficult to cover such an extensive subject in 240 pages (16 chapters). The authors have succeeded in providing a comprehensive description of computers in nuclear medicine with clear descriptions of the more technical aspects and mention a number of clinical protocols although the quantity of information supplied is superficial. The references are not extensive enough for the reader to implement