makes it a valuable addition and reference in the field of whole-body counting. The Committee and contributing investigators to this publication have truly presented a complete compilation of data for others in the field to compare or for those agencies contemplating entry into the field.

Microbiological Specifications and Testing Methods for Irradiated Foods

(Technical Report Series No. 104, Report of a Panel of Experts Organized by the FAO and IAEA in Collaboration with IAMS, International Atomic Energy Agency, Vienna, 1970)

Pages 121

Price $4.00

This monograph should be of interest to biologists, radiation biologists, public health and radiological physicists, microbiologists, food processors, bacteriologists, and food and drug personnel (administrators and staff on Federal, state, and city levels).

This monograph is an effort on the part of a panel of experts from diverse areas of specialization to compare the microbiological methods being used in most countries of the world to consolidate this microbiological information into a limited number of acceptable, reproducible methods that could form a basis for evaluating "(a) the effectiveness of the different levels of radiation processing of foods and feeds; (b) the microbiological quality of the resulting products; (c) the microbiological safety for foods and feed use; and (d) the closeness with which regulations should comply with microbiological requirements." The criteria as listed are related to proposed legislation.

Consideration of the microbiological problems to be anticipated with irradiation relate to the destruction of all organisms with the potential capacity to proliferate within the food and those specific pathogenic organisms, and particular group(s) of spoilage organisms. Considerations were also given to packaging, labeling, storage, and shelf life of irradiated foods.

A second section of this report deals with recommended methods for microbiological analysis of irradiated foods and considers various tests and techniques that might gain international acceptance as related to these irradiated foods. These tests are presented in detail, and formula(s) with considerations and limitations (if any) are noted.

A third section describes culture media, formulas, preparation, and storage abilities of some 69 preparations. In a similar manner the fourth part describes some 18 reagents with accompanying notes, directions, and concentrations.

This technical report is well prepared and should serve those in the field as a ready source of information. For those contemplating entry into the field of irradiated foods it might have been desirable on the part of the Committee to have included, perhaps as an appendix, the various dose levels for the popular foods considered for irradiation and/or sterilization.

A future work that might be considered by the Committee might include formal megarad dosimetry techniques for food irradiation.

Isotope Techniques for Studying Animal Protein Production from Non-Protein Nitrogen

(Technical Report Series No. 111, International Atomic Energy Agency, 1970, Vienna)

Pages 29

Price $2.00

This report should be of interest to veterinarians, argronomists, animal breeding and research agencies, biochemical nutritionists, and radiobiologists.

This brief 23-p. report deals with three main concerns:

1. the role of nonprotein nitrogen (NPN) in the feeding of ruminants
2. the economic feasibility of NPN as a food additive and/or supplement for certain nations
3. the use of isotopes for evaluation of NPN function.

This report is designed to provide a review of the latest information on approved methods to evaluate the feeding value of NPN with particular emphasis on those methods requiring the use of isotopes. Three isotopes were considered as especially useful:

"1.a. ^{15}N for rate of NH_3 production in rumen, b. rate of incorporation of N compounds into microbial protein, c. overall conversion of NPN to tissue or milk protein,

2.a. ^{14}C for rate of hydrolysis of C-containing NPN, b. turnover and entry rate of amino acids, c. estimates of protein synthesis,

3.a. ^{35}S for estimates of microbial protein synthesis, b. estimates of microbial contribution to synthesis of milk, wool, muscle."

Within the framework of this report the main areas of study of NPN use are outlined, with consideration given to world-wide study. This report indicates the need for study and provides those groups or individuals directly involved in this work with the latest conclusions regarding the use of NPN methods and areas for continued study.

Isotopes and Radiation in Parasitology—II

(Proceedings of a Research Coordination Meeting, Vienna, June 1969)

Pages 139

Price $4.00

These proceedings should be of interest to investigators in medical parasitology and veterinary medicine, physiologists, immunologists, radiation biologists, agriculturists, and animal scientists.

Discussed in the 17 papers of this third meeting is the use of radiation (conventional x rays and accelerators) and radioisotopes as it relates to

1. the study of the mechanism of immunity to helminth infections
2. the pathophysiology of helminthiasis with particular reference to anaemias and hypoproteinaemias so characteristic of many of these diseases
3. developments in the study of immunity to protozoal diseases.

The papers vary in length, are generally well documented, and contain suitable tables, illustrations, and

procedures to enable the reader to follow in detail specific procedures. One paper dealing with whole-body irradiation of guinea pigs contains a few points in this reviewer's mind which were not clear; namely, does 220 V, 15 mA as reported to be the characteristics of the x-ray generating equipment really mean 220 kV, 15 mA? A second point in this same paper: When each group of 20 guinea pigs was irradiated simultaneously, were the pigs anesthesized? What was the dosimetry employed to confirm uniformity of the delivered dose?

The conclusions and recommendations are specific and recommend further studies both with the use of radiation for *in vitro, in vivo* studies, and in the development of methods for further investigation of immunization against various protozoal diseases.

For those working directly in the specific areas considered in this report, these papers can serve as a valuable source of reference.

Manual of Dosimetry in Radiotherapy
(by John B. Massey, Technical Reports Series No. 110, International Atomic Energy Agency, Vienna, 1970)

Pages 138

Price $4.00

This report should be of interest to medical physicists (all levels), resident and staff radiotherapists, and health physicists.

This IAEA publication is intended and does provide, as the author notes, "a practical guide to the procedure necessary for achieving good physical accuracy of irradiated volume and dosage in external beam therapy." Primarily intended for users of medical ortho voltage (200 to 400-kV x rays) and ^{60}Co teletherapy equipment, many of the chapter paragraphs may be related to diagnostic and megavoltage equipment.

Seven of the eight chapters are devoted to the practical aspects of medical physics and cover the potential pitfalls of such areas as radiation protection survey, measurement of radiation quality and quantity, the radiation measuring instrument, and bookkeeping (medical, check lists, and treatment records).

Ample illustrations, calculations, and diagrams are provided to illustrate the author's point in each chapter. The chapter dealing with "Measurement of Radiation Output" contains an excellent treatment of phantom measurements, positions, and calculations, both for x rays and teletherapy sources.

All the chapters contain fundamental practical information for the clinical physicist in particular, but this manual could well serve as one of the texts in a health physics or resident training program.

This reviewer certainly hopes that the author and his excellent advisory staff might well contemplate a second manual dealing with inhomogeneities, *in vivo* dosimetry, brachytherapy, and the role of mold technology in radiotherapy.

An excellent treatment in a very straightforward manner.

Neutron Fluence Measurements
(Technical Report Series No. 107, International Atomic Energy Agency, Vienna, 1970)

Pages 184

Price $5.00

This report should be of interest to reactor physicists and engineers, and students of nuclear engineering.

This technical report is an outgrowth of various studies and workshops in which the radiation dose, specifically the neutron dose (referred to as the time integral of the neutron flux density or neutron fluence), is an essential parameter in evaluating and reporting the results of research reactors and reactors in general. A prime goal of this report was the development of a practical guide of promoting consistency in the measurement and reporting of reactor radiations.

The subject is introduced by presenting the basics of neutron spectra and the comparison of both the experimental and theoretical conditions. Measurements of low flux densities, thermal neutron spectra, associated equipment, and the associated discussions are extremely well developed; the same development is provided for intermediate and fast neutron presentation. The inclusion of appropriate mathematical expressions for each considered condition, augmented by suitable tables, diagrams, and illustrations, enables the reader to readily follow the author's purpose. Suitable references at the end of each chapter and at the conclusion of the report enable the reader to develop a suitable perspective of the entire field.

This manual would be extremely useful to both the student and the experienced worker in defining parameters and in maintaining consistency of reports.

Nuclear Accident Dosimetry
(Proceedings of a Panel, Vienna, February 17-21, 1969, International Atomic Energy Agency, Vienna, 1970)

Pages 191

Price $5.00

These proceedings should be of interest to health and safety physicists and engineers, reactor operators, reactor and nuclear physicists, directors of reactor stations, and medical doctors specializing in radiation accidents.

The dosimetric methods and techniques used in assessing doses to individuals exposed to nuclear radiations, including criticality accidents, are included in a series of papers by a panel of experts from various countries.

Three broad objectives were considered:

1. to survey the methods and instruments used in various laboratories for assessing such doses
2. to review the experiences gained in assessing doses to those individuals exposed to nuclear radiations in criticality accidents
3. to recommend programs aimed at improving dosimetry systems with the possibility of cooperation of international bodies of scientists from each country to serve on intercomparison studies.

The panel included papers dealing with the methods and instrumentation employed for evaluation and analysis of gamma and neutron exposures. These techniques included film, ra-