BOOK REVIEW

LAWRENCE, J. H.; MANOWITZ, B. AND LOEB, B. S.: *Radioisotopes and Radiation.* (New York: McGraw-Hill, Inc., 1964.)

"Radioisotopes and Radiation" is one of the four volumes prepared under the auspices of the United States Atomic Energy Commission for the Third Geneva Conference on Peaceful Uses of Atomic Energy.

The book is designed as a presentation of the practical applications of radioisotopes and radiation rather than the use of these tools in basic research. It is not offered as a general treatise of the total subject. Rather than this, the authors have chosen specific examples of the use of various radionuclides for the study of a selected group of physiological and pathological functions. In this sense, the book can be described as something of a progress report in the advances of nuclear medicine as a division of American science. The record as reported in this book, is remarkable both as to the breadth of its subject matter and the skill reflected in its portrayal.

The reviewer will find difficulty in organizing the subject matter into a formal outline. It is more informative to list items. The medical section of the book begins with the presentation of breath analyzing apparatus as applied to the study of megaloblastic anemia through the agency of 14-Carbon labeled histidine and to glucose metabolism by the use of 14-Carbon. Certain enzyme system studies are reported by the technique of breath analysis.

Under *hematology,* reports are given on iron metabolism, life span of blood cells, hematopoiesis, DNA and RNA, using ^{59}Fe, ^{51}Cr, ^{32}DFP and tritium. Radioactive iron as a tracer for the functions of erythropoietin is reported.

Under *organ functions,* studies are included on cardiac output, renal and hepatic functions, thyroid and brain scanning, scintiphotos, the use of the positron scintillation camera and whole body counting in relation to the administration of various radioactive isotopes. A section is provided on short-lived isotopes and trace elements. An application of the latter is the role of zinc in the synthesis of enzymes. Material is provided on neutron activation analysis.

In a chapter on *therapy* there is discussion of injected and ingested radioisotopes, the use of heavy particle beams, cyclotron applications in the treatment of neoplasia and radioactive ablation of the pituitary gland in acromegaly, Cushing's disease and diabetes. Data are given on the use of implanted radioisotopes and the techniques of teletherapy. The use of ^{60}Co and ^{137}Ce is noted and the employment of total body irradiation in acute leukemia. There is a note on the preliminary work done with the radiocolloids and their specific uptake in lymph nodes as an approach to suppression of the immune mechanism prior to organ transplants.

To further continue a listing of items considered in this book would unduly prolong the review. A sufficient number have been included to reveal the scope of the volume. Not to be overlooked are the unique sections wherein are reported the application of radioisotopic methods to veterinary medicine, agriculture, food preservation, industry and such diversified problems as oceanography, atmospheric and environmental matters, the physical and chemical makeup of the moon and crime detection.

A final comment must be made on the truly remarkable illustrations provided in this book. They are endless in number, beautifully selected and highly informative. "Radioisotopes and Radiation" is a must in the libraries of all who follow the fortunes of this new science.

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