

completely recessive—and, incidentally, the theory is simplified. Wright's final paragraph deserves direct quotation: "The principal conclusions of this analysis are first that there are such enormous gaps in our knowledge that no judgements of the genetic consequences of radiation in man can be taken very seriously. There is, however, a strong possibility that cumulative doses of the order of 300 r may have important effects on the offspring and descendants of those affected, and doses as small as 30 r may not be negligible. On the other hand there is little or no threat to the persistence of a population as a whole from this cause."

In spite of its tardiness, the symposium is a useful review of the genetic aspects of radiation research. The terminology and argument are addressed primarily to the geneticist, but the problems raised bear on many areas of biological research as well as on the social implications of the increased use of radiations and radioactive products.

JAMES F. CROW and JOSHUA LEDERBERG

*Department of Genetics*  
*University of Wisconsin*

*Beiträge zur Anwendung der Isotopentechnik in Biologie, Klinik und Therapie.* In French and German. Published by the Commission on Isotopes of the Swiss Academy of Medical Sciences. Basel: Benno Schwabe & Co. Imported by Grune & Stratton, Inc., N.Y. Pp. 213. 15 fr.

The monograph, a form of presentation of scientific information in use in German-speaking countries for many years, has only lately been adopted by English-speaking scientists. It serves as a kind of interim report or review of work in progress, and lays no claim to permanence or completeness. Especially when it consists of articles by several authors, each a specialist in his field, the monograph is uniquely useful for introducing new subjects to a wide scientific public. The present volume contains review articles on the use of isotopes in biological research and medical therapy. It is expressedly not a text or a handbook but rather a guide and introduction to the subject for the biologist and physician. Even though the short articles cannot survey more than a fraction of each subject, the reader will find the appended well chosen bibliographies amply sufficient as an introduction to a field.

The first part of the book deals with selected topics in isotope research, mainly biochemical, and aims at introducing this important new tool to the biochemist. The second part is concerned with clinical aspects and therapeutic use of isotopes, and would be of importance to the physician, especially in the cancer field.

Since most of the work on isotopes has been done in this country, and many books and reviews on the subject already exist here, this volume would be of use mainly to German- and French-speaking scientists, although the article by Vannotti, Closuit, and Jaccottet (in clear and easy French) on the use of radioactive iron

in distribution studies in normal and abnormal animals, besides giving a comprehensive and excellent review of past work, describes the very thorough research and conclusions of the authors themselves. Moreover, the article by Joyet (in French) on the theory of dosage calculations in application of radioactive isotopes is certain to be of use to the physician interested in isotope administration. The article by Müller (in German) also gives a review of the author's own very ingenious methods and practical experiences in the administration of solutions and suspensions of radioisotopes to cancer patients. He describes, for instance, the use of coarse suspensions of radioactive zinc sulfide in the treatment of lung cancer. The radioactive particles are caught in the lung capillaries and can thus be localized in that organ.

The volume also contains a very short introduction (in German) to the physics of isotopes. Furthermore, a review by Bernhard (in German) on research in metabolism with the use of isotopes, which describes studies in fat metabolism, a field to which the author has himself contributed; sterol and carbohydrate metabolism, briefly; amino acid, purine and blood pigment metabolism, more thoroughly. The list of textbooks and publications appended to this article is exceptionally comprehensive. There follows a very detailed description by Joyet (in French) of working methods for the use of radioactive elements, mainly potassium and calcium, including descriptions of measuring devices, correction tables, and working outlines from injection of the active element to combustion of tissues and determination of their "selectivity" for the radioactive element. There is also an article by Bernhard (in German) on the use of heavy hydrogen in biochemistry, mainly in connection with fat metabolism; and a short review of safety measures recommended for radiation laboratories and clinics. The book ends with a list of radioisotopes available through the U.S. Atomic Energy Commission.

It is disappointing to find no mention made of the technic for the use of radioactive carbon, surely the most important of the isotopes in biological research, nor a discussion of the excellent recent advances in carbohydrate metabolism with the aid of carbon-14.

As a whole, the book is to be warmly recommended to physicians and biologists who wish to enter the field of isotope studies, mainly as a basis for further reading in the subject.

GEORGE WOLF

*McArdle Memorial Laboratory*  
*University of Wisconsin*

*Annual Reports on the Results of Radiotherapy in Cancer of the Uterine Cervix.* Vol. 6. By DR. J. HEYMAN (ed.). Stockholm: P. A. Norstedt & Sons. Pp. 172.

*Primary Carcinoma of the Liver.* By CHARLES BERMAN. London: H. K. Lewis & Co. Ltd. Pp. 164. 35 s.

*Die Frühdiagnose des Uteruscarcinoms.* By HANS LIMBURG. Stuttgart: Georg Thieme Verlag. Pp. 158. \$8.50.