

could not be patent protected, does not seem warranted. Also the expression that C-dihydrotoxiferine probably contains the yohimbine skeleton is not justified. The present volume gives a good survey of Bayer's interests and for this reason is worth studying. Its physical appearance is very good and the printing is excellent.

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Advances in Cancer Research. Volume IV. Edited By JESSE P. GREENSTEIN, National Cancer Institute, National Institutes of Health, U. S. Public Health Service, Bethesda, Maryland, and ALEXANDER HADDOW, Chester Beatty Research Institute, Royal Cancer Hospital, London, England. Academic Press, Inc., Publishers, 111 Fifth Avenue, New York 3, N. Y. 1956. ix + 416 pp. 16 × 23.5 cm. Price, \$10.00.

Volume IV of the series *Advances in Cancer Research* reflects quite well the editors' awareness of timely topics and of appropriate authors for their review. This volume successfully continues the pattern, established in earlier volumes, of achievement of the objectives of the editors as stated in introductions to the first two volumes. This is the reflection of the "steady and inevitable march of the tides of our knowledge and increasing understanding" in cancer research and provision of a "recurring stimulus to the work ahead" in addition to providing an annual chronicle of progress.

Though the selections in the present volume are timely, informative, and useful from the viewpoint of the cancer research investigator, they may as a whole be of less interest to chemists than preceding volumes; however, there are a number of chapters in Volume IV that will make its reading well worth while for chemists whether actively participating or merely interested in cancer research. The chapter, *Advances in Chemotherapy of Cancer in Man*, by Sidney Farber and associates, presents problems in clinical studies, surveys the chemotherapy of acute leukemia, and reviews selected chemotherapeutic agents. It is so written that it can serve as an introduction to clinical cancer chemotherapy as well as being useful for experienced investigators. The chapter furnishes a convenient bibliography of general references in addition to those specifically used in the text. This reviewer with his prejudices differs on the historical aspects of a few of the text references. The second chapter of the book, *The Use of Myleran and Similar Agents in Chronic Leukemias*, by D. A. G. Galton, also is concerned with clinical studies with particular emphasis on a limited group of chemotherapeutic agents. Like the first chapter this one provides valuable information for the clinical investigator and for others some insight on problems in clinical chemotherapy investigations.

The chapter, *The Employment of Methods of Inhibition Analysis in the Normal and Tumor-Bearing Mammalian Organism* by Abraham Goldin, presents much of this investigator's studies and ideas on the application to experimental cancer chemotherapy of the principle of inhibition analysis previously developed in microbiological studies. The author suggests that a more detailed study of the tumor-host relationships in the responses to various toxic drugs may indicate ways in which the chemotherapy of cancer can be improved. The two chapters, *Some Recent Work on Tumor Immunity* by P. A. Gorer and *Inductive Tissue Interaction in Development* by Clifford Grobstein are important contributions to this volume. A discussion of aspects of tumor immunity is most timely in view of the upsurge in interest in this subject. The mutual relevance of studies of inductive tissue interaction and of carcinogenesis is apparent if one assumes "that involved in embryonic induction are the origins of reactions and materials which form the basis of stability of structure and function of the adult and also that similar processes may be operating in newly developed subsystems of the adult and that they may be involved in reverse in the adult when adult stability of structure breaks down or is disrupted." These two chapters will pose a problem for most chemists because of their lack of familiarity with the language used. The more venturesome chemists reading these chapters will at least be rewarded with a better idea of the complexities of biological phenomena.

Lipids in Cancer is a chapter presenting a review of lipids

in induced carcinogenesis and spontaneous tumorigenesis, of the lipids of tumors, and lipids in the tumor-host relationship by Frances L. Haven and W. R. Bloor, who have contributed so much to this field. The material reviewed should stimulate greater efforts in this area and is likely to have an increased audience because of interest in the cardiovascular diseases. The remaining two chapters represent specialized aspects of carcinogenesis. A. Lacassagne and associates summarize the results of studies, largely from their laboratories, on *The Relation between Carcinogenic Activity and the Physical and Chemical Properties of Angular Benzacridines*. The carcinogenic activities of a considerable number of benzacridines are conveniently summarized in a lengthy table. Other tables present relationships of carcinogenicity with physical properties and are discussed in the text. *The Hormonal Genesis of Mammary Cancer* by O. Mühlbock is a good survey in this complex area. Studies in rats and mice are discussed with emphasis on the hormonal influence as one of a number of factors involved in mammary cancer.

Volume IV of *Advances in Cancer Research* has been built with the high quality of scientific and physical workmanship observed in earlier volumes. Very few typographical errors were noted. On page 42 the formula for thio-guanine is mislabeled as a pyrimidine. On page 105 in Case 21 it would seem that the dose for urethan is misstated or possibly urethan was inadvertently written in place of myleran. The essential author and subject indexes are provided. A brief check of the latter indicated that an increase in its usefulness, through added cross indexing, might reasonably be requested.

This volume merits a place in the library of the serious cancer investigator and will provide chemists and others a good introduction to a number of important areas of cancer research. This may also be anticipated from future volumes of the series *Advances in Cancer Research* if we are to judge from the first four volumes.

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Thermodynamics and Statistical Mechanics. By A. H. WILSON, F.R.S. Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1957. xv + 495 pp. 18 × 26.5 cm. Price, \$9.50.

This beautifully presented and printed book by the distinguished author of "The Theory of Metals" is in many ways a rather peculiar hybrid of thermodynamics and statistical mechanics, intended, says the author in his Preface, mainly for theoretical physicists, while the notice on the jacket announces as additional possible audience "those experimental physicists and physical chemists who wish to enter more deeply than is customary into the fundamental principles of the subject." How well the author may have succeeded in his appeal to the theoretical physicist will probably be made clear in the reviews which will appear in physics journals. As far as the physical chemist is concerned, whether he considers himself as theoretical or experimental, the usefulness of this book is very debatable.

The book begins with a 3-page List of Important Symbols, Units and Physical Constants. Chapter 1 treats "The Classical Development of Thermodynamics and the First Law." The presentation is highly condensed and contains none of the applications of importance to the physical chemist. Guggenheim's "Zeroth Law" is ignored. Chapter 2 is devoted to "The Classical Development of Thermodynamics and the Second Law." What is presented as Carnot's theorem is the following statement: "There exist two functions of the state S and T , where T is a positive function of the empirical temperature θ only, such that, in any infinitesimal quasi-static change of a body or system of bodies, $dQ = T dS$." Even for theoretical physicists several better presentations of the second law immediately come in mind. The chapter finishes with four brief pages on the thermodynamics of a perfect gas. In Chapter 3 the thermodynamic functions are introduced, Helmholtz' free energy being called free energy at constant volume and Gibbs' free energy or free enthalpy being called free energy at constant pressure. This chapter includes a treatment of equilibrium and its stability in the case of homogeneous sys-