

pituitary after prolonged adrenal cortical hyperfunction are confused with ACTH-secreting basophilic adenomas. Dorfman reviews the inhibition of tumor growth by steroids and presents in tabular form summaries of the qualitative effects of various steroidal compounds on a variety of tumor systems in mice, rats, hamsters, chickens, and guinea pigs.

The remaining chapters include a review, by R. E. Haist, of the literature on the effect of steroids on both the endocrine and exocrine portions of the pancreas, and another, by I. L. Bonta, on the effect of corticoids and ACTH on the induction of gastric ulcers in laboratory animals. The latter emphasizes once more how difficult it is to equate experimentally induced animal lesions to human disease.

The first and last chapters of this volume are excellent. The first, by A. Kappas and R. H. Palmer, is on the thermogenic properties of steroids. The other, by W. H. Fishman, is concerned with the influence of steroids on β -glucuronidase of mouse kidney. Fishman has pioneered much of the work on this subject, and his article contains a delightful exposition of many of his own contributions.

This volume provides a good list of references as well as a reasonable approach to most of the topics chosen for discussion.

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Frontiers in Physics Series

Phase Transitions. Robert Brout. Benjamin, New York, 1965. xiv + 202 pp. illus. \$9.

Phase transitions such as melting and boiling are familiar experiences, but their explanation from first principles of statistical mechanics still presents a major challenge to the theoretical physicist. The same is true of other, less familiar, phase transitions such as those that occur in magnetic materials, in fluid mixtures or alloys, in liquid helium-4 which becomes a superfluid, and in many metals which become superconductors at low temperatures. All these phase transitions have in common, by definition, some discontinuity or singularity in their thermodynamic

functions. Beyond this, however, they all appear very different. Some of them—the liquid-vapor phase transition, for example—occur at such high temperatures that specific quantum effects are almost certainly unimportant and may thus be treated entirely within the framework of classical statistical mechanics. In others—for example, the normal-superfluid normal-superconductor transition—the low temperature state cannot even be described in classical terms. Surprisingly enough, the last of these is perhaps the best understood at present.

This book, which has grown out of a set of lectures given by the author at Los Alamos, “is an attempt to treat in parallel a set of phase transitions which superficially seem to be quite independent of each other, but which on further examination are seen to be manifestations of a common structure, the self-consistent field.” The book contains the following chapters: “Introduction,” “Ising model,” “Condensation,” “Freezing,” “Ferromagnetism: Heisenberg model: Band theory of ferromagnetism,” “Superconductivity,” “Bose-Einstein condensation,” “Theoretical refinement,” and “Epilogue.” Each chapter consists of an elementary part and a more advanced “graph theoretic” part which is starred. The elementary part contains a discussion, from the author’s point of view, of the present state of theory in each field (as well as some experimental results). The starred parts contain much of the work of the author and co-workers up to the date of publication.

The idea of the self-consistent field goes back to van der Waals and Ornstein in the theory of fluids and to Weiss in ferromagnetism, and it has been most successful in giving a simple qualitative understanding of phase transitions. The extent to which this idea can be used as a starting point for obtaining a complete and quantitative understanding of phase transitions is still an open question however. The point of view expressed in this book (based to a considerable extent on the author’s own work) is that the self-consistent field idea can indeed be pushed very far and that it serves to unite many fields. Even if one disagrees with some of Brout’s ideas, which he states are “frankly biased,” about how much credence can be given to certain types of approximations, the book will still be useful as an expert presentation of a particular point of

view. It will thus be valuable to all scientists working in this very interesting (and currently fashionable) field, and it should serve the useful purpose of making the various “specialists” broaden their point of view and of giving them courage to look outside their own speciality.

Like many books based on lectures and written in the heat of research, *Phase Transitions* often causes one to wish that the author could be asked to pause (Sec. 2–3 goes on for 15 uninterrupted pages), and that he could be asked to explain some obscure passages (for example, the first paragraph on page 74). This should be corrected in the next edition.

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Soil Microecology

Ecology of Soil-Borne Plant Pathogens: Prelude to Biological Control. Kenneth F. Baker and William C. Snyder, Eds. University of California Press, Berkeley, 1965. xiv + 571 pp. illus. \$12.

A book such as this one is refreshing to read, for it covers all aspects of the ecology of soil-borne plant pathogens. In this day and age of specialization and departmentalism, the scientist is deluged with books on narrower and narrower subjects, often confined to the current fads of the year. This is not such a book! Although this interesting and fascinating volume is devoted primarily to the ecology of plant pathogens, much of the subject matter deals with broader topics. It might well be entitled “Soil Microecology.” Portions of the book will be of interest not only to the plant pathologists, but also to ecologists, microbiologists, mycologists, and plant scientists.

This volume brings together the papers presented at a meeting entitled “An International Symposium on Factors Determining the Behavior of Plant Pathogens in Soil,” held on the Berkeley campus of the University of California, 7 to 13 April 1963. Five years were devoted to the organization of the symposium, and more than 300 persons, from 24 countries, participated. The discussions following each formal presentation are included. In the