Since the end of the war a number of books published abroad have been sent to the Science office for review. The following reviews cover some of the most recent of these. Future issues will contain reviews of others as they are received.

Synthetische Methoden der organischen Chemie. W. Theilheimer. Basel-New York: S. Karger, 1946. Pp. viii + 224. Fr. s. 25.

This is a unique reference book in synthetic organic chemistry. It does not contain detailed directions for selected preparations as does *Organic syntheses*, nor does it present exhaustive discussions of single reactions after the manner of *Organic reactions*. Instead, the author endeavors to supply information to the chemist who wishes to achieve a certain result. The basic idea is that few really new reactions have been developed in the past 10 years, but much has been done in the way of improving old ones. There is no quick way of gathering from the literature the hopelessly scattered bits of information relating to classical, as well as little-known, procedures, and the author has done much to supply this deficiency. The present volume is the first of a series and covers the years 1942–44.

The arrangement is new and frankly experimental. Reactions are grouped according to the bond formed. In the symbolism used, the new bond is first indicated; this is followed by a device to show the nature of the reaction, such as addition, rearrangement, substitution, or elimination; anP last is the element involved in the reaction. Thus, CH↑↓O means the formation of a CH bond by replacement of oxygen as in the Clemmensen reduction or hydrogenolysis of an alcohol. Elements follow the Beilstein sequence except that carbon comes last, and the rule of last possible placement is followed. The system appears confusing at first, but with a little use its reasonableness is evident. An edition for American students would be more useful if there were an insert containing an English guide to the system, with a few examples.

There is a generous alphabetical index which lists named reactions as well as types of compounds, whether they appear as starting materials or as end-products. Most reactions can be located through the index without use of the system.

The choice of references is satisfactorily broad in spite of wartime difficulties. Fifty, chosen at random, showed the following distribution: German, 21; American, 13; British, 8; Swiss, 6; others, 2. References to Russian literature are rare.

The book will be helpful to the advanced practitioner, as well as to the beginner who is completely lost when faced with the problem of finding how to carry out a strange reaction. It will be a fertile source of ideas, for the unique arrangement brings reactions together according to the end achieved; consequently, in looking up a procedure the reader will often be surprised to find many new ways to accomplish the same result. As a rule, original papers must be consulted, but most of these are in readily available journals.

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Actions of radiations on living cells. D. E. Lea. Cambridge, Engl.: at the Univ. Press; New York: Macmillan, 1946. Pp. xii + 402. (Illustrated.) $4.50

This book deals with a field which is now the center of wide interest from many sides and the object of much work, and which is particularly appealing in that it has appeared to many as a principal pathway for investigating the basic phenomena of life. The book responds to a clear need and should be generally used for study and reference in the field of radiation biology.

The work is aptly described by the author's own words, which appear in the preface: "This book gives an account of certain of the simplest and most fundamental actions of x rays and other ionizing radiations on living cells. It does not survey the whole field but deals chiefly with the mechanism of those actions of radiation which are well enough understood at present to allow a detailed discussion. The relevant physical properties and chemical effects of ionizing radiations are first described, and then the bulk of the book is occupied by the effects of radiations on viruses and on the genes and chromosomes of higher cells. In the concluding chapter the killing of cells by radiation is discussed. Extensive numerical data concerning the dissipation of energy in tissue by various radiations are given. The book is of importance for medical, genetical and biological investigators and for physicists interested in biology."

The reviewer is very sympathetic toward this program and especially appreciates the stress laid on those radiobiological effects which, in a physicist's language, may be termed "elementary." Carrying out this program was an important and laborious task which has been capably and successfully discharged. Quantitative data and literature references are plentiful and well organized. Much space is devoted to a deep and detailed theoretical analysis of the experimental material, including important contributions by the author, some of which are first published here. Therefore, the reading may require considerable effort, but not an unduly great one, as the exposition is remarkably clear.

The reader still unfamiliar with radiobiology should bear in mind that different authors have frequently held widely different opinions on the significance of whatever evidence was available in this field. Even though such divergencies have become less acute in recent years, the book represents Dr. Lea's personal evaluation of the evidence. Accordingly, it is natural that a number of items in the book may not be acceptable to other workers in the field. Thus, for example, this reviewer is not satisfied with the analysis of the recessive lethals in *Drosophila* (pp. 157 ff.). (This matter will be discussed more fully in a future issue of *Science*.)

The author has wisely intended to keep mathematical detail in the background of his theoretical analysis. However, he might well have gone further in this direction by eliminating the quantitative treatment entirely whenever the experimental evidence warrants only broad qualitative statements. This applies, for example, to the analysis of the dominant lethals in *Drosophila* (pp. 164 ff.), in which a specific working model is treated mathematically in great detail; later remarks show awareness of the difficulties met in applying the model, but the over-all impression conveyed to the reader does not seem quite fair. A similar comment may apply to the recurring unusual practice of presenting numerical data with several