

has succeeded admirably in his purpose. This very comprehensive text-book of more than a thousand pages should remain for a long time a standard work on the subject, and his claim that there is at present no other such text in the English language is justified. The subject is treated from a global aspect, a valuable approach in these days of world food shortage in view of the economic effects of helminth parasites in relation to food animals and their importance as zoonoses. Furthermore, although many kinds of helminths are restricted in their geographical range by factors such as climate, presence or absence of suitable intermediate hosts and food habits, other kinds can invade new territory successfully and the resultant overlapping makes it difficult to produce accurate check lists of helminths of any one country. Thus the international coverage of this book is praiseworthy on all counts, and under the heading of any given species of helminth one can find, with few exceptions, good information as to the country or region that it inhabits as well as a list of its hosts, both natural and experimental.

The format of the text follows a well chosen pattern which is convenient for the veterinarian in search of a laboratory or clinical diagnosis of an infection, and its treatment; for the parasitologist who is interested in life cycles, ecology and epidemiology; and students of parasitism who nowadays are inevitably involved in other disciplines such as physiology, biochemistry, immunology and pathology. The subject matter is treated on a host species basis rather than on the zoological classification of the parasites; the latter course is desirable when dealing with a single host, for example, man, and is usually followed in text-books of medical helminthology, but the author has to some extent adhered to it by the presentation of the parasite species under each kind of host animal or group of related animals, for example, cats and dogs, sheep and goats. The consequent separation of zoologically closely related parasite species is of little consequence when one accepts this large book as a series of monographs on different hosts and their parasites. For reasons of space this has led to a reduction in details of morphology to those required merely for identification and this is aided by keys and tables. The reader, therefore, should possess some previous basic knowledge of the morphology of helminths.

The book is in twelve parts, each with a main heading such as nematodes of cats and dogs, cestodes and trematodes of cats and dogs, and so on through the other hosts or host groups, pigs, sheep and goats, cattle, horses and poultry. Each part is sub-divided in the case of the nematodes into sub-headings (chapters) indicative of the host organs infected, an important consideration in diagnosis, and within these the individual species are dealt with from every aspect. (There is occasionally some inconsistency in the arrangement of the sub-headings under major headings which no doubt will be rectified in future editions, for example (page xii), under the heading "Nematodes of the Respiratory System" there are nematodes of, for example, the eyes, blood vessels and skin, and on page viii, part 3, "Nematodes of Pigs" includes cestodes and trematodes. Spelling mistakes are few but tend to hit the eye, such as *Filaroidea* for *Filarioidea*; *E. pancreatum* for *E. pancreaticum*; irradiation for eradication; anthropod for arthropod; *Oncomalaria* for *Oncomelania*. These are minor criticisms in a work of such excellence and massive proportions.)

The final part, entitled "Zoonoses and Anthroozoonoses", deals only with trichinosis, cysticercosis and echinococcosis; other zoonoses are discussed elsewhere and can be found on page 1075 (host helminth list—man) and by reference to the subject index.

The usefulness of this work is much enhanced by the list of references at the end of each of the forty-two chapters and by a host helminth list, a list of intermediate hosts, an author index and a subject index at the end of the book.

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COMPULSORY CLOSURE

Optimal Shutdown Control of Nuclear Reactors

By Milton Ash. (Mathematics in Science and Engineering, Vol. 26.) Pp. xiv + 169. (New York: Academic Press, Inc.; London: Academic Press, Inc. (London), Ltd., 1966.) 68s.

AMONG the nuclei produced by the decay of nuclear fission products, xenon-135 is particularly objectionable because it has a large neutron absorption cross-section. During steady state operation of a nuclear reactor an equilibrium concentration of xenon-135 develops and extra fuel must be provided to compensate for the consequent neutron absorption. Furthermore, when a power reactor is suddenly shut down after a period of operation the concentration of xenon slowly increases to more than the equilibrium value for several hours, after which it decays. If, therefore, the reactor is to be capable of restarting at short notice after shutdown (and this could be important in a propulsion reactor), a great deal of extra fuel is necessary to override the maximum shutdown concentration of xenon. The latter can be minimized by shutting down in a predetermined manner over a period of several hours.

This book illustrates how the mathematical technique of dynamic programming can be used to determine optimum shutdown procedures. The first third introduces the physical background and the principles of dynamic programming. These topics are so intermingled that the nuclear engineer or reactor physicist who hopes to learn something of dynamic programming would do well to seek elsewhere. I was bewildered by the use of undefined terms, by changes in nomenclature, by inconsistencies between some statements and by the ill-ordered presentation. I also found the author's style annoying (for example, ". . . since less neutrons are being gobbled up by xenon").

Chapters 5 and 6, which form the backbone of the book, are an expansion of a recent paper by the author. Although the style and presentation are much better, there is a great deal of unnecessary repetition of earlier chapters and of digressions which I found unhelpful. The remaining third of the book compares the theoretical predictions with experiments carried out on a reactor.

W. MURGATROYD

SORTING OUT CHEMICALS

Laboratory Handbook of Chromatographic Methods

Edited by O. Mikes. Translation edited by R. A. Chalmers. Pp. 434. (London: D. Van Nostrand Company, Ltd.; Princeton, N.Y.: D. Van Nostrand Company, Inc., 1966.) 75s.

Advances in Chromatography

Edited by J. Calvin Giddings and Roy A. Keller. Vol. 2. Pp. xvi + 377. 120s. net. Vol. 3. Pp. xiii + 271. 95s. net. (London: Edward Arnold (Publishers), Ltd.; New York: Marcel Dekker, Inc., 1966.)

THE present edition of the *Handbook of Chromatographic Methods* is the English version of the original Czech edition published in 1961 with some added up to date information. The book is a collective work with contributions from thirteen authors, of whom all but two are Czech. All the different types of chromatogram are covered, namely, adsorption and partition, paper, thin-layer, ion exchange, gel filtration, gas chromatography and mechanization and automation of column chromatography. For good measure there is a chapter on electrophoresis. It is virtually impossible to cover such a vast, rapidly growing field adequately in a single book and inevitably the treatment of some topics falls short of what is expected from a handbook. For example, the