BOOK REVIEW

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BOOK REVIEW

PARASITES OF FRESHWATER FISHES

A REVIEW OF THEIR CONTROL AND TREATMENT BY GLENN L. HOFFMAN and FRED P. MEYER
JOHN C. LANDOLT, EDITOR. T. F. H. PUBLICATIONS, INC. P.O. BOX 27,
NEPTUNE, N.J. 07753 U.S.A. 1974. PAPERBACK. $12.95.

This book, as the title implies, is a review of methods used for treatment and control of parasites. The first part contains a treatment index for quick reference, an introduction which reviews the factors influencing parasite infections and a list of chemicals which have been approved by the U.S. Food and Drug Administration for use on food fishes. Treatment methods are discussed briefly and conversion tables are given for dilutions and common units of measure. Treatments are listed by major parasite groups in a series of 14 tables. For each parasite and host fish treatment, dosage, method of administration, the authors' asssessment of its effectiveness and the reference are given. These tables are arranged on facing pages interspersed with two pages of four photographs in color of parasitized fish and the parasites. With a few exceptions, the color reproductions are excellent. An index of illustrations would have been useful.

The caption with the illustration is the only attempt made to assist in the identification of fish parasites, however identification of parasites was the purpose of Glenn Hoffman's previous book.[1]

The final two tables contain a list of the known toxicity limits of parasiticides for various species of fish, and the names, composition, synonyms and uses of the chemicals. References are listed in alphabetical order for all the treatments noted in the tables.

This book, which is a convenient size for use in the field, is recommended for anyone with practical or academic interest in the treatment of parasitic diseases of freshwater fishes.

Joan Budd

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[1] Glenn L. Hoffman. 1967. Parasites of North American Freshwater Fishes. University of California Press. Berkeley and Los Angeles.

BOOK REVIEW

MONOGRAPHS IN VIROLOGY Vol. 8, VIRUS INFECTIONS IN BATS

BY S. E. SULKIN, and RAE ALLEN

The monograph begun by Dr. S. Edward Sulkin was ably completed by Rae Allen following Dr. Sulkin's untimely death.

The first two sections provide interesting information on the effectiveness of bats as reservoir hosts and the care and maintenance of three bat species as laboratory animals.

Natural and experimental rabies virus infections of bats are discussed in a brief but detailed manner, with excellent documentation in a thorough literature review. A brief summary of apparently extensive studies of *in vitro* cultures of bat tissues and their ability to replicate rabies virus is included.

The infection of bats with arboviruses is discussed in greater detail and is supported with an excellent bibliography of the isolations of the agents, serologic evidence of infections and experimental infections.

Infections with miscellaneous viruses and the immunologic concepts are treated rather lightly, perhaps due to the lack of knowledge in these particular species.

The information given in this monograph brings together essentially all of the important work that has been completed in this area and is an excellent source of information for all persons concerned with the zoonotic and epidemiologic aspects of virus infections in bats.

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BOOK REVIEW

OLSEN, O. W. 1974. **ANIMAL PARASITES: THEIR LIFE CYCLES AND ECOLOGY** THIRD EDITION, UNIVERSITY PARK PRESS, BALTIMORE, 562 PAGES. $16.50. HARD COVER.

The format for the author's third edition is similar to that used previously. The change in publishers has resulted in a text in two-column format throughout with improved style in chapter designation and section headings. Complete literature citations are given and references have been updated through 1972 in many sections. The same representative organisms are covered as in the second edition (1967) and the author has retained the same excellent plates (141) used previously to illustrate life cycles and morphologic features for many of the species. The text in the new edition, however, has been expanded by an additional 131 pages. New information on the life history, ecology and pathology associated with many of the parasites has been included. There are 31 new figures in the text that represent diagramatically the morphology of several of the protozoan parasites based on electron microscope studies.

The first section on "Parasitism" has been expanded by the inclusion of a worthwhile section on ecology. This is probably a reflection of the change in emphasis in this edition since this is also indicated by the slight change in title.

The majority of changes and expansion (60 pages) is found in the section on the "Phylum Protozoa". Research findings in the past seven years rendered much of what was stated previously as incomplete or obsolete. In the new edition the order of presentation of species and their associated plates has been altered considerably because of the use of a different taxonomic scheme. The "life cycle" section for many of the species has been rewritten or expanded to incorporate recent findings. Sections on *Toxoplasma* and *Sarcocystis* have been updated to include the recent discoveries pertaining to their coccidian affinities and relationship with isosporan oocysts. Although *Nosema apis* is used to indicate a typical life cycle of the genus, some discussion of *Nosema* (*Encephalitozoon*) *cuniculi* should probably have been included.

The section on the "Phylum Platyhelminthes" has also been expanded (30 pages). For some of the species (e.g. the "salmon poisoning fluke" *Nanophyetus salmincola*), the life cycle section has been expanded to incorporate new experimental data. There was no mention of the recent finding that two rickettsial agents are involved in producing the typical signs of infection in the dog. New sections on "Symptoms and Pathology" and "Medication" were included under the dis-

cussion on the common liver fluke *Fasciola hepatica*. However, these topics were only briefly discussed. Comments on the nature and causes of the anemia, well documented recently by a number of researchers, were not included. A new section on *Spirometra* was added but no discussion of the biology of *Thysanosoma* was found.

Few additions were made in the section on "Phylum Acanthocephala" although the order of presentation is different. No reference was made to recent findings on the altered behavioral features of amphipods infected with cystacanths. The last section on "Phylum Nemathelminthes" has been expanded (20 pages) with additional information on the life history and pathologic features of some of these infections. A greater number of listings has been included in the index, so that information is more readily accessible than in the previous edition.

This text, as in previous editions, has a unique position among references on parasitology. The majority of examples used are parasites of common wild mammals, birds, reptiles, amphibians and fish. The sections on "Exercise on life cycle" have been useful to those conducting courses in parasitology where experimental infection studies are undertaken. Since this book should serve as a valuable reference for biologists and wildlife investigators as well as parasitologists, additional information could have been included to indicate the impact of parasitism on wildlife populations and their ecologic relationships.

In the past decade, research in the field of wildlife parasitology has elucidated several examples of the reduced pathogenicity of the parasite that evolves in the normal host relationship, and the severe deleterious effects the same parasite may have in similar, but abnormal hosts. The impact of infections with *Parelaphostrongylus tenuis, Elaeophora schneideri, Fascioloides magna* and *Dictyocaulus viviparus* in abnormal hosts has been reported. The role of *Protostrongylus* infection in the "lungworm-pneumonia complex" is now better understood. Additional information in the text on these and other associations, would have assisted those interested in wildlife biology to understand that parasites in certain situations can induce a significant control on the ecologic relationships of host populations.

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SECOND COLOR EDITION OF **WILDLIFE DISEASE** (microfische)

NO. 63 — PRESIDENTE, P. J. A., B. M. McCRAW and J. H. LUMSDEN (Department of Pathology, Ontario Veterinary College, University of Guelph, Guelph, Ontario N1G 2W1). **Pathologic features of experimentally induced** *Fasciola hepatica* **infection in white-tailed deer.** Wildl. Dis. *63*, 59 pp., 29 colour illustrations (WD 74-1). Available to non-members at $2.00 U.S. from the WDA, P.O. Box 886, Ames, Iowa 50010.

Authors' Abstract: Marked resistance of white-tailed deer (*Odocoileus virginianus*) to *Fasciola hepatica* infection was demonstrated by experimental inoculation with 100, 500, 1000 or 2500 metacercariae. Blood samples were collected each week and deer were killed and examined 1, 2, 4, 6 and 15 weeks postinoculation. The reaction of these deer was compared with that of sheep given the same number of *F. hepatica* metacercariae. *Fasciola hepatica* was recovered from the liver of only one of nine inoculated deer. In infected deer, eosinophilia, hyperproteinemia and hyperglobu-