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## BOOK REVIEW . . .

**Systemic Pathology of Fish, A Text and Atlas of Comparative Tissue Responses in Diseases of Teleosts**, Hugh W. Ferguson. Iowa State University Press, Ames, Iowa, USA. 1989. 276 pp. \$54.95 U.S.

In this volume, the author and his contributing authors, Thomas W. Dukes, Michael Anthony Hayes, John Leatherland and Brian Wilcock, have reviewed an extensive literature and assembled an atlas describing comparative tissue responses in the diseases of teleosts. Taken from the perspective of the host, rather than the pathogen, the authors explore the fundamental "mechanisms of disease and pathophysiology in fish organs and tissues". Not intended to be exhaustive in its coverage of the etiologies of fish diseases, the text selectively explores the normal and abnormal in the context of our current knowledge of host histology, physiology and endocrinology. Its theme is comparative and directed at the interested student schooled in the fundamentals of mammalian pathology.

This primer to the systemic pathology of fishes is composed of thirteen well written, extremely readable chapters, each with an up-to-date reference list, and a substantial bibliography. The chapters include: (1) An Introduction to Post-mortem Techniques and General Pathology of fish; (2) Gills and pseudobranchs; (3) Skin; (4) Kidney; (5) Spleen, Blood and Lymph, Thymus, and Reticuloendothelial System; (6) Cardiovascular System; (7) Gastrointestinal Tract, Pancreas, and Swimbladder; (8) Liver; (9) Nervous System; (10) The Eye (B. P. Wilcock and T. W. Dukes); (11) Endocrine and Reproductive Systems (J. F. Leatherland and H. W. Ferguson); (12) Musculoskeletal System; and (13) Neoplasia in Fish (M. A. Hayes and H. W. Ferguson). The

two part bibliography is a valuable supplement to the text. Part one provides lists of books addressing general and veterinary pathology, fish and fish diseases, and water quality; while Part two lists articles pertaining to immunology, the reticuloendothelial system, stress, and inflammation. The latter articles are particularly germane considering the biology of disease under the high host population densities associated with intensive fish husbandry. The text is concise and well supported by many excellent photographs and photomicrographs clearly depicting cellular morphology at gross, microscopic and ultrastructural levels.

As I think back to my graduate student days and my efforts to study lesions associated with a variety of fish parasites, I vividly remember the struggle and frustration associated with my attempts to interpret and understand cellular responses in fishes. Although the now standard volumes edited by Ribelin and Migaki and authored by Roberts were available and were a welcomed source of help, I can not help but think that had this book been available, I would not have experienced quite as many frustrations. This excellent volume is an important addition to the literature pertaining to fish diseases and has fulfilled the stated goal of the author by being an outstanding teaching aid and reference source for students and professionals. Moreover, I feel the scope of this pathophysiological presentation is such that it will function as a source of insight for future research into fish health and disease. I highly endorse its use by my colleagues.

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## BOOK REVIEW . . .

**Congressional Directory: Environment**, John T. Grupenhoff and Betty Farley. Grupenhoff Publications, Inc. Bethesda, Maryland. 540 pp. \$87.50 U.S.

This text is a quick reference guide to members of Congress, congressional committees, and subcommittees involved in environmental decision making. Key word indices allow rapid access to information on appropriate congressional committees and their members involved in legislation concerning specific issues. The directory provides personal profiles of each Representative or Senator. Profiles contain education, occupational history, family status, and awards or honorary recognition. Also included are biographies of congressional staff.

In general, the directory is user-friendly. It is presented in a logical and readable manner. Access to information pertaining to specific members of Congress, to environmental committees or environmental issues is easily conducted through the key word indices. The authors have done a commendable job of presenting the complex and seemingly convoluted pathways of environmental legislation in a very understandable format.

Although this reference is of undeniable utility there are some shortcomings. The biographies of congressional members and staffers are insufficient to derive any meaningful interpre-

tation of their interests, or backgrounds and education in environmental issues. Additionally, it would be helpful if the voting on recent environmental legislation was listed for each of the members of Congress. Furthermore, the directory is limited by the transient nature of the material presented. Political appointments are short term positions. Updates processed every 90 days of members and their aides are reportedly provided. However, it is unclear how informative these updates are and the duration over which they will be supplied without additional expense. The information contained in the directory would be more useful if it were presented as a computer software package that could be continually upgraded as congressional members and committees change.

I recommend this directory as a good source book for anyone concerned with action on environmental legislation. However, it may be prudent to utilize the directory through a library rather than purchasing a personal copy.

For further information regarding the directory contact: Environment Communications % Science and Health Communications Group, Inc., 6410 Rockledge Drive, Suite 203, Bethesda, Maryland 20817.

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#### BOOK REVIEW . . .

**Mechanisms of Viral Toxicity in Animal Cells**, L. Carrasco. CRC Press, Boca Raton, Florida 33431, USA. 1987. 196 pp. \$124.95 U.S.

Viral pathogenesis, the mechanisms that underlie the production of disease by viral agents, was an area of research for many years where most answers were elusive. This was due in part to the lack of "clean cut" experiments, capable of showing what specific consequences viral infection had in the complexity of the cellular environment. Many attempts to determine the mechanisms of disease production by viral agents were hampered by the limitations of the techniques available. However, during the last decade, technological advances in the fields of biochemistry, biophysics, molecular biology and immunology have allowed a much better understanding of the pathogenesis of viral diseases. The current proliferation of scientific papers in this area, and the variety of journals in which they are published, makes it difficult to keep up with the latest developments in this fast moving field.

*Mechanisms of Viral Toxicity in Animal Cells* by L. Carrasco presents a series of excellent reviews on the specific subject of viral pathogenesis in animal cells. The "general overview" in chapter one states very well the scope of the book. The remaining six chapters deal with the mechanisms of penetration of cells, inhibition of host transcription and protein synthesis, mechanisms of cell toxicity by different families

of DNA and RNA viruses and interferon effects on specific functions of infected cells.

Chapter two illustrates the technical problems underlying studies of virus attachment and penetration of cells. It also reviews recent data on the events that lead to viral penetration and uncoating. In chapter three, a series of works on suppression of host transcription by different viruses is presented. Chapters four through six present specific examples of inhibition of host protein synthesis by DNA viruses, cell killing by RNA viruses and regulation of translation by picornaviruses. Finally, chapter seven presents a review of interferon action on cells infected with several DNA and RNA viruses. All chapters contain data to support the proposed mechanisms of pathogenesis, but also present different points of view and interpretations of the data. This particular presentation makes this book an ideal reference for graduate-level viral pathogenesis courses or seminars. The book also should appeal to virologists studying viral pathogenesis, since it discusses areas not present in other texts.

The amount of specific information and reference material summarized in this book makes it an excellent source of information for scientists studying viral diseases. The book provides a good, current view of the mechanisms of viral toxicity in animal cells.

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## BOOK REVIEW . . .

**The Arboviruses: Epidemiology and Ecology**, Thomas P. Monath (ed.). CRC Press, Inc., Boca Raton, Florida 33431, USA. 1988. 1,319 pp., Five Volumes. \$645.00 U.S.

This five volume set is a comprehensive review of the major arthropod-borne viruses of the world. Information on these arboviral diseases is presented in encyclopedic detail in 51 chapters with a total of 1,319 pages. Although many of the chapters have a North American perspective, numerous international authors and diseases specific to other parts of the world are included.

The first volume with 13 chapters contains general information on the diseases which include: serologic and molecular aspects of the viruses; biology, host seeking and blood feeding behavior, susceptibility and vector competence of the various vectors (mainly mosquitoes and ticks); vertebrate host and human factors; and quantitative models of arbovirus infections. The remaining four volumes contain detailed information on 38 diseases or groups of viruses of public health, domestic animal health and some wildlife health concern. These diseases range from O'Nyong-Nyong virus disease of humans in West Africa with no known vertebrate reservoir to bluetongue and epizootic hemorrhagic disease of domestic and wild animals with worldwide distribution.

Each of the chapters in the last four volumes follows a similar format and features sections on historical background, the virus, disease associations, epidemiology, geographic distribution, transmission cycles, ecological dynamics, surveillance, investigation of epidemics, prevention and control, and future research needs. An extensive and up-to-date reference section is at the end of each chapter. Even though the chapters are not written from the viewpoint of the wildlife species involved, many of the diseases covered are actually diseases of wildlife or wildlife are the principal reservoirs. The vertebrate hosts involved in transmission cycles, host range of the viruses, disease associations of wildlife, evidence of field and experimental infection of vertebrates and the role of wildlife in surveillance and control are mentioned for most of the diseases.

Many chapters have maps showing the geographic distribution, some chapters contain detailed tables of viruses, vectors, or hosts, including human cases, and a few chapters have other illustrations of clinical or epidemiological features, photographs of clinical signs or habitats,

or transmission cycles. Most of the illustrations are of good quality and a few are of high quality. There are occasional typographical or spelling errors scattered throughout the chapters and there is unnecessary duplication in some chapters in Volume I.

The quality of the chapters in Volume I varies from a brief review of existing quantitative models of arbovirus infection to an in depth, well organized, logically presented and easily understood chapter on the susceptibility and resistance of vector mosquitoes. The chapters in the last four volumes on the specific diseases follow a rigid, categorized format which is useful in looking up information on specific diseases or comparing information between diseases but is wasteful for some chapters since only a few, insignificant sentences are included under some headings. The rigid format compartmentalizes the information and in some chapters, this division detracts from the flow of the discussion and results in repetition within the chapter. The quality and length of chapters in these volumes vary from five pages of text on O'Nyong-Nyong virus disease to a complete review of yellow fever in 76 pages; however, most chapters contain concise reviews in 12–28 pages. A few chapters have omitted information on certain viruses or missed important publications. An index is provided at the end of each volume but there is not a comprehensive index for all of the volumes nor is there a complete table of contents although the diseases are presented in alphabetical order in the last four volumes.

This set of five volumes is the most recent and complete coverage of the arboviruses and arboviral diseases. The chapters are generally of very high quality and are excellent reviews of the pertinent information on these diseases. There is now a single source of information for this group of viruses and their vectors and vertebrate hosts. Obviously, few scientists would buy the whole set for their own personal libraries and few students could afford the volumes as textbooks for courses. The volumes would be a very worthwhile addition to university or agency libraries as an excellent reference source for the arboviruses. Professionals and graduate students interested in the arboviruses will find these volumes instructive and useful in designing research investigations or surveillance and control programs.

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