BOOK REVIEWS

Maudlin, I., Holmes, P. H., Miles, M. A., editors
The Trypanosomiases

Cabi Publishing, a division of CAB International: Wallingford, Oxonshire, 2004. 614 pages. Format 170 × 245 mm. Hardcover. Price Lstg 90.00/USD 166.50. ISBN 0-85199-475-X

All editors are professors – at University of Edinburgh, at University of Glasgow and at London School of Hygiene and Tropical Medicine. The list of contributors comprises 67 leading experts from around the world: Europe, North and South America, and Africa. As mentioned in the preface by the editors, enormous progress has been made in last 30 years in a number of competely unrelated areas, many of which have impacted on the study and control of trypanosomiasis, including molecular biology, insect behaviour, geographical information systems and disease impact evaluation. Molecular biology has mushroomed to the extent that it now affects all branches of biology and medicine and has had no less an impact on studies of the trypanosome. The ease with which it can be grown in culture, the trypanosome has become a model organism. We now know the way the trypanosome works on the molecular level, but, so far, little in the way of practical benefit. In contrast, study of vector behaviour have brought very practical benefits. Nevertheless, much remains to be done, especially in the field of chemotherapy. Finally, the editors hope that it will help to attract the attention of the decision makers in the plight of millions of people who suffer in their lives from the constraints of trypanosomiasis and who depend on the commitment of governments and donors to alllocate sufficient resources to bring an end to the worlwide misery these organisms wreak. The volume is arranged in seven parts embracing 33 numbered chapters. Individual chapters actually present scientific reports illustrated by Figures and Tables, and concluded by a comprehensive list of references arranged in alphabetical order.

Part 1 (chapters 1 through 5) is concerned with the biology of trypanosomes, discussing systematics of trypanosomes of medical and veterinary importance, antigenic variation, the African trypanosome genome, communication in trypanosomatids, and genetics and molecular epidemiology of trypanosomes. Part 2 (chapters 6 through 9) is dedicated to vector biology, nominally to tsetse genetics: application to biology and systematics, tsetse population dynamics, tsetse distribution, and to Triatominae: systematics, morphology and population biology. Part 3 (chapters 10 through 15) moves into the area of epidemiology and diagnosis, namely to diagnosis and epidemiology of human African trypanosomiasis, to diagnosis and epidemiology of American trypanosomiasis, to diagnosis and epidemiology of African animal trypanosomiasis, and to non-tsetse-transmitted animal trypanosomiasis. Part 4 (chapters 16 through 18) constitutes a highlight of pathogenesis of human African, American and animal trypanosome infections.

Part 5 (chapters 19 and 20) centers attention to medical significance of American trypanosomiasis and to economics of African trypanosomiasis. Part 6 (chapters 21 through 26) provides a look at chemotherapy and disease control, particularly at current chemotherapy of human African trypanosomiasis, of American trypanosomiasis and of animal trypanosomiasis. Furthermore, examined are future prospects in chemotherapy, trypanotolerance, and control of blood transfusion transmission of American trypanosomiasis. Part 7 (chapters 27 through 33) is the most extensive; in seven chapters introduced is the vector control – insecticidal control of tsetse, development and application of bait technology to control tsetse, community participation in tsetse control, control of Triatominae, the sterile insect technology, and the role of biting flies in the mechanical transmission to livestock.

Textual parts are illustrated by line drawings, charts of geographical distribution, schematic diagrams, biosyntetic pathways, black-and white photographs and microphotographs of pathological findings, and others. Moreover, there are 15 plates in colour. In addition to the text, there are numerous summary type tables overviewing characterization of trypanosomes, the impact of trypanosome infections, and more.

The Trypanosomiases represents a remarkable state-of-the-art modern handbook including comprehensive coverage of the biology and control of African, Asian and South American trypanosomiases in man and animals. It accentuates recent research developments in the biology and molecular biology of trypanosome parasites and their vectors, and methods in diagnosis and control. This multiauthored volume condenses a huge body of information and presents a most exhaustive reference book on trypanosomes and their pathological influence on man and animals.

Jindřich Jíra

Jones Arlene, Bray, R. A., Gibson D. I., editors
Keys to the Trematoda. Volume 2

Cabi Publishing, a division of CAB International and the Natural History Museum: Wallingford, Oxonshire – London, 2005. 745 pages.
Format 170 × 245 mm. Hardcover. Price Lstg 75.00. ISBN 0-85199-587-0

This is the second of three volumes of the Keys to the Trematoda, a series on the systematics and identification of the class Trematoda. The editors are affiliated with the Natural History Museum, London, UK. The list of authors in this volume includes 17 invited international specialists from UK, USA, Australia, Brazil, Bulgaria and India. For review of the volume 1 of this seriea see the Central European Journal of public Health, vol 13, June 2005, page 104. As already emphasized in this review, Trematodes are helminths (parasitic worms) infecting all vertebrate groups, they include families of significance to human and animal health, with considerable economic impact. As affirmed in general introduction by the editors, these three volumes of *Keys to the Trematoda*, present a series on the systematics and identification of the class Trematoda Rudolphi, 1808 of the Phylum Platyhelminthes (flatworms). The present volume is composed of 54 chapters introducing classes, subclasses, superfamilies, families and genera of the Trematoda in the Order Echinostomida and some of those in the Order Plagiorchiida, with keys for their identification at the superfamily, family, subfamily and generic levels. This volume includes seven echinostomidan superfamilies (the echinostomatoids, haploporoids, haplosplanchnoids, heronimoids, microscaphidioids, paramphistomatoids and pronocephaloids) and two plagiorchiidan superfamilies (the allocreadioids and lepocreadioids). In conclusion, there is a comprehensive list of references. Each superfamily and family group is treated as a separate chapter outlining the history of the group and recent or current changes within it followed by keys to the members of a family and diagnoses for suprageneric groups and genera. Characters common to the members of a family tend not to be repeated at lower levels in the classification. In chapter 1, a key is provided to the superfamilies in this volume. Nominally outlined are individual organs important for determination – as are excretory pores, ventral suckers, cirrus sac, oral and ventral suckers, the tegument, excretory vesicle, etc. Particular chapters delineating the trematode superfamilies taxa are composed of introduction, history and features, life cycles, diagnosis, and keys for the identification. All taxa of discussed trematodes are introduced with names of authors and the years of description. Each chapter dealing with a superfamily is followed by chapters giving special atttention to individual families.

The volume is amply illustrated by 53 Figures. Individual images comprise schematic line drawings featuring mostly several (up to 10) adult flukes or separated organs belonging to particular families and/or to related genera and species. At least one Figure for a representative of each genus considered valid is included.

This volume is aimed – as other members of this series – to help both specialists and non-specialists alike to identify flukes to the generic level. The third volume will cover the remaining members of the Plagiorchiida.

Jindřich Jíra

Salyers, A. A., Whitt, D. D.
Revenge of the Microbes. How Bacterial Resistance is Undermining the Antibiotic Miracle

AMS Press, American Society for Microbiology: Washington, DC, 2005. XII + 186 pages. Format 153 × 227 mm. Binding: Softcover. Price: USD 29.95.
ISBN 1-55581-298-8

Both authors are affiliated with the University of Illinois at Urbana-Champaign, Urbana, Illinois. As emphasized in the preface, most people have love-hate relationship with antibiotics. They love the fact that antibiotics still work most of the time and work quickly with few side effects. But people also hate the fact that more and more physicians are refusing to prescribe antibiotics for flu and that patients are being blamed for demanding antibiotics when they shouldn´t. They are also coming to hate the dire warnings about increasingly resistant bacteria whose advance may send us back to the preantibiotic epoch. The authors have carefully sifted through a vast amount of information and examine specific antibiotics and controversies in a real-time context. The volume is composed of 11 chapters. Introducing 2 chapters discuss some aspects of history of antibiotics. Following 4 chapters reveal the adaptibility of bacteria, antibiotic resistance of bacteria in the news, the action of antibiotics on bacterial cell wall and bacterial proteins synthesis. Subsequent 2 chapters analyse some antibacterial drugs and some aspects of development of resistance. Concluding 3 chapters are concerned with the looming crisis in antibiotic availability, antiseptics and desinfectans and antiviral, antifungal and antiprotozoal drugs. In addition, there are 2 appendices: structures of antimicrobial agents mentioned in the text, and how clinical laboratories measure resistance. Finally, there is a list of suggested readings. The textual part is illustrated by antibiotic structures, line drawings of laboratory procedures, some biological phenomena, and microphotographs.

Revenge of the Microbes will engage diverse audience, including biologists, physicians, teachers, lawyers, environmentalists as well as students and everyday citizens.

Jindřich Jíra

Montville T. J., Matthews, K. R.
Food Microbiology. An Introduction

AMS Press, American Society for Microbiology: Washington, DC, 2005. XVI + 380 pages. Format 216 × 278 mm. Binding: Hardcover. Price: USD 79.95.
ISBN 1-55581-308-9

The authors are affiliated with the Department of Food Science, The State University of New Jersey, Rutgers. It is declared in the preface by the authors that the food biology is an exciting field that reaches in every home and supports a multibillion dollar food industry. The safety of food requires more than memorization of microbiological minutiae. It calls for critical thinking, innovative approaches and healthy skepticism. The book is organized into five major sections including 25 chapters.

Section I (chapters 1 through 6) centers attention upon "Basics of Food Microbiology". It covers the trajectory of food microbioogy, factors that influence microbes in foods, spores and their significance, detection and enumeration of microbes in food, rapid and automated microbial methods, and indicator microorganisms and microbial criteria. Section II (chapters 7 through 12) is devoted to "Gram-Negative Foodborne Pathogenic Bacteria", nominally to *Salmonella* and *Campylobacter* species, to enterohaemorrhagic *Escherichia coli*, to *Yersinia enterocolitica*, to *Shigella* and *Vibrio* species. Section III (chapters 13 through 17) embraces "Gram-Positive Foodborne Pathogenic Bacteria" while discussing *Listeria monocytogenes*, *Staphylococcus aureus*, *Clostridium botulinum*, *Cl. perfringens* and *Bacillus cereus*. Section IV (chapters 18 through 21) encompasses "Other Microbes Important in Food", namely fermentative and spoilage organisms, molds, viruses and prions. Section V (chapters 22 through 25) provides insights into "Control of Microorganisms in Food" particularly antimicrobial chemicals, biologically based preservation and probiotic bacteria, physical methods of food preservation, and industrial strategies in ensuring safe food.

To enhance the utility as a textbook, the authors have added case studies, chapter summaries, questions for critical thinking, and a glossary. This impressive volume presents an up-to-date entrée to the inherently complex and challenging field of food microbiology.

Jindřich Jíra

Cossart, P., Boquet, P., Normark, S., Rappuoli, R., editors
Cellular Microbiology

Second edition. AMS Press, American Society for Microbiology: Washington, DC, 2005. XXX + 593 pages. Format 215 × 278 mm. Binding: Hardcover.
Price: USD 119.95. ISBN 1-55581-302-X

The editors are affiliated with the Institut Pasteur, Paris, INSERM, Nice, Karolinska Institute, Stockholm, and the Chiron Vaccines, Siena. The list of contributors implicates 58 international scientists. They come from Europe, USA, Canada and Israel. It is declared in the foreword by S. Falkow (Stanford University) that the term "cellular microbiology" was coined in 1996 by the editors to describe an emerging scientific discipline that bridged the disciplines of cell biology and microbiology. The editors emphasize in the preface that cell biologists have learned to grow cells in perfectly aseptic tissue cultures, forgetting that in real life these cells, when part of functional tissues and organs, may interact with a variety of microbes. The name "cellular microbiology" to discribe a new emerging discipline was no longer enough to study pathogenic bacteria in artificial laboratory conditions, but they have to be studied in the real world, while interacting with the cells of their hosts. The volume is composed of 23 chapters divided into several subchapters. All the chapters and subchapters are provided with conclusions and comprehensive lists of selected readings.

Chapter 1 opens with introduction into bacteria, parasites, yeasts and molds. Chapter 2 offers an overview of bacterial human pathogens genomes. Chapter 3 gives an overview of the cell biology. Chapters 4 through 7 examine extracellular matrix and host cell surfaces: pathogen interaction, bacterial adherence, and cell adhesion. Chapters 8 and 9 focus on host cell membrane. Chapter 10 is devoted to the intracellular parasitism. Chapters 11 and 12 explore the host cell cytoskeleton. Chapters 13 and 14 draw to attention bacterial toxins. Chapters 15 and 16 deal with secretion systems. Chapter 17 provides a look at induction of apoptosis by microbial pathogens. Chapter 18 is involved in interaction of pathogens with the innate and adaptive immune system. Chapter 19 is concerned with electron microscopy. Chapters 20 through 23 embrace virulence genes, genome-wide approaches to studying prokaryotic biology, cell biology of virus infection, and use of simple nonvertebrate hosts to model mammalian pathogenesis. In conclusion, characteristics of all contributors are given. In addition to the current text, there are separate textual and figure boxes containing supplemental information and selected landmark papers.

The volume is illustrated by numerous figures (numbered by individual chapters). Featured are scanning and transmission electron micrographs of microbial cells and their structures, schematic drawings and diagrams, important signaling pathways, generic biochemical structures, principles of laboratory procedures, and many more. Besides, there is a colour insert composed of 12 figures.

Cellular Microbiology integrates the fields of cell biology and microbiology. The advent of genomics, proteomics, and postgenomics has resulted in more widespread understanding of the field.

Jindřich Jíra