Avian Influenza by DE Swayne (ed.). 605 pp. Blackwell Publishing Ltd., Oxford, UK, 2008. $149.99, £75.00, €105.00 (hardcover). ISBN-13 978-0-8138-2047-7/2008.

Avian Influenza provides, according to the publisher, the first comprehensive guide to this complex disease, including in-depth information on its pathobiology, global history, ecology, epidemiology, clinical aspects, and control. It is divided into 25 chapters including one color plate section.

There has been significant research in all aspects of AI during the last decade. Yet, there has been no comprehensive and scientific reference work for veterinarians, animal researchers, microbiologists, and government agencies interested in and responsible for curbing the disease. This gap is filled now perfectly. The book was written by 36 internationally recognized scientists, including veterinarians, leading animal health scientists, medical professionals, government officials, and the editor, David E. Swayne, most of them well known in the field. Dr. Swayne has worked on AI for more than 21 years and is Laboratory Director at the Southeast Poultry Research Laboratory, a branch of the U.S. Department of Agriculture's ARS, in Athens, Georgia.

The first chapter describes the etiologic agent, explaining orthomyxoviral replication and genetics, including antigenic drift and shift. Chapter 2 covers molecular determinants of host adaptation and pathogenicity, including the hemagglutinin proteolytic cleavage site, and describes the role that multibasic amino acids play in triggering virulence. Chapter 3 focuses on the ecology of AI after spillover into wild bird populations, various host susceptibilities, the reservoirs for LPAIV, as well as transmission and maintenance of these viruses. Chapter 4 deals with the epidemiology of AI in agricultural systems, explains molecular determinants of pathogenicity as the basis for adaptation, evolution, interspecies transmission, and spread of the virus in "novel" hosts. Most interesting for pathologists might be chapter 5, in which the pathobiology of avian influenza is compared in birds and mammals. After introductory comments on the general concepts and tropism, the characteristic of gross and histopathology and species variations are demonstrated using 8 tables and 35 mostly very good b/w photographs and four color plates. A paragraph on experimental AI in mammals completes this section. Chapter 6 describes AI as a global disease that knows no geographic or political boundaries, that it is important for domestic and wild birds, and thus is an international problem that can only be resolved by early diagnosis of HPAI and LPAI and detection of infected but asymptomatic wild birds. In chapters 7-11 the history, geography, and lessons learned from outbreaks over more than 50 years in North America, Europe, Asia, Africa, and Australia are described.

The second half of the book has more practical value for those dealing with the disease in a clinical setting, and provides instruction and guidance for veterinarians and government animal health officials encountering AI outbreaks in the field. Chapter 12 explains that there is no single control strategy to fit all types of AI in all countries, but that there is need for a comprehensive plan, including high biosecurity measures, diagnostics, surveillance, and education, in addition to mass depopulation when faced with an epidemic. Chapter 13 is a review of AI virus diagnostic and surveillance systems including methods for virus isolation, characterization and serology. Chapter 14 has importance for pathologists involved in humane mass depopulation of poultry, including SOPs for poultry euthanasia for backyard and commercial operations. The financial costs, environmental aspects, public perceptions,

and practicability of different methods for the disposal of poultry carcasses are highlighted in chapter 15, touching also on most recent developments like alkaline hydrolysis and in situ plasma vitrification. Chapters 16 and 17 consider control and biosecurity plans and risk assessment for poultry operations. Chapter 18 covers methods for cleaning and inactivation of AI virus in the environment, and includes information for worker health and safety. In chapter 19 the authors aptly warn about the futility of using vaccination as a strategy when biosecurity, education, diagnostic and surveillance, and other measures are not in place. The avian immune system, mucosal immunity, criteria for vaccine protection and types of AI vaccines are also discussed.

Chapter 20 and 21 deal with control strategies from the viewpoint of public health, explain human disease caused by LPAIV and HPAIV, and describe the impact of education. Chapter 22 targets the economic sequelae of HPAI in terms of trade and food safety. Chapter 23 demonstrates that sometimes biosecurity is not sufficient to stop and control the spread of LPAI. Chapter 24, emphasizes the economics of emerging diseases, in particular HPAI, and that the costs increase sharply with response delays, which might serve as a wake-up-call for those dealing with future emerging livestock diseases. In the last chapter the authors outline comprehensive, complex structural and proactive approaches for an effective global strategy to address the multiple threats of AI. The book has abundant up-to-date references from peer-reviewed journals and is completed by a detailed index.

The unique strength of this multi-faceted book is its inclusion of wild and domesticated birds, research and application, science and politics, as well as economics and environmental concerns, all targeted toward controlling AI. I am convinced that *Avian Influenza* will be an invaluable resource for veterinarians, virologists, ornithologists, and other animal health professionals, as well as policymakers and public health officials dealing with this virus and concerned with the ongoing panzootic and threat of a pandemic. This book targets a broad audience but provides sufficient detail in all areas. Although it is edited by an ACVP diplomate, it is not specifically written for veterinary pathologists. However, any pathologist involved in AI by diagnostic activities, teaching or research will find this excellent overview useful. I highly recommend this text.

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