

Source: Biologist {Main}
Edition:
Country: UK
Date: Friday 1, August 2008
Page: 58,59
Area: 144 sq. cm
Circulation: Pub Stmt 15000 Quarterly
BRAD info: page rate £700.00, scc rate £15.00
Phone: 020 7581 8333
Keyword: Princeton University Press

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Bookshelf

Modelling Infectious Diseases in Humans and Animals

Matt J. Keeling and Pejman Rohani
Princeton University Press
ISBN: 978069111617 4
£65.00

366pp

Microbiologists have learned a lot about pathogenic microorganisms over the past century. Yet until around 30 years ago our awareness of microbial behaviour was monodimensional. A virus or bacterium collided with a susceptible host and caused disease. Many of the relevant cellular, biochemical and molecular mechanisms were understood. And we knew about epidemics and the periodicity of some conditions. What was largely absent was a truly biological perspective on communicable disease.

It was Roy Anderson and Bob May, in their *Infectious Diseases of Humans* (OUP, 1991) who provided the first truly biological portrait of populations of pathogens interacting with human populations. Although others had discerned the significance of parameters such as the average

number of persons infected by one ill individual, Anderson and May integrated these studies with their own mathematical modelling approach in a more profound analysis.

Matt Keeling and Pejman Rohani have now taken a further important step in surveying subsequent advances in disease modelling – and in describing what is now a highly sophisticated discipline in an unusually accessible style. The book is notable also for covering not only human infections but those in other animals too, where they emphasise the need for more research and surveillance.

The authors' cogent analysis of the population dynamics of pathogens, combined with coverage of recent events such as the emergence of HIV and West Nile virus, and the UK outbreaks of BSE and foot and mouth disease, make this essential reading for epidemiologists and healthcare professionals. Their literary talents commend the book to a much wider penumbra of biologists, especially evolutionary biologists.

Bernard Dixon