

---

## Book Reviews

---

*The Mycota: A Comprehensive Treatise on Fungi as Experimental Systems for Basic and Applied Research.* Edited by K. ESSER and P. A. LEMKE. Vol. I. *Growth, Differentiation and Sexuality*, volume editors J. G. H. WESSELS and F. MEINHARDT. ISBN 3 540 57781 5. Vol. II, *Genetics and Biotechnology*, volume editor U. KUCH. Springer-Verlag, Berlin. xv + 431 and xv + 375 pages. Price DM 298 £129.50 FF1123 per vol. ISBN 3 540 58003 4.

Few geneticists will be attracted by the word Mycota (actually, it just means Fungi), but there is, nevertheless, a great deal of genetical interest in these first two volumes of Esser and Lemke's projected seven-volume encyclopedia. Volume I (with 25 articles) includes reviews of genetic control of the yeast cell cycle, genetic barriers to heterocaryon formation and yeast mating type switching, and several contributions deal with the molecular analysis of mating-type genes in other fungi. Volume II (20 articles) starts with reviews of genetic methodology for some of our favourite fungi (*Neurospora*, *Aspergillus*, *Coprinus*, yeast), and goes on to a series of more molecular topics, including transformation with DNA, systems of gene regulation, plasmids, viruses and retroelements.

The authors all write with authority and are generally clear and concise. Brevity sometimes leaves gaps – for example the review of yeast meiosis by S. Klein *et al.* hardly does full justice to this rich and complex field – but all chapters contain a lot of information, much of it usefully tabulated. The full contents lists preceding the individual chapters partly compensate for the relative sparsity of entries in the subject index.

One's main reservations concerning this well-edited and handsomely produced series are the usual ones that arise with productions of this kind: the price, and the publication lag. But if your library can afford it, it could spare you a lot of hunting through the pre-1994 journals.

J. R. S. FINCHAM  
*Institute of Cell, Animal and Population Biology*  
*University of Edinburgh*

*Internet for the Molecular Biologist.* Edited by S. R. SWINDELL, R. R. MILLER and G. S. A. MYERS. Horizon Scientific Press. 1996. 187 pages. Price £19.99 US \$32.50. ISBN 1 898486 02 6.

Few areas of biology have made such extensive use of the Internet as molecular biology. The wealth of databases and facilities for sequence analysis is remarkable and increases day by day. To the Internet novice or occasional user this near-endless resource can seem intimidating. This book is designed for the user who wants to get a rough idea of what is out there and how to get started. Does it succeed?

The book is divided into two main parts. Nearly a third of the book is a guide to what the Internet is, how it works and how to get yourself connected. These chapters are quite heavy going, with few illustrations. Much the same information can be found in an easy to follow pictorial format in the wide range of Internet magazines at the newsagent or in the regular features found in the national newspapers. Nevertheless, if you plough through the text you will probably get yourself to a position where you can use the resources covered in the rest of the book. Most of us would probably give up after ten minutes, track down your local Internet guru and plead ignorance.

The remainder of the book is divided into chapters covering different molecular biological specialities. These range from vertebrates and invertebrates right through to plants and fungi. Each chapter is the same in style; lists of internet resources, many of them Uniform Resource Locators (URLs) from the World Wide Web with a brief description of the site below each entry. Nothing is more frustrating to the novice user than typing long meaningless URLs; why not give away a floppy disk with the book with the internet sites as bookmarks for Web browsers? One chapter is devoted to BioMOO, a computer generated virtual world for biologists. This chapter is written by some of the true inhabitants of BioMOO at the Weizmann Institute in Israel and conveys the pleasures of interacting with other scientists around the globe in this virtual reality meeting place.

Sadly, what is lost in this book is the excitement of using the information superhighway. The Internet is dynamic; it is constantly changing, frequently updated, new sites and facilities appear that are breath-

taking in their elegance. For example, see the Java browser of the mouse genome and the way that this allows you access to this information (<http://flybase.bio.indiana.edu:82/maps/java/>). Molecular biology is a discipline in which new information is added by the minute and is therefore ideally suited to this electronic world – but resources that sparkle one day look dusty the next.

The last decade has seen molecular biology revolutionize our understanding of biology. The Internet provides a window onto this world and gives us the tools and environment in which to interpret and analyse the data. Knowing how to use the tools effectively requires practice; this book lists what those tools are, but does not convey the pleasure of using them.

JEM RASHBASS ([jem@mole.bio.cam.ac.uk](mailto:jem@mole.bio.cam.ac.uk))  
*Department of Histopathology*  
*University of Cambridge*

*Introduction to Veterinary Genetics.* By F. W. NICHOLAS. Oxford University Press. 1996. xiv + 317 pages. Paperback. Price £17.95. ISBN 0 19 854292 5.

Genetic issues get an increasing amount of attention in the popular press, particularly as they relate to the understanding, avoidance and alleviation of disease in man, but only occasionally as they relate to animals (e.g. double muscling in cattle and welfare) or their interaction with man (e.g. BSE and CJD). An understanding of genetics should be an essential component of any medical or veterinary training, not just so the practitioner knows what can be done but also so he knows what cannot. I have the impression that, because information on genetic mechanisms and on specific diseases has expanded so rapidly, it is underrepresented in the crowded medical and veterinary curricula. In animal health, recent developments in understanding the molecular basis of specific animal diseases such as citrullinaemia, methods for identifying carrier heterozygotes by molecular markers and an understanding of the role of variation in the MHC system should be available to the practising veterinarian. (About 10 years ago I was startled to discover that the vet who was a fellow member of a committee to review livestock research did not know what the MHC system was!) The vet should also know some of the rudiments of animal breeding, if only to realize there is more to animal improvement than choosing the right colour of animal and avoiding lethal recessives.

It seems to me to be the case that, perhaps because

of the volume of work (money?), there is an increasing interaction of medical and basic genetics, but that animal and veterinary genetics, where the animal is not simply a mouse model, are barely in the mainstream, apart from certain areas such as the encephalopathies and the development of micro-satellite genome maps. Whilst this enables animal genetics to ride on the back of the human genetics, and save a lot of money, it does not attract the best people into the subject. I consider that anything which makes genetics more accessible and attractive to those in animal health and production is to be commended.

In his book *Veterinary Genetics*, published in 1987, I believe Frank Nicholas did an excellent service in producing a text which covered comprehensively the basic genetics and its application to the health and the breeding of animals. It was and is suitable not just for veterinarians, but for all engaged in genetics and breeding of domestic animals. It did, however, cover a lot more material in depth than could be assimilated by the typical veterinary student or animal breeder, for example on genetic improvement procedures. This new, shorter, edition is at a simpler level and concentrates rather more closely on the genetics of disease. It also brings in the considerable new knowledge on specific diseases and on use of markers. I suspect it is more suitable than its predecessor both for the undergraduate vet and agriculture student and for the professional or amateur reader concerned with animal genetics and breeding. It is undoubtedly a nice piece of work.

In essence the book comprises chapters on basic genetics and molecular biology, on information on known genetic abnormalities in animals (farm livestock, cats, dogs, etc.), on interactions of the host with pathogens, and on the genetics and improvement of farm animals utilizing both major gene and quantitative genetic variation. Whilst the basic theory and the animal breeding applications can be found elsewhere, the content on the genetics of animal disease is, I believe, uniquely available here. Overall I liked the structure of the book, except for the last section on animal improvement, in which some of the chapters were no more than three pages long. Some reorganization, rather than expansion, would be justified in a revision.

I hope this volume, if not the longer one, is kept under constant revision, if only to serve as a much needed reference. I need to emphasize that this book is not only for veterinarians.

WILLIAM G. HILL  
*Institute of Cell, Animal and Population Biology*  
*University of Edinburgh*