
BOOK REVIEWS

Annual Review of Genetics 1987, Vol. 20, (ed.) A. C. Campbell, (Published by Annual Reviews Inc., 4139, El Camino Way, Palo Alto, California 94306, USA) pp. 724, Price: USA \$ 31, Elsewhere \$ 34

As a central subject to all biological disciplines, genetics is read with keen interest by serious students of numerous branches of science. Annual Reviews of Genetics is one of the rare publications which has struck a non-discriminatory approach to sub-specializations in genetics and has projected a holistic view of this important subject. The 20th volume of the Annual Review of Genetics (1986) truly reflects this philosophy and carries 23 articles on diverse topics.

Genetics of cancers and human disorders are dealt with in 3 articles. A. G. Knudson discusses the role of somatic mutations in causation of cancers, the hereditary predisposition to such events and the involvement of oncogenes. The *myc* oncogene by M.D. Cole, details the molecular structure of the *c-myc* gene (and its protein), its regulation, activation and transforming activity. The third article on Fragile x syndrome deals with genetic and cytogenetic aspects of the fragile x phenomena and its implications to mental retardation in man as inferred from pedigree analysis.

Two articles deal with transposable elements. The first on 'Transposable elements in plants' by P. Starlinger and H.P. Doring gives not only a very lucid account of present status of knowledge in this field but also raises many pertinent questions warranting immediate attention. 'Mechanism of bacteriophage Mu transposon' by K. Mizuuchi and R. Craigie deals with such molecular mechanism of Mu transposition as DNA strand polarity in transfer, structures of transposition intermediates and the various proteins and donor factors involved in the process.

Drosophila genetics is dealt with in two excellent articles. The first one on "Neurogenetics of membrane excitability" by B. Ganetzky and C. F. Wu, is inevitably about various nerve transmission mutants. The structural and regulatory genes for sodium and potassium channels are discussed via findings on paralytic mutant flies.

The discovery of the universality in evolution of a 180 bp DNA sequence—the 'Homeo Box', by

homology scans in computer—DNA data base banks has created a stir among developmental biologists. W. Gehring and Y. Hiromi deal with these 'Homeotic genes of the fruit fly and their molecular biology in the article 'Homeotic genes and the homeo box' and discuss the possibility of the DNA binding property of the Homeo Box protein. A somewhat related treatise is developmental control in slime moulds by D. Kaisei, Eva Eicher and Linda L. Washburn's article on Sex determination in mice elaborately elucidates the genetic organization of the Y chromosome and its developmental role in sex determination and differentiation.

Despite the 3 extensive reviews in the past two years (referred to by the authors) the article on "Transgenic mice" by Palmiter and Brinster retains novelty because of the molecular genetic insight it provides into alien gene transfer and its expression. There are two articles on regulation of RNA synthesis. The first one 'Adenovirus mRNA synthesis' is by A. J. Berk and the second on 'rRNA synthesis and regulation in *E. coli*' by L. Lindahl and J. H. Zeagel.

Pre mRNA splicing is the title of another article by M.R. Green. This deals with the development of *in vitro* experimental systems to study the phenomenon and includes a list of heptanucleotide sequences from several genes that form splice sites and atypical structural DNA splice site intermediates.

Mutation and mismatch repair in *E. coli* are dealt with in two articles, the first by L. A. Loeb and B. D. Preston and the second by M. Radman and R. Wagner.

The article on Nif gene regulation (does not cover gene organization and function) is a detailed treatment of the regulatory paths in the free living *Klebsiella* and symbiotic *Rhizobium*.

The article on 'The conjugation system of F', the fertility factor of *E. coli*, deals with the transfer genes of the F plasmid, the structure and synthesis of F pili and the regulation of gene expression by promoters in the *tra* region.

The volume carries 6 more articles of which one is on 'Evolution of multigene families' taking the human haptoglobin gene as a model. It carries a very good general introduction on the mode of origin of the multigene tribe.

'Ciliate genome organization' is a subject not

often dealt with. E.H. Blackburn and K.M. Karrer present here an up-to-date reportaire on the molecular biology of DNA re-organization in the macro and micro nuclei of *Tetrahymena*.

The article on 'Genetics of endospore formation' appears after a substantial gap of 10 years since the last one was published (quoted in the paper) and is very extensively reviewed by Losick, Youngman and Piggot. Included in this is an up-to-date list of sporulation and related mutants in *Bacillus subtilis* which would be of great use to researchers in this field.

The articles on the Genetics of membrane phospholipids and on Mammalian urea cycle enzymes are of general interest to students of neurogenetics, oncology and human genetics and physiology.

The very first and introductory article by Harschel Roman (who incidentally has been on the editorial board of 'Annual Review of Genetics' for the past 20 years), makes very interesting and pleasant reading. He traces with autobiographical interjections the story of yeast genetics.

Both casual and critical readers of Annual Reviews will find this volume invaluable; so will all good libraries.

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Problems and Progress of Wheat Pathology in South Asia, (eds.) L. M. Joshi, D. V. Singh and K. D. Srivastava (Published by Malhotra Publishing House, New Delhi 110 064), pp. 401, Rs. 395; US \$ 69.

This is a compilation of 21 scientific papers by leading specialists in different branches of Wheat Pathology. Except for the three papers, one each by

authors from Pakistan, Mexico and USA, the other 18 papers are written by Indian authors and they mostly cover wheat diseases occurring in India. M.A.R. Batti and M.B. Ilyas have given an account of 'Wheat diseases in Pakistan'. E. E. Saari has briefly covered the 'Wheat disease problems in Southeast Asia'. R. D. Wilcoxson's paper on 'Slow rusting of cereals' is very general, not necessarily restricting to wheat or South Asia.

The Indian authors have given an excellent and up-to-date account of the major and minor diseases of wheat in India. The diseases include rusts, smuts, bunts, leafspots and blights, mildews, foot and root rots, wilts, black points, nematodes, viruses and nutritional disorders. All of these have been well covered with historical information, etiology, host-pathogen relationships, perpetuation where applicable, and control. The paper on 'Storage diseases of wheat' by Dharam Vir is comprehensive and well written. The articles on 'Wheat rust management', 'Genetic aspects of rust resistance', 'Multiline approach in wheat improvement' and 'Chemical control of wheat diseases in India' are classic, giving very valuable data and information.

The publication carries the information needed by the wheat pathologists in India in carrying out their research. It is an excellent reference book to everyone concerned in this field. Unfortunately the book carries far too many spelling, gramatic and printing mistakes which reduce its value as a scientific publication. Unfortunately, when circulated at the international and national levels it would not bring much credit to the editors and publishers.

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