Book Reviews

Annual Review of Genetics. Vol. 20, 1986, edited by Allan Campbell, Ira Herskowitz and Laurence M. Sandler. Pp. xii + 724, illustrated. Annual Review, Palo Alto, California, 1986. \$31.00 (U.S.A.), \$34.00 (elsewhere). Prices include postage and handling.

This is a good book. Indeed this reviewer has barely been able to read it because other members of the department of genetics are forever borrowing it. On that basis alone at least one copy should be available in all libraries where there is a university department of genetics, a molecular biology unit, any other department of basic sciences or a research minded clinician.

The volume includes chapters on many of the basic issues which have excited biologists in the recent past including one on homeosis, a term originally used to describe the transformation of one bodily structure into another. Clinicians might even be confronted by keen biologists asking about patients who have an arm appearing where a leg should be as there is every indication that in mammals as well as in the fruit fly there are boxes of genes which specify the body plan of the developing fly. A mutant in the homeobox confuses the planner, or rather the craftspersons.

A chapter by Nussbaum and Ledbetter evaluates the spate of papers on the fragile X syndrome, especially its strange and unique quirks of inheritance. There is an irregularity about its X-linked mode of transmission and there are basic biological lessons to be learnt in finding an explanation for these irregularities.

The genetics of human cancer is reviewed by Knudsen who provocatively says that most or even all human cancers are likely to be initiated by somatic mutations even those which are virally induced, possibly due to the integration of the viral genome as a final trigger at a site which is near a critical host gene.

Other chapters explore the concept of multigene families and why crossovers in the human genome do not occur with equal frequency in all regions; clinicians who hear their molecular biology colleagues talk about recombination 'hot spots' will find it well explained. Clinicians and human biologists might quibble about the relevance of 'sex determination in mice' to their work but mice and men are so alike that we must take note of the statement that 'evidence from the mouse indicate that the testes-determination gene located on the Y chromosome is not the only gene involved in mammalian primary (gonadal) sex determination'. And there are transgenic mice (a separate chapter) produced by the transfer of genes (piggy backed on a virus) to new regions of the genome which cause new mutations and teach about the localization of the genes which cause these mutations.

There are chapters that are not meant to be read by simple minded clinicians (like the reviewer) although there is a good review on the urea cycle enzymes, but it would be surprising if everyone did not learn something from this, the latest in a long line of excellent 'Annual Reviews'.

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Annual Review of Microbiology. Vol. 40, 1986, edited by L. Nicholas Ornston, Albert Balows and Paul Baumann. Pp. xii + 712, illustrated. Annual Reviews, Palo Alto, California, 1986. \$31.00 (U.S.A.), \$34.00 (elsewhere). Prices include postage and handling.

The principal editor in his opening remarks to this Annual Review states that the 'selection of exquisite fragments is the pleasurable task of the editorial committee'. This statement is very appropriate for the variety of topics presented ranging from the 'clonal analysis of descent and virulence among selected *E. coli*' through 'microorganisms in reclamation of metals' to conjugate transposons and the 'dissemination of antibiotic resistance in streptococci'. The new look Editorial Committee has brought in new concepts covering bacteriology, virology, mycology, parasitology and rickettsii.

In a short review of this kind it would be impossible to do justice to such a plethora of up to date information and yet to select one or two articles would equally be a crime. Nevertheless the reader must be directed to the section on 'immune complexes in the pathogenesis of bacterial infection' and in particular the 'cryptic infection' caused by *Pseudomonas aeruginosa* in the pathogenesis of cystic fibrosis. Rather than detect immune complexes in serum the authors stress the importance of detecting such activity in respiratory secretions. Additional authors point out the lack of genetic mapping data of pseudomonads compared with the wealth of data accrued on *E. coli* and *Salmonella typhimurium*.

Both naturally occurring and experimentally induced persistent RNA viral infections in animals are described. The human infections including the HIV infections of the CNS in AIDS are described and the effects of such persistent RNA viral infection on the CNS is critically assessed. 'It is expected that molecular techniques, especially recombinant DNA technology will be of great value for gaining entrance into the realm of molecular pathogenesis'.

One section deals with 'in situ bacterial metabolism and colon mutagens' and cites indirect evidence from animal experiments that interactions with intestinal microflora can generate either carcinogens or tumour promoters in the large bowel.

Some readers will be interested in the chapters on Japanese encephalitis virus, the pathogenesis of infectious diseases of fish, or even 'the molecular biology of parasporal crystal body formation in *Bacillus thuringiensis*'. Others, however, will need to read the chapter on the genetics of bacterial enterotoxins. This is a small chapter but packed with exciting and up to date information indicating the real expansion of genetic mapping and regulation of enterotoxigenicity.

Suffice to say that all departments who need to keep abreast of modern developments in microbiology particularly from the scientific aspect must have access to this volume.

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