

Book Reviews

Clarkson, B.; Marks, P.A.; Till, I.E. (eds): Differentiation of Normal and Neoplastic Hematopoietic Cells.

New York: Cold Spring Harbor Laboratory 1978. 994 pp. \$ 80.00
The topic of the first Cold Spring Harbor Conference on Cell Proliferation in 1973 was the control of proliferation in animal cells. The fifth meeting in this series dealt with a closely related area – cellular differentiation. Since this topic is so broad, it was decided to focus on the hematopoietic system. This system was chosen because the major pathways of differentiation are relatively well defined and considerable knowledge already exists of the regulatory factors and of the interactions occurring between different types of cells. In this symposium volume 60 papers are published which discuss diverse aspects of this topic.

In the two book set of the symposium volume, the ontogeny of hematopoietic development and stem cells are described in 9 papers. The differentiation of erythrocytes, granulocytes, monocytes and lymphocytes is covered in three sections (27 papers). The following 11 papers represent extremely well the thinking and problems in the field of viral leukomogenesis as of early 1978. The nonrandom involvement of chromosomal segments in human hematologic malignancies, the genetic control of hemoglobin production by murine erythroleukemic cells and the biosynthesis of the cell-surface antigens T25 (Thy-1) are discussed in section 6. The 3 papers of section 7 deal with marrow architecture and micro-environment. Malignant tumors of lymphatic tissue, i.e. malignant lymphomas, are the chief topic of the last major section (8 papers). The volume contains a name index as well as a subject index.

This volume of Cold Spring Harbor Conferences on Cell Proliferation represents an unique collection of current research reports on the differentiation of normal and neoplastic hematopoietic cells, emphasizing the interrelatedness of different research areas and pointing out problems that require further investigations.

Cellular and molecular biologists, immunobiologists, virologists, clinical investigators and humangeneticists will find this volume most valuable.
F.H. Herrmann, Erfurt

Denhardt, D.T.; Dressler, D.; Ray, D.S. (eds.): The single-stranded DNA phages.

New York: Cold Spring Harbor Laboratory 1978. 720 pp., 171 figs., 60 tabs. Hard bound \$ 49.00

Surprisingly it has recently been shown that from all other DNAs the phage ϕ X174 DNA can be integrated by co-transformation into the genome of mammalian cells (Wigler, Cell 16, p. 777, 1979). Will this discovery offer the possibility to study the life process of this phage in eucaryotic cells? Upto now this has only been studied in his genuine host *E. coli* C.

The up-to-August 1977 knowledge on ϕ X174 and related single-stranded phages has comprehensively been reviewed at an international meeting held at Cold Spring Harbour. This book is based on it.

The book is introduced by 'Some recollections' by the father of studies on the ϕ X174 phage, R.L. Sinsheimer. This is followed by extensive reviews on such other phages as the related small, tailless icosahedral coliphages S13 and G4, the filamentous phages fd, f1, M13, and ZJ/2, the group-1 mycoplasma-viruses, and last but

not least the *Pseudomonas* phages Pf1 and the *Xanthomonas* phage Xf.

Like the other related editions of the Cold Spring Harbor Laboratory series, the contributions in this book are short and full of pertinent data, with many tables and figures and completed by appropriate references. The four chapters deal with genetics, replication, recombination and repair, transcription and virion structure, respectively. D.T. Denhardt gives an overview 'A comparison of the isometric and filamentous phages'. The appendices I and II indicate in table form the up-to-date knowledge on the nucleotide sequence of the ϕ X174cs70 DNA as analysed by the group of E. Sanger and of comparative DNA-sequences of phages G4 and ϕ X174 described by G.N. Gordin et al.

Among the eight books now available from the CSH monograph series, this volume will doubtlessly also mark a milestone in the progress of modern biology.
J. Hofmeister, Gatersleben

Vázquez, D.: Inhibitions of Protein Biosynthesis. Vol. 30. Molecular Biology, Biochemistry and Biophysics.

Berlin-Heidelberg-New York: Springer 1979. 312 pp., 61 figs., 13 tabs. Hard bound US \$ 32.50

This book is the 30th volume in the series Molecular Biology, Biochemistry and Biophysics, and as such represents a valuable addition to the series. A full list of previous reviews on the subject of protein synthesis inhibition is given in the introductory chapter, allowing the author to concentrate on the more recent aspects of the site of action of protein synthesis inhibitors in initiation, elongation and termination of the translation process. The list of inhibitors dealt with is long and exhaustive. The introductory chapter includes an extremely useful classification of protein synthesis inhibitors, given in several tables and figures. This classification is based on the stage of protein synthesis inhibited, whether or not the inhibitors act on prokaryotes, eukaryotes, or both, and further as to whether the site of action is on the small (30 or 40s) or large (50s or 60s) ribosome.

Most of the text of this book is devoted to translation initiation inhibitors (34 pages) and translation elongation inhibitors (129 pages) with a smaller chapter on termination inhibitors following these. Initiation inhibitors are considered under the headings of those showing recognition of the initiator substrate, or mRNA, those acting at subunit joining or at positioning of the initiator in the donor site, and finally other miscellaneous initiator inhibitors. The chapter on elongation inhibitors comprises by far the largest section of the book. This may reflect the fact that one such inhibitor of elongation, chloramphenicol, was the first known inhibitor of protein synthesis showing a high degree of specificity to be described (in 1950) and many more have been described since. The elongation inhibitors include those compounds interfering with aminoacyl – tRNA recognition, inhibitors of peptide bond formation (e.g. chloramphenicol), inhibitors of translocation and other miscellaneous inhibitors.

GTP analogues are examined separately, while the last chapter reconsiders the selectivity and specificity of inhibitors already dealt with earlier. Thus, cases of narrower and broader than usual spectra of selectivity are described, and inhibitors of protein synthesis which also inhibit other cellular processes are considered. The book is well rounded off with over one thousand references and a useful index.
J.F. Jackson, Glen. Osmond

Beers, R.F. Jr.; Bassett, E.G. (eds.): **Recombinant Molecules: Impact on Science and Society. Proceedings 10. Miles International Symposium.**

New York: Raven Press 1977. xvi, 540 pp. Hard bound \$ 56.55

An immensely readable book describing all the excitement of present day recombinant research, this volume is the proceedings of the 10th Miles International Symposium held at the Massachusetts Institute of Technology. The excitement stems from the finding that excised segments of DNA from two different species could be reassembled in the test tube to form a hybrid DNA molecule which can then impose new genetic controls on a cell into which it is introduced. This new technology, which appears to provide a foundation for the creation of new organisms with desired genetic characteristics, has also caused much concern among scientists and laymen alike. It has been widely felt that the new technology could result in the creation of unique forms of agents of infection (or of forms adversely affecting the environment) whose biological behaviour cannot be completely predicted.

The social impact of recombinant DNA technology is therefore dealt with at length in the final section of the book, and includes chapters by various authors on attitudes to the new technology in both USA and Europe, considerations on industrial risk and ways of overcoming the hazards, including an appendix with guidelines for research involving recombinant DNA.

Technical and background information on recombinant research is not neglected. Thus, the book begins with a section on technological advances, wherein the techniques enabling scientists to manipulate genomes and cross major species barriers are discussed. This is followed by sections on the development of plasmid vectors, applications in plant genetics, and discussions on virus vectors and the cloning of eukaryotic DNA. Contributors to the volume comprise 90 of the world's leading scientists with expertise in this new field. Although the editors in an epilogue to the book, conclude that 'both the proponents and opponents must temper their predictions somewhat as the knowledge about the possibilities of recombinant DNA research and technology becomes more complete and sobering in its implications for man and its environment', the genetic engineering era has aroused much concern and interest, and is explained fully in this volume both in scientific and social terms.

J.F. Jackson, Glen Osmond

Eccles, J.C.: **The Human Mystery. The Gifford Lectures 1977-1978.**

Berlin-Heidelberg-New York: Springer 1979. 255 pp., 89 figs., 7 tabs. Hard bound DM 34,-

Sir John Eccles, the Nobel Laureate of 1963, was invited by the Gifford Lectureship Committee of the University of Edinburgh to give a series of lectures on Natural Theology. The intention of these interdepartmental lectures, since 1887 an annual event under the terms of the endowment of the late Lord Gifford, is to promote and diffuse 'the study of Natural Theology in the widest sense of that term - in other words, the knowledge of God'. The broadmindedness of the English scientific community is again

demonstrated by the wide range of these lectures which serve to uncover many extraordinary contingencies on the way to discovering the origin of each one of us as a consciously experiencing being. Eccles has chosen the topic of Human Mystery because he believes that it is vitally important to emphasize the great mysteries that confront us when we as scientists try to understand the natural world, including ourselves. The position he has chosen is 'frankly and unashamedly' anthropocentric. In a noble and respectful way he begins his lectures with an homage to his great master, C.S. Sharrington, who gave these lectures forty years ago, and then continues with a criticism on the fundamentals of Monod's 1970 book 'Le Hazard et la Nécessité'. The whole course emits an atmosphere of wonder and humility before the greatness and immensity of the cosmos - and a post-naïve astonishment. Beginning with the great 'Big Bang', the author discusses the origin and evolution of the universe, the planetary system and the planet Earth. Turning then to the subject of the origin of life and biological evolution, he concentrates on human evolution. Basing his lectures on his own life-long work, he places a strong emphasis on cerebral development, the evolution of language and values, learning and memory. The chapters on the structure of the neocortex and conscious perception are the most fascinating to read. In the last lecture he comes to a critical evaluation of the various hypotheses that have been developed in order to explain mind-brain interactions. According to Eccles this interaction occurs in a two-way process of information flow across the frontiers between the self-conscious mind on one hand and the liaison areas of the brain on the other. This is a radical dualistic interaction theory of brain and mind.

H.F. Linskens, Nijmegen

Announcement

International Symposium on Chinese Cabbage

The International Society of Horticulture Science, the Japanese Society for Horticultural Science and the Asian Vegetable Research and Development Center will organize the first International Symposium on Chinese Cabbage. The Symposium will be held from March 31 to April 5 1980 at the Tropical Research Center, Tsukuba, Japan.

Scientists specialized in research *Brassica campestris* ssp. *pekinensis* and closely related subspecies will review the latest knowledge in the fields of breeding, evolution, incompatibility, production potential, protection and management.

Information can be obtained from Dr. N.S. Talekar, AVRDC, Po. Box 42, Shanhua, Tainan 741, Taiwan, or Dr. Takashi Kuriyama, Dept. of Plant Breeding, Vegetable and Ornamental Crop Research Station, Kusawa, Ano, Age-County, Mie-Prefecture, 514-23, Japan.