Molecular Cell Genetics
Edited by Michael M. Gottesman

John Wiley & Sons; New York, 1985

931 pages. £92.45

This text presents a comprehensive review of the contribution of Chinese Hamster cell lines to the study of eukaryotic molecular genetics. The three sections describe the historical development and characterization of Chinese Hamster cell lines, the recent technical developments (including recombinant DNA techniques, cell hybridization and chromosome isolation) and detailed reviews of the developed genetic systems. The latter section comprises some two-thirds of the book and includes a wide variety of research topics under the headings of intermediary metabolism, cell structure and behaviour and mechanisms of genetic variation.

The title of the book is somewhat misleading as it focusses upon the Chinese hamster cell lines though some comparison with non-Chinese hamster cell systems is included. Each of the chapters, which have been contributed by leading exponents of the field, is self sufficient. Although they contain some minor repetition this enables the informed reader to proceed comfortably through the text without the need for constant cross referencing. The perspective provided by the historical reviews and the detailed descriptions of the diverse research systems ensure that the book will make an excellent library reference text for many years to come.

R.J. Smith

Human Genetic Diseases: A Practical Approach
Edited by K.E. Davies

IRL Press; Oxford, 1986

xiv + 138 pages. £14.00, $25.00

Human Genetic Diseases: A Practical Approach represents another addition to this excellent series which gives both readable and informative introductions to current laboratory methodology. According to the editor this book aims to ‘serve as a guide for anyone wishing to analyse a particular genetic disease whether for pure research purposes or for genetic counselling’. The book indeed seems to succeed in bridging the gap between the simpler more theoretical treatments of the subject aimed at clinicians such as Weatherall’s ‘The New Genetics and Clinical Practice’ and the more stodgy protocols of some other practical manuals. As such it appears to represent a rare species which should be valuable for both the clinician and scientist.

Human Genetic Diseases covers a span of topics ranging from those directly applicable to current clinical diagnosis and research (fetal DNA analysis using RFLPs, an introduction to linkage analysis, the detection of specific mutations using oligonucleotide probes as well as alternative techniques based on resin-coupled DNA) to more basic chapters on molecular genetic analysis (chromosomal analysis by flow sorting and in-situ hybridisation, pulsed field gradient gel analysis of large DNA molecules and the analysis of the transcriptional unit). The very existence of the book is a tribute to the burgeoning application of molecular techniques to medicine. This popularity has made it difficult not to duplicate the seemingly
Molecular Genetics diagnostic lab offers DNA tests for:

- Hemoglobinopathies: (Thalassemia, Sickle Cell Disease and Abnormal Hemoglobin),
- Cystic Fibrosis and,
- Fragile-X.

Prenatal Diagnosis for Thalassemia (PND): is offered to pregnant women at high risk for B-Thalassemia, Sickle Cell Disease and combinations thereof through chorionic villus sampling (CVS). Early detection of a genetic abnormality can culminate in the prevention of a thalassemic birth by informed choice. The term molecular genetics is now redundant because contemporary genetics is thoroughly molecular. Genetics is not made up of two sciences, one molecular and one non-molecular. Nevertheless, practicing biologists still use the term. Different RNA molecules play different functional roles in the cell, and many RNA molecules play the role of template in the synthesis of polypeptide molecules. Molecular genetics is a sub-field of biology that addresses how differences in the structures or expression of DNA molecules manifests as variation among organisms. Molecular genetics often applies an “investigative approach” to determine the structure and/or function of genes in an organism's genome using genetic screens. The field of study is based on the merging of several sub-fields in biology: classical Mendelian inheritance, cellular biology, molecular biology, biochemistry, and biotechnology. A cell culture for molecular genetics is a culture that is grown in artificial conditions. Some cell types grow well in cultures such as skin cells, but other cells are not as productive in cultures. There are different techniques for each type of cell, some only recently being found to foster growth in stem and nerve cells. First, the DNA is separated from cellular components such as proteins, RNA, and lipids. This is done by placing the chosen cells in a tube with a solution that mechanically, chemically, breaks the cells open.