Book Reviews

High Dose Methotrexate Pharmacology, Toxicology and Chemotherapy. Proceedings of an International Workshop, Firenze 1978. (Ed) P. PERITI (1979). Firenze: Editrice Giuntina. 415 pp.

This book is very relevant to those involved in cancer chemotherapy, for there is still confusion as to the optimum dose, timing of administration and clinical indications for high-dose methotrexate (HDMTX).

The first section is concerned with essential biochemical principles and pharmacological properties. The rationale for the clinical introduction of HDMTX is well described, and the pharmacology in man is covered in considerable detail. The second section covers the use of HDMTX in haematological malignancies and solid tumours. This covers many aspects of therapy, and several of the papers are comprehensive and provide adequate detail for the reader to decide on the particular merits of treatment. It must be said, however, that some papers are too short and contain insufficient detail or inadequate patient numbers to make a useful contribution, so that if they had been submitted separately for publication they would have been rejected. However, this particular form of publication is necessary in order to present an up-to-date position to those active in the field. This book will no doubt have a useful place in relevant libraries, but it cannot be commended for individual purchase.

P. M. WILKINSON

Recent Results in Cancer Research: Strategies in Clinical Haematology. (Eds) R. GROSS & K. P. HELLRIEGEL (1979). Berlin: Springer Verlag. 140 pp. 48 DM or \$26.40.

This book contains the 14 main lectures delivered at the 5th meeting of the European and African Division of the International Society of Haematology in Hamburg in August 1979. As with all collections of this kind, it is a difficult, if not impossible, editorial task to confer any uniformity in

style of presentation when such lectures, however good, are transcribed into essays for publication. This said, there is much of interest in this volume, and the contents are as likely to appeal to the clinical and experimental haematologist as to the oncologist. There is a concise account of what is known of the role of the EB virus in human oncogenesis by Dr Hausen, while Professor Penn gives an authoritative review of the incidence of leukaemia and lymphoma following the use of cytotoxic and immunosuppressive therapy, based in part on data from the Denver Transplant Tumor Registry; unfortunately, the bibliography for this contribution is severely restricted. Professor Galton gives a thoughtful and not entirely pessimistic review of the methods of prolonging remission in patients with acute myeloblastic leukaemia for whom no marrow transplantation is possible.

Amongst contributions of more interest to the clinical haematologist, the excellent chapter on iron-overload syndromes by Professor Bothwell, and those on hereditary red-cell enzyme abnormalities by Dr Kahn, and abnormalities of porphyrin metabolism by Dr Doss, deserve special mention.

Any haematologist who was unable to attend the successful Conference will find it profitable to spend a couple of hours browsing through this book.

C. GEARY

Cell Differentiation and Neoplasia. (Ed) G. F. SAUNDERS (1978). New York: Raven Press. 549 pp.

This is a useful collection of individual presentations from active research groups, all supporting the central idea that neoplasia is a disease of differentiation. The papers were presented at the 30th Annual Symposium on Fundamental Cancer Research sponsored by the MD Anderson Hospital and Tumor Institute of the University of Texas System Cancer Center and, like previous volumes in this series, it is a useful addition to the library of any cancer research laboratory. In an excellent introductory

chapter, Markert defines neoplasias as "diseases of cell differentiation stemming from a mis-programming of normal gene function. This mis-programming can have many causes, but all cancer must act by changing the function of regulatory DNA". While he accepts this to be a dogmatic statement, and critically examines its implications in the subsequent discussion, it delineates very well the theme for the meeting. Particular aspects are then enlarged upon by individual authors.

Mintz reviews her work on genetic mosaicism, and the exciting implications that normalization of teratocarcinoma cells in mosaic embryos has for the understanding and possible control of neoplastic growth. Pierce and Cox emphasize that not all tumour cells are equal, and that it is the undifferentiated proliferating community that poses the threat to the host, not the terminally differentiated component which forms the bulk of many tumours.

That a genetic disturbance underlies oncogenesis for many human tumours, in particular those of the nervous system, is emphasized by Knudson and Meadows, Herman and VandenBerg, and Prasad and Sinha, and the implications of genetic disturbance in terms of altered differentiation are considered by several authors. However, the symposium organizers managed to avoid the usual catalogue of changes in phenotype, all claimed to be markers of neoplastic transformation by their individual devotees. Instead attention was focused on the molecular mechanisms underlying gene expression, both in the normal developing organism and in the development of cancer. One of the best models for investigating the inter-relationship of differentiation and proliferation is normal haemopoiesis, starting from the pluripotential stem cell, as discussed by Lajtha and his collaborators in England and by Iscove from Switzerland. The regulation of haemopoiesis and the disturbances of differentiation leading to leukaemias are the subject of several excellent papers in this section on haemopoietic stem-cell systems.

The expression of alpha-foetoprotein during both ontogenesis and oncogenesis is reviewed by Abelev. Specific gene functions and control of gene transcription and translation in both eukaryotic and prokaryotic cells are covered by 7 other papers in the section on molecular mechanisms of gene expression, and methods

of investigating aberrations in the control of gene expression are considered in the subsequent section. A particularly interesting model is described by Gurdon and his co-workers which involves the injection of purified DNA with characterized transcription products into the nuclei of living oocytes, and its use to identify and characterize gene-controlling molecules from living cells. In the final section, Marks and his colleagues consider pathways by which exogenous agents can affect the cell and induce normal erythropoietic differentiation in murine erythrolukaemia cells. O'Malley and co-workers provide evidence that non-histone proteins can regulate the expression of the gene coding for ovalbumin in chick oviducts. A thoughtful and comprehensive paper by Rutter *et al.* describes the use of the pancreas as an analytical tool for investigating the regulatory mechanisms controlling normal organogenesis. They delineate 3 phases, or differentiative transitions, in the development of the exocrine pancreas, involving first, morphogenesis and specific gene expression, second, overt cytodifferentiation and synthesis of pancreas-specific gene products and third, the selective modulation of gene expression in the mature organ. They also raise the possibility of distinguishing oncogenic target cells in terms of their position of this scale of progressive differentiation.

Overall, the papers in this volume present good evidence that cancer is essentially a disturbance of cell differentiation and that the process is not necessarily irreversible. It is a book which will interest not only individuals involved in cancer research, but also chemists, molecular biologists, cell biologists and geneticists. Many of the papers are provocative and stimulating; few are dull, and between them they provide a very useful and comprehensive bibliography.

R. M. HICKS

Tumour Markers: Impact and Prospects.

(Eds) E. BOELSMA & P. RÜMKE (1979). Amsterdam: Elsevier (North Holland). 338 pp.

This book documents the proceedings of a workshop on Tumour Markers and was organized under the auspices of the Dutch Scientific Council on Cancer Research.