neoplasias is the table of screening studies helpful in patients at risk for type I multiple endocrine neoplasia (Werner syndrome), while the intriguing concept of the APUD cells, suggesting homogeneity of origin of the cells that migrate into the primitive foregut and presumably develop into the endocrine system, is shown to have stimulated considerable activity.

Chapters follow on the gastrointestinal cancers, which provide some of the most difficult cases for counselling, and the tumours of the reproductive system and leukaemia. Prostate and testicular tumours are rare, but of cancers of the ovary there are numerous reports of familial occurrence, the trait apparently being transmitted by a male. Tumours in intersex patients are dealt with briefly, and prophylactic removal of intra-abdominal gonads or gonadal remnants shortly after expected puberty is recommended.

This book is useful, both for the remarkably succinct account of the cancers in which an inherited component is identifiable, and also for its clear exposition of what is not known. Many a voyage of discovery has foundered on the hidden rocks of tumour investigation, the complications of environmental and genetic predisposition interaction. Yet the survivors have given us remarkable evidence of the strength of the genetic involvement in a number of neoplastic states.

This modest little book, and the evidence so clearly marshalled within it, will serve as an excellent first guide to genetic counselling in relevant situations, and as a baseline for the accumulation of additional information.

D F ROBERTS

Chemical Mutagens. Principles and Methods for their Detection

Vol 5. Edited by A Hollaender and F J de Serres. (Pp xv + 348; Figures + Tables. \$18.58.) New York and London: Plenum Press. 1978.

The explosive development during the past decade of short term tests for the detection of mutagens and carcinogens has been reflected in previous volumes in this series. Too little thought, however, has been given to the way in which information generated by these tests should be used and to the problem of relating it to possible effects in man. The present volume shows a clear emphasis on effects in laboratory mammals (as distinct from micro-organisms

or mammalian cells) and this must be welcomed as a trend in the right direction.

The clinician interacts with this type of work most often when he suspects that a patient may have been exposed to an occupational or environmental carcinogen. There are three chapters that are particularly relevant to this. The first, by Legator, Truong, and Connor, describes techniques for the detection of mutagens in body fluids, both of mice and men. Mutagenic activity has, for example, been detected in the urine of workers exposed to high levels of epichlorohydrin. The alkylation of histidine residues in haemoglobin is another method that can be used to detect occupational exposure to alkylating agents.

A second chapter by Wyrobek and Bruce discusses the use of sperm morphology abnormalities as an indicator of exposure to agents capable of inducing gene mutations. There is little doubt that mutagens can give rise to sperm shape abnormalities in the mouse, but the usefulness of the response is limited by the fact that abnormalities can also be caused by physiological disturbance so that a positive effect must always be considered in the light of information from a variety of other systems. In man there is considerable person-to-person variability in the proportion of morphologically abnormal sperm. Nevertheless, the approach has been used; for example, it has been shown that the proportion of abnormal sperm correlates well with the number of cigarettes smoked per day.

Perhaps the most interesting chapter is that by Miller which reviews the discovery of human teratogens, carcinogens, and mutagens and points some lessons for the future. By far the most important initiators of discovery have been alert practitioners. Despite the development of short term tests and record linkage, it is still the practitioner who has a vital role in uncovering effects in man. Epidemiology may be useful in confirming suspicions but it has rarely been useful in formulating them. Of course, many of the clinician's suspicions will be unfounded, and some may be untestable through lack of an adequate number of exposed persons. What would be useful, however, would be a place of referral where practitioners could send their suspicions for evaluation by experts. This would need to be in the hands of the medical profession but with full access to advisers in the areas of environmental mutagenesis, cancer research, and epidemiology.

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