Book Reviews

The Year Book of Cancer, 1977. Eds R. L. Clark & R. W. Cumley. (1978) Chicago, London: Year Book Medical Publishers. 499 pp. £19.25 net.

The Year Book series makes available in detailed abstract form some papers considered to be of importance published during 1975 and 1976. The Year Book of Cancer has a large editorial board (160 members) and a very large number of articles are considered for inclusion. Many of the best papers have been included and some of the not so good, and an attempt has been made to review these critically. An extremely wide range of topics is covered. Cancers by site, chemotherapy, immunotherapy and terminal care are dealt with. There is also some attempt to review relevant progress in the basic sciences. Unfortunately, the reviews are inevitably out of date by the time of publication and this makes them of less value. It is a fairly painless way of bringing the oncologist up to date in areas in which he has not a main interest and, for this reason, the book has a place in a library, but I doubt whether many individuals will be prepared to pay the price of a review now about two years out of date.

D. CROWTHER

Mechanisms of Tumour Promotion and Co-carcinogenesis. (Vol. 2 of a series on Carcinogenesis—A comprehensive survey). Eds T. J. Slaga, A. Swak & R. K. Boutwell. (1978) New York: Raven Press. 588 pp. £26.00 net.

The editors have divided the book into 6 sections followed by a well-presented summary. In reviewing the subject they rightly assign the opening chapter on historical perspectives to Berenblum who discovered the co-carcinogenic action of croton oil. Having made the distinction between co-carcinogens, covering a wide range of modifying influences, and tumour promoters he reminds us of some of the pertinent questions to be considered. A great deal of valuable information on the structure-activity relationships of the diterpene esters is contained in the chapter by Hecker, which identifies the most active promoting agents and discusses their metabolism and mode of action. A much shorter contribution on the biochemical mechanism of tumour promotion by Boutwell emphasises the work of his own laboratory, in which the induction of ornithine-decarboxylase activity in mouse epidermis by phorbol esters is correlated with their activity as tumour promoters. The chapter on tumour promotion and co-carcinogenesis in relation to our own environment is more speculative, but considers evidence for factors which enhance cancer of the lung, breast, colon and upper alimentary tract in man. The final chapter by Mueller on the possible targets of co-carcinogenesis considers the mechanisms of DNA and chromatin replication, and presents a hypothesis based on observations of the action of phorbol esters on lymphocytes.

Effects of tumour promoters on mouse skin are considered in the next section, and include studies of the kinetics of skin papillomas, the role of cyclic nucleotides, the relation of specific proteins in the epidermis and the information obtained from studies of the inhibition of tumour promotion by steroids. Certain of the biochemical evidence would support the view that tumour promotion may induce a dedifferentiation by modifying gene expression. The fact that the phorbol esters act at concentrations of the order of 10⁻⁹M suggests that they may act via specific receptors on the cell membrane, but their mode of action has yet to be established.

In the section on in vitro studies, a useful comparison is made of the responses of mouse skin keratinocytes, fibroblasts and carcinoma cells by Fussenig & Samsel. They find the greatest effect on the epidermal target cells, but point out that these are derived from newborn mouse epidermis, which is not stimulated in vivo by local applications of TPA. The conditions for the induction of ornithine and S-adenosylmethionine decarboxylases in mouse epidermal cell cultures by tumour promoters are examined, and the effect of polyamine biosynthesis on cellular control is suggested as an important aspect of the effect of tumour promoters. One point to emerge is that an anti-inflammatory steroid