Until quite recently it was common practice to think of, or to work with, virus-induced cancers, or radiation-induced cancers, or genetically-determined cancers. There has, however, been a growing realisation that to consider any one of the aetiological factors in isolation is to ignore the most important fact of all, namely, that cells acquire the properties that we call malignant as the result of a relatively complex series of events which can be influenced by a great many interacting factors. The title of this book should, therefore, be the 'Role of Radiation in the Biology of Carcinogenesis'. Not only would that fit better with current concepts, it would also describe more accurately the contents of the book. It is not confined to 'radiation carcinogenesis'—indeed the editors make it quite clear in their introduction that the intention of the Gatlinburg conference in April 1975 on which this volume is based was to try to examine the role of radiation in relation to other factors, and they claim, quite justifiably, that this is an 'up to date summary of carcinogenesis in general'. Its broad base and manner of presentation—a mixture of background and detail in a rather large number of short chapters—makes it a most useful book even for those with only a passing interest in carcinogenesis. Chapters by Ormerod, Cerutti, and Remson, Regan and Setlow, Robbins *et al.*, and Maher and McCormick, provide an excellent review of current work on the significance of DNA damage and its repair in the initiation of carcinogenesis. Not only are the molecular mechanisms considered but in Robbins' chapter we have a clear indication that in xeroderma pigmentosum the severity of the neurological symptoms of the disease is related to the extent of the insufficiency of the cells at the molecular level.

The interaction of the environmental factors with the genome of the cell is emphasised. In the case of chemicals Miller and Miller, and Greenberger and Weinstein point out that interaction with DNA, especially conformational changes in the DNA as a result of carcinogen binding, are of particular importance. In a series of beautiful chapters, Lilly, Lowry, and others show how virus genome, either exogeneous or endogeneous in origin, may have a specific chromosomal localisation and in some cases at least respond to cellular regulatory mechanisms. The role of radiation in the expression of virus information is also explored. Though it has been published before I still find the claim by Carmia Borek that cells can be transformed *in vitro* by doses of *X*-rays as low as one rad quite extraordinary, as is the report in this paper that 0.1 rad of neutron irradiation will transform cells. This is potentially of such importance I would like more information about the properties of the transformed cells. Vague statements about tumorigenicity like 'the ability to produce tumours varied among the cell lines studied' are not enough. What I want to know (and have done since I first learned of this work several years ago) is just how many lines are tumorigenic, how many cells are required to produce tumours, what is the latent period, what controls were carried out? Come on Dr Borek, let's have the facts—with transformation at 0·1 of a rad it affects us all.

D. G. HARNDEN

Proceedings of a Workshop on Basic Aspects of Freeze Preservation of Mouse Strains (1974, Bar Harbor, Me.)

Edited by Otto Mühlbock. (Pp. x + 133; 36 figures + 42 tables. DM 48.) Stuttgart: Gustav Fischer. 1976.

Since 1972 the stirring slogan 'freeze, wait, resuscitate.' has been a reality for some mammalian embryos at least. Thousands of these, in suspended animation at −196°C, now wait to be born months, years, or decades hence, after successful thawing and transfer to a foster-mother. As this volume reveals, success has been achieved in rats, rabbits, cows, and sheep as well as mice, at embryonic stages varying from 2-cell to blastocyst. The importance of this breakthrough, for the indefinite preservation of important strains and genetic variants, needs no emphasis. In the proceedings of this workshop the pioneers describe the critical factors necessary for success, the most essential being very slow freezing with the right sort of additive and almost as slow thawing. Actual techniques are discussed in some detail in a final section. Other contributors deal with such matters as the logistics of the exercise in an actual genetics laboratory (as compared with preservation of mutants by breeding), possible effects of ionizing radiation, consequences of removing the embryo from its normal maternal environment, and the prevention of contamination. It is a pity that there is no index, that very few papers have summaries, and that typographical errors are common. Nevertheless, this is an essential source of information for anyone interested in this fascinating new technique.

A. G. SEARLE

RNA Polymerase (Cold Spring Harbor Monograph Series).

Edited by R. Losick and M. Chamberlin. Parts I and II. (Pp. ix + 581; figures + Tables. $38·00.) New York: Cold Spring Harbor Laboratory. 1976.

The scientific publications of the Cold Spring Harbor Laboratory are of a uniform excellence. Based on a conference held in 1975, this book is in two parts.

Part I opens with a personal account by S. B.

Weiss of the discovery and early investigation of RNA polymerase. This is followed by 12 general review articles. Part II consists of a series of 'Research Articles'.

We now know a considerable amount about the way in which genetic information is encoded in DNA. We know far less about how this information is eventually expressed in eukaryote phenotypes. The function and control of RNA polymerase, which performs the first step in this process, is clearly of central importance. This authoritative volume will be a standard reference for those with an interest in the specialty.

M. BOBROW