immunocompetence. A chapter on the value of active and total E-rosetting assays is followed by one dealing with skin testing as a guide to immune status. Both authors discuss the relationships of the parameters measured to disease state, and also problems associated with the interpretation of results. Proliferative assays *in vitro* are then considered and the section is completed by a cautionary chapter dealing with the limitations of tests of generalized immunocompetence, primary and secondary disease-associated immunodeficiency, and the role of suppressor cells and serum factors in the apparent immune status of the patient.

In the second section the measurement and significance of the humoral response to viral and tumour-associated antigens is covered in a series of well referenced reviews, dealing with both lymphoid and non-lymphoid tumours. This section concludes with a chapter dealing with the limitations of the Macari assay, and an excellent chapter reviewing the many techniques available for the measurement of immune complexes and their application in the study of malignant disease.

The third section of the book deals with the cellular response to tumour-associated antigens. An evaluation of cutaneous delayed-hypersensitivity testing is followed by 2 chapters dealing first with the mechanism and then with the interpretation of the migration inhibition assay. Cytotoxic assays and specific stimulation by autologous tumour biopsy cells are also evaluated.

The chapters are well written, with data clearly presented, though the reference lists contain few papers from the late '70s. This fact, coupled with the necessarily brief introduction to each technique, means that the book is of little value to the specialist in any particular assay system. It does however succeed in its primary aim, which is to evaluate the various techniques presented and provide an overview to assist the clinician or research worker in the development of diagnostic procedures, clinical trials and screening programmes.

D. B. JONES

GANN Monograph No. 23. Immunological Xenogenization of Tumor Cells. Ed H. KOBAYASHI (1979). Lancaster: MTP Press. 292 pp. £25.50.

Xenogenization is a term now used for attempts at making a tumour cell more antigenic to the host. This Gann Monograph is an excellent collection of over 30 papers by major workers in this field at an International Workshop on xenogenization held in Sapporo, Japan, in mid 1978. It covers all aspects of the work and its applications, both for immunotherapy and for determination of the regulation of immune responses to cell-surface antigens.

The first 4 major sections cover:

- (1) Xenogenization by viral infection leading to viral-component expression at the cell surface; rearrangement of cell surface architecture; stabilization of tumour-antigen expression at the cell surface during *in vivo* growth, with concomitant alterations in growth potential and immunizing capacity.
- (2) Modification of cell surfaces, by lectin or lipid binding or haptization with concomitant T-helper-cell facilitation of immunity to tumour-associated antigens, and techniques for incorporation of hapten by direct chemical means or incorporation into the membranes from liposome vehicles.
- (3) Cell fusion to produce somatic cell hybrids with increased immunogenicity.
- (4) Nature of cell-surface antigen expression and its genetic regulation in virally infected or otherwise xenogenized tumour cells and the consequential augmented host responses.

The final section, on the application of the techniques to human cancer, is the smallest (only 3 papers) and indicates that this technique, though a powerful tool for understanding host responses to experimental tumour antigens and for their immunotherapy, has a long way to go before definitive results, positive or negative, can be achieved clinically.

All in all the book presents a valuable overview of the concept, techniques and application of xenogenization.

M. V. PIMM

Nutrition and Cancer. J. VAN EYS, B. I. NICHOLS and M. S. SEELIG (1980). London: S.P. Medical and Scientific Books. 297 pp. £17.50.

This book is one of a series of monographs produced by the American College of Nutri-

tion. It contains the edited proceedings of the 18th Meeting of the College in June, 1977. The volume is divided into 2 main parts, the first, of 8 chapters, deals with general aspects of the diagnosis and treatment of nutritional disorders in patients with cancer and other diseases. The second part, of 12 chapters, deals with highly specific aspects of nutrition, such as copper metabolism and selenium levels.

Throughout the volume the text is difficult to read. This problem first becomes apparent in the Preface where there are sentences such as "The principle behind the team approach is the concept that the whole patient has problems beyond the immediate medical, and that the medical problem impacts beyond the mere physical". When this sort of writing is combined with jargon, as in Chapter 10, the result is virtually unintelligible.

One has of course to look beyond such irritations to see whether the underlying subject matter makes it worth purchasing this book. That nutritional treatment has a role in the management of a patient with cancer seems probable. Exactly what that role is remains to be defined. Unfortunately, I could find only one study in this book in

which a controlled trial showed benefit from nutritional treatment as an adjunct to one of the many forms of cancer treatment. On the other hand, anecdote and opinion abound. One chapter, advocating a highly specific form of treatment, does not have a single figure to support its claim. Perhaps the thing that irritated me most about this book was the sermon in the Preface attacking doctors for not knowing or caring about the whole patient when they were managing the victims of cancer. Yet, when one turns to this book for advice on the ethics of using vigorous nutritional treatment in patients with malignant disease, it is not possible to find a single mention of the possible limitations of this, as yet, unproven form of treatment. Nowhere do the Editors consider whether intensive nutritional treatment prolongs worthwhile life or merely prolongs death.

As in any multi-author volume it is possible to find interesting contributions, but nothing that is not readily available in current journals. Overall, I think that this is a disappointing volume which cannot be recommended to those interested in the management of patients with malignant disease.

M. IRVING