# Chromosome studies in cancer cells

*Cytogenetic Aspects of Malignant Transformation.* (Experimental Biology and Medicine: Monographs on Interdisciplinary Topics, Vol. 6.) By N. B. Atkin. Pp. iii+168. (S. Karger: Basel, London and New York, 1976.) SFr/DM74.

THIS book is a critical review of the present state of chromosome studies in cancer cells by an author who has worked on these problems for very many years. Essential concepts relating to chromosome changes in malignant transformation are old and represent views which are now 'rediscovered' with more precise tools. In his evaluation of new evidence, the author draws on substantial material of his own, and the book therefore gains a particular authority. Such studies are *central* to the cancer problem, more so than many erudite and sophisticated lines of research, intellectually more favoured by grant-giving authorities. The new evidence clearly bears out that chromosome changes are non-random, clustering on particular chromosomes; but many patterns are not yet discernible at histological and biochemical level, although such distinction must be present.

Some expected conclusions are not drawn by the author. The monoclonal nature of neoplasms sets a low limit to the number of cells capable of forming a clone in a tissue, the target cells for transformation. Other general principles seem to emerge. With a primitive stem cell transformation comes tumour-specific numerical chromosome imbalance, with a more derived stem cell transformation, single gene effects, that is, balanced translocations, and low numerical variation.

It may be that transformation is a process by which a clonogenic cell takes a retrogressive step in its phylogenetic pathway, thereby gaining a proliferative advantage over other cells. Further transformation often occurs within the clone. This study of 'embryogenesis in reverse' represents a formidable task, not likely to be quickly solved unless supporting disciplines work with these ideas in mind.

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# Membrane separation

*Membrane Separation Processes.* Edited by P. Meares. Pp. ix+600. (Elsevier Scientific: Amsterdam, Oxford and New York, 1976.) Dfl. 250; $96.25.

MEMBRANE separation processes, despite a long history, can only recently be said to have reached a stage of development where large scale practical applications are possible. At the same time, as a result of very many basic researches, the physics and chemistry of membrane processes have been clarified and a general formulation in terms of irreversible thermodynamics has been developed. It is therefore timely that a monograph on the theory and practice of membrane science should have appeared, in which actual and potential applications have been particularly emphasised.

The book is a cooperative effort to which well-known specialists in various technically significant areas have contributed. Such texts have both advantages and disadvantages—expertise in every topic covered in some, but some omissions, overlap and unevenness in others. This presentation, under the editorship of Professor Meares, has had considerable success in minimising the disadvantages, and the contributors have ensured a high standard in the areas chosen.

The coverage can best be seen from the following chapter headings: the physical chemistry of transport and separation by membranes; liquid permeation through polymers; ultrafiltration; reverse osmosis in desalination; hollow fibres in reverse osmosis, dialysis and ultrafiltration; electrodialysis; piezodialysis; gas separation by selective permeation; hydrocarbon separation by liquid membrane processes; enzyme membranes; separators and membranes in electrochemical power sources; ion-selective membrane electrodes; treatment of aqueous wastes and foods by membrane processes; and biochemical applications of membranes.

The book is well produced despite some printing errors, such as a mix-up in the middle of p201 and a misspelling of "repetitive" in the diagram on p94 and elsewhere. The contributors and editor are to be congratulated on a useful and comprehensive task well completed. The price of this book has unfortunately been set so high that many potential purchasers may be deterred and some libraries will also need to consider whether their funds permit them to buy it.

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# Cyano complexes of transition metals

*The Chemistry of Cyano Complexes of the Transition Metals.* (Organometallic Chemistry: A Series of Monographs.) By A. G. Sharpe. Pp. xi+402. (Academic: London and New York, 1976.) £10.40; $26.25.

THE publication of a comprehensive and up-to-date review of the cyano complexes of the transition metals is particularly timely. There is currently a rapidly growing interest in a whole new range of the related organic isocyano metal complexes, and it is appropriate that this volume indeed appears as a member of the excellent series of monographs on organometallic chemistry, edited by Maitlis, Stone and West.

Although the study of the metal cyano complexes goes back to the early eighteenth century, they continue to be a source of interest and research. Further, they present some of the most elegant examples for the teaching of the main principles of the structure and theory of the coordination complexes of the transition metals.

An introductory chapter deals with the general aspects of the cyanide ion along with the relevant structural, spectroscopic, thermodynamic and kinetic background. The rest of the book deals essentially with factual knowledge of the cyano complexes by individual groups in the Periodic Table, from the lanthanides to the copper and zinc groups.

The past fifteen years have seen a considerable growth in the literature of these complexes, and the author has surveyed this very extensive area with remarkable thoroughness. He does not, however, hesitate to draw attention to scientific results that he regards as either inconsistent or possibly unreliable.

The book contains over 1,800 references to the chemical and physical literature, but only a very brief subject index. Each chapter is, however, so consistently organised that I found little difficulty in finding what information, if any, was available about any particular cyano metal complex system.

Most organometallic and inorganic chemists will want this book on their shelves, not only as a valuable source of reference, but also as a pointer to many intriguing potential research areas.

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