two chapters deal with the questions of whether we carry the cause of cancer in our cells and with activation of cancer causing genes. However, several biological explanations are mystifying rather than illuminating, leaving the reader confused and bewildered, and the factual content is faulty: here, it is stated that regulatory sequences are also carried inside a gene and called introns, that the product of v-*src* is a phosphorylase, that growth factors are bound to the cell membrane and that oncogene activation by LTR's is an 'only artificial possibility'. The normal function of anti-oncogenes is described as inhibiting the overproduction of oncogene products, the viral version of the v-H-*ras* as having a single point mutation (it has two of importance, in addition to amino acid 12, also 59 is mutated), and how it is possible, in 1994, to write: 'Although the structure of the cellular proto-oncogene of v-Ki-*ras* is yet unknown, it is highly probable that also in c-Ki-*ras* the amino acid glycine should be encoded in this position' (referring to position 12), is beyond me. The references to these first two chapters, in total 82 and 67, respectively, includes 4 and 1 from 1990 and later, and on page 33, the sentence: 'We only want to note here that, up to 1984, ...', reveaels that indeed, this part of the manuscript was completed a decade ago.

Perhaps 'application of theoretical models using approved methods from quantum theory and solid state physics' does not need the same up-to-date information as does knowledge from the oncogene field, but linking it 'with information on the disturbance of the cell's self-regulation' most certainly does. I doubt that this book supplies the reader with useful ideas, based as they are on outdated information. Those with a genuine interest in understanding the beginnings of cancer in the cells will have to go elsewhere for information.

B. Willumsen

Lectin–Microorganism Interactions; Edited by R.J. Doyle and M. Slifkin, Marcel Dekker Inc.; New York, 1994; viii + 401 pages. $ 165.00. ISBN 0-8247-9112-4.

In 1936, Sumner and Howell reported that concanavalin A, then the only well characterized lectin, agglutinates certain bacteria. This observation remained almost unnoticed until the early 1970's, when a steady flow of publications started to appear on the interaction of lectins, mostly from plants, with a variety of microorganisms, on their application to the study of microbial carbohydrate-containing polymers, and on their potential use as typing reagents for bacteria and viruses. At the same time, the important discovery was made that bacteria by themselves produce lectins, mostly in the form of surface appendages known as fimbriae or pili. These lectins and the key role they play in infectious disease, are discussed in great detail in another recently published book 'Bacterial Adhesion to Cells and Tissues' written by I. Ofek and Doyle (Chapman and Hall, London, 1994).

The publication of the first book devoted solely to lectin–microbial interactions, is most welcome. It has been edited by two veteran researchers in the area, each of whom also contributed one of the ten chapters of the book, a lengthy introduction (by Doyle) and a survey of the applications of lectins in clinical microbiology (by Slifkin). Seven of the other chapters deal with more specialized topics, such as the use of lectins in virology, and the interaction of lectins with medically important yeasts, with *Leishmania* and with trypanosomes. The last chapter is devoted to blood group-specific lectins and their applications. Although not directly related to the main subject of the book, it has been included because of the traditional association between blood bank laboratories and microbial diagnostic laboratories. Between them, the chapters contain a wealth of information documented from a total of over 1,600 references, many unavoidably repetitious. They provide access to techniques the principles of which are often well described in the text. However, very few of the references are to articles published after 1990.

The introductory chapter is particularly interesting, because of the brief survey it gives of lectins (although recent exciting developments on the role of lectins in the migration of leukocytes to sites of inflammation are not mentioned) and of their applications in microbiology. Another helpful feature of this chapter is the appendix, which lists some 350 lectins from diverse sources and their specificities, and provides an update of the list published earlier by Wu et al. (Adv. Exp. Med. Biol. 288, 819–847, 1988).

As made clear throughout the book, lectins are useful tools in microbiology because of their stability and ability to probe subtle differences between carbohydrates in solution and as well as on cell surfaces, often by simple procedures (precipitation, agglutination or light microscopy). Many of them are commercially available, both in their native form and as different derivatives, e.g. for light and electron microscopy and in immobilized form for affinity chromatography. Indeed, lectins have been widely employed in the isolation and characterization of microbial glycoconjugates, and for detection and identification of microbial surface polymers. They can also serve as an aid for discriminating between closely related organisms and thus for diagnostic purposes.

The book might have benefited from more careful editing. This would have weeded out lapses of style, for example, 'lectins capable of agglutinating agglutinated erythrocytes' (p. 143), 'The use of HPA was used' (p. 149), and 'because of the ... lectin definition that limits their specificities to carbohydrates, lectins can now be used only for the detection and study of glycosylated blood group antigens'. (p. 327). Attention should have been paid to incorrect terminology, for instance, neuraminidase (p. 97) for sialidase, 'N-acetylglucose' (p. 113) for N-acetylglucosamine, 'mannosialogangliosides' (p. 310) for monosialogangliosides, 'tagerin' for 'taglin', the trypsin-activated lectin of *Giardia lamblia* (p. 310) and the inconsistent use of the configurational designation of the monosaccharides (D- and L-) as well as their abbreviated names (NeuAc, NeuNAc and Neu-5-Ac for *N*-acetylneuraminic acid). There are also errors of fact, e.g. *Erythrina corallodendron* lectin is not specific for *N*-acetylglucosamine (Table 1, p. 47) but for *N*-acetylgalactosamine, nor are the lectins of *Datura stramonium* (thorn apple or jimson weed) and of *Solanum tuberosum* (potato) specific for β-(1-4) oligomers of *N*-acetylgalactosamine (p. 147), but of *N*-acetylglucosamine.

Like in many books published these days, the index lacks important entries. Thus, there is no mention of organisms such as *Bacillus anthracis* or *Bordetella pertussis* discussed frequently in text, of bacterial fimbriae, and of peanut agglutinin or soybean agglutinin that appear often in the book.

This book will be of interest to lectinologists and microbiologists alike and is especially recommended to laboratories of clinical microbiology that wish to explore the possibilities of introducing lectins as diagnostic tools. Unfortunately, it is rather expensive.

Nathan Sharon

Modern Analytical Ultracentrifugation. Acquisition and Interpretation of Data for Biological and Synthetic Polymer Systems; Edited by T.D. Schuster and T.M. Laue, Birkhauser; Basel, Boston, Berlin, 1994. xii + 360 pages. $ 94.50. ISBN 0-8176-3674-9.

Analytical ultracentrifugation is apparently undergoing a revival due to new equipment, computerisation and sophisticated software. In this book, no less than 42 authors have contributed to 16 chapters. The book is divided in 4 parts covering sedimentation equilibrium, sedimentation velocity, acquisition and data reduction and finally some specific examples.

Part I opens appropriately with a chapter by Hiroshi Fujita, modestly entitled: Notes on the derivation of sedimentation equilibrium equations. The intention is clearly to help understanding the difficult parts of sedimentation equilibrium theory, however the treatment very soon becomes rather sophisicated and sets the style for many of the following chapters. Another chapter gives detailed hints on the analysis