

on intra-cytoplasmic membranes (Drews), developmental gene expression within forespores of *Bacillus subtilis* (separate chapters by Moir and by Stragier), the bacterial periplasm (Ferguson) and multi-cellularity in the cyanobacteria (Adams). Inevitably, there is some overlap between the two chapters on gene regulation in *B. subtilis* forespores; of the 31 references in Stragier's chapter, 13 also appear in Moir's. Social behaviour and differentiation in bacteria are dealt with in chapters in fruiting body development in *Mycobacterium xanthus* (Shimkets) and actinomycete differentiation (Hodgson).

Publications such as Microbiological Reviews (American Society for Microbiology) and Annual Reviews (Annual Reviews Inc.) frequently cover subsets of the material in this book in greater detail and provide far more comprehensive lists of references. However, the authors of the present volume have done

a commendable job of making their chapters highly readable, and the editors have chosen the topics carefully to give a broad review of the state of knowledge in this area. The illustrations in the book are almost uniformly clear and well chosen.

Unfortunately, the utility of this book has been compromised severely by the absence of an index. This is a particularly grievous omission given the overlaps in theme between so many of the chapters. Furthermore, the general appearance of the book is marred by typographical errors, some of which occur in highly prominent positions. These include a misspelling of an editor's name on the title page and inaccurate entries in the table of contents. Despite these shortcomings, this volume should make a useful addition to the bookshelves of many of those working in the field of prokaryotic biology.

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Liver Pathology and Alcohol (Drug and Alcohol Abuse Reviews, Volume 2); Edited by R.R. Watson; Humana Press; Clifton, New Jersey, 1991; xii + 620 pages; \$89.50 (\$99.50 outside USA). ISBN 0-89603-206x.

This interesting book aims to summarize current knowledge of the mechanisms by which alcohol can cause liver damage. A range of experts has been brought together to discuss all aspects of the problem. In Chapter One, Potter discusses alcohol effects on hepatic iron metabolism. Roll then introduces the reader to the basics of the inflammatory process, with particular attention to the role of neutrophils in liver injury. Rottenberg discusses the effects of chronic ethanol consumption on cell membrane composition and Reyes gives an interesting account of the foetal alcohol syndrome. Reinke and McCay critically discuss the confusing literature on the role of free radicals in ethanol-induced liver injury, a chapter followed by that of Mitchell et al. on alcohol-induced changes in glutathione metabolism.

Mufti discusses the role of alcohol as a causative agent in liver cancer. Lin and Lumeng review acetaldehyde modification of proteins and Bora and Lange the relation of ethanol to formation of fatty acid ethyl esters. Lakshman et al. present a chapter on the effects of alcohol on lipoprotein metabolism in relation to fatty liver. Other subjects covered are ethanol and the splanchnic circulation (Knych), interactions of ethanol with glucocorticoid action (Kletzien), alcohol metabolism in *Drosophila* (Geer et al.), regulation of alcohol dehydrogenase gene expression (Duester),

the role of xanthine oxidase in liver damage (Soranno and Sultatos), polymorphisms of alcohol and aldehyde dehydrogenases (Yoshida and Shibuya), effects of alcohol on antioxidant defences (Odeleye and Watson) and histological effects of ethanol abuse (McCuskey). Van Thiel and Tarter discuss the effects of liver disease on brain metabolism.

The book contains some chapters that do not fall under its main theme. Sonnet et al. review the effects of alcohol abuse on skeletal muscle, Denaro and Benowitz discuss liver caffeine metabolism (do heavy drinkers consume more coffee?), Bornheim writes about marijuana induction of liver enzymes, and Shuster describes morphine-induced hepatic damage.

Overall, the book is well presented and the chapters are usually informative and well written, although their order is somewhat illogical. I prefer the logical sequence of describing gross anatomical changes, followed by histology, biochemistry and then molecular biology. My major criticism (apart from the fact that any book of this type soon goes out of date) is the sketchy index. Despite this, the book will be very useful to all with more than a passing interest in alcohol metabolism, and I recommend it.

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