

biomembrane structure is complicated, consisting as it does of the two-dimensional structure of the lipid matrix, cholesterol, intrinsic proteins and also the cytoskeleton. To interpret the mechanical properties of biomembranes in molecular terms is clearly a difficult task.

Having recently attended a conference devoted to red cell deformability, my impression is that there is still considerable scope for rheological studies of

model lipid—water systems where cholesterol is included and where intrinsic proteins are included at various concentrations.

For those scientists interested in the rheological characteristics of cells and the application of thermodynamics to such systems, this is a very interesting monograph.

D. Chapman

### *Short-term Regulation of Liver Metabolism*

Edited by L. Hue and G. van de Werve  
Elsevier Biomedical; Amsterdam, New York, 1981  
xxvi + 464 pages. \$121.00, Dfl 248.00

This book was published, fittingly, in commemoration of the life and work of Dr Douglas A. Hems and it begins with an appreciation of his scientific career. As befits the memory of a man of high standards, philosophical bent and gifted insight, the general and the particular, and criticism and speculation blend comfortably for the reader. The book is quite long and doubtless could have been longer still because Doug Hems had many friends. It is expensive — regretably because it is as much a book to read as a book to consult.

Although the book is entitled *Short-term Regulation of Liver Metabolism* it contains much of more general interest. It begins with two chapters on the theoretical basis of regulation of flux through metabolic pathways and on general mechanisms of regulation in cells. The second section contains six chapters on the regulation of glycogen metabolism including one on muscle. This section covers hormonal and neural control and regulation by covalent and non-covalent modification of enzyme activity. The third section covers regulation of gluconeogenesis including opposing systems (e.g., pyruvate oxidation) and includes the actions of hormones and hypoglycaemic compounds. This is followed by a section on lipid metabolism which covers fatty acid and glycerolipid synthesis,

lipolysis, ketogenesis, and  $\beta$ -oxidation of fatty acids by mitochondria and peroxisomes. There are three chapters on amino acid metabolism (section 5) and a chapter on purine metabolism. The concluding section is on transport and compartmentation and covers hormonal regulation of non-parenchymal cells in the liver, hormonal control of the respiratory chain, adenine nucleotide translocation and inorganic phosphate metabolism in the liver.

The book provides a useful and acceptable account of many of the most important aspects of short term regulation of liver metabolism and sufficient new material to be of value to those with a special interest in metabolic regulation. It is reasonably up to date for a multi-author volume and contains reference, for example, to fructose 2:6-bisphosphate. Much of it will be useful for undergraduate teaching at advanced level and some chapters will be of benefit to first and second year undergraduates in medical and biological sciences. It should also be of value to physicians interested in endocrinology and metabolism. Its major deficiencies are a lack of informative diagrams and the discontinuity which is inevitable in multi-author volumes.

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