Book reviews

SYSTEMS PHYSIOLOGY By S. A. Talbot and U. Gessner. (Pp. 511; illustrated; £12.50.) Wiley: New York. 1973.

The construction of models as a method of tackling physiological problems has a long and honourable history. Although a model is discredited when it proves inadequate to 'explain' biological phenomena, the use of argument by analogy obviously fulfils something fundamental in human thought. The model need not be a material one, indeed it is more flexible if it can be handled with mathematical symbolism rather than with string and sealing wax. Surely this was the real meaning of Kelvin's famous aphorism about measurement. The mathematical and technological capabilities of each generation affect the models which are fashionable. The post-war years have seen the development of techniques for the control of electronic machines including extremely complex computers and many engineers are now trained to think 'cybernetically' and to use systems analyses. The applicability of 'feed-back control' to many physiological homeostatic mechanisms is so obvious that many scientists without biological training have become 'bioengineers'. This book is an attempt to provide a source book for them and for the many biomedical researchers who have taken the trouble to learn the necessary mathematics but it rightly insists that systems physiology transcends control systems physiology, with emphasis on adaptive and purposive activity.

At an early stage the authors face the question whether the models are elaborate exercises in curve fitting or genuinely throw light on intrinsic mechanisms. There is a laudable attempt to assess the usefulness and strength of the tools and concepts provided.

For the bioengineers this book is a most useful introduction. Many medical research workers would find the applicable chapters valuable and stimulating. About 60% of the book is on neurophysiological subjects and the remainder on vascular, respiratory, hormonal, and temperature control systems. The late Dr Talbot was associate professor of medicine (biomedical engineering) at the Johns Hopkins University, Baltimore, and Mr Gessner, now in Switzerland, was an associate professor in the same school.

This is a valuable book but it requires a real effort by the reader. The mathematics was beyond this reviewer.

J. A. SIMPSON

NEUROCHEMISTRY OF ELECTROSHOCK By W. B. Essman. (Pp. 181; illustrated; no plates; £6.25.) Wiley: New York. 1973.

Neurochemical research on electroshock has largely reflected the overall history of neurochemistry. As different classes of substances have in turn received general attention the effects of ECT on them and on their metabolism in brain have been studied. This work has not yet led to a clear understanding of the mechanism of ECT action in depression. Perhaps this is too much to expect in the present fragmentary state of knowledge of biochemical mechanisms in depressive illness. Also, extrapolation to the depressed human subject from biochemical studies in normal laboratory animals is difficult.

Dr. Essman reviews work on cerebrovascular permeability, CSF chemistry, brain respiration and electrolytes, RNA and protein changes. About half the book deals with relationships between ECS and neurotransmitters, a topic to which the author has contributed extensively. Presentation is clear and there is a good bibliography. The book will be useful and stimulating, especially to those interested in animal studies in this field.

G. CURZON

PEDIATRIC NEUROLOGY HANDBOOK By J. T. Jabbour, D. A. Duenas, R. C. Gilmartin, and M. I. Gottlieb. (Pp. 475; illustrated; £4.50.) Kimpton: London. 1973.

I doubt if this latest transatlantic text on paediatric neurology, intended as a handy abridged manual, will fit comfortably into the pocket. Nevertheless, it will undoubtedly appeal to practising paediatricians up to one-third of whose work is concerned with neurodevelopmental disorders. But it is not without other major drawbacks, none of which is insuperable when another edition is planned.

I find the uncritical dogmatism irritating, and the absence of key references compounds this doctrinaire approach. The text is freely illustrated with line drawings and photographs, and there are numerous tables. The disadvantage of the latter is that inevitably there is gross oversimplification of complex problems and perspective is lacking. Many illustrations are quite unnecessary—for example, there is little point in showing a sequence of six half-page pictures of a girl closing and opening her eyes to show a petit mal attack, and most of the illustrated accounts of clinical examination are tedious repeti-