Book Reviews

SPASTICITY: MECHANISM, MEASUREMENT, MANAGEMENT By Ejner Pedersen. (Pp. xii + 130; 8 figures; \$7.75.) Charles C. Thomas: Springfield, 1969.

The mechanism of spasticity has been written about since the time of Hughlings Jackson, and clinicians have for long sought means of alleviating this symptom of central nervous system disease, probably because of the idea that spasticity itself occludes or blocks voluntary movement, and is the reason *per se* for the muscular paresis. In the past 20 years or so, the emergence of knowledge about muscle-spindles and their efferent control has made it necessary to revise the previous ideas concerning the physiology of postural regulation, and even voluntary movement. Similarly, the nature of the disorders of function in spasticity in patients has been studied from this new standpoint, with a view to providing treatment directly determined by reference to the known actions on the components of these reflex systems of certain drugs. Unfortunately, the problem was complicated by the lack of uniformity of the definition of spasticity.

Dr. Pedersen, in his small and attractive book, takes a definition which has the advantage of physiological homogeneity—that is, 'a condition in which the central feature is increased stretch reflexes'. The first chapter is devoted to the anatomy and physiology of stretch reflexes (derived from physiological work principally in the cat) and embraces peripheral receptors within muscles—muscle-spindles, Golgi tendon organs, pacinian corpuscles, and free nerve endings, and their effects on motoneurone activity. Motoneurons and interneurons are discussed and the influence on them of supra-segmental structures such as the cerebral cortex and 'cortico-spinal tract', the reticulo-spinal tract, the vestibulo-spinal tract, the cerebellum, rubro-spinal tract, and other descending spinal pathways. These topics are briefly but well reviewed, and there are excellent references here, as throughout the book.

The second chapter deals with clinical aspects of spasticity, and it attempts to correlate the work on experimental rigidities in animals with the condition of spasticity in patients.

The measurement of spasticity is discussed in the third chapter, and the usual methods are reviewed, which, although suited to laboratory work, are not particularly useful in the clinic.

The pharmacological, physical, chemical, and surgical treatment of spasticity is dealt with in the fourth and last chapter. Discussion of the biochemistry of synaptic transmission leads on to the use of drugs which act by depressing neuromuscular transmission, muscle-spindles, interneurons, monosynaptic reflexes, and also neuro-inhibitory substances. Among the physical methods, physical training, vibration, cryotherapy, and electrical therapy are discussed. Chemical substances, such as phenol and alcohol, can be used to break, permanently, some part of the stretch reflex arc, and this has a place in

the management of some patients. The surgical approach to this goal varies from anterior and posterior rhizotomy, chordotomy, myelotomy, and various orthopaedic measures, and the rationale, indications, and utility of these procedures are briefly indicated.

A good bibliography completes the book.

Dr. Pedersen is to be congratulated on producing a short, uncomplicated, informative, and very readable account of the theoretical and practical aspects of spasticity. All who see, or manage, patients with this condition will find this little book most valuable.

GEOFFREY RUSHWORTH

THE INHIBITORY PATHWAYS OF THE CENTRAL NERVOUS SYSTEM By John C. Eccles. (Pp. 135; illustrated. Price not stated) Liverpool University Press: Liverpool, 1969.

The intracellular microelectrode was the weapon that opened up the nervous system to functional investigation. Until Eccles and his colleagues in 1952 recognized the inhibitory post-synaptic potential it was impossible to study inhibition at the neuronal level. This book, based on the Sherrington Lectures at Liverpool in 1966, is a valuable summary of the progress made by Eccles and many collaborators in sorting out the inhibitory pathways in the spinal cord, thalamus, cortex, and cerebellum and the particular role of specific inhibitory interneurons. It is strongly recommended to clinicians and others who want to catch up with this rapidly developing field (up to 1967). Perhaps it contains the secret of epilepsy.

J. A. SIMPSON

EXTRACRANIAL CEREBROVASCULAR DISEASE AND ITS MANAGEMENT Edited by J. A. Gillespie (Pp. 210; illustrated; 66s.) Butterworth: London, 1969.

This book, edited by Mr. J. A. Gillespie, represents an excellent review of some recent advances in the management of cerebrovascular disease. Dr. Hutchinson, whose pathological studies some 15 years ago pioneered the discovery of extracranial stenotic disease, comments in one chapter that 'a certain amount of pessimism is justified in reviewing the progress made in the understanding of cerebro-vascular disease over the past ten years'. Some unrealistic hopes for treatment by anti-coagulants or surgery can now be seen for what they were. The editor has gathered a team, all of whom are well known for their original contributions to this field. They include M. R. Crompton, pathologist, and E. C. Hutchinson, Denis Williams, and R. W. Ross Russell as physicians, in addition to J. A. Gillespie, M. E. DeBakey, and E. S. Crawford as surgeons. Perhaps a physiologist could have been included too, because certain experiments, such as the experimental carotid stenosis of Brice, Dowsett, and Lowe, are mentioned by several authors with varying degrees of critical appraisal.