clinical observations. Another concerned respiratory physiology but a discussant expressed uncertainty about how valid it is to apply the findings of experimental work in this field to injured man, and also about whether the pulmonary function changes associated with brain damage in man are specific rather than a reflection of a general state of serious illness. Current laboratory work on the blood brain barrier and on the cerebral circulation were interestingly reviewed; the application of these findings to human head trauma was by extrapolation rather than by observation. The concluding section on intracranial pressure/volume relationships reported current animal studies supported by good clinical observations which left no doubt about the relevance of these laboratory findings to injured patients.

This was an interesting conference and the book includes an edited version of the discussion. Its content reflects the bias of American medicine towards laboratory based studies, whether of experimental animals or of patients. European neurosurgeons would have expected some papers about alternative methods of management, perhaps touching also on the logistic problem of how best to deal with the large numbers of mild injuries with which all acute hospitals have to deal. Perhaps these issues are too politically sensitive in a country which is so suspicious of organised medical care – and someone might ask what influence neurosurgeons actually have on the outcome after head injury. The EMI scan has now changed the scene quite radically, because the skills of the angiographer (be he neurosurgeon or radiologist) are no longer needed, and the whole matter of head injury management needs reappraisal. This conference leaves no trace of how American neurosurgeons really thought in strategic terms about these matters in 1975. It would have been interesting to know.

BRYAN JENNETT

Trace Amines and the Brain Edited by Earl Usdin and Merton Sandler. (Pp. 318; illustrated; Sw fr. 98.) Marcel Dekker: New York, 1976. The relatively well known transmitter amines occur in the mammalian brain

at concentrations of $0.5 \mu\text{g/g}$ and upwards. Recent advances in methodology are revealing many other amines at concentrations at least an order of magnitude lower. Interest in these substances focuses on their central activity and on whether they are transmitters. Some may be formed in traces in tracts containing more well-authenticated transmitters because the enzymes synthesising them do not have absolute specificity. Octopamine and tryptamine are made in this way. These substances, though not necessarily important in the normal brain, may well be centrally active in pathological or pharmacological situations. Thus octopamine accumulates in the brain in hepatic coma and may deplete it of catecholamines, while the tryptamine which accumulates when tryptophan is given together with a monoamineoxidase inhibitor may have behavioural effects. Adrenaline, on the other hand, though its concentration in the rat brain is much below that of noradrenaline, occurs in specific tracts which contain enzymic machinery specifically able to make it. If, as seems quite likely, it is the third catecholamine transmitter we could be at the start of an era comparable to that which began with the recognition of dopamine as a transmitter. The present book is the first to be published on trace amines in the brain and contains 11 chapters, mostly by pioneers of the field, which make up a useful and authoritative short text on a topic of great interest. It has been produced directly from scripts in various typesets submitted by the authors. I thought this was an economical method of book production—apparently it is not.

G. CURZON

Neuromuscular Mechanisms for Therapeutic and Conditioning Exercise Edited by Howard G. Knuttgen. (Pp. 141; illustrated; £7.95.) University Park Press: Baltimore, 1976. This short book reviews the physiological background to muscular exercise and discusses the response to exercise in connection with rehabilitation and the assessment of cardiac function. As such it is very much to be welcomed since there are few satisfactory sources of information in this important field. The six chapters are each contributed by a

separate author, the earlier sections dealing with the physiology and biochemistry of muscle contraction, the later chapters with the physiological response to exercise and its applications.

The authors, particularly in the earlier sections, assume a considerable background knowledge of anatomy and physiology on behalf of the reader. This must limit its value to readers other than advanced students and research workers, and it is to be hoped that in future editions the physiology of muscular contraction and its control might receive fuller treatment. In the later sections more might be said regarding the place of exercise therapy in the rehabilitation of patients with neuro-muscular disease. Nevertheless, the book contains a substantial amount of information providing both a comprehensive yet concise review of the subject and a useful source of references.

J. A. R. LENMAN

Cerebral Dural Sinuses and their Tributaries By J. Browder and H. Kaplan. Edited by R. H. Wilkins. (Pp. 120; illustrated; \$14.75.) Charles C. Thomas: Springfield, Illinois, 1976. This small monograph is a useful contribution to the literature on cerebral venous anatomy. Its merits are that the authors have clinical interests, write from personal experience of some 950 specimens processed by modern techniques, and are always concerned to give an objective account of their own observations rather than refute those of their predecessors. Throughout there is a marked and useful emphasis on embryology.

Particularly good are the chapters on the superior sagittal sinus since they include their own observations on the segments of a vascular mesh in the mid-dorsal dura mater relating to this and other major sinuses. They also present original observations on a hyperplasia of the Pacchionian granules which are smooth pearly grey structures present in 68 of their specimens. Both observations are intriguing to those who interest themselves in resorption of the cerebrospinal fluid.

The quality of the black and white photography is high and the Vinylite casts show up clearly in the illustrations.

E. C. HUTCHINSON