THE RESPIRATORY MUSCLES: Mechanics and Neural Control. 2nd edition By E. J. M. Campbell, E. Agostoni, and J. Newsom Davis. (Pp. 348; 104 figures; £5.) Lloyd-Luke: London. 1970.

The first edition of this book was written by Dr. Campbell and was a valuable account of the respiratory movements and mechanics of breathing based on his own electromyographic studies. This new edition is virtually a new book and is now an outstanding work of scholarship. The new co-authors bring exceptional expertise on the mechanical behaviour of the respiratory system (Dr. Agostoni) and on muscle physiology and on neural control and organization (Dr. Newsom Davis). Perhaps some of the detail on general aspects of muscular physiology is a little excessive in a book of this type. I found in it some references I had been hunting for elsewhere. Though the book was lying on my desk it did not occur to me to consult it on the subject. Nevertheless, the information is sound and concisely presented. It may be rarely that a clinical neurologist will require to consult it, but when the occasion arises he will find an authoritative account here.

J. A. SIMPSON

THE STRUCTURE OF THE RETINA By Santiago Ramon y Cajal. (Pp. 175; illustrated; \$12.50.) Thomas: Springfield, Ill. 1972.

This book is an English translation of Cajal's monograph on the comparative anatomy of the retina, compiled from the three editions which appeared between 1892 and 1933. There is a short preface by the translators, a review of retinal literature by Richard Greef from the German translation of 1894, and a bibliography of Cajal's retinal work.

Cajal laid the foundation of modern understanding of retinal structure and remains the acknowledged master of the Golgi impregnation—a technique whose validity in modern retinal research is unchallenged.

The descriptions are lucid, concise and refreshingly first hand, but the findings cannot of course be applied uncritically to man.

Cajal's interpretation is uncannily shrewd, but some of the commentary is inevitably outdated and now seems tedious and discursive. Occasionally it is engagingly blunt and personal—'If Dogiel's sketches are carefully examined it can be concluded that Dogiel has deceived himself' (p. 113).

Cajal's work has not hitherto been readily available, and this book will fascinate a small but enthusiastic coterie of the profession. It has, however, little clinical appeal, and is too dated in approach and restricted in scope to be of real use to the modern oculist.

JOHN SHAW-DUNN

BRAIN AND HUMAN BEHAVIOR Edited by A. G. Karczmar and J. C. Eccles. (Pp. 475; illustrated; \$30.50.) Springer: Berlin. 1972.

This book is based on a symposium held in Loyola University of Chicago in 1969. Those who like printed symposia will find it typical of such books, and will like it. I dislike most printed symposia, including this one.

Prospective buyers should be warned that the title is misleading. Many chapters are about experiments and observations on brains, but not on human brains. Some chapters are about behaviour, but not (except for a short one by Piaget) about human behaviour. The book contains rather few attempts to relate brain and behaviour, and these few relate them in the species investigated, which (except for part of Liberson's chapter) is not man. I could find no discussion anywhere in the book of the relation between brain function and specifically human behaviour—for example, speech—and no mention of clinical evidence relating brain and behaviour in man.

Inappropriate titling afflicts some of the chapters, as well as the whole book. One chapter is called 'Data structure and algorithms in the primate somatosensory cortex'; but in fact this chapter is about ordinary neurophysiology and is written in ordinary neurophysiological language. Mathematical jargon appears only in its last two pages, and the word 'algorithm' is to be found *solely* in the following splendid sentence: 'The third aspect of the plex is the *algorithm* which allows the data in the structure to be interpreted and meaningful' (author's italics).

G. S. BRINDLEY

CHEMICAL TRANSFER OF LEARNED INFORMATION Edited by Ejnar J. Fjeringstad. (Pp. 268; illustrated; £7.91.) North-Holland: Amsterdam. 1971.

There is little doubt that learning and memory are associated with events in brain which may ultimately be explicable in molecular terms. It is likely that any such molecular changes would be a consequence of altered activity in these cells and cell junctions involved, which may be widely distributed in brain. There is a sequential hierarchy of chemical and structural changes of varying latencies which accompany altered neuronal activity. The behavioural correlates of such changes derive their unique features in this view not from unique molecular changes, but from the site specificity of chemically unspecific change within brain; and the expression of the behavioural correlates reflects the interaction of such regional cellular and junctional change with synaptic transmission, postsynaptic potential change and impulse generation and propagation.

The converse view that a specific act of learning

may be correlated with unique change in molecular composition or conformation having certain loose affinities with immunology is far more controversial. This book performs a service in summarizing the evidence for such an attitude: although written by enthusiasts, the defects in argument and evidence are fairly presented; it will provoke but not convince the sceptic. Many of the reported experiments of attempted transfer of learned information yield inconstant results in the hands of the same investigator, and cannot always be repeated independently. The rational basis of the experiments has a strangely insubstantial air; it is uncertain whether their aim is to induce, by transfer, the brain of the recipient animals to undergo by its own metabolic processes, changes resembling those in the donor, or whether the behavioural transfer sought is to be viewed as a passive consequence of the receptor of specific molecules, whether in fact the change in the recipient is equivalent to an active or passive immunological procedure. In most cases the substances transferred are of unknown type, stability and purity: they are usually administered by routes which make it unlikely that they act directly upon brain and have not been shown to arrive there.

The book provides an introduction to this most controversial and speculative field. It should be read not alone, but in conjunction with others which illustrate potential psychological, biochemical, physiological, and pharmacological pitfalls of such investigations.

While there is no doubt that new ideas are powerful antigens, the evidence presented here does not provide convincing evidence that learning is associated with unique biochemical events. It is a restatement in scientific terms of a controversy at least two and a half thousand years old and the last word has not yet been said.

W. E. WATSON

CLINICAL EXAMINATIONS IN NEUROLOGY (Pp. 350; illustrated; £5.35.) Saunders: Philadelphia. 1971. After an interval of many years it is a great pleasure to renew acquaintance with the Mayo *Clinical Examinations in Neurology*. The many distinguished contributors to this, the third edition, have again produced a fitting memorial to their early mentors. The book remains remarkably compact, is clearly laid out, and is easy to read. The theme is unchanged: the search for a comprehensive and systematic approach to the neurological interview and examination. The emphasis on good history taking is entirely correct. The current widening interest in paediatric neurological work is covered by an excellent amplified chapter on the examination of the infant and the juvenile.

In general the recommended techniques of examination are acceptable. The arbitrary numerical grading of muscular strength is at variance with British customs. The suggestion that plantar stimulation be done by finger-nail or nail file is dangerous as well as distasteful. The dismissal of optokinetic tests 'need not be considered in clinical work' will be questioned by many neurologists who have an interest also in ophthalmology. Very much on the credit side are the details of individual muscle testing, and the line drawings (taken from Hollinshead) depicting muscle anatomy, and lines of action, are superb.

The ancillary methods of examination are given several chapters. Brain scanning is cursorily dealt within a page, surely an under-emphasis, while EMG rates 29 and EEG 12. The chapter on EEG uses terminology which has been discarded by many workers, but that on EMG is an excellent primer, as would be expected from the Mayo Clinic's department.

On the clinical side this book is sound, and could be handed to every new resident or registrar in neurology (and psychiatry) as introductory reading. While his clinical work would benefit, he might give a wistful sigh at the price.

IAN D. MELVILLE

EYE SYMPTOMS IN BRAIN TUMOURS By Alfred Huber (2nd edn.). Editor and translator Frederick Blodi. (Pp. 376; illustrated; £14.60.) C. V. Mosby: Saint Louis. 1971. Distribution in Great Britain by Henry Kimpton.

One might imagine from the title of this book that it would take a rather restricted view of neuro-ophthalmology, but this is far from true, and in fact it is a very good book. It is based on Dr. Huber's experience as an ophthalmologist working in the neurosurgical clinic at the University of Zurich of which Professor Krayenbühl is the director, and it is quite clear from the very beginning that it is the fruit of very wide experience. This gives it qualities of freshness, liveliness and energy (and perhaps a little dogmatism), so often lacking in modern textbooks. All aspects of 'neurosurgical' ophthalmology are covered and there is a full list of up-to-date references.

The translation is sometimes not very good. In places it is an effort to follow the text and it may be confusing, as for example in the use of the term Bell's palsy as if it were synonymous with facial weakness (p. 16) and describing it as supranuclear or peripheral. This presumably must be laid at the door of the translator.

He also uses some unfamiliar words and modes of expression—for example, 'space consuming' for the more common 'space occupying' (p. 151).