J. Anat. (1978), **127**, 1, pp. 193–194
Printed in Great Britain

Book Reviews

Blood–Brain Barrier in Physiology and Medicine. By STANLEY I. RAPOPORT. (Pp. xii+316; illustrated; $28.00.) New York: Raven Press. 1976.

The original concept of the blood–brain barrier as propounded by Goldmann was simple but, as so often happens in biology, the more the concept is studied and the more the publications pile up, the greater becomes the area of controversy. There is, however, no doubt as to the validity of the original concept, and with the use of ultrastructural and quantitative techniques, much of the controversy regarding the anatomical basis of the barrier has been resolved. Dr Rapoport's monograph is therefore timely, linking as it does physiology, anatomy, pathology and pharmacology. The introductory chapters on cell structure and transport mechanisms are useful and, although not specific to the brain, help the reader to understand the barrier phenomenon. There is now general agreement that the major anatomical factor in the blood–brain barrier, and probably in blood–tissue barriers in other sites, e.g. the eye, is the presence of endothelial tight junctions. Other structures such as astrocytic processes may contribute to the low level of penetration of macromolecules into the brain, but are not considered of prime importance. Dr Rapoport emphasizes that the blood–brain barrier is a regulatory interface between blood and nervous system, superimposed on a base line of permeability restriction. The chapter on pathological alterations is valuable to laboratory and clinical workers alike, as is the discussion of the regulation of drug entry and transport. The similarity of the blood–brain barrier to the blood–aqueous and blood–vitreous barriers of the eye is not widely appreciated, and a valuable account of the eye barriers completes this monograph. The bibliography is comprehensive and a valuable aid to those who wish to delve deeper. This monograph can be recommended to all neuroscientists, whether clinical or laboratory workers.

I. V. ALLEN

A Primer of Human Neuroanatomy. By CYNTHIA REID. (Pp. 194; 90 figs: £2.90.) London: Lloyd-Luke (Medical Books) Ltd. 1978.

This book has 20 chapters and is illustrated with 90 line drawings. It is well written and covers the topography and internal structure of the human brain and spinal cord. Included are chapters on the blood supply, the cerebrospinal fluid, and the reticular formation.

There are, however, a few minor errors and omissions. On page 1, the thalamus is not included in the forebrain. The Golgi cells are not mentioned in the account of the cerebellar cortex (p. 96). The midbrain is about 2·5 cm in width, not "rather more than 1 cm in width" (p. 98). The laryngeal muscles are generally believed to develop from the sixth branchial arch and so should be included in the supply from the nucleus ambiguus (p. 110). The figures sometimes give incorrect impressions, e.g. the median aperture of the fourth ventricle is at the lower end of the roof and not in its middle as in Fig. 47, and Fig. 63 does not indicate that the tegmentum of the midbrain forms almost the posterior half of the floor of the third ventricle.

This book can be recommended as a good introduction to the human nervous system and will, without doubt, prove useful to many medical students.

T. J. HARRISON

The Purposive Brain. By RAGNAR GRANIT. (Pp. x+244; illustrated; $12.50.) Cambridge, Mass. and London: The MIT Press. 1977.

Modern philosophical discussions of the mind–brain relationship are still influenced if not dominated by the concept of dualism as formulated by Descartes. There are those who support his view that the mind, though linked to the brain, is separate, while alternatively, and perhaps predominantly, there are those who believe that mind and brain are one and consist of a series of complicated and interrelated physiochemical mechanisms. Ragnar Granit does not enter into this argument, taking the stance that the matter is entirely philosophical and that the

scientist's world is governed by different principles and aims at "providing the rational human being with as complete an orientation as possible".

Ragnar Granit's own contributions to neurophysiology have been great and he uses the research work for which he won the Nobel prize to illustrate brain function. Thus he links the physiology of the retina (an input system) with the physiology of movement (an output system), the brain serving as an intermediary. By linking vision and movement the author explains brain function anatomically and physiologically and relates it to evolutionary biology, psychology and the environment.

This book is recommended reading for all who are interested in the complex organization of the nervous system. The style is lucid and the reader, while helped by a knowledge of biology, does not require an understanding of neurophysiology.

I. V. ALLEN

Muscle and Its Innervation: An Atlas of Fine Structure. By Y. UEHARA, G. R. CAMPBELL and G. BURNSTOCK. (Pp. viii+526; 168 plates; £35.00.) London: Edward Arnold Publishers Ltd. 1976.

It was a fortunate coincidence that I was asked to review this atlas when I was interested in something completely different. I was in fact in the process of reading a Sotheby's catalogue of Russian icons when, to my pleasant surprise, I discovered that icons and electron micrographs have, after all, much in common. According to Sotheby's the word icon means image, "in the sense of a visible and material reflection of things unseen or spiritual". I am sure most electron microscopists would agree that this definition is not far from an ideal definition of electron micrographs. Sotheby's goes on to say that an icon reveals something of the divine world order (replace by biological order) and conveys an awareness of events hidden from an ordinary state of perception. Well, in this sense, I think this atlas reveals a great deal about the degree of biological organization which is so characteristic of muscle. The plates are of outstanding quality, and their perfection sometimes "convey an awareness of events hidden from an ordinary state of perception". However, it seems fair to say that, like icons, electron micrographs are charged with something of the life they image.

Having declared my faith in icons and electron micrographs I now turn my attention to the text. I read it, I must say, reluctantly for fear that the words would mar my first impression of the book. I overcame my natural resistance to find that the text is adequate and unobtrusive; the pictures speak for themselves!

There are nine chapters and several useful references. I must mention, however, that I found the labelling of plates quite unsatisfactory. In my opinion, all structures referred to in legends should have a corresponding label on the picture.

In a recent auction at Sotheby's some icons fetched £10000, and if you can afford an icon I am sure you can afford to buy this excellent atlas for £35.00.

F. KATCHBURIAN