physiologist or neuroanatomist than are most papers published in journals of behaviour; it proves that intact goldfish have, in small degree, the independence of the two halves of the brain in visual learning that is more strikingly shown by mammals with the corpus callosum cut through. The other three papers are neuroanatomical. Two of them, on the spinal cord and cerebellum, are as remote from behaviour as any neuroanatomy could be. The influence of the third, on the visual pathways of *Chelydra serpentina*, is unlikely to extend far beyond those who study binocular vision in turtles.

G. S. BRINDLEY

SYMPOSIUM ON NEUROGLIA (*Acta Neuropathologica* Supplement IV). Edited by F. Erbslöh, A. Oksche, and F. Seitelberger. (Pp. iv + 166; illustrated. DM 65.00; \$16.25). Springer-Verlag: Berlin, Heidelberg, and New York. 1968.

This symposium was held at a meeting of the Association of German Neuropathologists and Neuroanatomists in October 1966. Many aspects of the subject are covered. There is some enzyme histochemistry of normal and abnormal glia, a little autoradiography (glial reactions to neuronal injury and near brain wounds), and much electron microscopy. There are papers on pre- and post-natal development of glia, on the lipidoses, on spongy degeneration of the white matter, and the section on oedema includes a paper on weighing swollen astrocytes by interference microscopy. Neoplasms are not dealt with. As usual with symposia there is not a great deal of brand-new information, but it is useful to have all this material and a relatively up-to-date bibliography in one volume. All the papers are in German. Summaries are provided in English which is sometimes good and sometimes virtually incomprehensible, which is a pity.

SABINA J. STRICH

SYMPOSIUM ON FACTORS RELATED TO THE DEVELOPMENT OF SAFER AND MORE EFFECTIVE DRUGS Edited by Samuel W. Goldstein. (Pp. x + 186; illustrated). American Pharmaceutical Association Academy of Pharmaceutical Sciences: Washington, D.C. 1968.

In this series of 15 papers presented at the Third National Meeting of the APhA Academy of Pharmaceutical Sciences, the contributors have clearly set out the diverse problems with which the initiators of new drugs are faced. Both the sponsors and contributors are to be congratulated on their orderly approach to this vast and extremely complex subject and on their insistence upon the more effective recording and use of toxicological information in the design of drugs and drug formulations and in the clinical use of drugs. The American Pharmaceutical Association has been in the forefront in the development and enforcement of high standards for drugs and this symposium of the Academy of Pharmaceutical Sciences maintains the standards set by its parent body.

THE BIOCHEMISTRY OF MEMORY By Samuel Bogoch (Pp. xi + 254; 39 figures, 21 tables. 64s.). Oxford University Press: Oxford. 1968.

This book by a biochemist reviews existing knowledge and adds an account of his own work on brain mucoids.

However, the weakness of the biochemical approaches to the problems of brain mechanisms is that they tend to ignore the need to fit in the various hypotheses with existing knowledge of brain physiology.

PROGRESS IN BRAIN RESEARCH Vol. 29. Brain Barrier Systems. Edited by A. Lajtha and D. H. Ford. (Pp. xv + 552; illustrated. 230s.) Elsevier: Amsterdam, London, New York. 1968.

This volume presents the proceedings of an important conference held in the Netherlands on the current problems and researches concerning the blood-brain barrier and allied topics.

W. RITCHIE RUSSELL

THE HUMAN BRAIN AND SPINAL CORD. A Historical Study Illustrated by Writings from Antiquity to the Twentieth Century. By Edwin Clarke and C. D. O'Malley. (Pp. xiii + 926; illustrated. £11 17s. 6d., \$25.00). University of California Press: Berkeley and Los Angeles. (London Agents: Cambridge University Press). 1968.

This *magnum opus* is compiled from a vast programme of historical research by the authors. The presentation is most attractive and helpful to the reader, while all the quotations are accompanied by a brief biographical account of the contributor. Dr. Clarke's experience of both medical and surgical neurology has enabled him to select those writings from both the remote and more recent past which fire the interest of today's students of the nervous system. Many of the quotations reported were very difficult to find and were for the first time translated into English. All will enjoy referring to these fascinating pages.

BEDINGUNGSKONSTELLATIONEN PARANOIDHALLUZINATORISCHER SYNDROME (Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie—Heft 122). By H. Helmchen. (Pp. vi + 104; 17 figures, 39 tables. DM 42.00; \$10.50). Springer: Berlin, Heidelberg, and New York. 1968.

A hundred women who were considered to have a hallucinatory paranoid syndrome were investigated, with particular regard to psychological abnormalities and the electroencephalogram. They were all treated for at least six weeks of the inquiry with phenothiazine derivative (Perazine). The findings, analysed with standard statistical methods, revealed nothing new, precise, or applicable to paranoid hallucinatory states in general. As the author frankly acknowledges the 100 patients he studied were not a representative sample. In spite of this, there are interesting and suggestive observations—including correlations between EEG anomalies and clinical state—and a discussion of the bearing of the data on the nature and form of schizophrenic disability.

THE ADDICTIVE STATES Edited by A. Wikler. (Pp. xii + 520; 84 figures, 58 tables. £11 2s. 6d.) Williams & Wilkins: Baltimore. (Edinburgh agents: Livingstone). 1968.

There were 50 contributors to the Proceedings of the 1966 meeting of the Association for Research in Nervous