Reviews

Biochemistry of the Central Nervous System. Edited by F. BRÜCKE. (Proceedings of the Fourth International Congress of Biochemistry.) Pergamon Press, London, 1959. Pp. 324. Price 88*s*.

This book is the published account of a symposium on the biochemistry of the central nervous system held during the 4th International Congress of Biochemistry in Vienna in 1958. It contains a great deal of useful information written by prominent workers in the field though the difficulty of presenting individual reports of a rapidly expanding subject between two covers is emphasized, in this instance, by haphazard presentation.

One of the striking things about modern neurochemistry is the way in which problems, seemingly intractable only a few years ago, are being successfully tackled. The metabolism of the galactolipids is a case in point. Not so very long ago our knowledge of the metabolism of cerebrosides seemed to have progressed very little since their discovery in the last century. In his article in this book Burton discusses a great deal of new work on the subject and suggests that the metabolic problems posed by the more complex gangliosides will be solved in the next few years.

Today every pharmacologist working on the nervous system will be familiar with γ-aminobutyric acid (or its monstrous abreviation GABA); ten years ago this amino acid was only known as an interesting spot on a paper chromatogram. Roberts, one of the first to discover its high concentration in the central nervous system, has contributed an interesting account of its metabolic relationships in brain, whilst Elliott discusses its role in normal physiological activity as a likely inhibitory factor in nervous transmission. The importance of basic biochemical studies in understanding nervous activity is once more underlined.

A great deal of useful information about the metabolic activity of brain tissue has been obtained from studies of tissue fragments *in vitro*. McIlwain contributes a useful summary of the conditions necessary for the restoration and maintenance of the composition of cerebral tissues after removal from the body, whilst Quastel, with the benefit of half a lifetime of investigation of the effect of drugs on cerebral metabolism, discusses the effects of neurotropic drugs on enzymic mechanisms. He indicates that a rationalization of drug action will only come about as a sequel to a more complete knowledge of the metabolism of the nerve cell, a sentiment that will be sympathetically echoed by many investigators. At an even more fundamental level, problems of ionic movement in the nervous system are discussed at some length in the contributions by Ussing, Keynes and Nachmansohn.

In a challenging contribution Hydén describes work carried out on isolated glial and nerve cells. The statement "To dissect out ten Deiter's nerve cells and free them from adhering glial cells takes at present around five minutes" alone testifies to the diligence of his school of workers. He also puts forward the interesting proposal that there is an intracellular mechanism behind the engram based on the nucleic acids.

Mention has been made of the new investigations on cerebrosides but it is apparent that even the better established compounds of the brain, such as phospholipids, present their enigmas. Klenk makes pertinent remarks about the composition of phospholipids and in particular the complex fatty acid pattern, the significance of which is unknown. The biochemistry of the inositol phospholipids, ably considered by Folch-Pi and LeBaron, is even more involved. In fact nothing definite is known about the function of the phospholipids although they account for 20–25 per cent. of the dry weight of brain tissue. One of the great frustrations in the study of these compounds until recently has been the difficulty in separating component lipids. The analytical problems presented by the cerebral proteins are still greater which explains why Richter, in his review on protein metabolism, confines his discussion to the proteins as a whole.

The topics covered by this symposium are even more varied than is indicated in this review. Glutamic acid, serotonin and the catecholamines are all discussed by eminent scientists; there is, in addition, a lengthy summary of all the papers by the editor.

It seems a little curious that a paper on catecholamines should be sandwiched between papers on proteins and gangliosides whilst one on mucopolysaccharides is slipped in between two on serotonin. More unforgivable in a book of this type is the absence of an index, this omission is even more irritating in view of the high price asked by the publishers.

G. B. ANSELL.

Time Distortion in Hypnosis. By LINN F. COOPER and MILTON H. ERICKSON.

Cooper and Erickson have written a small book describing a phenomenon known as time distortion; a technique to produce it artificially in the hypnotic state, and the possibility of using this technique in various ways including psychotherapy.

Everyone is familiar with the way in which the appreciation of the passage of time can be altered by the state of mind of the person trying to estimate this passage: the slowness of an hour spent in boredom and the lightning passage of the same hour when we are absorbed is common knowledge.

The authors claim that they can train suitable hypnotic subjects to experience and demonstrate this distortion at will. This is done by training the subjects to live through a certain experience in a space of time which the subject imagines to be say 10 minutes and which actually is 10 seconds. There are various complicated techniques described in the book for achieving this end. Having described this method of compressing time, the authors then attempt to demonstrate certain uses of what they have obtained such as the increased ability to learn—both in motor and non-motor activities.

The authors also assert that there is evidence that with their technique the recovery of unconscious material is facilitated. They do not find that motor learning or mathematical mental activity is facilitated. The evidence for the authors' opinion is however pretty thin and based on a few experiments without adequate controls, e.g. their conclusions on non-motor learning are based on work with one subject.

Erickson, at the end of the book, describes the use of this technique in half a dozen psychotherapeutic cases. Again, a small series and no controls leave the conclusions very much in doubt. One is a little surprised also to see Erickson falling into the trap of attaching great importance to the unconscious material recovered by the use of this technique and attributing "cure" by catharsis. It is sad to see that a psychiatrist with such insight into defence mechanisms still ranges himself on the side of the naïve and untutored who attach such importance to the "lost memories" and not the repressing forces.

The overall impression that their book gives is of two talented research workers spending much time and energy on a trivial and inconclusive experiment, and having done so, have need to justify this expenditure of time by stretching the value of the experiment much beyond its true one.

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