

volumes of the *Handbuch der Neurologie* of which he was a co-editor of the psychiatrist O. Bumke. The author is to be congratulated on the way in which he has presented this book.

LUDWIG GUTTMANN

BRAIN TISSUE ELECTROLYTES By A. Van Harreveld. (Pp. xii + 171; 24 figures. 27s. 6d.) Butterworth: London. 1966.

This little book in the publisher's Molecular Biology and Medicine Series makes a timely appearance when, with the increasing clinical recognition of cerebral swelling and cerebral oedema, it becomes imperative to seek more exact definitions of these conditions and to understand the transport of water and electrolytes in the central nervous system. Present controversy centres around the presence or absence of an extracellular space in the brain. Electron microscopy study seemed to confirm chemical investigation that there was no significant space, but if this is so a sophisticated explanation is required for the results of impedance studies which would suggest an appreciable extracellular space.

In a brilliantly written and lucid text the author takes the reader successively through the chemical, physical, histochemical, and electron microscopy investigations in this field, providing a critical review of the present work. Towards the end Professor Van Harreveld comes to the recent work in his own laboratories. By adopting a rapid freezing technique followed by substitution fixation at low temperature, he has suggested that electron microscopy would, in fact, demonstrate an extracellular space and that the fixation methods previously employed could invalidate conclusions on the existence of this space. Further, if the chemical constitution of the extracellular space resembles cerebrospinal fluid rather than a plasma ultrafiltrate—which it probably does—then much of the apparent discrepancy between chemical and physical approaches to this subject can be resolved.

In a rapidly changing field, this book is a good demonstration of how a scientist and clinician may communicate. It should be welcomed and read by everyone interested in cerebral metabolism.

WALPOLE LEWIN

VARIATION IN CHEMICAL COMPOSITION OF THE NERVOUS SYSTEM AS DETERMINED BY DEVELOPMENTAL AND GENETIC FACTORS Edited by G. B. Ansell. (Pp. 119. 25s.) Pergamon Press: Oxford. 1966.

This monograph contains the abstracts of papers presented at the International Neurochemical Conference held at Oxford in 1965. In view of the striking progress that has been made in recent years in our knowledge of the biochemistry of the genetic mechanism, the decision to centre this conference around genetic and developmental aspects of the nervous system was a wise one, and many of the papers that were presented, and the discussions that ensued, were of very real interest. As a publication, however, the monograph has a limited appeal, containing, as it does, only the brief abstracts of

the communications, many of which contain no references and are in some cases little more than announcements that 'the following data will be discussed', but no discussion is included. For workers in this field certain of these abstracts will be of use, but it is not a publication that can be recommended for general reading.

IMMUNOBIOLOGICAL STANDARDIZATION Vol. 2. International Symposium on Neurovirulence of Viral Vaccines. Edited by R. H. Regamey. (Pp. xii + 308; 33 figures. Sw.F./D.M. 69.) Karger: New York and Basel.

The use of attenuated live poliovirus vaccine has been accepted by most countries as the most practical procedure for mass immunization against poliomyelitis viruses. The fear that severe affection of the nervous system, by either the vaccine virus or more neurotropic variants of them produced in the gut of men, would occur has fortunately not been substantiated, although paralysis or encephalitis has occurred occasionally in children and adults in whom it has not been possible to decide that the disease could not have been caused by such vaccine derivatives. The papers in this Symposium provide reassurance that the manufacturers of these vaccines, biological control laboratories in various countries, and independent research workers have continued to study the problem of neurovirulence of these vaccines and to search for viruses that will carry even less risk than those now in use, particularly Type 3, without diminution in their protective effect. These technical papers were presented in 1965, at which time there was evidently still lack of agreement on certain details, such as the species of monkey most suitable for determining the neurovirulence of the viruses, the route by which they should be inoculated, and the standard method of assessment and comparison of results in different laboratories in different countries. No doubt some of these differences have been resolved by now and the work described here and the methods evolved will be a useful guide for tests on vaccines made from other neurovirulent viruses, such as Japanese B.

F. O. MACCALLUM

TOUCH, HEAT AND PAIN A Ciba Foundation Symposium. Edited by A. V. S. de Reuck and Julie Knight. (Pp. 389; illustrated. 65s.) Churchill: London. 1966.

The contributors to this symposium are almost exclusively physiologists and electron microscopists interested in sensory physiology. They were engaged in an interchange of information and ideas among themselves; this they did in a highly technical language with much resort to mathematical symbols, so that one ignorant of this field is likely to remain largely so, despite an arduous reading. The discussion covered the structure of sensory receptors (with good illustrations) and something of their biophysics; the way in which single and groups of receptors respond to varying degrees of stimulation was also considered. Man's place in the animal kingdom was acknowledged by a section on his manner of discriminating quantitative differences in stimulation.