

of consciousness seems to be that some part of the cortex, and not necessarily a large part, should be freed from the α -rhythm and so made receptive to incoming sensory messages. The mechanism which suppresses the natural α -rhythm and so causes, or allows, consciousness, does not reside in the cortex itself; it appears to originate in the upper part of the brain stem and almost certainly involves the hypothalamus.

So far a mechanistic interpretation suffices; but when we inquire how the brain recognizes and remembers things, very serious difficulties arise. For example, we know that a tune is recognized whatever its key, and a shape is recognized whatever its size and whatever part of the retina its image falls on. So it is obviously not a precise stimulation of certain nerve cells which the cortex recognizes; it must be some abstract pattern or concept which the brain in some way distils from actual sensory data and stores in its memory. Similarly, on the motor side, once a complex skilled movement has been learnt, it can be carried out, though less perfectly, with quite different muscles. Recognition and habit formation cannot, therefore, be due to the facilitation of particular nerve pathways by repeated use. On the sensory side, there must be something which abstracts the significant elements of a pattern; and on the motor side, something which converts an abstract idea of movement into an actual movement.

It is just here that all mechanistic hypotheses seem to break down, and it is in this that the brain differs from all man-made contrivances such as gun predictors, mine detonators and calculating machines. These machines respond when a certain fixed pattern of stimulation reaches a certain threshold. The brain, on the other hand, responds to an abstract pattern and is not tied to a critical threshold of stimulation. Indeed, the property of adaptation, so characteristic of the nervous system, renders it singularly inefficient in the recognition of absolute intensities of stimulation; it can only be relied upon to compare one thing with another.

This is the fundamental problem which confronts those who seek to explain mental processes in physiological terms. Adrian himself can see no immediate prospect of its solution, but he directs attention to certain ideas of Lashley and of Craik which might afford an approach. He concludes that, as contemporary physiology is unable to give a satisfactory account of any kind of mental activity, there is, as yet, no risk of its incursion into the field of metaphysics.

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MEDICAL DISEASES IN HOT CLIMATES

Memoranda on Medical Diseases in Tropical and Sub-Tropical Areas. (War Office)

Eighth edition. Pp. 396 (37 plates). (London: H.M. Stationery Office, 1946.) 7s. 6d. net.

AS vast numbers of troops were engaged in campaigns in the Pacific, South-East Asia and the Middle East, it is not surprising that many advances in medical knowledge of tropical diseases were made during the last four vital years of the Second World War. Much of this new knowledge is included in the present publication.

The book comprises thirty-nine memoranda arranged in alphabetical order. New articles are included on nutritional diseases, infective hepatitis, tropical eosinophilia, leprosy and the sulphonamides.

The section on arthropod pests contains pertinent information on the various uses of *D.D.T.* in the control of both the wingless and winged pests. Its special value in the destruction of mosquito larvæ and adult anophelines, house flies and lice is emphasized. *D.D.T.*, however, was ineffective in preventing scrub typhus, and here dibutyl-phthalate applied to clothing proved the repellent of choice, as it afforded most effective protection against the larval mite vector.

An instructive account is given of infective hepatitis based on the 'Alamein Line' outbreak affecting 10,000 troops. This is followed by a consideration of arsenical and homologous serum jaundice—both of which resemble in many respects infective hepatitis. The view is accepted that both these conditions are caused by inoculation with blood or serum containing a virus or some allied icterogenic agent. The comprehensive account on cysticercosis is abridged from the classical work of MacArthur on this subject; it is now gratifying to read that the more recent follow-up of Dixon and Hargreaves shows the prognosis to be brighter than was at first supposed.

The view that secondary invading organisms play an important part in those chronic cases of amebiasis which prove intractable to amebicidal drugs is accepted; preliminary treatment with sulphonamides and penicillin is advocated in such circumstances.

As a result of field experience with bacillary dysentery, it is advised that all individuals developing diarrhoea should be immediately treated with sulphaguanidine. This procedure not only reduced hospitalization by preventing the development of clinical dysentery, but also eliminated carriers and cut short epidemics through destruction of dysentery bacilli in the stools.

In the chapter on malaria, some twenty-four out of thirty-six pages are devoted to treatment. Doubt is expressed whether intramuscular 'Mepacrine' can replace intravenous quinine in the urgent treatment of cerebral and algid malaria. The great value of 'Mepacrine' as a suppressive in a dosage of 0.1 gm. daily is emphasized, resulting, as it does, in the radical cure of malignant tertian malaria and the suppression of benign tertian infections. The statement is made that "its use in the 1939-1945 war gave us great tactical advantages against the Japanese—we could operate in malarious areas which they had to avoid". While the first part of this statement is undoubtedly correct, it is doubtful if the Japanese ever considered the military implications of malaria or of any other disease in their forward planning.

A valuable addition to future editions would be the inclusion of graphs based on statistical data showing the dramatic reduction in the incidence of diseases like malaria, bacillary dysentery and scrub typhus following the introduction of preventive measures and chemotherapeutic control during the later phases of the Pacific and Burma campaigns.

As stated in the preface, the aim of this book is to give medical officers something that can be more easily carried about than a text-book and yet offer in a concise form the essentials of the more important diseases of the tropics. This objective has been splendidly achieved in the eighth edition.

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