Book reviews


The idea is well established that the nervous system modulates the activity of the endocrine glands, and that the central link in this process is control by the hypothalamus of adenohypophysial secretion. Only in the last two decades has it been appreciated that this link does not depend on secretomotor innervation of the gland, but upon neurohemoronal stimuli in the shape of peptide 'releasing factors' carried from the median eminence through the so-called portal blood vessels of the pituitary stalk. Moreover, the conspicuous nerve supply from the supraoptic and paraventricular nuclei of the hypothalamus to the neurohypophysis is not simply secretomotor, but transports along its axons neurosecretory material formed in the hypothalamus for storage and eventual release as oxytocin and ADH. Furthermore, hypothalamic extracts are rich in more familiar neurohumoral agents such as acetylcholine, catecholamines, and 5-hydroxytryptamine, the function of which in this context is the subject of active debate.

The present book opens with a description by Kobayashi and Matsui of the fine structure of the median eminence, correlating light-microscopic with electron-microscopic appearances in a variety of species. The releasing factors, it is suggested, are carried to the median eminence by granules which differ mainly by their smaller size from those that carry the posterior lobe hormones. Still smaller granules appear to contain monoamines.

The next study, by Fuxe and Hökfelt, concentrates on the role of catecholamines, and distinguishes between neurones associated with the release of dopamine and others secreting noradrenaline. The former appear to control gonadotrophin releasing factors, while the latter have more extensive functions and may participate in the control of ACTH, growth hormone, oxytocin, and ADH secretion.

A later chapter by Halász describes the result of surgical isolation of hypothalamic structures from the rest of the brain, while the connections with the pituitary are retained. If the 'island' includes only the medial ventral hypothalamus, basal secretion of pituitary hormones including FSH is well maintained. Structures outside the medial ventral region appear to control rhythmic changes in LH and ACTH through afferents entering the medial ventral region anteriorly.

Davidson derives a similar picture of the central control of gonadal hormone release from more classical techniques, such as localized destruction or stimulation of the hypothalamus, or the direct introduction therein of minute amounts of sex hormones.

Glick describes how the introduction of radioimmunoassay has shown that the release of growth hormone is closely related to short-term fluctuation in glucose utilization, but has added little to our knowledge of its long-term relation to growth.

Motta, Fraschini, and Martini suggest that all the hormones of the anterior and intermediate lobes of the pituitary can affect their own rate of secretion by a direct feedback action on the hypothalamus. Such 'short' signals may play a more general role than the 'classic' feedbacks from the peripheral glands. De Wied reviews the exciting possibility that pituitary hormones, particularly growth hormone and ACTH, may have a stimulant effect on learning processes, presumably through a more widespread action on the nervous system.

This excellent book covers a number of other topics which have not been mentioned. It ends with a review by Geschwind of what is known of the chemical, intracellular action of releasing factors. It has much to offer both specialists and non-specialists alike, and deserves to be widely read.

G. C. KENNEDY

MODERN TRENDS IN NEUROLOGY Vol. 5 Edited by Denis Williams. (Pp. 304; illus.; £4 8s.) Butterworth: London.

Only three years separate the appearance of the new Modern Trends in Neurology from its predecessor. Either neurological progress is accelerating or there is a need for more frequent reassessments. Reading through the current volume gives a pleasurable sense of familiarity, as much of the material has appeared in the journals. This series performs a valuable service in making these papers more readily accessible. Moreover, the authors have been able to expand the introduction to their theses so that the non-specialist may see them in context and appreciate their significance. Particularly welcome is the effort to define the less familiar terms and to avoid the use of jargon.

The catholic choice of topics will surprise no one who already knows the Modern Trends series. All the major divisions of neurological science are represented and it is difficult to single out one subject without consciously doing an injustice to the others. Nevertheless it seems appropriate to mention Dr. Williams's own chapter on the propagation of epileptic events, which is a model of simplicity and precision.

He has selected an able group of contributors who have maintained a high standard of clarity, interest, and stimulation.

IVAN T. DRAPER


This large volume is an exceptionally useful compilation of some aspects of neurophysiology and neuropharmacology. The title is scarcely justified and the postgraduate student in medicine, surgery, and psychiatry to whom it is