Abstracts.

Neurology.

NEURO-ANATOMY AND NEUROPHYSIOLOGY.


The author bases his careful researches on a series of preparations, stained by Nissl's method, from the brain-stem of a case of tabes, in which the clinical condition was one of complete ophthalmoplegia externa and interna, with the exception of the external rectus, of one eye.

Among the more important conclusions are the following:—

1. In all probability the Edinger-Westphal nucleus is the mesencephalic centre for convergence, controlling synergic movement in convergence of the rectus internus and the sphincter iridis. Probably the accommodation centre is the same as this. On the other hand, the centre for reflex contraction of the pupil to light is certainly not situated in this nucleus, but is perhaps to be placed in the Boettiger-Westphal nucleus in the central grey matter and in the nucleus rapheos posterior.

2. Both lateral large-celled oculomotor nuclei, with the central nucleus of Perlia, form an anatomical and physiological unit, and limited localization of individual muscles in these cell-groups is not to be sought. All cell-groups are equally concerned in ocular innervation.

3. The fibres from the trochlear nucleus are doubly crossed.

4. An apparently new group is called by the author the nucleus sub-fascicularis, and probably mediates synergic action between the levator and the upper facial muscles. The medial part of this nucleus seems to be the hypothetical mesencephalic upper facial nucleus.

A second new cell-collection is called by Frank the nucleus intracommisuralis of Wernckink, but its physiopathology is at present unknown.

S. A. K. W.


The author takes as his text Hughlings Jackson's law that destructive lesions cannot produce positive symptoms. The apparent greater activity following destructive lesions is due, not to irritation, but to release from control of the activity of lower centres. He cites the familiar spasticity
which follows organic hemiplegia and the mass reflex which is established after recovery from the shock of complete division of the cord. He next describes the thalamic syndrome of sensory changes accompanied by excessive reaction both to pleasurable and painful stimuli. As he points out, this comes on in the course of recovery and cannot be due to irritation, but is due to the release of the more primitive thalamic centres from the control of the cortical centres.

He then describes his experiences in the course of the recovery of the divided sensory nerve. These are characterized by loss of discrimination, intense vividness, and modified all-or-none reaction. In this form of sensory perception the extensity of the stimulus is of greater importance than its intensity. As epicritic sensibility is restored, this characteristic protopathic response becomes less evident, but it may be temporarily restored if, before complete recovery, the epicritic type of sensation is interfered with by exposing the area to excessive cold. In studying the distribution of the ulnar and median nerves it is found that, while tactile fibres are limited in area, the pain fibres of each overlap to a considerable extent. If one of these nerves is injured, protopathic sensibility is never referred to an area beyond the distribution of the tactile fibres; but where the over-action is really due to irritation, as happens in some cases of causalgia, the area coincides with that of the pain fibres, and the condition may be relieved by section of the whole nerve. It must be remembered that phenomena observed when phylogenetically older centres are liberated from higher control are not always seen in their simple purity, for the fate of such lower areas varies, some being suppressed and inhibited, others being caught up in the action of the higher areas.

In the second part of the paper the author points out that the stimuli which the body receives from the environment are exceedingly complex. At the spinal level the afferent impulses set off reflex activities and are grouped together according to quality, so that pain impressions proceed together, touch impressions together, and so on, to give rise to sensations. At this level there is a great increase in the possible varieties of response. The sensation itself is the result of the struggle for dominance between several sensory impulses, as when a stimulus is applied to the hand which is capable of calling out heat, cold, and pain at the same moment. Illustrations of this sensory conflict and its results are given by experiments on the glans penis and the visera. Reference is made to the generalization and spread of pain when central resistance is lowered, as occurs with a rise of temperature, or during menstruation, or in anemia. If the resistance is very low from constitutional or other reasons, pain may be very readily felt, and the distribution and order of development of the pain will not correspond to ordinary visceral or segmental areas, so showing the pains to be of central and not of peripheral origin. Control may be established over perfectly normal sensory impressions, as for example the control over giddiness acquired by the aviator, but this control may be lost again if the general health of the subject is lowered from any cause.

This paper is an exceedingly lucid résumé of Dr. Head’s original work, which does much to confirm and carry on the observations of Jackson
and Sherrington and to demonstrate how the nervous system integrates and controls the functions of the body.

R. G. Gordon.

NEUROPATHOLOGY.


The material investigated consisted of the brain and spinal cord of a young girl, who died in an attack of acute chorea on the tenth day of her illness. The authors summarize the results of their researches as showing infiltration by inflammatory products both of the perivascular sheaths and the nervous substance, together with destruction of the nerve-cells in certain areas. The inflammatory process is very diffuse and irregular, and beginning around the vessels involves the whole cerebrospinal axis with the exception of the medulla and cerebellum, which appear absolutely intact. Thus the spinal cord, pons, cerebral peduncles, the basal ganglia, and the cerebral cortex are the sites affected. The changes are most marked in the grey matter of the basal ganglia. The process has a selective incidence upon the grey matter; in contrast, the centrum ovale, corpus callosum, and cerebellar peduncles are intact. The process, therefore, is to be considered as a polio-encephalitis.

The writers describe the nature of the lesions in detail, with appropriate figures, and point out their close resemblance to those found in encephalitis lethargica. They consider, however, that in the case under investigation the cerebral cortex was more extensively involved than is usual in the other disease.

Commenting upon the similarity of their findings to those described by other authors, they consider it as established that histological changes of this type are found in children dead of acute chorea. They further draw attention to the correspondence between the especial localization of the lesions in these cases and the findings of Marie and Lhermitte in Huntington's chorea, the areas most affected in both instances being the cerebral cortex and the corpus striatum. No clinical details are offered in proof of the accuracy of the diagnosis in the case which is the subject of this paper, and, as the authors themselves point out, the differentiation of a case of Sydenham's chorea from one of encephalitis lethargica with choreiform movements may be no easy matter. In view, therefore, of the histological picture described, the reader may perhaps be excused for wondering whether they were not dealing with a case of the latter disease.

C. P. Symonds.


The object of these investigations was to determine, first, the extent to