Abstracts.

Neurology.

NEURO-ANATOMY AND NEUROPHYSIOLOGY.


In the embryo of certain mammals (horse, dog, hare, etc.), Krabbe has found a small group of rounded and oval cells in the centre of the external aspect of the commissura habenulae. This little 'organ' is situated immediately above the pineal body, behind the posterior wall of the suprapineal recess, and is distinct from the 'prepineal body' of Favaro and others. To this rudimentary structure he proposes to give the non-committal name of 'corpuscule pariétal'; he considers it is a homologue of the parietal eye of petromyzon, teleosts, and saurians.

J. V.


This paper summarises recent work at the Harvard Medical School on the question of the vasomotor control of the cerebral circulation. The following experiment is described in detail:

The cervical sympathetic in the cat having been severed one hour to six days previously a dye was injected intravenously. Sections from each hemisphere were then taken and the area occupied by injected capillaries in each was measured. It was found that on the side of the cut sympathetic nerve there was a very considerable increase of injected capillaries. In other experiments pial vessels were observed to dilate on vagal stimulation and to contract on sympathetic stimulation; these changes are evidently independent of changes in the systemic arterial pressure. Cobb comes to the conclusion that vascular spasm is, as a result of these experiments, a much more reasonable proposition than it was thirty years ago.

This paper is of value to anyone interested in the subject as it epitomises work done and gives a fair number of references to recent work on the subject.

E. A. C.

Vessels of the brain react to histamine (injected intravenously) according to the anesthetic employed; under ether they are already dilated, and with histamine either do not enlarge further or sometimes become narrower, with fall of spinal fluid pressure. Under amytal they dilate after histamine, and fluid pressure rises. Local application of the drug to the surface of the brain always results in dilatation of pial vessels, without influence on intracranial or systemic vascular pressures.

Chemical changes in the blood are often more powerful than alterations in blood pressure as a means of regulating the calibre of pial blood vessels in mammals.

J. V.


In general it may be stated that given a temperature sufficiently low and allowing the factor of time to intervene, cold stimulation of a peripheral region of the body first increases the excitability of the part of the cerebral cortex corresponding to the region stimulated and later decreases it. The effect of the stimulation is not only on the corresponding cortical area but also on other parts of the same or opposite side of the cortex; the effect is always more marked on that corresponding to the region stimulated.

C. S. R.


In reviewing some of the work of Richard Semon and of Head and Holmes, the writer concludes that (1) the ‘engrams’ or ‘engrammic systems’ of Semon are identical with the ‘neural schemata’ of Head, these terms or phrases both denoting systems of neural paths between different areas of the brain—paths which have been developed and become functional in the course of ontogenetic life history. (2) These ‘engrams’ or ‘schemata’ furnish the neural correlates of the multitudinous psychological elements which, when integrated into a more or less coherent aggregation of mental symbols or concepts, constitute what we ordinarily call ‘knowledge’ and which in their interactions and ever-changing functional relations constitute what we ordinarily call ‘thought processes.’ (3) A cursory consideration of the ordinary phenomena of ‘memory,’ ‘reverie’ and the different phases of ‘ratiocination’ makes evident the need of a means of activating the multitudinous system of ‘engrams’ or ‘schemata’ from some central source quite apart from any stimuli.
from the sense organs or receptors. (4) The central source of power to maintain a continuous stream of neural impulse, ever changing in the pattern of its flow through the multitudinous system of 'engrams' or 'schemata,' is furnished by the thalami. (5) The return paths from cortex to thalami—the corticothalamic paths—are means of maintaining a continuous circulation of neural impulse between thalami and cortex, thus keeping in an active state those 'engrams' or 'schemata' which form the neural correlates of the mental symbols or concepts which may be employed in any particular phase of consciousness through which the subject may at any time be passing.

At present this must only be regarded as a working hypothesis but one which subsequent research may convert into an established theory.

C. S. R.


According to the author's claim, stimulation of the abdominal sympathetic trunk, by the direct application of solutions of adrenalin (1 in 10,000) is followed by a very transient increase in muscle tonus. Stronger concentrations (1 in 1,000) are succeeded by flaccidity in the limb supplied by the sympathetic trunk. The changes in tonus and posture are much more evident in the fore than in the hind limbs, a fact which is attributed to the influence of stretch. Deep ether narcosis appears to prevent the increase of tonus after sympathetic adrenalization. Royle refutes the suggestion that altered vascularity is responsible for changes in muscle tone after ramisection, and in one experiment he clamped the femoral artery immediately after the adrenalization of the sympathetic trunk. Tonus was unaltered by the interference with blood supply.

M. C.


The experiments (on cats) here recorded bear on the question of the influence of posterior root section and of rotation of the head upon the responses of the quadriceps muscle of decerebrate animals to ipsi- and contralateral break-shock stimuli applied to the sciatic nerve.

Under constant conditions of the neck and labyrinthine proprioceptive fields, section of the posterior root supply to the quadriceps diminishes the latency and increases the rate of development, size, and duration of the crossed
extensor reflex. Evidently posterior root section removes proprioceptive inhibitors which normally are activated by sudden contraction.

Rotation of the head (chin towards the recording muscle) has the same effect on the crossed extensor reflex, with the exception that it diminishes markedly the rate of relaxation of that reflex.

This same head rotation reverses the reflex effect produced by a single break-shock applied to the ipsilateral sciatic nerve. Similar reversals occur in the response of the knee flexors.

From these experiments it seems clear that neck and labyrinthine proprioceptors influence spinal centres. Some impediment which hinders the passage of impulses across the cord is removed by rotation of the head. Presumably this impediment is due to some form of continuous inhibitory stimulation. The same release which facilitates the passage of impulses from one side of the cord to the other also converts the ipsilateral extensor response from one predominantly inhibitory to one predominantly excitatory. This reflex reversal seems to be brought about through some activation of some higher centre of the nervous system than the spinal.

J. V.

NEUROPATHOLOGY.


In this excellent review of a complicated subject the author points out the confusion which has arisen from cross classifications in the past. He proposes that we should divide the groups into (1) antenatal, (2) natal and (3) postnatal.

Leaving out of account familial conditions such as amaurotic family idiocy and hereditary family ataxy, many cases of paraplegia seem to show a family incidence. It is necessary, however, to be certain that such cases are true abiotrophies and not coincidental lesions at or after birth. At the same time there is evidence that hereditary factors play a part in determining other lesions later in the development of the infant.

Specific intoxications (lead, etc.), chronic alcoholism, and syphilis in the parents are important factors especially if they occur in both. The author, unlike some other observers, finds definite signs of syphilitic heredity in about 15 per cent. of cases only.

The post-natal infections are confused and comprise many conditions whose etiological nature is obscure. The author thinks that it is only rarely that it is possible to distinguish between primary or secondary lesions either clinically or by pathological examination.

Among the more clearly defined clinical syndromes the author includes (1) infantile cerebral hemiplegia. He points out that if this comes on after the age of eight it is in all respects similar to the hemiplegia of adults. In younger
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