Abstracts:
Neurology.

NEURO-ANATOMY AND NEUROPHYSIOLOGY.


The thalamus is built up on a common basic plan amongst the higher mammals. Thalamic nuclei are divisible into three groups: (1) an internal set, which so far appear to have no extradiencephalic relations; (2) a median group comprising the anterior nucleus, the parataenial and the median nuclei. This set is related to the caudate nucleus and does not appear to be connected with the cerebral cortex; (3) an external set made up of an optical portion (external geniculate body and posterior part of the posterior nucleus), an acoustic portion (internal geniculate body and ventral nucleus) and a third portion (anterior part of the posterior nucleus, lateral nucleus and reticulo-dorsal nucleus). With regard to thalamothalamic connections, the author determines that the internal geniculate body is connected with homolateral (and perhaps also with the contralateral) central nucleus; the region of the optic chiasma contains in addition to visual fibres and the commissure of Gudden, a small fasciculus proceeding from the reticuloventral nucleus to the external geniculate body of the opposite side. Thalamo-striate connections are numerous, as previously noted by Sachs. Of the thalamo-cortical relationships, the author shows that the posterior third of the posterior nucleus is connected with the occipital pole; the internal geniculate body is connected with the auditory region of the temporal lobe; the anterior portion of the posterior nucleus is linked with the cortex over the anterior two-thirds of the brain, both anterior and posterior to the cruciate sulcus; the lateral nucleus is connected with the cortex behind the cruciate sulcus.

M. C.


This is a long, finely illustrated, and well-considered investigation of a histological problem on the solution of which numerous theories of function depend, for better or worse. It should be consulted in detail by all whom the matter interests.
"After a careful and long continued search through a wide range of material, and after a critical examination of some of the original preparations reproductions of which have been published as evidence of the sympathetic innervation of striated muscle fibres, I cannot but adopt a sceptical attitude towards the whole question and conclude that it is very doubtful whether any histological evidence of a direct innervation of striated muscle fibres by sympathetic nerves exists."

The author's summary is here cited verbatim:

1. All muscle fibres are innervated solely by somatic nerves, that is, cerebrospinal nerves. Hunter's hypothesis based on the work of Kulchitsky is therefore untenable.

2. Terminaisons en grappes that occur in lower vertebrates may be either (i) 'immature' forms of motor terminations or (ii) afferent.

3. A description of the innervation of muscle spindles is given. The somatic motor innervation of the intrafusal fibres both in lower vertebrates and in mammals is confirmed.

4. Negative findings are reported with regard to the sympathetic innervation of striated muscle fibres and a criticism of Boeke's and Agduhr's original preparations is given.

5. The view is put forward that in striated muscle tissue sympathetic fibres supply only the blood vessels and are concerned only with the regulation of the circulation.

6. The possible mode of action of the sympathetic and of vasodilator nerves is also described.

7. The plurisegmental control of muscle fibres is discussed and new evidence is presented.

J. S. P.


After puncture of the fourth ventricle, animals were bled 24 hours later. Serum collected from the blood was then injected into untouched animals. If the serum was given intramuscularly no effect was observed, but if it was given intravenously, diuresis commenced within a few minutes. Serum from control and untouched animals did not produce the same effect. The author suggests, as a result of this work, that the tween-brain or the centres in the floor of the fourth ventricle have a controlling influence over the production of a diuretic hormone which acts on the kidneys through the blood-stream. Further work appears to be necessary to confirm and elaborate this thesis.

E. A. C.
ABSTRACTS


A study of 'normal' persons was undertaken in order to determine the number and types of errors these subjects made—as compared with the errors 'pathological' subjects make—when tested for various types of sensibility.

Certain of Head's tests were selected for the investigation because of their wider clinical use and because of their comparatively easy applicability. They appeal mostly to the cortical sensory function. These tests are: the appreciation of shape in two dimensions, the appreciation of size, the recognition of the position of the forefinger and great toe when passively moved, the appreciation of the differences in texture and the recognition of common objects.

It was found that 'normal' subjects make many errors identical with those obtained in testing 'pathological' sensory material. Many subjects are suggestible, and it is best that the examiner refrain from confusing his subjects should good results be obtained. The reason for the mistakes made by 'normal' subjects may be attributed in part to the tests and methods themselves, but largely to lack of attention and concentration on the part of both the subjects tested and the examiner.

In the test for the appreciation of similarity and difference in textures, the high percentage of errors encountered with identical pieces of silk and linen—wool and velvet to a lesser extent—is difficult to explain away entirely on the basis of a lack of attention and concentration. Some subjects may never have learned to use the sense of touch where the finer qualities of stuffs are concerned. (Further investigations need to be done with this test.)

Lastly, it is believed that these tests may be used in an ordinary hospital examining room with good results, and that the interpretation of the observations may be greatly facilitated, provided one has an appreciation of what the 'normal' subject does under similar circumstances of testing.

R. S. M.


Relying on a series of personal investigations, the author criticises the received theory of a viscerosensory reflex to account for abdominal pain. In patients with distinctly localised abdominal pain subcutaneous infiltration of the painful area with novocain causes complete or partial relief. Further, in cases of shoulder-tip pain from irritation of the peritoneum under the diaphragm similar procedures give similar relief. From these and other experiences it seems to the author probable that the 'peritoneo-cutaneous radiation' theory of referred pain is correct, and that Mackenzie's hypothesis of a viscerosensory reflex cannot be sustained.

J. S. P.

The conclusions reached by the authors are as follows:

1. Intense auditory stimuli increase blood-pressure—mainly the systolic pressure.
2. They act independently of the associated emotional and painful factors.
3. The stimuli probably act on the blood-pressure by way of extra-cochlear fibres.
4. This phenomenon cannot therefore be utilized as a test of cochlear excitability.

M. C.

Neuropathology.

The Kahn reaction with spinal fluid.—R. L. Kahn and Elizabeth McDermott. Amer. Jour. of Syphilis, 1929, xiii, 557.

The Kahn reaction applied to serum in the diagnosis of syphilis has been satisfactory in the hands of most workers. The test applied to the cerebrospinal fluid has, however, been attended with certain difficulties in technique, which render the test less valuable than it might be. The present writers have undertaken the task of minimising the sources of error in the test by certain modifications of the original. Two steps in the procedure have been altered:

(1) the percentage of saturation, and (2) the sensitization of antigen. It was already recognised by Kendrick and Kahn that the total globulin obtained by saturating the fluid to 50 per cent. with ammonium sulphate gave more sensitive reactions than the portion of globulin obtained by 40 per cent. saturation. It is known that the sensitiveness of antigen is greater when mixed with saline indicated by the titer, than when mixed with saline in excess of the titer. These two possibilities for increasing the sensitiveness of the reaction with cerebrospinal fluid have been tested by the present writers, and their results summarised. Promising results have already been obtained in serum using sensitised antigen—the so-called ‘presumptive procedure’—the sensitiveness being especially marked in cases undergoing treatment, and also valuable in detecting untreated cases.

Six sets of experiments were done:

(1) Using 40 per cent. and 50 per cent. ammonium sulphate.—This experiment included 311 tests, and showed a result in favour of the 50 per cent. saturation.

(2) Using varying antigen.—A series of tests was done using 50 per cent. saturation with 1+1.1 antigen, and using 40 per cent. saturation with an antigen of 1+1.3. The results were definitely in favour of the former.
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