

Abstracts.

Neurology.

NEURO-ANATOMY AND NEUROPHYSIOLOGY.

[45] **Superior olivary nucleus.**—J. W. PAPEZ. *Arch. of Neurol. and Psychiat.*, 1930, xxiv, 19.

LESIONS were made through the base of the skull in and around the superior olives in a number of cats to determine the fibre connections of these organs. After eleven days, the brains were treated by the Marchi method for fibre degenerations and were sectioned. From a study of these sections, the following conclusions are made :—

1. The acoustic striæ cross through the vestibular nuclei, enter the reticular formation and divide into two fibre streams, one that enters the lateral side of the olivary peduncle of the same side and joins the lateral S-shaped segment, and the other that crosses the raphe forming the decussation of the striæ and joins the S-shaped segment of the other side. Both streams continue upward to the inferior colliculi.

2. A lesion of the medial segment of the superior olive or of the adjoining medial preolivary nucleus or the nucleus of the trapezoid body causes a degeneration of the medial fibres of the olivary peduncle passing dorsally through the abducens nerve across the midline and out on the other side by crossing over the descending root of the trigeminus. They appear to join the vestibular nerve.

3. From these experiments it also appears that no longitudinal fibres are contributed by the superior olive into the reticular formation dorsal to the superior olive such as have been postulated by Cajal. In other words the olive does not appear to play the role of a reflex centre.

4. All fibres arising from the superior olive, except the peduncle, appear to be contributed to the lateral lemniscus.

5. The superior olives do not appear to be connected with the cerebellum as was thought by Bechterew and others.

6. An injury of the ventral reticular nucleus of the medulla oblongata and pons produces a constant degeneration of the reticulocerebellar fibres of van Gehuchten, which enter the floccular lobes by passing ventral to the dorsally turning limb of the restiform bodies.

7. An injury to the roots of the abducens nerve produces a loss of the nictitating membrane reflex or bulbar retraction. Likewise, a lesion in the trigeminus nucleus lateral to the outgoing limb of the facial causes a loss of the same reflex.

R. M. S.

- [46] **Extensor tonus after transections of the brainstem at varying levels.**—
S. W. RANSON and J. C. HINSEY. *Jour. Nerv. Ment. Dis.*, 1929,
lxx, 584.

DECEREBRATE rigidity is more marked after transection of the brainstem at the anterior border of the pons than when the section is made through the caudal border of the mamillary body. It is usually even more marked after anæmic decerebration, by which all of the brain anterior to the pons is rendered functionless. Cats which after section of the brainstem on a plane extending from the anterior border of the superior colliculus to the optic chiasma are able to walk, show extensor rigidity when supported with the legs pendent, although this is often masked by running movements. When resting in a crouching position these cats show some increase of tonus in both flexors and extensors. Complete removal of the red nucleus is compatible with the development of the highest grade of decerebrate rigidity. This nucleus is therefore not the source of the impulses responsible for this rigidity. Its influence is exerted rather in the direction of inhibition of extensor tonus, as has been shown by Rademaker. But it is not the only centre concerned in this inhibition, as is demonstrated by the fact that exaggerated extensor tonus develops in hypothalamic cats when these are supported with the legs pendent. Under these conditions the rigidity appears to be due in part at least to the cutting off of impulses from the cerebral cortex. Plasticity is present in transections either above or below the red nucleus and after anæmic decerebrations, but is most easily demonstrated after high transections.

R. G. G.

- [47] **The problem of localisation in experimentally induced convulsions.**—
F. H. PIKE, C. A. ELSBERG, W. S. McCULLOCH and M. N. CHAPPELL.
Arch. of Neurol. and Psychiat., 1930, xxiii, 847.

THE question of the site of origin of the clonic and tonic elements of convulsive seizures has been much debated. Much experimental and clinical evidence has been adduced to support the contention that the cortex is the source of the clonic and that subcortical mechanisms are responsible for the tonic parts of the motor disturbances, but it has been demonstrated experimentally that clonic convulsions can be produced in animals after the total excision of the cortical motor areas of both sides of the brain. The more closely the question is studied, the clearer it becomes that the problem of the convulsive movements is only a special case of the more general problem of the functional organisation of the motor system as a whole.

From their experiments on animals the authors believe that, normally, the pyramidal is the main motor system which is responsible for the clonic convulsions that occur when the pyramidal system is entirely or almost entirely intact. Tonic convulsions arise from the lower motor mechanisms in the period immediately succeeding an injury to the cortical motor mechanisms. After the lapse of sufficient time, clonic responses may be elicited from them. This is, however, not evidence that clonic convulsions may and do arise from the lower motor mechanisms when the cortical mechanisms are intact.

Tonic convulsions are absent in the early postoperative stages in animals in which the midbrain has been split longitudinally in the median line, while clonic convulsions persist if the pyramidal system is intact. All parts of the motor mechanism act together as one system when the brain is intact. It does not seem probable that when the whole motor system is intact, one part of the mechanism gives rise to movements of one type and some other part of the mechanism independently gives rise to movements of another type.

R. M. S.

[48] **Sleep as a problem of localization.**—C. v. ECONOMO. *Jour. Nerv. Ment. Dis.*, 1930, lxxi, 249.

THE author discusses the evidence both pathological and physiological in favour of a centre for the regulation of sleep. On the whole he thinks himself warranted in postulating a point at the junction of the thalamus and interbrain which though not in itself a localized centre regulating sleep is the nodal point of an area of grey matter concerned with this function. If such be the case he considers it of importance not only as an aid in the localization of disease more especially of tumours, but also because he thinks it may be possible to influence such a centre by radiation or diathermy, and so treat insomnia by methods which he regards as superior to drugs, physiotherapy or psychotherapy.

R. G. G.

NEUROPATHOLOGY.

[49] **Normal and pathological structure of microglia** (*Recherches sur la structure normale et pathologique de la microglia*).—G. MARINESCO. *Ann. d'anat. pathol.*, 1930, vii, 153.

THIS article gives a fairly full resumé of the work on the microglia which has been done in Spain, America and Germany, and adds several facts which have been brought to light by Roumanian studies under the author's direction. The normal distribution and arrangement of the microglia in various parts of the central nervous system of man and the common experimental animals is described more completely than is usual except in the original Spanish articles of Hortega. In addition a short note is given on the microglia of some cold-blooded animals.