

Part III.—Epitome of Current Literature.

I. Neurology.

On the Functions of the Nucleus Caudatus (Riv. di Patol. Nerv. e Ment., July, 1906). Pagano.

These researches form a study of the basal ganglia of the encephalon which Dr. Pagano has been prosecuting for two years. With the help of his method of injections of curare he has succeeded in discovering in the cerebellum distinct motor centres, and a zone in which irritation provokes evident emotional excitement. In a review of the contributions of the physiologists who have treated of the functions of the nucleus caudatus he shows how they differ from one another.

Dr. Pagano has made more than eighty experiments to ascertain the functions of this organ. After a method which he describes, he claims to have succeeded in passing injections of solutions of curare into different parts of the nucleus caudatus. He used neither narcotics nor anaesthesia, as he considered that these masked the symptoms which he wished to observe. His experiments are given in detail in a paper filling thirty pages.

Dr. Pagano presents the following conclusions :

(1) That the excitation of the anterior third and of the middle third of the nucleus caudatus provokes in dogs something very like the emotion of fear. This effect is best brought out when the injections reach the internal half of the organ. All the characteristics of this emotion are present: the gesticulations, the play of the physiognomy, the cardiac and respiratory phenomena, the actions of the intestines and the bladder, the state of the pupil, and the effects of threats and noises, all go to form conclusive evidence of this emotion.

(2) The excitation of these points, but especially of the middle third, provokes a strong erection of the penis, which appears immediately after the injection, and persists until death.

(3) The excitation of the anterior extremity of the nucleus caudatus produces an agitation which presents the appearance of fear modified with anger.

(4) The excitation of the posterior third of the nucleus caudatus provokes a series of manifestations of anger; the grinning and barking, the readiness to attack and bite, and the whole attitude leave no doubt as to the nature of the emotion.

(5) The excitation of the outer part of the anterior third of the nucleus caudatus, besides some emotional disturbance, provokes in a greater degree intestinal and vesical phenomena.

Dr. Pagano has, by varying the direction in which he introduces his injecting needle, taken precaution to keep distinct the result of irritation of neighbouring organs. With him the nucleus caudatus is a centre of some of the emotions. He favours Bechterew's views that in the thalamus opticus we have a centre of reflex innervation of the groups of muscles

which afford expression to the different affectional and emotional states. Pagano adds that many clinical observations have confirmed this view. Bechterew's researches have also shown that the posterior corpora quadrigemina have to do with the expression of emotional states. Their destruction is followed by deafness, aphonia, and paralysis of muscular exertion in standing and walking, while their excitation provokes the emission of vocal sounds, movements of the eyes and of the limbs of the opposite and then of the same side with elevation and pushing forward of the ear of the opposite side.

WILLIAM W. IRELAND.

On the Left Hemisphere and Motor Actions [*Die Linke-Hemisphäre und das Handeln*] [original articles in the *Münch med. Wochenschrift*, Nos. 48 and 49]. (*Zbl. für Nervenheilkunde u. Psychiat.*, July 15th, 1906.) *Liepmann*.

Dr. Liepmann, in a series of observations on ninety paralytics in the Infirmary of Berlin, has sought to ascertain how the power of movement was affected on either side. This examination was comprehensive. He took note both of the performance of voluntary actions, such as knocking at the door, ringing a bell and swimming, and movement expressions, such as snapping the fingers, beckoning and warning, as well as the rehearsal of these movements from memory. He tried to exclude cases in which the internal capsule was implicated, limiting his studies to the effects of the lesions of the cerebrum.

Dr. Liepmann found that in 20 out of 41 cases of left-sided paralysis movements were duly performed with the unaffected right arm, while in right-sided paralysis the motor functions of the left arm were also impaired, although in a lesser measure. In other 21 cases, the motions were not sufficiently precise to allow conclusions to be drawn therefrom. In 20 patients, with paralysis of the left side, 14 had also motor aphasia with injury to the performance of movements of the left arm. In the remaining 21 cases, there were only 4 in which the use of the left arm was noticeably impaired. The author took precautions not to confound cases of helplessness of the hands with sensory ataxia or with deafness. He found that in his cases the memory of the movements, as tested by rehearsals, was also affected. In four cases, where an examination was held, the author could find no changes in the area assigned for the left-hand centre nor in Broca's convolution. In these four cases examined, there are no lesion of the cortex noted in two of them; there was extensive injury to the corpus callosum. The author is disposed to place the lesion on one side of the centrum ovale through which the projection centre (Flechsig's) and the fibres of the trabs going to the right sensorium should be interrupted.

Dr. Liepmann comes to the conclusion that, in those motor impairments which followed the lesion in the left hemisphere, the movements of expression, as well as the performance of actions by the hand, are both affected. The rehearsal of movements is also impaired, but the understanding of symbols may remain. In the case of sensory aphasia, however, the awkwardness of movements may be owing to the impairment of the conceptions of time and space. This impairment of motor power in the left side following right-sided paralysis displays the pre-