Abstracts.

Neurology.

NEURO-ANATOMY AND NEUROPHYSIOLOGY.

[1] Note upon the plantar response in the young infant with especial reference to the moment of birth (Note sur le réflexe cutané-plantaire chez le jeune enfant, notamment au moment de la naissance).—P. Lantuéjoul and E. Hartmann. Revue neurol., 1923, xxxix, 387.

In a review of the literature on this subject the authors comment upon the somewhat variable and indefinite results obtained by previous observers. Their own researches have been conducted upon (1) newly-born infants who had not yet manifested any voluntary movements, (2) infants from birth to sixteen days old who had already shown voluntary movements.

In group (1) are included twenty-nine cases, comprising breech presentations, in which the reflex could be elicited from the protruded leg, cases of Cæsarean section, and other cases in which a sufficient interval elapsed after delivery before voluntary movements took place. There was no question of cerebral injury in any. The reflex was elicited with the head of a pin. No difference was observed between responses elicited from the internal and external borders of the plantar surface.

In all the cases of this group the response to minimal stimulation of the sole was isolated flexion of the great toe. More energetic stimulation provoked a flexion movement of the whole limb, associated sometimes with flexion, sometimes with extension of the great toe. In the two cases of Cæsarean section reflex function was at first completely absent, probably owing to the general anaesthetic administered to the mother.

The second group comprises 131 observations, which are divided into three sub-groups according to the exact ages—(1) under forty-five minutes, (2) between one and twelve hours, (3) between one and sixteen days. The results show a gradual transition from predominant flexion to predominant extension, all observations being confined to isolated movements of the great toe. In infants between one and four months the response constantly obtained was extension. A full bibliography is appended.

C. P. S.


De Angelis examined repeatedly, and under varying conditions—sleeping,
eating, waking, etc.—eighty-eight healthy new-born infants within the first week of life. He found that with proper skill reflexes could always be obtained in every case.

With a few exceptions, he found an inverse relation between the activity of the tendon and cutaneous reflexes, depending on body weight; the greater the weight the more vigorous the cutaneous, and the weaker the tendon reflexes, and *vice versa*. The plantar response was flexor in 57 per cent. and extensor in 43 per cent., and involved movements of the whole foot. These responses might alternate in the same child with successive stimuli.

The abdominal reflexes were hardly perceptible in 77 per cent., marked in 16 per cent., and absent in 7 per cent.

Cremasteric reflexes were present in 92 per cent., varying with the descent of the testicles.

The corneal and pharyngeal reflexes were always very vigorous.

The tendon reflexes were more lively than in the adult, but diminished quickly with repeated stimuli.

The knee jerks were normal in 20·4 per cent., exaggerated in 54·5 per cent., much exaggerated in 21·6 per cent. and absent in 3·5 per cent.; in 16 per cent. there was a difference in degree between the two knee jerks, or one might be absent.

The pupillary light reflexes showed a slight reaction in 17 per cent., slow movements in 20·5 per cent., and a pendulum reaction in 62 per cent.

M. A. Blandy.


Professor Hunter's paper must be read in conjunction with that of Dr. Royle, given in Abstract on page 82. It is equally important and deserves careful study.

There is consistent diminution of tone on the side on which the sympathetic innervation of the lower limb is removed in animals otherwise unoperated on, in animals with complete transverse lesions of the spinal cord, and in animals exhibiting decerebrate rigidity. An analysis of the effect of such an operation in the decerebrate animal shows that the plastic tonus of Sherrington is absent. The term 'contractile tonus' may be employed in contrast to plastic tonus to indicate the state of tonic contraction which has a selective action on different groups of muscles and which is connected with integrity of the somatic proprioceptive mechanism. In spastic limbs there are two components of tone abnormally increased. The increased *contractile* tonus leads to hyperactive tendon reflexes and confers a posture on the part concerned. The increased *plastic* tone causes rigidity of the limb by maintaining the limb rigidly in the position assumed. It is this latter rigidity which impedes any voluntary movement of which the patient may still be capable, and which can be removed by severing the rami communicantes.
The author makes the tentative suggestion that striatal rigidity is of sympathetic origin—the corpus striatum being a controlling centre over prespinal centres subserving reflex plastic tone.

In an interesting fashion he proceeds to illustrate how maintenance of posture may be applied as a significant mechanism in connexion with the smooth muscles of hollow viscera. He shows by experiments on rabbits that sympathetic innervation of the colon, for example, has a continuously acting regulating effect, while parasympathetic innervation acts intermittently.

The sympathetic influence in voluntary muscle produces plastic tonus by its continuous action, tonus which is subject to modification by the cerebrospinal system. The involuntary muscle of hollow viscera is maintained in that degree of relaxation appropriate to accommodate the contents within it, and the sphincters are tonically contracted, by the sympathetic innervation. The parasympathetic nerves intermittently stimulate the muscle of the wall and relax the sphincter. In each case the sympathetic system maintains a posture, in the sense of that word employed by Sherrington, in the structures innervated by it.

S. A. K. W.

On the participation of the autonomic nervous system in the innervation of voluntary muscle (Sulla partecipazione del sistema nervoso autonomo alla innervazione dei muscoli volontari).—T. TERNI. Arch. Suisses Neurol. et Psychiat., 1922, xi, 60.

This is an anatomical research on the distribution of the caudal sympathetic in reptiles. The caudal sympathetic in these animals consists of two columns of nervous tissue continuing to the extremity of the tail and having segmental ganglia along their course.

The segmental peripheral branches first follow the segmental artery, then leave it, partly to form white rami communicantes with the mixed nerve of the segment, partly to join the ramifications of the spinal nerve within the segmental muscle and to distribute themselves amongst the muscle fibres, and partly to form longitudinal anastomoses on the deep surface of the muscles, from which fibres penetrate into the latter. It is easy to demonstrate these points in the reptile's tail since it is without viscera or skin organs, which are usually innervated by the sympathetic; but at other levels also there is no doubt that a large proportion of sympathetic fibres proceed to the voluntary muscles. This may have relation to the theory of the dual function of the voluntary muscles.

R. G. GORDON.

The arrangements of cells in the spinal medulla of man (La citoarchitettonica del midollo spinale umano).—A. MASSAZZA. Riv. di pat. nerv. e ment., 1923, xxviii, 22.

This paper contains a detailed examination of the groups of spinal cells studied from the morphological and anatomical standpoint. Eighteen separate groups are described but the details do not lend themselves to abstraction.

R. G. GORDON.
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