

tion of the leg operated on, during the first fifteen to twenty minutes. (4) These results are not due to reflex action through the sensory roots, for they were obtained after the use of chloral, and after section of the sensory roots. The author concludes that in motor nerves connected with the spinal cord, influences are at work which are not observed in motor nerves separated from the cord, one indication of the existence of these influences being the modification of the electrical irritability of the nerve. Whether these influences are identical with those that regulate the tonus and nutrition of nerves and muscles, it is impossible to say. Erb thinks that the motor strands in the central nervous system are distinct from the trophic apparatus, since there are cases of central paralysis, with and without atrophy; and, on the other hand, cases of atrophy and degeneration of muscles with central lesion, and yet no paralysis and no loss of the irritability of the nerves supplying the muscles: and, further, since a muscle can degenerate while its nerve remains intact, he thinks that both nerve and muscle have a separate trophic apparatus.

Clinical observations tend to show that in man also the muscular contraction produced by breaking an ascending current comes on at an earlier period if the nerve is not connected with the spinal cord. Two cases of peripheral paralysis of the radial nerve are recorded, in both of which there was a heightened irritability of the injured nerve at the break of an ascending current. As the paralysis disappeared, the nerve returned to its normal state. In cases where the paralysis has existed for a considerable time, and where the electrical irritability of the nerve is much diminished, the heightened irritability just mentioned is no longer found.

In the secondary muscular atrophy that so often follows joint affections, the electrical irritability of the nerve is less for currents of all kinds. Rumpf agrees with Paget and Valtat in regarding this and the muscular atrophy as a reflex phenomenon due to an arrestment of the action of the spinal cord by the strong sensory impulses that reach it from the affected part.

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Pathological Lesions versus Motor Centres.—Dr. Dario Maragliano has reprinted his paper from the *Rivista di Freniatria*, one moiety of which we have noticed in a previous number (Part III.). He pursues his argument in favour of the localisation of motor centres in the hemispheres, and gives at the end of his pamphlet the following deductions:—

(a.) The movements resulting from excitation of the grey matter of the cortex cerebri cannot be owing to diffused currents acting on the underlying parts.

(b.) The hypothesis of Schiff, who regards the excitable points of the cortex as centres of tactile sensation, and that of Hitzig and Nothnagel, who make the derangements of motion following disturbances of the vascular centres to be dependent upon an alteration of the muscular sense, are inadmissible, especially when we consider the results of clinical observation.

(c.) The hypothesis of Brown-Séquard, who denies the possibility of localising in the cortex or any other part of the brain functions of any kind, besides being a denial of all scientific progress, is contradicted by experimental and clinical results, and the facts brought to sustain his thesis are not of a kind to destroy the doctrine of localisation.

(d.) Those points of the cerebral cortex in which irritation is followed by motor phenomena, and whose destruction is followed by paralysis, ought to be regarded as true voluntary motor centres, capable, without the necessary intermediary of any other centres, of arousing the functions of the various muscular apparatus. These peculiar properties of the centres of the cortex and their independence of the ganglia of the base of the brain are attested both by the results of clinical and experimental observation and by anatomical researches, by the descent of the fibres of the brain and their degeneration following upon lesions of the motor zone of the cortex, and the occurrence of atrophy of portions of the cortex which have followed amputation or arrest of the development of a limb, as well as by the results of microscopic search, demonstrating the peculiarity of the structure of the motor area.

(e.) In man, the compensation for a lesion of the cortex, even of some extent, is possible from the opposite hemisphere, especially when the left one is uninjured; and this is effected, mainly if not always, through means of the fibres which go direct from the healthy hemisphere to the same side.

Diagnosis of Lesions of the Cortex Cerebri.—Dr. Maragliano (*Sulla Sintomatologia delle Lesioni Corticali della Zona Motrice, Reggio Emilia*, 1878) argues that we have means of distinguishing a lesion of the cortex cerebri from one of some other parts of the brain. He thinks that convulsions arising from injuries to the cortex are generally unilateral or restricted to one limited group of muscles. After the cortex cerebri, the centrum ovale is thought to

be the only one that gives origin to localised fits; but we are in want of instances of such fits resulting where the overlying grey matter is unaffected. After diligently searching medical literature, he cannot find a single example of partial epilepsy which is not owing to a lesion of the cortex. The loss of consciousness comes on late or not at all, and the paralysis appears gradually and is circumscribed, or there is hemiplegia of one side coming on gradually. The paralysis is soon followed by contractions, or is associated with aphasia, having the character of amnesia or verbal ataxia, or of verbal paralysis. There is a slight rise of temperature in the paralysed limb, and if there be a localised pain in the one part of the head, either spontaneous or brought out by percussion, then the diagnosis of a cortical lesion cannot be doubtful.

Ergot in Insanity.—Dr. Enrico Toselli (*Archivio Italiano*, Settembre 1878) has a long paper on the effects of ergot of rye in the treatment of mental derangement. He thinks that this drug produces cerebral anæmia, its action being the reverse of nitrite of amyle. In fact, he has found by experiment that, contrary to the opinion of Schüller, the cerebral vessels contracted by ergot may be dilated by the inhalation of nitrite of amyle. Brown-Séquard demonstrated that the primary effect of ergot was the contraction of the blood-vessels in all the organs in the body, as well as the contraction of the fibres of the uterus. Vokes obtains favourable results in treating hemiorania; Silva, in the treatment of cerebral hyperæmia; Crichton Browne, in the congestive form of mental alienation in recurrent mania, in chronic mania with lucid intervals, and in epileptic mania. Dr. Toselli found it of great use in treating serous diarrhoea, a frequent complication of dementia, especially in the paralytic form. In administering it for this purpose he observed that his patients passed out of the state of sleeplessness, and that their mental faculties were less obtuse. He either used the aqueous extract of the *Secale cornutum*, or the *ergotin Bonjean*, given twice during the night in doses of from 50 centigrammes up to as much as 4 grammes. He found that ergotin acted most quickly and surely in the form of hypodermic injection. Ergot diminishes the frequency of the pulse, contracts the vessels, augments the pressure of the blood, and lowers the temperature. Digitalis has more power in moderating the action of the heart, whereas ergotin has a greater effect upon the blood-vessels and in diminishing the temperature. Sometimes ergotin acts as a diaphoretic and diuretic. Sometimes the therapeutic effects have not appeared with a large dose, and

only manifested themselves when it was reduced. Sometimes the calmative effect following the use of ergotin lasted as long as a month. Toselli used the drug in thirty cases and found the most benefit from it in paralytic insanity, in chronic mania, and in dementia accompanied by agitation, insomnia, hallucination of the senses, especially when these symptoms accompany melancholia and hypochondria. He does not pretend to have cured any case of insanity with ergotin, though he thinks it may arrest the course of general paralysis.

W. W. IRELAND.

The Spinal Ganglia and Spinal Cord of the Petromyzon.

By S. FREUD. (*Sitzber. d. K. Acad. d. Wissensch. Wien. Bd. 78.*)—

The spinal ganglia of Petromyzon and Amocoetes are, on account of their simplicity and the small number of their elements, well adapted for study in comparison with those of higher animals, and many questions of importance may thus receive a definite solution. A part of the posterior roots—about two-thirds—remains unconnected with ganglion cells. The ganglion cells are bipolar; an appearance of tripolar cells is caused by the splitting of one of the processes in some cases. Divisions of the fibres are not common. Spinal ganglia and posterior cornu form a connected whole in reference to the posterior roots. Such fibres as are clearly connected with cells in the spinal ganglia, in all probability do not enter cells in the posterior cornua, and *vice versa*.

The spinal pia mater—in gold preparations—exhibits a delicate network of varicose nerve-fibres, which do not seem to have any relation to the blood-vessels.

Proliferations of the Ependyma Ventriculorum. T. WEISS.

(*Wiener Med. Jahrbücher*, 1878.)—The Ependyma is composed first of a layer of epithelial cells which everywhere in all the ventricles, and also in adult life, are furnished with cilia. Underneath the epithelial layer there is a layer of closely interwoven connective tissue, with comparatively few, but still very distinct cells with numerous processes. The deep boundary of the ependyma is marked by vessels which run parallel with the ventricular surface. Proliferations of the ependyma and hydrocephalic effusions into the ventricles do not always go together. The excrescences are developed out of the primitive connective tissue corpuscles. First roundish cells without processes appear, which afterwards throw out processes, and thus become the knots of a