

## Periscope.

### a.—ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.

THE TERMINATIONS OF THE NERVES IN THE STRIATED MUSCLES OF VERTEBRATES.—E. Fischer, *Centralbl. f. d. Med. Wissensch.*, No. 20, in a preliminary communication, gives the results of investigations made by himself in the laboratory of Prof. Kollmann, on all classes of the vertebrates, by means of the gold method discovered by Loewit (*Sitzungsber. d. Wien. Akad.* LXXXI, Abth. I. s. 1).

He finds that in the three first classes of vertebrates (mammals, birds and reptiles), the motor nerves invariably end in a terminal plate. In the amphibia, he found the terminal system of fibres described by Kuehne, and after him, by many other authors; in fishes, he was, unfortunately, unable to come to any perfectly certain conclusions as regards the nervous terminations. As to the structure of the terminal plate, he confirms Kuehne's view, that the special terminal plate, *i. e.*, the outer homogeneous part of the nerve mass, is formed of a ramified extension of the axis cylinder. The terminal fibres formed by the division of the axis cylinder end, as W. Krause has already shown, in variously shaped enlargements, and do not continue in finer ramifications into the muscular substance. The fibres also that form the terminal motor extensions in frogs, according to the methods of Loewit, Cohnheim and Gerlach alike, always exhibit free ends and never terminate in finer processes. Hence Fischer denies the existence of any intravaginal, nervous net work in the striated fibres of vertebrates, and he thinks that Gerlach must have confounded the elements of contractile substance, which are similarly stained by gold, and which in other respects, sometimes resemble nervous tissue, with nerve fibres.

The comparison of the facts regarding the nerve terminations in the first four classes of vertebrates with each other, and with certain known data in regard to the same in the invertebrata, gave, as a general law of motor nerve terminations, that it is by an enlargement or dilatation of the axis cylinder that it communicates with the contractile substance, and second, that the terminal expansions of the motor nerves in the higher vertebrates consist only in a combination of these simple dilatations of the fibres.

As regards the nerve terminations in the heart, Fischer only found the presence of reticulated fibres in the heart of the dog (ventricles), which as observed always laid between the muscular fibres. Any penetra-

tion into these latter could not be definitely proved, and on this account, and also because no other kind of terminal arrangement could be discovered, he thinks that this nervous net-work in the heart may have the signification of a terminal net-work.

A fuller report of these investigations is promised to appear in *Schultze's Archiv. f. mikr. Anatomie*.

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Dr. Aug. Ewald, *Pfueger's Archiv*. XII, 11 and 12, has also investigated the subject, making very careful histological examinations with various methods, the gold preparations, osmic acid, etc, and comes to the conclusion that the theory of Gerlach as to the continuity of the nerve and muscle substance, is untenable and that the terminal plate represents the actual termination of the nerve fibre in the striated muscle. He maintains also, the theory is unsupportable on physiological grounds, and he expresses surprise that Gerlach, who speculates in his paper on its physiological bearings, should have paid no attention to the proofs of this, by experimental investigations.

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DISTRIBUTION OF THE NERVES IN THE CUTICLE.—Dr. Ditlefsen contributes the result of his observations upon the skin of the frog, from which it appears that bundles of nerve fibres ascend directly to the very base of the horny layer, where they sub-divide, and are distributed to ramify singly among its cells, and to reach even the free outer-surface of the skin. *Centralbl. f. d. Med. Wissensch. (Boston Med. and Surg. Journal)*.

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DURATION OF THE MUSCULAR CONTRACTILITY AND THE NERVOUS EXCITABILITY AFTER DEATH BY ANÆSTHETICS.—M. Petit communicated to the Soc. de Biologie, at its session of Feb. 12 (rep. in *Gaz. des Hôpitaux*, No. 20), the results of some experiments he had undertaken on this subject, in the laboratory of Prof. Vulpian. From these, it appeared that the nervous excitability and muscular contractility persist longer after death caused by anæsthetics (sub-cutaneous or intra-venous injections of chloral, ether or chloroform), than after death by arrest of the heart or hemorrhage. There is a complete analogy between these facts which we observe after death by anæsthetics, and those observed after death from carbonic oxide.

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THE THERMIC INFLUENCE OF THE CEREBRAL HEMISPHERES.—Eulenberg and Landois in a preliminary communication, *Centralbl. f. d. med. Wissensch.* No. 15, report the results of experiments on the vaso-motor apparatus of the cerebral cortex. The temperature measurements were made with a thermo-electric apparatus for the most part; the brain was irritated, in some experiments, by cauterization with a heated copper wire, in others, by an induction current, the animals being for the most part curarized and artificial respiration maintained. The apparent results are given as follows: