NEURO-ANATOMY AND NEUROPHYSIOLOGY.

[83] Some observations on the innervation of skeletal muscle in the cat.—

This is a record of a carefully planned anatomical research into the question of the innervation of skeletal muscle, with separation of the three components, motor, sensory, and sympathetic respectively. The value of the paper is increased by its highly useful summary of the work of other histologists. Since much depends for theories of muscle tonus on the anatomical constituents of skeletal muscle an investigation of this kind is significant.

Each component was isolated by degeneration, and studied in pyridine-silver preparations of the degenerated muscles.

1. In regard to the ventral root component of the quadriceps, the motor end-plates are supplied by myelinated fibres in most instances. Some have been seen, however, which have been supplied by unmyelinated motor fibres. Somatic motor innervation to the intrafusal muscle fibres has been observed.

2. As for the dorsal root component of the same muscle, both myelinated and unmyelinated sensory fibres have been seen in the nerve to the muscle. The receptors of muscle have been observed—muscle spindles, tendon spindles, paccinian corpuscles, and endings of small myelinated and unmyelinated fibres.

3. The sympathetic component was examined in the small muscle of the hind foot of the cat. Unmyelinated sympathetic fibres and endings have been seen in vascular plexuses. No unmyelinated sympathetic fibres have been discovered ending hypolemmally in the small muscles of the foot. A careful study of his material leads the author to state that it would be quite possible to mistake various types of normal and regenerating somatic fibres for sympathetic nerve fibres.

Thus, after a thorough investigation the author reports a negative finding for the alleged sympathetic component, and in this respect his results contradict those of Boeke and others and are in accord with those of Cajal, Woolard, and others.