

Differentiation of tonic from phasic extensor motoneurons by post-tetanic potentiation. By R. GRANIT, H.-D. HENATSCH and G. STEG. *Nobel Institute for Neurophysiology, Karolinska Institutet, Stockholm 60, Sweden*

In decerebrate and de-efferented cats standard 10 mm stretch reflexes from the ankle extensors have been facilitated by post-tetanic potentiation, and the total number of spikes measured in 100 samples of isolated ventral root fibres (as in Granit, 1956). Two main categories, brief phasic and long-lasting tonic reflexes (Fig. 1), were obtained and, when both were present in the same filament (see fig.), the phasic one tended to be the larger spike of the pair. Increase of extensor tonus by decortication of the anterior lobe of the cerebellum failed to make the phasic discharge tonic but lengthened the duration of the tonic one.

The tonic γ activity labelling and operating ventral horn cells by post-tetanic potentiation over the spindle loop afferents (Granit, 1956) is thus

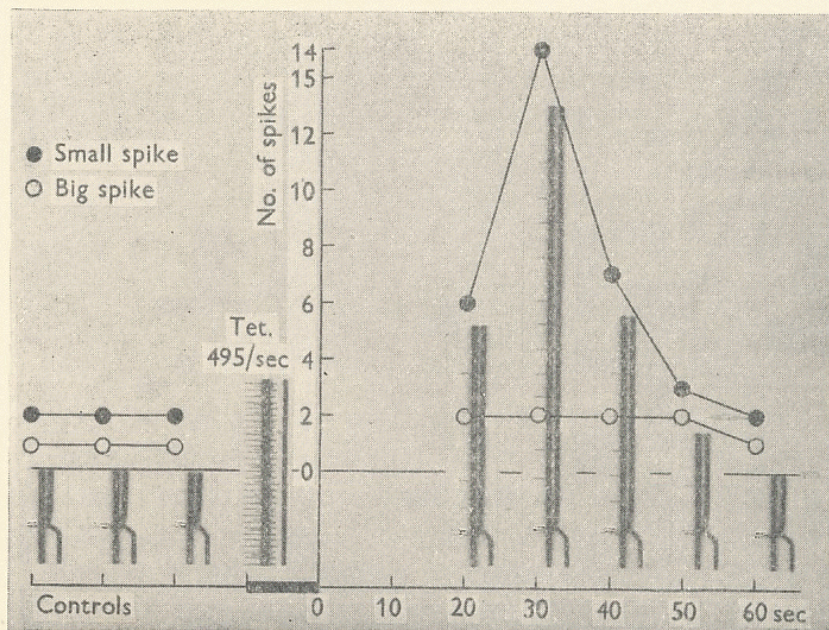


Fig. 1. Graph of stretch reflex (gastrocnemius) represented by small and large spike in ventral root filament. Discharge before post-tetanic potentiation (left), followed by 10 sec tetanus (1 sec illustrated) and potentiated response (right). Original records inserted.

mainly directed towards special tonic α ventral horn cells. Judging by spike size the tonic cells are likely to be smaller than the phasic ones. (To be published in *Acta physiol. scand.*)

REFERENCE

Granit, R. (1956). *J. Physiol.* 131, 32-51.