

The normal neurone, whether motor or sensory, or whether constituting the higher mental centres, to function properly, requires the presence of the following four requisites: (1) stimulation, (2) nourishment, (3) controlling influence, and (4) continuity.

(1) *Nourishment*, of course, is easily understood.

(2) *Stimulation*. By stimulation I mean that impulses must pass from one neurone to another, more or less constantly. In the lowest types of animal life the nervous system is made up of more or less separate and independent units. Stimulation is not so much a factor here, but the higher we go in the scale, the more necessary is stimulation. In man it is absolutely necessary. Changes in the cell body, the result of loss of stimulation were first described by Van Gehutchten, when he ligatured the posterior roots of the spinal cord in monkeys. Within a very limited time, chromolithic changes could be detected in the cell bodies of the anterior horns. Another example is a case of tabes, where the posterior roots are diseased. The anterior horn cells on account of want of the usual stimulation coming through the posterior roots, show certain changes, and this is expressed clinically, by loss of tone in the muscles supplied by the anterior horn cells, and is the cause to a great extent of the loss of the knee jerk in tabetic cases. The same changes can be demonstrated in the cells of the cerebral cortex, when a centre is not called into use, in other words, not stimulated. That particular centre shows defects which, if long continued, may render it more or less useless.

(3) *Controlling Influence*. A neurone to be healthy must be under controlling influence, so that the normal amount of power is allowed to be given out; without this too much may be expended when unnecessary. As an instance to show the controlling influence of a neurone, let us take, for example, a hæmorrhage into the internal capsule destroying the upper motor neurone in that situation. What happens? The extremities of the patient become paretic, also markedly spastic, the latter being an expression of increased tone. The knee jerks are exaggerated, the muscles hypertrophy. This points out that the upper motor neurone regulates and controls the trophic influence of the lower neurone, and, as above stated, when the upper neurone is destroyed we get hypertrophy of the muscles, spastic and paretic conditions, with increased reflexes.

Now, let us take an example showing the controlling influence of the neurones of our higher mental centres. We all know that persons with well balanced minds will enjoy "bon mots," and clever anecdotes with heartiness and laughter, but within the confines of moderation; or, if