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Single-Fibre Response from an Intact Animal

IT is rather difficult to obtain electrical records of the activity of a single nerve fibre, because there are usually present some hundreds of other nerve fibres the contribution of which must be eliminated, and because the shunting of the active fibre by inert tissues or tissue fluid reduces the available action potential to vanishing proportions. It is therefore essential in most cases that the recorded fibre be fairly well isolated both physiologically and electrically, and we are not aware that any records have hitherto been published showing single fibre responses obtained from an animal which has not been dissected nor operated upon in any way.

The median giant fibre in the nerve cord of the common earthworm, *Lumbricus terrestris* L., is especially favourable for such a record, for it may be physiologically isolated from other structures and it has such a large cross-section area that a fair amount of shunting may be tolerated[1].

If a normal lively worm is used the nerve activity is accompanied by muscular action which complicates the record, but if the worm lies in a glass tube just large enough to contain it, it remains quiescent and the record is fairly simple. The nerve is stimulated by a shock applied to the anterior end of the worm, and the record is obtained from leads passing through the glass tube and making contact with the worm's body in the middle region. These leads connect through a balanced amplifier to a cathode ray tube with time base synchronized with the nerve stimulus.

The first record shows the effect of a just threshold stimulus ; the least diminution of stimulus gives the