the axis-cylinder and the sheath and extending for some distance on either side of the node (Fig. 37). It may even happen, though rarely, that the part of the fibre in the immediate neighbourhood of a node gives no evidence of the presence of potassium, but further down the fibre is a granular precipitate of it (Fig. 36 a)<sup>1</sup>.

That even at the node the axon, though completely surrounded by, or immediately in contact with, potassimm-holding material, is free from traces of the element may be clearly demonstrated by carefully pressing the cover-glass down on the preparation so as to bring into view the part of the axon covered or surrounded by the potassium-holding ring. Also in the course of teasing out the fibres, after they have been treated with the reagent, it happens now and then that the sheath is torn away at the node, where, in consequence, the potassium-holding material is displaced sufficiently to expose the underlying reactionless axon.

The marked and constant potassium reaction at the nodes indicates that there is at these points an unusual distribution of inorganic compounds. Potassium salts, as already pointed out, are not confined to the nodes, being at other points distributed in the sheath and between it and the axon, but it is characteristic of the nodes to display an abundance of material which reacts orange-yellow with the hexanitrite reagent. The potassium present is, in large part, perhaps united with chlorine, for I believe that the silver reaction, as employed by Ranvier and others to demonstrate the nodes, is due to the formation of chloride of silver which undergoes its characteristic change under the action of light. The view usually accepted is that there is some organic material in the nodes which also fixes the silver nitrate in itself and which reduces the latter in sunlight. This cannot be readily accepted for the reaction is, as I observed it in the frog, often of a minute granular character, and in some cases also the node itself gave no reaction while one was obtained on either side of it for some distance along the axon, The confinement of the reaction to the nodes and their immediate neighbourhood is not evidence that chlorides are not present elsewhere in the fibres, for the reagent does not penetrate them very readily, except at the nodes and, of course, here the chloride precipitate, once formed, would be a barrier to further penetration. If, however, the reagent contains free nitric acid its penetrating power is increased somewhat and then one may sometimes see, both in the sheath and between it and the axon in some fibres, minute granules distributed

<sup>1</sup> So far as my observatious go, nerve preparations from summer frogs do not contain as much potassium as those from the winter frog show.