ganglion, one cannot be sure that there are distinct granules in the cell, but the chromatic substance is responsible for its optical appearance, for the periphery of the cell is homogeneous, and does not resemble the central parts where we usually find the granules. The cone of origin, and the layer around the nucleus, described by v. Lenhossek as free of granules, are also homogeneous.

For observing fresh nerve cells I used the retina, because one can examine nerve cells in this organ more easily and more quickly than in any other place, and because the retina is transparent, and does not need to be crushed or removed from its normal medium for examination. The eye was generally excised immediately after death, but it was often half an hour before it was opened and the retina placed in some vitreous humour. It was laid on the slide with its nerve-fibre layer uppermost, and a cover slip placed upon it. Observing such a preparation, one can frequently detect absolutely no structure in the retina, other than the blood corpuscles in the vessels, even with the best lenses. After a few minutes, the rods and cones come into view, and then, after a considerable time (sometimes an hour) the outlines of the ganglion cells appear, but for a longer time the cells themselves are homogeneous. Eventually the nuclei of these cells become visible, and still later the cytoplasm becomes turbid.

One might quite as properly contend that the retina did not exist in life except as a homogeneous substance, and that the cells were precipitated in dying or by the fixing reagent, as that because the Nissl granules are not seen in a fresh condition, they are not formed elements of the cell. We have seen that the granules are not soluble in alkalies, so that argument of Held's on the present point is valueless.

Since it might be argued that it was one of the properties of the retina to be transparent the cells of the cord and cortex of young animals also were examined. These were killed by decapitation, the skull or vertebræ opened and a small piece of tissue taken and put in a drop of methylene blue. A cover was placed on the preparation and gently pressed till the latter was transparent enough for observation. The cells were found to have a granular appearance, resembling what would be found if the tissue had been fixed, embedded and stained with toluidin blue, and this within two minutes of death.

Held lays stress on the fact that different fixing agents produce a different form of granule. It is well known that different fixing fluids

83 Turner using methylene blue on fresh brain has observed the normal appearance of the cells shortly after death, ; Brain, part I, page 100, 1899, also Journal of Mental Science, 1898.