alkalies should remove the granules, leaving vacuoles, but not the nucleolus or the oxyphile nuclear substance which are related substances.

The slight degree of alkalinity necessary to alter the granules suggested that the blood, which is really more alkaline than some of the solutions used, might act in a similar way. This was tried and found to be the case. After loose sections of a spinal ganglion that had been fixed in alcohol had been in fresh defibrinated ox-blood for twenty hours, the granules were altered in the same way as if they had been in potash or soda solutions for the same time. We thus find that the granules, as they occur in the cells after fixation, are altered by the animal's own blood.

Eve observed that salt solutions had little action on the granules, but Bühler found the granules were soluble in physiological salt solution in twenty-four hours, leaving vacuoles in the cell. My results coincide with those of Eve, for when fresh spinal cord and ganglia were left in salt solutions for as long as three days at room-temperature the substance of the Nissl granules was still present. The cells contained vacuoles, forcing the granules into distorted shapes, but the substance stained normally with toluidin blue, and contained iron. In one case, after material had been in the salt solution for three days, the granules were so altered that they would not stain with toluidin blue. On examination the salt solution used was found to be distinctly alkaline, but in all cases where neutral salt solution was used the substance of the granules was not removed.

Leaving fresh material in distilled water for five days at the temperature of the room does not alter the staining powers of this substance, although the cell may contain vacuoles. Hardening material, however, by putting it into boiling water, has an action on nerve cells somewhat similar to the action of dilute alkalies. If the boiling has been continued long enough the granules will not stain with basic dyes and the iron cannot be detected in them with the acid alcohol method. The distribution of phosphorus is, however, normal throughout the cell.

Held failed to obtain a Millon reaction in the granules. A Millon reaction may, however, be obtained throughout the cell body, the nucleolus and oxyphile nuclear substance, if sections of material fixed in alcohol are left in freshly prepared Millon reagent for several hours at room temperature.

Besides the granules, the nerve cells frequently contain a yellowish