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described before, nor have I noticed any difference in the staining power of the nuclear membrane next the micro-centre, although I have observed many of the different conditions of the cell with respect to the distribution of the granules described by Holmgren. Thus, after the chromatin has once diffused from the nucleus, nothing occurs, in my opinion, to indicate the renewal of the granular substance from that organ. I do not deny that such renewal may take place, but if it does, it is in solution and not in formed masses. Further investigation, however, is necessary to decide this point.

Concerning the reason for the diffusion of the chromatin from the nucleus, it may be to aid physiological action, for it is a general rule, which no physiologist would now deny, that an iron-holding nucleo-proteid is necessary for the cell to carry on its normal function. These compounds are generally confined to the nucleus, but they occur in the cell body of all gland cells. It seems to me that it would aid physiological action in having these nuclein compounds in direct contact with the cytoplasm of the nerve cells, for in this case the cytoplasmic action would not be delayed by immediate participation of the nucleus. Thus cytoplasmic impulses may pass from one process of the cell into another without going through the nucleus, which could not happen if the chromatin had remained in the latter.

V.—CONCLUSIONS.

The Nissl granules are of a nucleo-proteid nature, since they contain "masked" iron and organic phosphorus, and are derived from the nuclear chromatin of the germinating cells. Pepsin and hydrochloric acid do not dissolve them, nor are they dissolved by alkalies or acids which, however, liberate the iron, and in consequence of this their staining reactions are altered. Digestion with pepsin and hydrochloric acid does not affect the occurrence of iron and phosphorus in the granules.

The nucleolus consists of an oxyphile centre with a basophile covering. The basophile covering seems to correspond to the original kinetic chromatin of the germinating cell. It contains iron and phosphorus, and alkalies extract the iron very much more slowly from it than they do from the Nissl granules.

The oxyphile nuclear substance is also a nuclein compound since it contains iron and phosphorus. It is readily dissolved in pepsin and