

ordinary reactions in six hours, but the nucleolus of the nerve cell and the nuclei of the neuroglia cells manifested their ordinary reactions, although more diffusely, at the end of the six days.

On digestion of material which had been fixed in alcohol there was no appreciable effect on the nuclein compounds until a stage of which Figs. 19 and 21 are representations. In the stage illustrated in Figure 21, which is from the cord of an embryo of 32mm., all the oxyphile nuclear substance digests as in the adult, but in stages before this one, there is always some substance which does not disappear on digestion. After digestion the periphery of the nucleolus always remains. In this respect as well as in all its other reactions it resembles the chromatin found in primitive nerve cells.

In order to facilitate reference to the different stages through which the chromatic substance passes in getting into the cytoplasm of the nerve cell I shall adopt the example of His and divide the process (arbitrarily) into different stages.

Stage 1. Germinating cells (Figs. 12, 13, and 14), stages 1, 2, and 3 of His. The chromatin is confined to the nucleus and is in mitosis. Weak alkalies alter this substance very slowly. Digestion dissolves the cell body but does not alter the staining power of the chromatin.

Stage 2. Neuroblast stage (Fig. 15), stage 5 of His. The chromatin is confined to the nucleus but is broken into masses. A nuclear membrane has been formed and the greater portion of the chromatin is distributed around the membrane. Alkalies and digestive fluids have little or no power to alter the reactions of this substance.

Stage 3. (Figs. 16, 17, 18, 19 and 20), stage 4 of His. Some of the kinetic chromatin is transformed into two other kinds, an oxyphile and a basophile. As the chromatin alters, the basophile part diffuses into the cytoplasm but the oxyphile substance remains in the nucleus. Most of the chromatin alters at the same rate but there may still be masses in the nucleus with marked affinity for basic stains. Alkalies have an altering action on the diffused-out chromatin in extracting the iron from its substance, thus changing its staining reactions. Digestive fluids affect the nucleus but still leave the basophile parts behind.

Stage 4. (Fig. 21). The transformation of the kinetic chromatin into the oxyphile and basophile kinds is now completed and the diffused basophile part fills the whole cell body. Alkalies alter the chromatin, especially the diffused part. Digestion dissolves the oxyphile substance