

responding to stage 2, given above for mammalian development. Compare Fig. 15, which is the nerve cell of an 11mm. pig, with Fig. 5, which is the motor nerve cell of an adult *Necturus*, fixed in the same fluid and stained with the same dyes. Besides the staining reactions the effect of alkalis or of digestive fluids is practically the same in both cases.

Levi⁸¹ has examined the nerve cells of different types of Vertebrata (*Vespertilio*, *Cavia*, *Canis*, *Bos*, *Testudo*, *Zamenis*, *Rana*, *Triton*, *Proteus*, *Spelerpes*, *Tinca*, *Raja*, *Scyllium*, and *Petromyzon*), and has noticed the peculiar nature of the nucleus in the cells of the Urodela. He offered no explanation of the peculiarities of these cells, nor did he draw any conclusion about the nature of the substance in the cytoplasm of other forms.

A comparison of nerve cells of larval *Amblystomata* with those of the adult form shows them to be exactly similar. There is no transformation, except to a slight degree, of the chromatin into an oxyphile and a basophile part. I have noticed that those cells of the adult that had a little basophile substance in the cell body also had some oxyphile substance in the nucleus.

There are other forms that have not yet reached the adult or mammalian degree of differentiation. Thus in *Limax* and *Limnaea* (and from the descriptions of Pflücke and McClure, in all Gasteropods) the cells have stopped developing at a stage between 3 and 4 of the mammalian development. There is a quantity of iron and phosphorus-holding substance in the body of the nerve cell, but the nuclear chromatin is peculiar. It is not affected by digestive fluids, it stains green with the Ehrlich-Biondi stain, it stains with safranin, and is generally purplish with eosin and toluidin blue, although, by long action of eosin and short action of toluidin blue, it may be quite red.

Other forms (earthworm and crayfish) were also noticed to vary slightly from the mammalian type. I believe that if the nerve cells of all adult animals were examined, one would find a complete series in the diffusion of the chromatic substance to the cytoplasm.

81 Levi, G., "Su alcune particolarità di struttura del nucleo delle cellule nervose," *Rivista di patologia nervosa e mentale*, Vol. I, p. 141, 1896.

Also: "Ricerche citologiche comparate sulla cellula nervosa dei Vertebrati," *Ibid.*, Vol. II, pp. 103 and 244, 1897.

(Both papers inaccessible, quoted from the *Zoologischer Jahresbericht* for 1896 and 1897.)