

3

ON THE STRUCTURE, MICRO-CHEMISTRY AND DEVELOPMENT OF NERVE CELLS, WITH SPECIAL REFERENCE TO THEIR NUCLEIN COMPOUNDS*

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The finer structure of the nerve cell has attracted a great deal of attention in the last few years, chiefly because the cell body contains masses that have a peculiar affinity for certain nuclear stains. These masses were first observed in 1882 by Flemming,¹ who was not certain whether they were nodular thickenings of the ordinary protoplasmic fibrillæ or independent structures. His preparations, however, were, for the most part, from material that had been fixed in chromic or osmic acid, and stained in hæmatoxylin or carmine, and for this reason the bodies in question did not exhibit any distinctive staining properties. It was reserved for Nissl² who examined the cells of the cerebral cortex of mammals after fixation in alcohol and staining in basic aniline dyes, to show that these bodies stain differently from the remainder of the cell protoplasm, and in fact resemble in this respect the large nucleolus. For this reason these structures are commonly called Nissl granules or "Schollen." Some observers have employed other names, such as tigroid bodies, chromophile corpuscles, basophile or basic substance, cytoplasmic chromatin, etc.

The variable form exhibited by nerve cells from different sources with respect to these granules makes the selection of a suitable name based on morphological data difficult, but for the purposes of this memoir as

*A short account of some of the facts recorded here was given for me by Prof. Macallum before the Fourth International Physiological Congress, Cambridge, 1898, and the British Medical Association, Edinburgh, 1898. See Journal of Physiology, XXIII, supp. p. 33, and British Medical Journal, September 17th, 1898.

¹ Flemming, W., "Vom Bau der Spinalganglienzellen," Festgabe für J. Henle, p. 12, 1882.

Also: "Zellsubstanz, Kern und Zelltheilung," p. 41, 1882.

² Nissl, Fr., "Ueber die Untersuchungsmethoden der Grosshirnrinde," Tagebl. der Versammlung deutscher Naturforscher, Strasburg, p. 506, 1885.