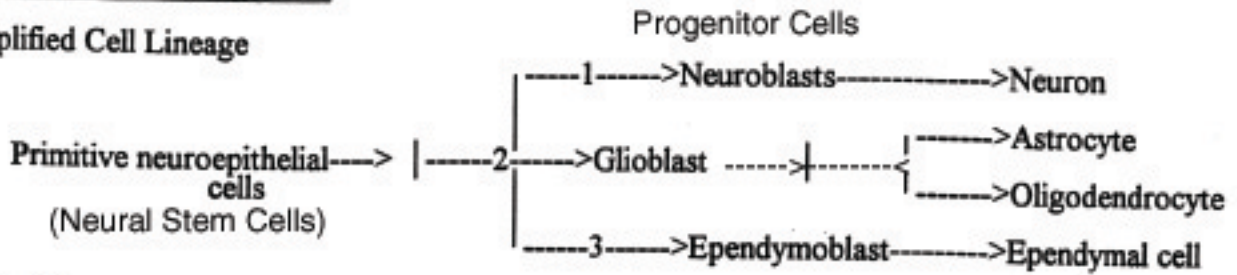


Derivatives of Neural Ectoderm

A Simplified Cell Lineage



Temporal Sequence

Generally, neurons (1) are produced before glia (2), large projection neurons before small local interneurons. When mitotic activity and migration ceases, the primitive neuroepithelial cells form a definitive ependyma (3), which lines the brain cavities (ventricles).

Neurogenesis (4 major events): A,B,C,D.

A. Proliferation—(Fig. 2) The nuclei of neuroepithelial cells synthesize DNA while externally placed within the matrix zone of the neural tube and while moving inward toward the ventricle. Mitosis occurs at the ventricular surface. Daughter cells either remain in the zone and repeat the mitotic process or migrate outward as young neurons.

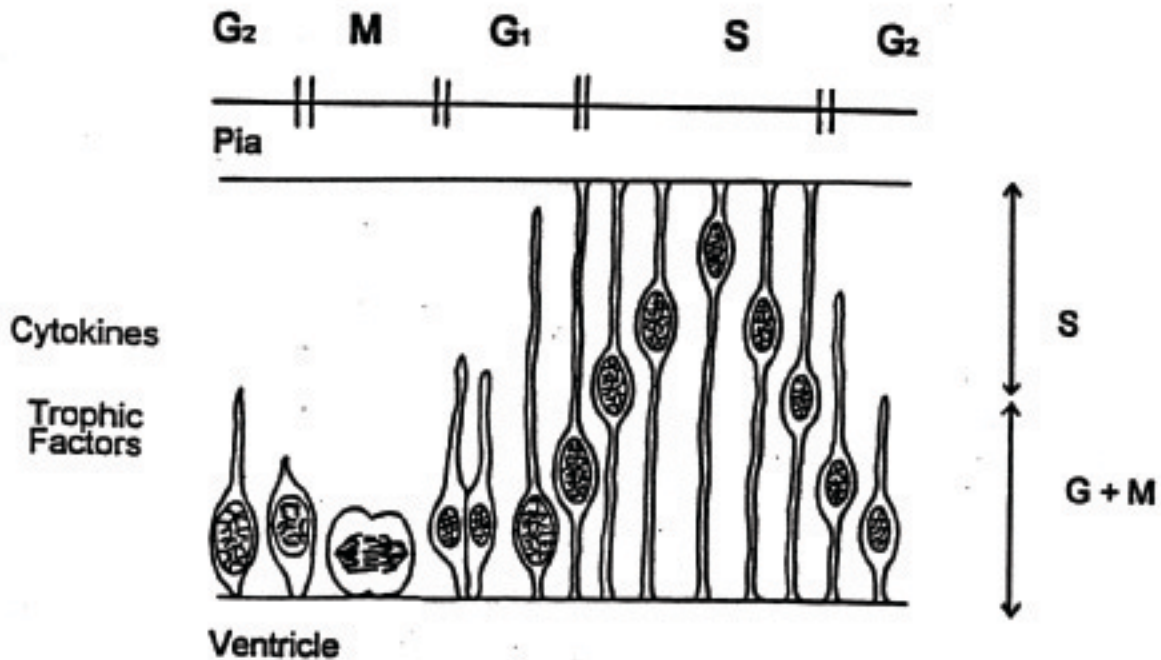


Fig. 2 Diagram of a section of neural tube of the chick embryo, showing the intermitotic migration of the nucleus of a single neuroepithelial germinal cell at approximately half-hour intervals throughout the mitotic cycle (Adapted from F. C. Sauer, *J. Comp. Neurol.* 62:377-405 [1935].)