

PERISCOPE

CAPILLARY REGENERATION.

In the revascularization of traumatized or inflammatory areas it is generally considered that the new capillaries are extensions from pre-existing adjacent vessels and that endothelial and perhaps other cells range themselves to constitute a tube. It would not be advisable in a periscope to enter into that question nor into the ingenious method of investigation, apparently of Russian origin, that has been followed by Goldner, but it is interesting to note his results.

After aseptic inflammation, traumatic or other, there appears a fundamental substance at first entirely structureless but soon showing fibrils which instead of being a mechanical outcome of the fundamental substance are invasions of fibrillar extensions from the ubiquitous reticulo-endothelial "system" and are active and viable. Goldner calls these "reticulin fibres," and says they grow and penetrate the fundamental substance. They create the itinerary of the capillary and guide its formation. The fibril has chemiotaxic properties apparently for the neighbouring cells and has some inherent elasticity. Soon after its formation it splits so as to form a lumen and this becomes the new capillary for whose direction of growth and orientation it is responsible. It at once acts as a drainage channel by imbibition of colloids and the conveyance of cells dead and alive. It governs the trophic state of the capillary and controls its tonus from its earliest indication to its full construction as a vessel. By its tendency to join itself to fibres of similar constitution it contracts union to pre-existing as well as to other new capillaries, thus making free anastomosis. It attracts endothelial cells and promotes their migration and differentiation.

The histiocyte, the future cell of the adventitia, originates the reticulin fibre and constitutes the perithelial lining of the tube and forms a membrane of diffusion between the circulating blood and trophic connective tissue, in fact the outer perithelial layer already functioning precedes the completion of the inner endothelial tube.

The formative endothelial cell above referred to may originate from a fibroblast or a monocyte which may assume under certain conditions prospective potentialities.

J. GOLDNER, "Sur la néoformation des capillaires dans les tissus inflammatoires" (*Ann. d'anat. pathol. et d'anat. normale médico-chir.*, Paris, 1934, xl., 461).