

fibres produced by the deposit of extended layers around nuclei, or by the prolongation of these (nuclear fibres).*

2. *Development of cells in the exuded plasma of capillary vessels.*

1ST. MODE OF CELL-FORMATION.

The coagulable liquid which exudes from the blood-vessels is called cytoblastema, and in it are formed the above mentioned elements of the tissues in the following manner:

At first nuclei originate, which are spheroid, oval, or pointed at two extremities, sometimes clavate, from one of the latter being rounded. They are of very variable diameter, are soluble in caustic potassa, but ordinary not in acetic acid. The majority, but not all, contain several—usually two or four, rarely none—shining granules, resembling fat globules, from the $\frac{1}{800}$ to the $\frac{1}{500}$ of a millimetre in diameter. These latter are the nucleoli, and they probably precede the nuclei in their origin, for I have frequently observed them as the first visible form in exuded cytoblastema, but have not seen their relative course of origin directly.

In the formation of pus-corpuscles, the so-called nuclei of which I view as nucleoli, this appears most distinctly to be the case, for the latter appear in the plastic liquid shortly before the occurrence of the pus-corpuscles. A like instance is presented in the formation of epithelial-nuclei (mucus-corpuscles) in the mucus of catarrh. At a later period, the nucleoli become blended with the nucleus, and then are no longer visible; thus, this appears distinctly to be the case in formation of epithelial cells upon blistered surfaces.

At the next step of cell formation around the nucleus, a layer of matter accumulates, soluble in acetic acid, at least always in the beginning, the outer part of which is converted into a cell wall: while the inner portion constitutes the cell contents, inclosing the nucleus; the latter, not unfrequently several in number, generally lies eccentrically within the cell, but sometimes in the center.

Frequently, new nuclei form in cells, which previously have but one, and around them new cells. In many cases the cell-wall forms only a half circuit or partial layer, around the nucleus; or, as observed by Schleiden to be the case in plants, the cell-wall lies upon the nucleus in the relative position of a watch crystal to its dial.

Cells appear rarely to increase by division in the animal, as is so commonly the case in cryptogamous plants; and an

* Frequently, the simple nuclear fibres become fused together at their extremities, and form in this manner longer and knotted fibres.