

The attempt to delineate the structure of the framework has led to very discrepant results, the most important of which may be briefly summarized.

(1) *Reticular Structure.* In 1864-1867 Frommann and Arnold demonstrated in a variety of cells—both animal and vegetable—the existence of a network-like structure. To name those who have described this reticulum would be to give a list of many of the most illustrious histologists.

(2) *Fibrillar Structure.* Not very different is the view, which we may particularly associate with the name of Flemming, that the structure is not so much a network as a complex coil of tangled fibrils.

(3) *Granular Structure.* There are a few histologists who agree with Altmann (1886) that the cell-substance consists of a homogeneous gelatinous matrix in which granules are embedded, the granules being the important vital units, bearing to the matrix the same sort of relation that bacteria bear to the gelatinous stuff or zooglœa in which they lie.

(4) *Emulsion Structure.* Various critics, such as Kölliker, Berthold, Fr. Schwarz, have from time to time suggested that the reticular or fibrillar structure was either a post-mortem appearance, or was simply the optical expression of a really simpler structure like that of an emulsion. This view must be especially associated with the name of Bütschli, who has tried ingenious experiments in the making of "artificial cells" from drops of fine emulsion, and has shown the close resemblance between their structure and that of cells. Bütschli's interpretation of cell-structure has been received with much favour, yet a safer position is perhaps that of those who doubt whether the structure of cells is likely to be uniform. Thus Frommann, in one of his last papers, maintained that some cells seem vacuolar, that others look as if they contained a broken-up network, but that in many a reticulum is, apart from all vacuoles, distinctly demonstrable. Wiesner, too, in a recent work suggests that the structure of protoplasm may be a network, or a framework of interwoven threads, or a vacuolar honey-comb—that it varies