living matter, revealed by the most powerful microscope aided by all the elaborate processes of staining, still appear to be endowed with the fundamental properties of life, such as irritability, contractility, and metabolism, *i.e.*, change in form and chemical constitution, the object of this line of research, viz., the investigation of the initial structure of the elements of living matter, can only be reached by indirect means or by conjecture. Structural chemistry and stereo-chemistry proceed by similar methods of investigation, and have succeeded by means of the atomic, molecular, and kinetic theories of matter in bringing order and unity into a very large portion of our knowledge of chemical combinations. The morphological or structural biologist pictures to himself very much more complicated arrangements of molecules than the carbon tetrahedron of van 't Hoff or the benzine ring of Kekulé, yet formed on similar principles; and by continuing in his mind these combinations which, as they become more complex, also become more unstable, he arrives ultimately at a very complex and continually changing chemical structure, which he imagines might be the beginning of the living process, the element of organisation. This conception, so far as I can find, was first introduced into biological literature by Herbert Spencer. He has termed this element of living matter "the physiological unit." The conception has been varied in endless ways by many subsequent biologists, all of whom have invented special names for these elementary units of life out of which they hope to put together the many observable protoplasmic and cellular tissues of the plant and animal