

which would be an impertinence, we cannot deny that it was long before their work led to any new general idea; all that can be said is that they revealed a new world of detail which both physiologist and embryologist had to take account of, and which in a few cases helped to deepen physiological and embryological understanding.

The first generalization of importance was within the nineteenth century, namely Bichat's analysis of the organism into a series of *tissues* with definite structural characters—nervous, muscular, connective, glandular, &c. We now define a tissue as an aggregate of more or less uniform cells or modifications of cells, but this definition implies a step of analysis beyond Bichat's. The step he took was really this—the anatomist had disclosed organs, such as heart and lungs; Bichat analysed these organs into their component tissues (muscular, connective, nervous, &c.), and also endeavoured to show that the function of the organ was expressible in terms of the properties of these tissues.

Very gradually, by numerous isolated observations, an approach was made towards laying that foundation-
The Cell-
theory. stone of modern biology which is usually spoken of as the cell-theory.

In 1838 Schleiden showed that plants were built up of cells and modifications of cells, and discovered the origin of the plant-embryo to be a single cell or ovum. In the following year Schwann extended these two observations to animals, and thus the "cell-theory" was formulated. "No other biological generalization," says Prof. Wilson, "save only the theory of organic evolution, has brought so many apparently diverse phenomena under a common point of view, or has accomplished more for the unification of knowledge."

The cell-doctrine in its full statement includes three propositions: the first morphological, the second embryological, the third physiological.

(1) *Morphological.* All organisms are either single corpuscles of living matter (the unicellular Protozoa, Protophytes, and Protists) or are built up of a large number of such corpuscles and modifications of these