

Mann, &c.) is surely a beginning of knowledge which promises much.

It must be confessed, however, that the physiological part of the cell-theory has not as yet justified itself to the extent that its founders evidently expected. In any case, the ultimate problem of physiology is *within* the cell, in the metabolism of the complex substances which compose it. Thus we reach what Prof. Foster has called "the protoplasmic movement", the concentration of research on the chemical changes of the complex substances which appear to form the physical basis of life. We shall return to this in the chapter on "Cell and Protoplasm".

Since pathology, or the science of deranged function, is strictly a department of physiology (which has to do with *all* vital functions), its history is naturally somewhat similar.

(1) In ancient days, diseases found theological or metaphysical interpretation, in terms of evil spirits, morbid entities, conflicting temperaments, and the like. There was, in other words, an attempt at a pathology of the entire organism, which must come last, not first.

(2) Some early workers, such as Aretæus of Cappadocia, in the time of Vespasian, or Galen in the second century, got their feet firmly planted on the solid ground of anatomy, and made great strides on the scientific path. But the overthrow of the Roman Empire and other great changes arrested progress in this, as in other departments of biological research, for about fifteen centuries.

In the scientific renaissance pathology shared: Diseases were traced to various regions of the body, *e.g.* head, chest, and abdomen. Morgagni (1682-1771) at Padua began the precise localizing of disease in organs. John Hunter founded what was practically the first pathological museum; and Andral (1797-1876) raised morbid anatomy to the level of an "interpreting science".

(3) So far, pathology had been based for the most part on the naked-eye morbid anatomy of organs, but the progress of anatomy and physiology soon made a