

## THE RIDDLE OF THE UNIVERSE

*Manual of Human Anatomy*, equally distinguished by a thorough empirical acquaintance with their immense multitudes of facts, and by a comprehensive control of his material, and its philosophic appreciation in the evolutionary sense. His recent *Comparative Anatomy of the Vertebrata* establishes the solid foundation on which our conviction of the vertebral character of man in every aspect is chiefly based.

Microscopic anatomy has been developed, in the course of the present century, in a very different fashion from comparative anatomy. At the beginning of the century (1802) a French physician, Bichat, made an attempt to dissect the organs of the human body into their finer constituents by the aid of the microscope, and to show the connection of these various *tissues* (*hista*, or *tela*). This first attempt led to little result, because the scientist was ignorant of the one common element of all the different tissues. This was first discovered (1838) in the shape of the *cell*, in the plant world, by Matthias Schleiden, and immediately afterwards proved to be the same in the animal world by Theodor Schwann, the pupil and assistant of Johannes Müller at Berlin. Two other distinguished pupils of this great master, who are still living, Albert Kölliker and Rudolph Virchow, took up the cellular theory, and the theory of tissues which is founded on it, in the sixties, and applied them to the human organism in all its details, both in health and disease; they proved that, in man and all other animals, every tissue is made up of the same microscopic particles, the *cells*, and these "elementary organisms" are the real, self-active citizens which, in combinations of millions, constitute the "cellular state," our body. All these cells spring from one simple cell, the *cytula*, or im-