field of curious and interesting inquiry, and furnishing abundant evidence of the wise and beneficent operations of nature. These may be comprehended under a separate class bearing the general title of *Nutritive Functions*. They are often, also, spoken of under the designation of the *Vital Functions*, from their more immediate relation to the continuance of vitality; that is, of mere vegetative life, as distinguished from the exercise of the higher faculties of sensation, perception, and voluntary motion, which are the ultimate ends of animal existence, and which are emphatically termed the *Animal Functions*.

The vital as well as the animal functions require for the execution of their various objects certain instruments of an appropriate mechanical construction, adapted to those objects. To the contrivances of the mechanist must be added a refined hydraulic apparatus for the conveyance of fluids, and for the regulation of their movements; and with these must be conjoined the skilful combinations of the laboratory, by which the powers of the most subtle chemistry are exercised in effecting all the transmutations required by this elaborate system of operations. As far as they involve mechanical principles, these objects again arrange themselves under the mechanical functions; and I shall accordingly include them under that head, when giving an account of this branch of the subject.

There is another, and a most important consequence flowing from the peculiar chemical conditions of the materials of which animal structures are composed. The mode in which their elements are combined is so complex as to require a long and elaborate process to accomplish that combination; and neither the organs with which animals are furnished, nor the powers with which those organs are endowed, are adequate to the conversion of the materials furnished by the inorganic world into the substances required for the construction of their bodies, and the maintenance of their powers. These inorganic elements must have passed through the intermediate stages of combination, and must have been previously elaborated by other organized be-