

fect, are concerned merely with the natural powers of matter. They are the laws that regulate the succession of phenomena purely physical in all their stages. These phenomena consist in changes among material particles, which are either of a mechanical or chemical nature; or in the affections of imponderable physical agents, such as heat, light, electricity, and magnetism; and they include also the phenomena that take place in organized bodies, and which are referrible to the operation of certain physical powers, appertaining to particular structures, such as muscular contraction and nervous irritation; phenomena which, as we shall afterwards find, are not reducible to any of the former laws, but are peculiar to the living state. The second class of laws comprise those which are founded on the relation of means to an end; and which are usually denominated *final causes*. They involve the operations of mind, in conjunction with those of matter. They presuppose intention or design; a supposition which implies intelligence, thought, motives, volition,—particular purposes to be answered, requiring the agency of powers and of instruments adapted to the production of the intended effects:—the knowledge of the properties of matter, the selection and choice of particular means, and the power of employing them in an effective manner. These purposes may themselves be subservient to more general objects, and these objects again may be subordinate to remoter ends; so that the whole shall comprehend a systematic plan of operations, conducive, on the most enlarged views, to ultimate and general utility.

The study of these final causes is, in some measure, forced upon our attention by even the most superficial survey of nature. It is impossible not to recognise the character of intention, which is so indelibly impressed upon every part of the structure both of vegetable and animal beings, and which marks the whole series of phenomena connected with their history. Microscopic observations teach us that the embryo of an organic being contains, at a certain period of its formation, the rudiments of the future vegetable or animal struc-