

vast importance, and extending over so wide a field as that which lies before us, to examine with attention the nature of those processes of reasoning, by which we are conducted to the knowledge of the peculiar class of truths we are seeking. Such a preliminary inquiry is the more necessary, inasmuch as the investigation of these truths is beset with many formidable difficulties and liable to various sources of fallacy, which are not met with in the study of other departments of philosophy.

The proper objects of all human knowledge are the relations that exist among the phenomena of which the mind has cognizance. The phenomena of the universe may be viewed as connected with one another either by the relation of *cause* and *effect*, or by that of *means* and *end*; and, accordingly, these two classes of relations give rise to different kinds of knowledge, each of which requires to be investigated in a peculiar mode and by a different process of reasoning. The foundation of both these kinds of knowledge is, indeed, the same; namely, the constant uniformity which takes place in the succession of events, and which, when traced in particular classes of phenomena, constitutes what we metaphorically term the *Laws of Nature*. It is the province of philosophy, strictly so called, to discover the circumstances or laws which regulate this uniformity, and to arrange the observed changes according to their invariable antecedents, or *causes*: the unknown links by which these causes are connected with their respective consequents, or *effects*, being denominated the *powers of Nature*. With reference to phenomena which are purely mechanical, that is, to changes which consist in the sensible motions of material bodies, these powers are denominated *forces*; and the intensities, the operations, and the characters of these forces admit of exact definition, according to the qualities of the corresponding effects they produce. It is by pursuing the method of philosophical induction, so well explained by Bacon, that the physical sciences, which the misdirected efforts of former ages had failed to advance, have, within the last