

here to treat, are those which are commonly known as the *Physical Sciences*; and that by *Induction* is to be understood that process of collecting general truths from the examination of particular facts, by which such sciences have been formed.

There are, however, two or three remarks, of which the application will occur so frequently, and will tend so much to give us a clearer view of some of the subjects which occur in our history, that I will state them now in a brief and general manner.

*Facts and Ideas.*²—In the first place then, I remark, that, to the formation of science, two things are requisite;—Facts and Ideas; observation of Things without, and an inward effort of Thought; or, in other words, Sense and Reason. Neither of these elements, by itself, can constitute substantial general knowledge. The impressions of sense, unconnected by some rational and speculative principle, can only end in a practical acquaintance with individual objects; the operations of the rational faculties, on the other hand, if allowed to go on without a constant reference to external things, can lead only to empty abstraction and barren ingenuity. Real speculative knowledge demands the combination of the two ingredients;—right reason, and facts to reason upon. It has been well said, that true knowledge is the interpretation of nature; and therefore it requires both the interpreting mind, and nature for its subject; both the document, and the ingenuity to read it aright. Thus invention, acuteness, and connection of thought, are necessary on the one hand, for the progress of philosophical knowledge; and on the other hand, the precise and steady application of these faculties to facts well known and clearly conceived. It is easy to point out instances in which science has failed to advance, in consequence of the absence of one or other of these requisites; indeed, by far the greater part of the course of the world, the history of most times and most countries, exhibits a condition thus stationary with respect to knowledge. The facts, the impressions on the senses, on which the first successful attempts at physical knowledge proceeded, were as well known long before the time when they were thus turned to account, as at that period. The motions of the stars, and the effects of weight, were familiar to man before the rise of the Greek Astronomy and Mechanics: but the “diviner mind” was still absent; the act of thought had not been exerted, by which these facts were bound together under the form of laws and principles. And even at

² For the *Antithesis of Facts and Ideas*, see the *Philosophy*, book i. ch. 1, 2, 4, 5.