

CHAPTER I.

ON THE INDISTINCTNESS OF IDEAS OF THE MIDDLE AGES.

THAT firm and entire possession of certain clear and distinct general ideas which is necessary to sound science, was the character of the minds of those among the ancients who created the several sciences which arose among them. It was indispensable that such inventors should have a luminous and steadfast apprehension of certain general relations, such as those of space and number, order and cause; and should be able to apply these notions with perfect readiness and precision to special facts and cases. It is necessary that such scientific notions should be more definite and precise than those which common language conveys; and in this state of unusual clearness, they must be so familiar to the philosopher, that they are the language in which he thinks. The discoverer is thus led to doctrines which other men adopt and follow out, in proportion as they seize the fundamental ideas, and become acquainted with the leading facts. Thus Hipparchus, conceiving clearly the motions and combinations of motion which enter into his theory, saw that the relative lengths of the seasons were sufficient data for determining the form of the sun's orbit; thus Archimedes, possessing a steady notion of mechanical pressure, was able, not only to deduce the properties of the lever and of the centre of gravity, but also to see the truth of those principles respecting the distribution of pressure in fluids, on which the science of hydrostatics depends.

With the progress of such distinct ideas, the inductive sciences rise and flourish; with the decay and loss of such distinct ideas, these sciences become stationary, languid, and retrograde. When men merely repeat the terms of science, without attaching to them any clear conceptions;—when their apprehensions become vague and dim;—when they assent to scientific doctrines as a matter of tradition, rather than of conviction, on trust rather than on sight;—when science is considered as a collection of opinions, rather than a record of laws by which the universe is really governed;—it must inevitably happen, that men will lose their hold on the knowledge which the great discoverers who preceded them have brought to light. They are not able to push forwards the truths on which they lay so