

the mariner's compass, the reformed calendar, the decimal notation, algebra, trigonometry, chemistry, counterpoint, an invention equivalent to a new creation of music ;—these are all possessions which we inherit from that which has been so disparagingly termed the Stationary Period. Above all, let us look at the monuments of architecture of this period ;—the admiration and the despair of modern architects, not only for their beauty, but for the skill disclosed in their construction. With all these evidences before us, how can we avoid allowing that the masters of the middle ages not only made some small progress in Astronomy, which has, grudgingly as it would seem, been admitted in a former Book ; but also that they were no small proficient in other sciences, in Optics, in Harmonics, in Physics, and, above all, in Mechanics ?

If, it may be added, we are allowed, in the present day, to refer to the perfection of our arts as evidence of the advanced state of our physical philosophy ;—if our steam-engines, our gas-illumination, our buildings, our navigation, our manufactures, are cited as triumphs of science ;—shall not prior inventions, made under far heavier disadvantages,—shall not greater works, produced in an earlier state of knowledge, also be admitted as witnesses that the middle ages had their share, and that not a small or doubtful one, of science ?

To these questions I answer, by distinguishing between Art, and Science in that sense of general Inductive Systematic Truth, which it bears in this work. To separate and compare, with precision, these two processes, belongs to the Philosophy of Induction ; and the attempt must be reserved for another place : but the leading differences are sufficiently obvious. Art is practical, Science is speculative : the former is seen in doing ; the latter rests in the contemplation of what is known. The art of the builder appears in his edifice, though he may never have meditated on the abstract propositions on which its stability and strength depends. The Science of the mathematical mechanician consists in his seeing that, under certain conditions, bodies must sustain each other's pressure, though he may never have applied his knowledge in a single case.

Now the remark which I have to make is this :—in all cases the Arts are prior to the related Sciences. Art is the parent, not the progeny, of Science ; the realization of principles in practice forms part of the prelude, as well as of the sequel, of theoretical discovery. And thus the inventions of the middle ages, which have been above enumerated, though at the present day they may be portions of our sciences, are no evidence that the sciences then existed ; but only that