

in the one case, and of mensuration and architecture in the other.

The impossibility of arriving at exact data whilst retaining the comprehensive or synoptic view, makes it necessary to resort to the process of simplification. This is based on selection, analysis, and abstraction.

But though the process of abstraction or specialisation has long been recognised as the only fruitful one, it is extremely difficult to carry out in its purity.

It has long been seen that matter and motion constitute the fundamental principles in all physical occurrences, but the definition of these two terms has only been clearly and unambiguously given within the last few generations, and popular as well as philosophical writings, even within the last fifteen years, still labour not infrequently under a great confusion of thought.

Foremost natural philosophers like Galileo, Kepler, and Newton disengaged themselves to a great extent from the trammels which subjective experiences cast around the simple mathematically measurable data of motion and mass. Yet even Newton still retained the notion of force in stating his Laws of Motion. The term Force was meant no doubt originally to denote the effort which we have to put forth in creating motion, or the resistance that checks our voluntary or involuntary movements. It is still popularly considered to be something of quite a different order from the motion it produces or arrests. Only quite recently have the text-books of mechanics been thoroughly purged of this remnant of a purely internal principle. It is now seen to be sufficient to look for the