

master could bend ;” and the difficult questions of physics are now assailed by weapons of greater power\*. We must not however forget, that he was a great inventor in pure mathematics : and though he had not made a single optical experiment, nor taken a step in expounding the laws of the material world, he would still have had an exalted place in the philosophic history of man.

Of the theory of universal gravitation, in the form it has at length assumed, it is not too much to say, that it can be changed by no hand but that which first impressed on matter the laws whereby it continues to be governed. Should man be ever permitted to ascend to some higher universal law, binding together the phenomena of light, heat, magnetism, and all the other subtile agents of our system, still no part of the foundations of physical astronomy would be shaken; and the utmost change to be introduced into it would be a trifling modification of the mere language of some of its propositions.

In the following words (taken from the preface of the first edition of the *Principia*) Newton has recorded with great simplicity, his own method of arriving at philosophic truth. *Omnis philosophiæ difficultas in eo versari videtur, ut a phænomenis motuum investigemus vires naturæ, deinde ab his viribus demonstremus phænomena reliqua. Ex phænomenis igitur cælestibus, per propositiones mathematice demonstratas, derivantur vires Gravitatis, quibus corpora ad solem et planetas singulos tendunt: deinde, ex his viribus, per propositiones etiam mathematicas, deducuntur motus planetarum, cometarum, lunæ, et maris.*

\* *Discourse on the Study of Natural Philosophy, by Sir John Herschel, p. 273.*