mass—then that the unit of mass is chosen arbitrarily—and that when we say that the mass of any body is represented by a certain number, as n, we mean that the body might be divided into n parts, each having the same mass as that which has been assumed as the This definition of the mode of measuring mass is practically nnit. useful: but whose ideas were ever extended by being informed that the mass of a body is the quantity of matter which it contains? We may notice another illustration of the way in which the tendency to formal dogmatic definition has led M. Poisson and his followers into grievous difficulties. It is deemed necessary to define a state of motion-"A body," says Mr. Todhunter, translating Poisson, "is in motion when the body or its parts occupy successively different positions in space." And then, inasmuch as it would be somewhat hard to make this a working definition, the idea of relative motion is introduced in the following remarkable expressions: "but since space is infinite in extent, and *in every part identical*, (partout identique) we cannot judge of the state of rest or motion of a body without comparing it with other bodies, (or with ourselves M. Poisson adds) and for this reason all motions which come under our observation are necessarily relative motions." Now this complicated and objectionable sentence is rendered necessary entirely by the preceding formal definition of motion. Had this been omitted, we should have escaped the difficulty altogether. Thus Poinsot and Duhamel, granting us the privilege of understanding the meaning of the word 'motion,' proceed to explain the terms absolute and relative motion : shew that while we cannot be sure that any particle in the universe is really at rest, we may yet separate the idea of the motion of a particle from the idea of the material body itself; that we may conceive, that is, that a body might be absolutely as well as relatively at rest; and thus they come to the definition of force, or perhaps we had better say to the statement in a statical form of the principle of the inertia of matter, viz. that some cause must always be required to produce a motion in a body at rest, and that to such a cause we give the name of force.

And this will lead us to say a few words as to the grounds upon which theoretical mechanics are or ought to be based. Before we do so, however, we would most seriously protest against any imputation of quibbling or hair-splitting in making these objections to verbal definitions. Such defects are grievous hindrances to the usefulness of a book, as every one knows who has had experience in teaching. A tutor puts such a book as that of Mr. Todhunter into