be very natural; several writers have treated these laws as self-evident, and necessarily flowing from the nature of our conceptions. We conceive that this is an erroneous view, and that these laws are known to us to be what they are, by experience only; that they might, so far as we can discern, have been any others. They appear therefore to be selected for their fitness to answer their purposes; and we may, perhaps, be able to point out some instances in which this fitness is apparent to us.

Newton, and many English philosophers, teach the existence of *three* separate fundamental laws of motion, while most of the eminent mathematicians of France reduce these to *two*, the law of inertia and the law that force is proportioned to velocity. As an example of the views which we wish to illustrate, we may take the law of inertia, which is identical with Newton's first Law of Motion. This law asserts, that a body at rest continues at rest, and that a body in motion goes on moving with its velocity and direction unchanged, except so far as it is acted on by extraneous forces."*

We conceive that this law, simple and universal as it is, cannot be shown to be necessarily true. It might be difficult to discuss this point in general terms with any clearness; but let us take the only example which we know of a motion absolutely uniform, in consequence of the absence of any force to accelerate or retard it;—this motion is the rotation of the earth on its axis.

1. It is scarcely possible that discussions on such

* If the Laws of Motion are stated as *three*, which we conceive to be the true view of the subject, the other two, as applied in mechanical reasonings, are the following:

Second Law. When a force acts on a body in motion, it produces the same effect as if the same force acted on a body at rest.

Third Law. When a force of the nature of pressure produces motion, the velocity produced is proportional to the force, other things beings equal.