

the earth and her sister planets may be reduced by their long-continued and progressive action.

The eccentricity of the earth has been decreasing from the earliest times of astronomical observation, and her satellite, the moon, has been moving more and more rapidly from the time of the first recorded eclipse. It is not irrational, then, to inquire where will these changes end. What but destruction can result from these innovations on the beauty, harmony, and stability of the system? But the author of the incomparable mechanism of the universe has not left his work to disarrange and destroy itself. There is a limit to these changes in the very constitution of systems. They may proceed for a time, but the causes themselves must cease to act, and the bodies that are for a while disarranged will be brought again to their first condition. It may be readily imagined that it is not easy to estimate the amount of these perturbations, or the time when they will be corrected; for it must be remembered that every fresh position that is taken by the disturbing bodies, will cause an alteration in the motion of the body acted upon. But Lagrange and Laplace have proved that these perturbations cannot exceed a certain limit, which will never affect the stability of the system. The effect produced upon a planet by the attraction of minor bodies, is only periodical; the causes produce a maximum result, and then cease to act; so that the disturbed body is brought again into the orbit from which it had wandered, without deranging the order of the system.

Nothing can give us a more elevated notion of the wise arrangements of the Supreme, than such considerations as these. If these bodies had been projected with either greater or less velocity than was originally given to them, they would have moved in orbits of greater or less eccentricities, and then the stability of the entire system would have been destroyed, and an element of destruction have been introduced. No other arrangement, as far as we can judge, would have produced the desired effect, or ensured the combination from destruction.

#### THE FORCE OF GRAVITY.

We have made some allusion to a force which we have called the force of gravity, and we should not give even a sketch of the relations of the earth, and the condition under