

the earth, for causes sufficient to produce the revolutions and catastrophes, the traces of which are exhibited by its crust : And if we have recourse to the constant external forces with which we are as yet acquainted, we shall have no greater success.

*Constant Astronomical Causes.*

The pole of the earth moves in a circle around the pole of the ecliptic, and its axis is more or less inclined to the plane of the ecliptic ; but these two motions, the causes of which are now ascertained, are much too limited for the production of effects like those whose magnitude we have just been stating. At any rate, their excessive slowness would render them altogether inadequate to account for catastrophes which, as we have shewn, must have been sudden.

The same reasoning applies to all other slow motions which have been conceived as causes of the revolutions in question, chosen doubtless in the hope that their existence could not be denied, because it might always be easy to hold out that their very slowness rendered them imperceptible. But whether they be true or not is of little importance, for they explain nothing, as no cause acting slowly could have produced sudden effects.

Admitting that there has been a gradual diminution of the waters ; that the sea has transported solid matters in all directions ; that the tem-