

THE REVOLUTION OF THE EARTH ON ITS AXIS.

Having ascertained the form of the earth, there will be little difficulty in determining the relation it bears to the celestial bodies. It has been already stated that an observer, by carefully examining the position of the stars for a few hours, would discover that they have a regular unaccelerated motion. All the celestial bodies are moving, but their motion is uniform, and each one is in relative rest to the others, pursuing, from the moment it rises, an undeviating path towards that opposite point where it is to set.

This apparent motion of the stars may either arise from some proper motion in the heavenly bodies, or from a revolution of the earth on its own axis : either of these suppositions will account for the phenomenon to which we have alluded. If the appearance be supposed to result from the proper motion of the stars, it must be acknowledged that they are fixed in an enormous concave sphere, which has a perpetual uniform revolution ; for it is hardly possible to imagine that each individual body has a motion of its own, so adapted to the motion of all the others as not to change its relative position. The immeasurable distance of the stars, however, forbids the supposition that they are all fixed in a revolving sphere, for such mechanism would be in itself most cumbersome, and unlike the simple arrangements commonly employed by the Creator for the accomplishment of his purposes.

It is far more probable that the earth has a revolution on its axis, and this supposition will enable us to account for all the appearances that are presented by the celestial bodies. If the earth has a diurnal revolution on its axis, an observer, situated on its surface, will participate in its motion ; but as his horizon remains fixed, and as the objects around him have the same motion as himself, he will imagine that he is at rest. But as the horizon of the individual revolves from west to east, so the heavenly bodies have an apparent motion from east to west : and for the same reason, a person in a sailing vessel may imagine the shore to be receding from him, instead of attributing its apparent motion to the real motion of the ship in an opposite direction. The whole hemisphere, then, upon the principles of this explanation, makes an apparent revolution ; and in that period required by the earth to perform