

might be a preparation for the reception of the Copernican system; but it is very different from the doctrine that the Sun is the centre of the Planetary Motions.

CHAPTER II.

THE COPERNICAN THEORY.

The Moon's Rotation.

I HAVE said, in page 264, that a confusion of mind produced by the double reference of motion to absolute space, and to a centre of revolution, often leads persons to dispute whether the Moon, while she revolves about the Earth, always turning to it the same face, revolves about her axis or not.

This dispute has been revived very lately, and has been conducted in a manner which shows that popular readers and writers have made little progress in the clearness of their notions during the last two or three centuries; and that they have accepted the Newtonian doctrines in words with a very dim apprehension of their real import.

If the Moon were carried round the Earth by a rigid arm revolving about the Earth as a centre, being rigidly fastened to this arm, as a mimic Moon might be, in a machine constructed to represent her motions, this contrivance, while it made her revolve round the Earth, would make her also turn the same face to the Earth: and if we were to make such a machine the standard example of rotation, the Moon might be said not to rotate on her axis.

But we are speedily led to endless confusion by taking this case as the standard of rotation. For the selection of the centre of rotation in a system which includes several bodies is arbitrary. The Moon turns all her faces successively to the Sun, and therefore with regard to the Sun, she does rotate on her axis; and yet she revolves round the Sun as truly as she revolves round the Earth. And the only really simple and consistent mode of speaking of rotation, is to refer the motion not to any relative centre, but to absolute space.

This is the argument merely on the ground of simplicity and consistency. But we find physical reasons, as well as mathematical, for referring the motion to absolute space. If a cup of water be carried round a centre so as to describe a circle, a straw floating on the surface