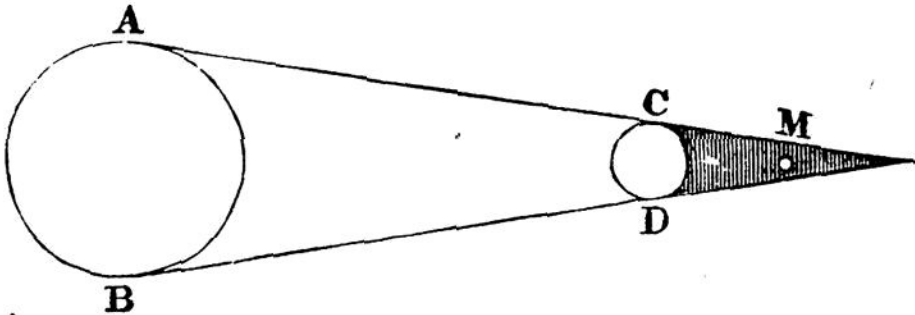


ECLIPSES.

An eclipse is the interception of the light of one of the luminaries by the interposition of an opaque body ; and, in respect to their objects, they are characterized as the eclipse of the sun, and the eclipse of the moon. In regard to the circumstance, it may be total, partial, or annular, the last epithet being given to that in which the whole of the body is darkened except a narrow rim of the exterior or edge ; or, in other words, when an annular eclipse occurs, a fringe of light is exposed round the edge of the shadowed luminary.

An eclipse of the moon is occasioned by the intervention of the body of the earth directly between herself and the sun, thus intercepting the sun's rays ; or it may be otherwise described as resulting from the passage of the moon through the shadow of the earth. But at the same moment that we observe an eclipse of the moon, the lunarians, if indeed the moon be inhabited, must behold a solar eclipse.

Let *A B* represent the sun, and *C D* the earth ; that hemi-



sphere opposed to the sun's body will be illuminated by it, and the other will be dark ; so that if we prolong the lines *A C* and *B D* until they meet, it will be the space within which the shadow of the earth extends, and any body, as the moon, *M*, entering it, will see no part of the sun's disk ; this shadow is called the umbra. There is a space beyond the umbra, in which a spectator being placed would see only a portion of the sun's disk, the other part being intercepted by the body of the earth, and this is called the penumbra.

In a lunar eclipse, the body of the moon is seen to enter the penumbra first, for she is less and less distinctly seen until she at last enters the real shadow of the earth, one part after another disappearing ; and when she has passed through the shadow, she comes progressively into view ; at first as