

which time, for the several satellites, is as follows: viz., for the first, 2h. 20m.; for the second, 2h. 56m.; for the third, 3h. 43m.; and for the fourth, 4h. 56m.; the corresponding diameter of the planets as seen from these respective satellites being, $198^{\circ} 49'$; $128^{\circ} 25'$; $78^{\circ} 47'$; and $48^{\circ} 25'$. Before the opposition of Jupiter, these occultations of the satellites happen *after* the eclipses; after the opposition when, for instance, the earth is in the situation *K.*, the occultations take place before the eclipses. It is to be observed, that, owing to the proximity of the orbits of the first and second satellites to the planet, *both* the immersion and emersion of either of them can never be observed in *any* single eclipse, the immersion being concealed by the body, if the planet be past its opposition, the emersion, if not yet arrived at it. So also of the occultation. The commencement of the occultation, or the passage of the satellite behind the disc, takes place while obscured by the shadow, before opposition, and its re-emergence after. All these particulars will be easily apparent on mere inspection of the Figure, Art. 536. It is only during the short time that the earth is in the arc *G. H.*, *i. e.* between the sun and Jupiter, that the cone of the shadow converging (while that of the visual rays diverges) behind the planet, permits their occultations to be completely observed both at ingress and egress, unobscured, the eclipses being then invisible."