

Cassini in 1675, but first accurately described by William Herschel in 1789–1792. Since Short's time the outer has been found to be streaked by numerous fine stripes, but these lines or stripes have never been constant. Very recently, during the latter months of the year 1850, a third very pale, feebly luminous, and *darker ring* has been discovered between the planet and the ring hitherto called the inner one. The discovery was made nearly simultaneously by Bond, at Cambridge (U. S.), on the 11th of November, by means of the great refractor of Mertz with a fourteen-inch object-glass, and by Dawes, near Maidstone, on the 25th of November. This ring is separated from the second by a black line, and occupies the third part of the space, between the second ring and the body of the planet, which was formerly stated to be vacant, and through which Derham affirmed that he saw small stars.

The dimensions of the divided ring of Saturn have been determined by Bessel and Struve. According to the latter, the exterior diameter of the outer ring, at Saturn's mean distance, appears to us under an angle $40''\cdot09$, equal to 153,200 geographical miles; the interior diameter of the same ring, under an angle of $35''\cdot29$, equal to 134,800 geographical miles. For the exterior diameter of the inner (second) ring is obtained $34''\cdot47$; for interior diameter of the same ring, $26''\cdot67$. Struve fixes the space between the last-mentioned ring and the surface of the planet at $4''\cdot34$. The entire breadth of the first and second rings is 14,800 miles; the distance of the rings from the surface of Saturn, about 20,000; the space which separates the first from the second ring, and which represents the black line of division seen by Dominique Cassini, is only 1560 miles. The mass of the rings is, according to Bessel, $\frac{1}{118}$ of the mass of Saturn. They present a few elevations* and irregularities, by means of which it has been possible to determine approximatively their period of rotation—exactly the same as that of the planet. The irregularities of form become perceptible on the *disappearance of the rings*, when one is generally lost sight of before the other.

A very remarkable phenomenon was discovered by Schwabe, at Dessau, in September, 1827—the *eccentric position* of Saturn. The ring is not concentric with the planet itself, but

* Such mountain-like inequalities of surface have recently been again noticed by Lassell in Liverpool, by means of a twenty-foot reflecting telescope of his own construction.—*Report of the British Association*, 1850, p. 35.