Mr. Hind, on the Satellites and Mass of Uranus.

satellite from the centre of Neptune, 235,800 miles. I believe it will appear, from a comparison of this gentleman's measures generally with those of other observers, that they have a tendency to be in excess rather than in defect of the mean, and consequently the value of the mass, deduced from them, will possibly admit of some diminution: probably \( \frac{1}{17500} \) will prove very near the truth.

December 7, 1854.


In the Monthly Notice of this Society for March 11th, 1853, appears an extensive set of measures of the two brighter satellites of Uranus, Titania and Oberon, taken by Mr. Lassell during his residence at Malta, under circumstances far superior to those which affect the accuracy of such observations in the climate of this country. I have lately worked up those measures with the view of determining the positions of the orbits of the satellites and the mass of their primary. My results are as follow:

I. Oberon.

Radius of Orbit at the Mean Distance of Uranus ....... 45".20
Ascending Node ...... 165° 28' [or 385,000 miles]
Inclination ............ 100° 34'

II. Titania.

Radius of Orbit at the Mean Distance of Uranus ....... 33".88
Ascending Node ...... 165° 25' [or 288,600 miles]
Inclination ............ 100° 34'

It will be remarked that these observations give the position of the node and inclination almost precisely the same as they were found by Sir William Herschel more than half a century ago—his numbers being \( \Omega = 165° 30', i = 101° 2' \).

I find from the distances of Oberon, mass of Uranus \( = \frac{1}{20642} \), and from those of Titania \( = \frac{1}{20505} \), adopting Mr. Adams' periods of revolution: the mean \( = \frac{1}{20570} \) agrees very nearly with the value derived from the measures of Sir W. Herschel.

Mr. Lassell's observations indicate with tolerable certainty that the mass of Neptune is greater than that of Uranus in the proportion of 7 to 6.

1854, Dec. 7.