

existence of six satellites has frequently been unjustly doubted; the observations of the last twenty years have gradually proved how trustworthy the great discoverer of Slough has been in this as in all other branches of planetary astronomy. Those satellites of Uranus which have been *seen again* up to this time are the first, second, fourth, and sixth. Perhaps it may be ventured to add the third, after the observations of Lassell on the 6th of November, 1848. On account of the large opening of his reflecting telescope, and the abundance of light thus obtained, the elder Herschel considered that with the sharpness of his vision, under favorable atmospheric circumstances, a magnifying power of 157 was sufficient; his son recommends, in general, a power of 300 for these extremely small luminous disks (luminous points). The second and fourth satellites were seen again the earliest, the most frequently and positively by Sir John Herschel, from 1828 to 1834, in Europe and at the Cape of Good Hope, subsequently by Lamont at Munich and Lassell at Liverpool. The first satellite of Uranus was found by Lassell (September 14th to November 9th, 1847), and by Otto Struve (October 8th to December 10th, 1847). The outermost (the sixth) by Lamont (October 1st, 1837). The fifth appears never to have been seen again, and the third not satisfactorily enough.\* The particulars here put together are not without importance, also for the reason that they tend to excite caution in not placing too much confidence in so-called negative evidence.

## NEPTUNE.

The merit of having successfully conducted and announced an inverse problem of disturbance, that "of deducing from the given disturbances of a known planet the elements of an unknown one," and even of having, by a bold prediction, occasioned the important discovery of Neptune by Galle on the 23d of September, 1846, belongs to the faculty of acute reasoning and the persevering industry of Leverrier.† This is, as Encke expresses himself, the most brilliant of all planetary discoveries, because purely theoretical investigations have rendered possible the prediction of the existence and the place of the new planet. The celerity with which the plan-

\* For the observations of Lassell at Starfield (Liverpool), and of Otto Struve, compare *Monthly Notices of the Royal Astron. Soc.*, vol. viii., 1848, p. 43-47 and 135-139; also Schum., *Astr. Nachr.*, No. 623, p. 365

† Bernhard von Lindenau, *Beitrag zur Geschichte der Neptuns-Entdeckung*, in the supplementary sheet to Schum. *Astr. Nachr.*, 1849, p. 17