

ROYAL ASTRONOMICAL SOCIETY.

 VOL. IV.

January 12, 1838.

 No. 11.

The following communications were read :—

I. Occultations of δ Arietis, August 21 ; C Tauri, August 24 ; δ Arietis, October 15 ; f Aquarii, November 6 ; and Immersion of ψ Aquarii, November 7, 1837. By R. Snow, Esq.

II. On the difference of Longitude between the Greenwich and Paris Observatories. By Edward J. Dent. Communicated by the Astronomer Royal.

Mr. Dent having lately had occasion to visit the French capital, resolved to take advantage of the opportunity which thus presented itself of ascertaining, by the transit of chronometers, the difference between the meridians of the Greenwich and Paris Observatories, the astronomers-royal of the respective countries, (G. B. Airy, Esq. and M. Arago), offering every assistance requisite to the completion of the object.

Twelve chronometers were selected for the purpose, the rates and errors of which were ascertained by daily comparison with the Observatory clocks during seven days before they were taken abroad ; during fourteen days, while they remained at the Paris Observatory, and during seven days after they were brought back to Greenwich. In travelling, they were placed in a wooden box, and packed in horse-hair. The route pursued was by coach to Dover, whence the water was crossed in a sailing-boat to Boulogne, and the journey to Paris completed by the diligence.

Between the last comparison of the chronometers made at Greenwich, and the first at the Observatory of Paris, there was an interval of seventy-two hours. After a space of fourteen days, the instruments were returned by the diligence to Boulogne, whence they were conveyed by a steam-vessel to Greenwich. On this journey, only forty-nine hours elapsed between the comparisons at the two Observatories. It may be remarked, that in passing through the paved towns, both in England and France, the chronometers were exposed to severe concussion.

In this experiment the whole difficulty turns on determining the rate of the chronometers during the transit from the one station to the other. Mr. Dent employs two methods for this purpose,—the first of which may be explained as follows : suppose the chronometer gaining ; the error of the chronometer from mean time being observed when it was taken from the Observatory at Greenwich,