upon the illuminated surface. The diameter of the red ring of the corona was about 18° , and he ascertained, by experiment, that the distance of the plane on which it was formed, was only 70 feet. The red occupied the interior of the prismatic circle. When completely immersed in the cloud, the shadow of the observer assumed a new appearance, owing to the want of a definite illuminated surface upon which it could be thrown; and the continuation of the shadow towards the interior of the cloud, presented the aspect of shadows when a sun-beam is admitted into an atmospheric space filled with light dust; and, by the effect of perspective gave an appearance of a true convergence of rays, such as is occasionally observed on a great scale opposite to the sun.

The author pointed out that the theory of the coloured rings suggested by Mr Fraunhofer is untenable. It supposes the inflexion of rays, by watery particles round the head of the observer, whilst experience shews, that these effects are produced, when the observer stands in a perfectly pure atmosphere, and even at the distance of 1000 feet from the cloud. The theory of Dr Young was also noticed, which presumes a quadruple reflection in the interior of the aqueous drops; an opinion which, perhaps, it may be difficult to reconcile with the great brilliancy of the colours displayed.

February 18.

DR HOPE, Vice-President, in the Chair.

The following Donations were presented:—

Transactions of the Society for the Encouragement of Arts, Manufactures, and Commerce. Vol. XLIX. Part I.—*From the Society.*

Flora Batava. No. 92.—*From His Majesty the King of the Netherlands.*

The Annual Reports of the Leeds Philosophical and Literary Society for 1828, 1829, 1830, and 1831.—*From the Society.*

The following communications were then read:—

1. Notice respecting the Application of Heated Air to Blast Furnaces. By Robert Bald, Esq. F. R. S. E.
(To be continued.)