

## AN OXIDIZABLE VARIETY OF NITROGEN.\*

BY T. MARTIN LOWRY, D.Sc.

## DISCUSSION.

(Held on Wednesday, November 26, 1913, MR. W. R. BOUSFIELD, M.A., K.C.,  
VICE-PRESIDENT, in the Chair.)

**Professor Alfred W. Porter :** I happen to have a special interest in any work which brings out the peculiar properties imparted to nitrogen by means of an electric discharge. I have in the last few years made a number of experiments on the figures which appear, after development, upon photographic plates after passing a single discharge over them. The figures which branch away from the negative terminal in air are terminated by tufts shaped like palm leaves, consisting of a number of radiating curved filaments. I have shown that such palm-leaf figures are obtained only in gases containing free nitrogen; nitrogen in compounds does not yield them. But even a trace of free nitrogen (such as is difficult to remove from the sparking chamber) is quite sufficient to give evidence of its presence. Each of the filaments constituting the leaf is of the same shape as the path taken by one of the fragments into which a travelling shrapnel shell breaks when it explodes; and I cannot help thinking that there is a close similarity in the two phenomena. In other words, a very loose aggregate of molecules or atoms or ions is formed in the first place by the discharge. This travels with the discharge and ultimately breaks up explosively. It is possible that the product of the explosion is simply Strutt's nitrogen, which then transforms in a quieter manner into ordinary nitrogen.

The **Chairman** said that he had been familiar with the work done by Dr. Lowry. If he remembered aright it had been found by the use of the oscillograph that the use of an alternating current with a high peak was necessary to get the best results.

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