

THE TRANSMUTATIONS OF NITROGEN.

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I am to speak to you this evening about Nitrogen. Very likely I might not have had the honor of thus addressing you had I not felt bound to try to repay your worthy Vice-President, Mr. Shutt, for the kind turn he did St. George's Church Association in lecturing to them a year or two ago on Oxygen, an equally important element, but much more energetic and meddlesome than Nitrogen. Now since Oxygen and Nitrogen may be said to be partners in many of the operations of nature, I may be said, in giving this lecture, to be paying Mr. Shutt back in his own coin. I prefer this expression and must carefully avoid referring to the transaction as an exchange of gas, for "gas" has come to be used as a figurative expression for other things besides oxygen and nitrogen : in fact, generally speaking, for eloquence of an unreliable character. Of course it is part of my task to-night to avoid eloquence of this nature and confine myself to sober and well authenticated facts

In choosing "Nitrogen" for my subject to-night it has seemed to me that I could not do better than call attention to this more abundant, although less active and less positive constituent of the atmosphere, and trace certain of the wonderful changes which it undergoes in nature, for nitrogen, no less than oxygen, performs its rounds, and moves in stupendous cycles through the inorganic, the animal and the vegetable worlds. Not unfrequently, these changes are so mysterious, and their results so strange and inexplicable that I have ventured to characterise them as transmutations. This term, as you well know, is applied to the supposed process in which the old alchemists believed, by which one metal was supposed to be actually converted into another ; and more especially base metals changed into gold. Conversions almost as miraculous, transformations almost as astonishing are produced in the properties of the compounds into whose composition nitrogen is introduced. That element assists by turns in building up an atmosphere, a food, a poison, a colour, the bloom of a flower, the fibres of a muscle, the feathers of a fowl, the force of an explosive. We may therefore truly speak of its transmutations.