

through this visit of the Association, or by any words of mine, a large measure of the youthful activity of the West could be drawn into this service. The work may be hard, and the discipline severe; but the interest never fails, and great is the privilege of achievement.—*Lord Rayleigh.*

CARBON.

CARBON is one of the most abundant materials in nature, forming nearly half of the vegetable kingdom, and entering largely into the composition of all animal matter. Then it exists locked up in combination in limestone, coral and other carbonates, vast beds of these substances occurring in numerous sections of the world. And again, we meet with this useful article stored away in immense layers in the interior of the earth as mineral coal, a material hidden away for the comfort of coming man, millions of years ago, during that geological period of our earliest history, classed as the carboniferous age. Carbon is found in two distinct crystallized forms or modifications, diamond, the clearest and most brilliant of all substances, and as graphite, this black and dirty material.

On account of its great brilliancy and remarkable hardness, the diamond has ever been valued as a precious stone. Up to the year 1777 this gem was supposed to be a kind of rock crystal; but, during that year, by means of the blow pipe, it was shown that it did not contain silica, and then it was looked upon as a fossil resin, something of the order of amber. That diamond was combustible seems to have been known at an early age, and, strange to say, there are some very remarkable statements just the reverse, *e. g.*: One authority states that his father, at the command of a prince, heated diamonds in a gold-melting furnace for about thirty weeks with no perceptible change. Newton, who seemed to hesitate at no problem, and at the same time solved whatever he undertook, first gave convincing arguments to prove the combustibility of this