

regenerated; this is the very sunlight which became latent in vegetable cells so long ago. It is locked-up sunlight set free after a long imprisonment. It is the wasting sunlight of an age when its blessings were not appreciated, packed away and preserved to an age when man should dwell on the earth to appreciate its uses and make it an agent of exquisite comfort and high civilization.

There are several varieties of coal; let us look them over. Perhaps you will smile when I tell you that the plumbago of your pencil is essentially carbon. So it is. All your pencilings are strictly "charcoal sketches." We can take common coal and by subjecting it to pressure and heat while excluded from the air, convert it into something much like plumbago. It often occurs in iron-furnaces. This is sometimes called black lead; but it contains no lead; its more appropriate name is graphite. It is found among the metamorphic rocks. Whatever it was, it has been pressed and baked and boiled through the same processes which have so transformed the original Eozoic sediments. Since graphite can be prepared from coal, we may safely assume that graphite is only metamorphic coal. Indeed, there are regions where graphite occurs in the same formation which in other regions we know as *Coal Measures*. But the strata are all metamorphic. Most graphite, however, belongs to a remoter geological age. We find it in Vermont and most of the New England States; also in northern New York and many other American and foreign localities. It can only be burned at a high temperature.

Next in respect to hardness and difficulty of combustion is *anthracite*. This breaks in irregular lumps, with shining surfaces, and burns with only a feeble bluish flame. It has a relatively high specific gravity, and furnishes more heat per ton than any other species of coal. Anthracite is found in situations where it appears to have been subjected to a baking and hardening process which has driven off most of the volatile hydrocarbons found in other coals. In the United States, south-eastern Pennsylvania is the chief anthracite