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WHAT CHARCOAL MIGHT DO FOR CANADA?

THE Province of Ontario has no coal, but it has in inexhaustible quantity the material for charcoal. This material, too, is every year going to waste, whereas it *might* be utilized in some way—who knows? The raw material of charcoal is burned in log heaps and brush heaps, or by great forest fires, involving a loss to the country of untold millions. Now, have we any respect at all for the teachings of science? It is now a little over thirty years since Mr. Grove, then President of the British Association, made authoritative statement of the doctrine of the convertibility of forces. He announced it as a fact settled in the minds of all scientific men, that heat, light, magnetism and electricity, also force, power, motion, or whatever else we may call it—were convertible—any one of them into any other one of the group. "The convertibility of forces"—say that over again, and keep it in your mind till you realize what it means. Take this for an illustration: Ages upon ages before Adam was a boy, the heat of the sun, working upon an atmosphere largely composed of carbonic acid gas, caused immense forests of gigantic fern plants to grow to the height of our forest trees to-day. Our little bits of fern plants, now cultivated and admired by lady botanists chiefly, were then the great trees of the immense "forest primeval"—that real old forest, compared with which Longfellow's misnamed primeval forest was but a thing of yesterday. Well, these forests of gigantic ferns grew up, withered away and fell dead to the ground, and the result was—what? Few words suffice to tell: that old fern timber has by the chemistry of nature been transmuted into the coal which we are mining and burning to-day.

The heat which the sun threw upon this earth thousands of years ago is now available for use in the form of coal. Coal will make a steam engine go, and after that come a great many other possibilities. Right here appears to be a good place for repeating a story which has been told before, *apropos* of the electric light. Says Brown to Jones: "Why, my dear sir; you have no idea of what this electricity is going to do. It is bound to supersede everything else, even the steam engine. In just a few years more, the great inventions of James Watt and George Stephenson will be antiquated, kicked out of date, and buried among the old lumber of the past." "Indeed!" says Jones; "and where does the electricity come from?" "From the dynamo," says Brown. "And what makes the dynamo go?" says Jones. "Why, a steam engine, of course," says Brown." "Oh! I see," says Jones, reflectively; and he goes away, wondering whether it can be true that the steam engine is to be superseded after all. Having studied into the subject pretty deeply, Jones comes to the conclusion that Watts' utilization of the power of steam, and Stephenson's discovery of the exhaust blast, which gave wings to the locomotive, are not likely to be played out for some time yet.

An immensity of power, and heat, and light, is stored away in the coal mines, that people generally know. But what our Canadian people don't generally know, or don't seem to think about, is the vast power now unused, or going to waste in the forest regions of Canada. Enough, we should say, to turn all the wheels, and to make all the machinery go for several nations. What the Falls of Niagara might do if proper mill-races were constructed, has been speculated upon: drive all the machinery in New York State, also in New England, and you may throw Canada in too, if you like. The power of Niagara is great indeed—how great we do not exactly know. But have you ever thought of what an immensity of power, and heat, and light, there is in the forests of Canada, were the raw material there lying waste made into charcoal? Why, it would suffice to light up half a continent, and to make the machinery of a thousand Manchesters, and Sheffields, and Birmingham hum. Nature has given us the materials in abundance, in the form of iron ore, also in that of our immense forests—the latter being convertible into heat, light, power, electricity, or what you please.

Political conditions do not alter natural facts: what is true with regard to charcoal over the border ought to be substantially true in Canada too, natural facts being about the same in both cases. A recent publication by the Department of Agriculture gives the following facts concerning the manufacture of charcoal in Vermont. Timber used for the purpose is chiefly birch, beech, maple, spruce and hemlock, the lower portion of the tree being commonly used as lumber and the remaining portions cut into cordwood and subsequently burned in charcoal pits. It requires twelve days to char the wood and six days to cool. A cord of dry, hard wood yields fifty bushels of 2688 cubic inches each, green hard wood forty-two bushels; dry spruce and hemlock wood yields seventy-five bushels, green sixty bushels. Margins are very small in some sections of Vermont, and one correspondent says it cost 6¼ cents per bushel to make and deliver coal into cars, while it sells for 6¾ to 7½ cents.

The following are the statements given concerning the charcoal burners of the Green Mountains:

"The walls of the kilns are twelve inches thick, and the kilns from twenty-five to thirty feet in diameter, twelve feet high to the crown, and about seven feet crown, with a circular opening in the crown of five feet diameter. The only other opening (except the vents) is the door, which is closed by a