

and when by accident or design it became ignited the conflagration was dreadful, the intense heat of which changed the whole mass into an aereal form, lighter than the atmosphere; and was dispersed by the winds caused by the high temperature created in its locality. Not only the carbon is entirely gone but the lime and potass and other salts composing the ashes were in some places altogether and others nearly all dissipated by the intense heat; hence barrenness is the result. Compare this with the present mode of clearing new land, and it will be seen that the process is similar; the only difference is that the time between the cutting of the timber and the burning seldom exceeds six months, and it is of course much less combustible than that which has been prostrate for years; consequently the desolating effects will not be so great, as a small portion of the ashes and carbon will be left on the ground which will produce one crop of grain, and if the land is good two or three subsequent crops of hay, after which it can be only used as a scanty pasture. Now as all vegetable matter contains the food of future plants which it will furnish when properly reduced to its first elements by decay or combustion, so managed that there shall be no loss by evaporation, it will easily be perceived that there is an immense waste of useful matter in the common practice of burning wood lands. One acre of land clothed with original forest will contain 300 tons of vegetable matter, including timber, brush underwood, decayed wood, and moss, with the herbage that usually grows on forest lands. Professor Leibig, the most popular and latest writer on organic chemistry, agriculture and physiology now extant, shews clearly that all vegetable substances are composed of carbon, the constituents of water, which are hydrogen and oxygen, ammonia, lime, potass, and magnesia, and occasionally small portions of other salts to produce the sweet, acrid, acid, or bitter principle that vegetables may contain. Now if the 300 tons of forest brushwood, &c. were reduced by some chemical process, either naturally or artificially, to an elementary state, without letting its constituents escape, it would produce, at 20 tons for each six years, manure for one acre for 90 years. The proportion would be, as one is to fifteen or six to ninety, or in other words the vegetable matter contained, on three and one-third rods square, or ten and a half square rods, of forest land, which according to this calculation would be 20 tons; would manure one acre of arable land preparatory for a rotation of cropping for six years. I am gratified that Mr. Coster has proposed two plans to obviate this wasteful process; I beg respectfully to make a remark or two on these propositions. I believe that the extra productiveness of land where potass has been manufactured is not caused by the abstracting of the ashes, for not only the lime and potass but also the other salts of wood are carried off, and there is also the loss of the carbon, which is dissipated during the combustion of the wood that the ashes are obtained from; but the wood which was not consumed in this process, as well as the moss, undergrowth, and stumps which would form a large portion of the original mass, would be left in a proper state for decomposition; and when this land comes under the action of the plow, its fertility would be far superior to that where the whole has been swept off by fire. Respecting the ringing or girdling of the trees the fertilizing principle would be the same, with the exception that the loss of carbon and ashes by the combustion of the former, and the removal of the latter. Decomposition by time would be the same in the one as in the other. As the great utility of rendering the vegetable matter of Nova Scotia forests effective as a manure will be evident to all, I hope by thus agitating the subject to call forth the talent of scientific individuals, both of the farming as well as the other classes to give their views on this subject. The Chemist, the Philosopher, and the Agriculturist, will

find sufficient here to amuse their talent of ingenuity as well as exercise their practical abilities. I now beg to propose a process which I know by experience to be effective, but time only, and repeated experiments by various individuals can demonstrate its ultimate utility. It is well known that in England, Scotland, and various parts of the European Continent burnt clay has been and now is in use as a manure, and it has always been an undecided question what caused its fertility, some supposing one thing and some another, without giving any good reasons that their views were correct; but all seem to agree that the torrefaction of the clay is the cause. Leibig gives the most rational solution of the question, he states that the oxydes of iron and alumina are distinguished from all other metallic oxydes by their power of forming solid compounds with ammonia; this substance is indispensable to the production of wheat; its presence produces the gelatinous part of that seed, which renders it preferable to all others for bread. I have not the least doubt of Leibig's theory on this subject, but from repeated experience I have no doubt the burning of clay produces other effects superior, and independent of it. I will now state my process for reducing the vegetable matter on the forest land to a consistence for manure, without the escape of any part. Take a piece of arable clay land, as near the forest as can be obtained, cut and split the timber of every description (clearing the land as you go) into cord wood lengths, that is to say timber, brushwood, decayed logs, &c.; convey this to the arable land selected, pile it in the best form for drying and let it remain until dry; when dry, put it in piles similar to coal kilns, only much lower in proportion to their breadth; leave an opening to put in fire, cover all the remainder with green boughs of fir or spruce, then cover the whole with clay thrown on loosely to a depth sufficient to retain the smoke, put fire into the aperture before mentioned and when properly kindled cover all with clay that no smoke may escape, and if at any subsequent period the fire or smoke may burst through additional quantities must be thrown on to stop it, and so on until the whole of the vegetable matter is consumed; which of course will be absorbed by the clay; there will be some charcoal remaining unconsumed, but this contains qualities which if not superior are equal to any part of the produce of the matter consumed. In this laboratory, if such it may be called, combustion changes the vegetable matter gradually into the gaseous form, which is absorbed and retained by the clay. If the process is properly conducted not a particle of the matter is lost, but all retained. This manure may be either spread on the land in its vicinity or conveyed to other fields where it may be required. The process as far as the combustion of the wood and the retaining of its gasses are concerned, I have repeatedly practised with success, and have found the burnt clay or more properly speaking clay saturated with smoke produce crops equal to my best barnyard manure; and the vegetation much more rapid.

Yours respectfully,

SAMUEL MOORE.

*Gay's River, 2d June, 1842.*

■ I have Wheat growing luxuriantly in pure powdered charcoal within my view at the present moment.

† Leibig says respecting charcoal, "plants thrive in powdered charcoal, and may be brought to bear fruit if exposed to the influence of the rain and atmosphere." He says again, "it is known to possess the power of condensing gasses within its pores, and particularly carbonic acid, and it is by virtue of this power that the roots of plants are supplied in charcoal, exactly as in humus, with an atmosphere of carbonic acid and air, which is renewed as quickly as abstracted."

From the Cape Breton Spirit of the Times.

At a Quarterly Meeting of the Cape Breton County Agricultural Society held at the Court House in Sydney, 4th July, 1842, it was Resolved that premiums be awarded to members of the Society for the following purposes, viz. :