

the surface as possible, so that heaving by the frost will not affect it. Clover is the farmer's best friend, and it will put more money in his pockets than anything else I know of, if it is handled properly. The greed of the farmer prevents him deriving the full benefit. One reason is they do not sow thick enough. Another is they pasture the life out of it in the fall. Another is they try to get a catch on land that has been cropped till it is too poor to grow anything; then they think four pounds per acre will give a good catch. But the chief reason is they try to let it stand more than one year, which is a most foolish plan. Never, under any circumstances, let a field stand in grass more than one year, unless it be permanent pasture. For grain-growing fields there is nothing like quick rotation—the quicker the better. I have heard farmers say that that field ought to grow something now it has had a rest—it has been standing in grass three years, when really it has been the worst treated field on the farm. The good you get out of the first year's crop is undone the next if you let it stand. Red clover will not stand in the ground in paying quantities more than one year.

Fifty Years Ago.

BY T. B. WHITE, CLARKSBURG, ONT.

"It is no wonder that a business conducted with so little foresight or reference to the law of supply and demand often proves a failure. Were farms managed with an ordinary measure of business foresight, instead of the happy-go-lucky fashion which sees no farther than the next harvest time, and the owners' men capable of grasping the economic situation and realizing the importance of the changes in agricultural conditions taking place around them, they might easily have averted the loss and added to the productiveness and value of their land by husbanding their timber resources. The problem of what to do with the abandoned farms, of which so much has been heard lately, is in a fair way of settlement. These farms have been abandoned, and many more are on the way to abandonment, simply because they could not profitably compete in growing ordinary farm produce with the newer and more fertile regions opened up in the west. If partly planted with trees they would again become profitable, the fertility of the richer and more fertile portions would be improved, and the plantations, growing in value year by year, would eventually become a permanent source of profit.

The above quotations are a continuation from my last, and show in my opinion a very little knowledge of how the world is moving, and I hope to show in this article that the cap of the "happy-go-lucky fashion style" will fit in other places quite as well as where the writer of these quotations has seen fit to place it. With respect to the growing of crops on poor, worn-out lands, and to the abandoned farms, while there is great room for improvement, the above conditions are nothing like so general as such statements would imply, and the remedy will be found along the line of suggestions given under "More Thorough Work," by Mr. Hobson, in November issue, rather than in the planting of trees, which is too slow a process the way the world is moving. More can be accomplished every two or three years by manuring, sowing grasses and breaking up, than in fifty years by planting trees, besides having something to sell and to keep all the time. The advice to plant trees was more suited to Evelyn's time, and if the oaks which he planted did render the successes of Nelson possible, things are changed now. England would now with her

oaken ships be where she would have been without them in Nelson's time—nowhere, like the Merrimac with the little Monitor. I remember the time when we ate our bread and milk with wooden spoons and made hay with wooden forks, but give them to youngsters now and they would put them in the fire and burn them. Still we have the statement on page 57, Forestry Report, 1886, that "It cannot be that in Ontario among our patriotic young men we have not many an Evelyn to give good assistance in the task." In the task, I suppose, of reclaiming these abandoned farms, but where are they? The judges of our prize farms do not seem to find them. In their closing remarks for 1886 they say "Kelvin Grove" is richer than it was years ago, so of "Huntingford," and so of "Balsam Lodge," and others in competition.

The increasing stores of fertility have to be drawn from the soil itself, a provision in nature for which we can never be sufficiently thankful. Other agricultural writers say that they know many instances where land which was considered sterile and worn-out, but by drainage and thorough culture has brought forth good crops. Anyone reading "Forestry Condition of Ontario Counties for 1891," unless they know to the contrary, must be impressed with the idea that the farmers are fearfully neglecting their best interests. But for the same year we have something more encouraging in Bulletin 37, Ontario Bureau of Industries, where on fall wheat we read the spring reports from the western portion of the province, where our largest fields of fall wheat are to be found, were exceedingly hopeful, and present advices show that these bright expectations have been fully realized. In Western Ontario the yield in most cases has been really magnificent, ranging from 15 to 55 bushels per acre, and the average yield for the province estimated 24.4 bushels to the acre. In Forestry Report for 1887, page 36, we read: "The condition of superiority in English soil is largely maintained by the action of the Government in maintaining forests, etc. My answer to this is, that what changed England to a very great extent from a duck shooting and rabbit snaring country to a good agricultural one was the draining of the low lands, and the discovery made by one Murry, an English chemist, that superphosphates were of great service in growing turnips. In our grandfathers' time the Lincolnshire Wolds were looked upon as a hopeless barren waste, and it is said about our great grandfathers' time they built a lighthouse, called Dunstan's Pillar, to guide the lonely traveller through the desert; but superphosphates having been applied to the land, the phosphates made turnips, turnips made sheep, and sheep made the land fit to grow barley, clover and other crops, until in my time these hills were occupied by the richest and most intelligent farmers I have met. It was on one of these hills that I earned my first pocket-money in helping to thin out turnips, and though they are exposed to bleak storms and winds across eight or ten miles of marsh, off the German Ocean, I heard nothing about planting trees for shelter, though if some could be provided when folding sheep in winter, it would have added much to the comfort. But this statement about the fertility of the English soil being kept up by the effects of forests is all sentiment, and too much sentiment used in making up a compound to remedy our drawbacks is apt to spoil the prescription.

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Clover and Ashes.

BY W. A. HALE.

After many years' trial of clover for its own sake, and of experimenting with hardwood ashes for their own sake, I gradually found, what I suppose many already know, that the two in conjunction made one of the happiest combinations known, and one that went far towards solving the problem, not only of keeping up but also of restoring lost fertility. That clover, peas and other leguminous plants have the power of adding nitrogen to the soil is a fact long since recognized, but just how the act was accomplished has been a matter for lengthy scientific discussions, and many there be who probably to-day deny the fact that the leaves have the power of extracting nitrogen directly from the atmosphere. Applications of nitrogen, in the form of nitrate of soda for instance, seem to be entirely wasted upon the clover plant, and as this is the most expensive ingredient in the general make-up of all plant food, the fact that clover is able not only to extract from the atmosphere what it requires for its own use, but to leave a large portion in the soil as well for the use of other plants which may follow it, is too important a point to be lightly passed over. Now, where many people have failed in the use of clover as a means of supplying fertility to the land is where they have depended too much on the clover itself, and have not given it even an ordinary amount of nourishment to start with. Clover will not succeed on entirely worn-out land, and any attempt to bring such into a renewed state of fertility by the use of clover is likely to prove a failure. Where the land is in fair condition clover will usually improve it, and in a very marked degree; but where the soil is exhausted by over-cropping, fertilizers of some sort must first be applied, after which the clover will do its share of carrying on the improvement. Direct applications of nitrogen to clover seem to be wasted, and so also in a certain degree are manures and fertilizers rich in nitrogen. Phosphoric acid and potash seem to be the two principal applied ingredients of fertility in which clover delights, and these are so well proportioned to its use in hardwood ashes that applications of these seem to be far more beneficial and lasting to clover than the best barnyard manure. Ashes often show better results the year after they are applied than they do the first. I have seldom seen any benefit to the grain crop when ashes were used, even in large quantities, but to the clover crop which followed the beneficial results have been very marked. Were hardwood ashes more used in England than they are I believe we should hear less of clover sickness than we do at present. There the rotation of turnips with bone dust and rape cake before barley and clover seed is about the worst preparation for the clover that could be devised, turnips being particularly exhaustive of potash, and bone dust and rape cake containing practically none; and to the persistent use of this rotation in many counties is doubtless due the recurrence of clover sickness, necessitating the leaving of this crop out of the rotation for ten or twelve years. While we in Canada are not as yet troubled with actual clover sickness, we are at all times liable to a premature failure of the clover plant. It is said "to run out in a year or two," to be "only a biennial," etc. As usually treated no doubt it is, but that we have at home a specific remedy for all this is equally true. Hardwood ashes, intelligently used, can be made to work wonders, not only in bringing this plant to a great state of perfection, but of maintaining it in a flourishing condition, if desired, for a number of years. Some years ago this fact was brought to my notice by the following experiment:—On a three-acre field, sown to oats and seeded with