

These wells are also used to drain cellars on level or low land, and with even greater success than for draining swamps. As the outflow starts as soon as the water begins to rise or accumulate, the volume of water is small, and consequently a well with a small pipe, or even with a slow passage of water up or down, will still work fast enough to drain a cellar. In many cases, wells used for watering stock are also used to receive the water from barn eavestroughs. Occasionally a well fills up with silt or quicksand, but it can usually be cleaned without great difficulty by use of drill or sand-pump.

Most of the wells in this immediate locality have been drilled by K. Robbins or Nelson Flander, who formerly used horse-power to operate the machinery; now, however, steam or gasoline engines are being used, and much larger holes can be put down.

Perhaps the largest area drained in this way is the farm of the late Francis Bunn, where about 40 acres is drained by three wells, or, rather, by two, one being at present choked. This farm is low-lying, and contains much land that was formerly swamp; but his son, James, assures me that after a heavy rain or freshet, the surface is dried in three or four days. The land has become, too, so porous since these wells were constructed, that there must be long-continued rains to saturate it so as to show water on the surface, exactly the condition of soil which the Ontario Agricultural College experts are urging through your columns as resulting from tile drainage.

M. Robbins has a well draining a considerable area of both swamp and high land, which, he tells me, will clear the land of a flood in two days. Mr. Robbins some years ago put down a well for the drainage of a cemetery near Dunnville.

Fred Gowling, of Canfield, has another, which works successfully to the limit of its capacity, but, as it has a very small wooden casing, it works more slowly than is desirable. Wells for cellar drainage, put down many years ago by P. W. Coverdale and Alex. Stewart, are still working satisfactorily. On the other hand, a well for cellar drainage, constructed by John Payne, Jr., from the outset filled quickly with water, and has not proved a success, although another well, recently drilled, a few rods away, is said to be an excellent one. Further instances need not be multiplied.

Of course, the suitability of these wells for drainage in any locality depends upon the cost, as compared with the cost of obtaining as good an outlet by other means. A well with a 2½-inch hole in the rock will supply a stream of water that will allow a windmill to pump in a pretty stiff gale without jerking, and so would take down a great quantity of water in a few hours. Larger pipe will, of course, work faster, but cost much more. Wells of this size, drilled by horse-power cost, usually, 20 to 25 cents through the clay, 75 cents in hardpan (if any), and 75 cents to \$1.00 in rock. At these figures, a rough estimate would be: 60 feet clay, at 20 cents, \$12; 5 feet rock, at \$1.00, \$5.00; total, \$17; pipe extra. Where the rock is tolerably near the surface, it is well worth while investigating this system of drainage.

Haldimand Co., Ont.

Fencing of the Wood-lot.

As a result of the agitation of this question through the press and from the public platform, no doubt many owners of wood-lots have meditated the matter, and are contemplating whether or not they should fence the area under forest growth on their farms.

That a resolve to fence the area under question may be a good one for many to make, we do not question. The point is, rather, should all such areas be fenced and preserved, and all such growth as is put forth in the form of the several seedlings protected and encouraged?

I am free to admit that the questions of "Forest Preservation" and "Reforestation" of other areas are questions of vital importance, but should the work be taken up so generally as recommended? Should every area at present under trees be preserved as such?

It is truly to be deplored that many areas to-day bare of forest were ever cleared; of their original growth, as this seems to be all they are capable of producing, while to-day they cannot be cultivated with profit to their owners, and at the same time the surrounding country is robbed of the benefits which accrue from the prevalence of forests, such as protection from winds, influence on soil moisture, rainfalls, floods, etc., aside from the commercial value of their product. If it is at all practical to reforest such areas, the work in such instances cannot be executed too soon, and any growth of trees now there should be protected, and further growth encouraged so far as is possible, letting these areas produce timber and fuel, while other areas, more suitable, produce our food crops.

Many areas at present, however, of the present

and most desirable soil for agricultural purposes, are barred from serving such a purpose owing to their being covered by a scattered, dying remnant of the primeval forest. Will it be to our best interest, and of those who follow, to fence these areas?

On our farm we have an area comprising about fifteen acres of our best land under a scattered growth of hard and soft wood, very much in need of fencing, if we purpose preserving this area as a wood-lot. As it is at present, we are deriving very little revenue from this area, the annual amount of dead wood to be cut out proving sufficient for a year's fuel. To proceed to cut out timber in the form of our best live trees, so as to derive a satisfactory annual revenue, means a depreciation of value at a much greater rate than the annual growth compensates or restores.

We have decided not to fence this wood-lot, and whether or not we have been misled by our reasoning, is open to question. We have observed the benefits resulting where such wood-lots have been fenced, and, while some have been fenced a considerable length of time, the progress of growth thus far, in every instance, has not been astounding. Being quite aware that a forest is not made in a day, and that the life of a full-grown forest tree recounts the passing of many generations, still the first ten years of the life of a sapling should be something of an indication of its future development and usefulness. It cannot be contradicted that climatic conditions, conditions of moisture, temperature and protection to-day surrounding the growth of young trees in our forests are quite different from the conditions that surrounded the early stages of growth of our present forest trees. Accordingly, I contend that it will be unquestionably impossible to produce in any length

wards, between the wood-lots, and no regular forest belt. This growth, as noted in many instances, cannot possibly amount to more than firewood, and in some cases it will hardly make that, being merely a dense undergrowth of scrubby birch and balsam, and such varieties, so thick that it is almost impenetrable. Now, if this is all we can hope to produce by fencing our wood-lot, referred to previously, I think it looks like a poor investment, and a very expensive way of deriving our fuel, considering that we must give up this fine area of land exclusively to that purpose, and further considering the time it takes to produce even an inferior growth of trees, such as I speak of. As regards our supply of fuel, we find that, at present price of fuel, and hired help, it costs us as much to prepare our fuel and place it in the shed as it would to purchase an adequate supply of coal and place it in the coal bin.

This area in question, were it cleared, would produce maximum yields of all kinds of farm crops; and I contend that there are many such areas over our Province at present, being retained in the state of an unprofitable wood-lot, that could easily be cleared and placed under cultivation, in which state they would be worth many times more to posterity, with the beautiful crops they would annually produce, than preserved as wood-lots of an inferior growth.

Of course, I would most emphatically encourage the preservation, and—where now bared of their original forests—the reforestation of all areas that will not produce farm crops profitably, but will carry a splendid forest growth; and there are many such areas. The growing of a forest is certainly a slow-going enterprise. Many a man to-day cannot wait on time to grow a fruit orchard, the profits of which he may realize in his

own time, let alone forest trees. But where the land is not adapted to other purposes, by all means get it under trees, and let them grow in what way they will, and be given every advantage possible to assist in their growth. The seedlings cost very little, and, after they are once planted, the only requisite is the lapse of time.

Our country is still, comparatively speaking, a new one, and, while a great deal of its area has been injudiciously cleared of forest, still there are areas which we cannot afford to leave uncleared, in atonement for what has been done. To be most profitable, they should be cleared. They can best serve the good of our population under cultivation.

New building materials are continually making their advent, many of them in inexhaustible supply, and, in the light of present progress and enlightenment, with the harnessing of our great natural waterways into electrical energy, and subsequent inventions, who can safely predict our requirements of the future. Present conditions would warrant one in saying our greatest need will be products of the field, rather than of the forest.

CLARK HAMILTON.

Dundas Co., Ont.

The Forestry Problem Again.

Editor "The Farmer's Advocate":

Re the forestry problem: I do not desire controversy, but would like to get nearer the truth. I do not see how foresters can figure out any plea for a wood-lot on the average farm in Western Ontario, if the annual average growth of a good lot is only about one cord per acre. It is true I did not take into account the fertility removed from the soil by renting it for flax at \$10 per acre, but neither did I when selling a cord of best hardwood at \$4. But who, think you, would be willing to pay \$10 per acre per year for the privilege of removing one cord of wood, at \$4? But, to make the comparison more exact, for a mixed lot, the average net income wouldn't be over \$3 per acre, whereas, for an acre of land in the same state of fertility as that in the wood-lot, a renter would readily give \$12; or, allowing for cultivation, \$9 net; and will not a cord of wood remove as much fertility as a ton of flax? The fertility of the wood-lot at present is due to the accumu-



Will Our Wood-lots Naturally Renew?

This cut, published in "The Farmer's Advocate" four years ago, showed the site of an old sugar camp in a bush near London. Twenty-eight years previous to the taking of the photograph, this spot was in sod. All the growth, consisting of hard maple, ash and basswood, had come up naturally since. The growth was straight and thrifty, the larger trees being a good forty feet high, and four to seven inches in diameter.

of time a forest growth similar to that which first claimed our soils. The large trees of our forests to-day, we have every reason to believe, made very rapid growth in the early stages of their development; accordingly, they attained great height and straightness, the growth was sappy and their trunks clean and free of knots and low branches. There was abundance of moisture about their roots. Where all of our soft woods grew—and much of the hard wood, too—water could be found at all seasons of the year. How different to-day, when every area, whether it be in forest or cleared, feels the effect of drainage, many of our wood-lots being crossed by great drains, or else such drains are so near that they come under their influence. Furthermore, in earlier days, the young growth of saplings was protected from the violent winds which to-day the young trees must combat, and they grew tall, and straight, and rapidly.

Nature always fits her product to its surroundings, and now, if we notice the growth where wood-lots have been fenced, we will find the trunks of these young trees short, gnarled, crooked and scraggy, a form which they must of necessity assume in combating with existing conditions of growth, viz., lack of moisture, and protection or shelter. Wood lots to-day are very often so isolated that the strong winds of summer and the cold blasts of winter are a serious detriment to the growth of their young trees, there so often being gaps of from one hundred acres in width, and up