O.A.C. Drainage Survey Staff, 1910.

All but one man, who was unable to be present for the photograph.

may remain solid. This is unnecessary if the posts are well treated. It is a waste of wood and creosote. The line posts need not be more than five inches in diameter.

The tops of the posts should be cut obliquely, so as to shed rain water. This is best done with an axe, as it makes a smoother cut. If the tops of the posts are not to be treated, the bevelling is important.

Decay in posts is most rapid about the ground line, where the conditions are most favorable for the growth of fungi. Posts should be treated to a distance of about one foot above the ground line.

It does not pay to treat such woods as cedar, locust and oak, which naturally are very durable. They are difficult to treat; the treatment does not proportionately lengthen their lives, and even without treatment they cost more than cheaper and equally satisfactory posts that can be had by treating inferior woods.

Canadian woods which have been satisfactorily creosoted are white ash, basswood, beech, birch, cottonwood, white elm, red and sugar maple, red oak, lodge-pole pine, quaking aspen, and white willow. These timbers should be allowed to absorb from four- to six-tenths of a gallon of creosote per post, which will be a penetration into the wood at the ground line of from four-tenths to one inch. The absorption of the oil can be measured by weighing; one gallon oil weighs 8.5 pounds. The penetration may be measured by chipping the post; it need not be mentioned that spots chipped should be thoroughly creosoted before the post is set. This absorption will probably, for the woods mentioned, require from four to six hours in the hot creosote, and ten to twelve hours in the cooling creosote. If two tanks are used, one of hot, one of cool oil, about one hour in each will be sufficient. It will be noticed that the sapwood absorbs the creosote much more readily than the heartwood. The sapwood, when creosoted, is as durable as the heartwood of any species.

Have sufficient creosote in the tank to submerge the butts of the posts about six inches above the ground line. Heat the oil to about 220 degrees F. before putting the posts in it, and keep it at this temperature for the four to six hours required for the hot bath. When the oil begins to cool, it will be absorbed by the posts, and enough oils should be added to keep the posts submerged to their proper depths.

In Eastern Canada, where creosote can be obtained for less than 15 cents a gallon, the cost of this treatment, excluding labor and fuel, should be about seven cents a post, allowing for a fixed charge of one cent per post for the cost of permanent apparatus, and six cents per post for creosote absorbed and evaporated.

Posts treated in this manner will last at least twenty years, no matter what may have been the original natural life of the wood. Cedar posts, to last twenty years, cost, in many sections of Canada, eighteen to twenty-five cents each. In the same localities, some other species, cottonwood, poplar, lodge-pole pine, soft maple, birch, pine or spruce, could be secured for five cents each or less, and treated for about seven cents. The result would be posts which would last about twenty years, at a total cost of twelve cents, or half the cost of a cedar or oak post.

It will be found advisable to use this same treatment for foundation, bridge or other timbers exposed to decay. If the timbers are too large to be treated in a tank, almost the same results will be secured if they are painted two or three times with hot creosote. Care must be taken to see that the cresote penetrates thoroughly all cracks. Where lumber is expensive, it would also pay to treat the lower portions of board fences and the lumber used near the ground in sheds and barns.

Shingles, especially, require some preservative treatment, especially those of the poorer grades now common. Untreated shingles absorb moisture, which evaporates rapidly from the upper surface of the shingle, and more slowly from the lower surface. This unequal evaporation causes the upper surface of the shingle to shrink, and warping or curling results. Shingles require a preservative that will prevent the absorption of moisture; if the preservative is antiseptic, so as to prevent decay, so much the better.

Paint is a non-antiseptic preservative. Its usefulness depends altogether on how it is applied. The only satisfactory way to paint shingles is to dip them in it before they are laid. In this way the whole surface is coated and preserved. When the shingles are painted on the roof in the ordinary manner, ridges of paint are left at the bases of the shingles, owing to the irregularities of the surface over which the brush passes. These ridges hold the water on the roof, cause it to penetrate the cracks between the shingles, to soak up underneath the shingles, and to hasten decay.

Shingle roofs give best service for the money invested when they are coated with an antiseptic preservative, such as creosote. They may be satisfactorily painted with creosote after the roof is laid, as creosote penetrates the wood more deeply than paint, and does not leave ridges below the bases of the shingles. Two coats are necessary when the creosote is applied in this manner.

The best results are obtained when shingles are dipped in creosote. This may be done by immersing the shingles individually, or by treating them in bundles by the open-tank process, the same as was described for posts. The latter is the better. The shingles should be allowed to absorb twelve or thirteen pounds of creosote per bundle, or six gallons per thousand. This would bring the treatment of the shingles to about $1.25 or $1.50 per thousand. It would be safe to say that the life of the treated shingles would be at least double that of ordinary untreated shingles. The cost of treatment may be partially met in this country by buying cheaper shingles. Spruce and hemlock shingles, of which relatively large quantities are now manufactured, were in 1909 fifty to seventy cents a thousand cheaper than cedar, and, when treated, they will give a longer service than cedar.

If it is desired to color the shingles, this can be done during the treatment by adding color to the creosote. Red or reddish-brown can be obtained by adding to each gallon of creosote 8 or 10 ounces of color "ground in oil," mixed with an equal bulk of linseed oil.

The objectionable odor from creosoted timber disappears in a few weeks, and creosoted shingles cease to taint cistern water after about one week.

H. R. MacMILLAN,
Dominion Forest Service.

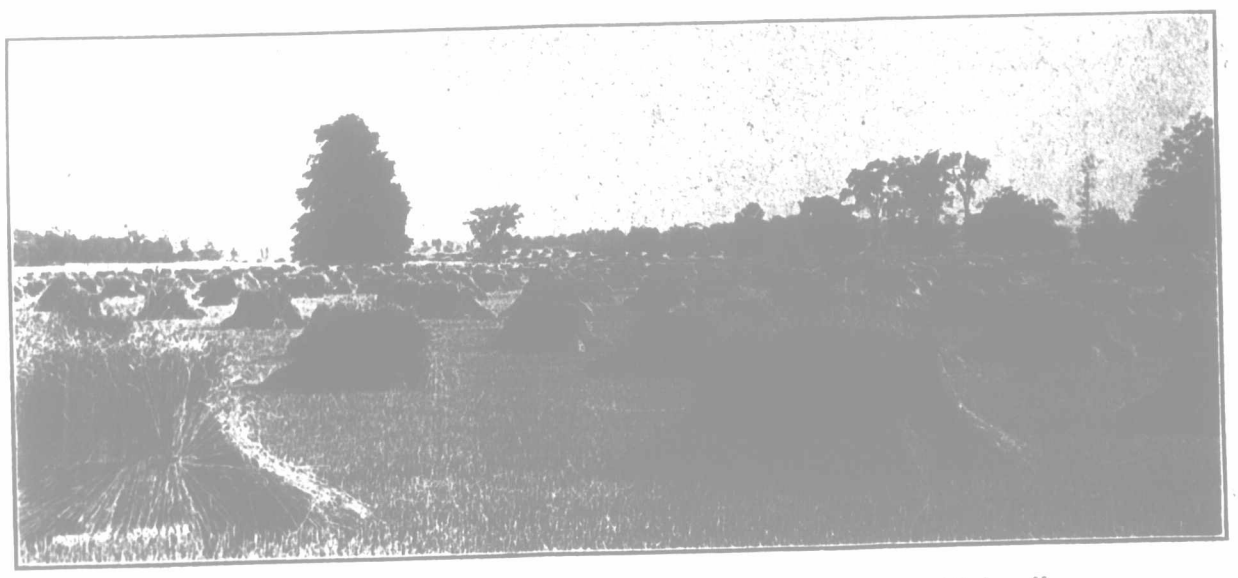
Canadian Alfalfa Seed Gives Good Results in England.

Following the interesting particulars given by Prof. Zavitz at the Ontario Winter Fair, concerning the production of alfalfa seed in Canada, our readers will be gratified to know that since 1905 an experiment has been in progress with different varieties of alfalfa seed at the Woburn Experimental Station of the Royal Agricultural Society of England, and the results up to 1909 are recorded in the last volume of the Society's Journal. The report states that in 1905 three varieties of alfalfa seed were sown in the Stackyard Field, viz. (A) Provence, (B) American, and (C) Canadian. In 1908, seed from Argentina was added to the series, but the plots sown with this were attacked by a fungus, Pseudopeziza Trifolii, which, though destroyed by the application of ground lime, lessened the yield from the Argentine varieties. The other kinds, which remained free from the disease, although in close proximity to the attacked plots, produced well, and in 1909 gave three cuttings, viz., on July 7th, August 20th, and November 2nd. The plots were cleaned early in the summer; weeds and grass had begun to invade the Provence and American plots, but the Canadian remained much cleaner, and the better crop kept the weeds down. The total weights of green produce per acre from the three cuttings in 1909 were:

	Short tons.
A. Provence	11.80
B. American	12.81
C. Canadian	19.87

For the fourth successive year the Canadian alfalfa has yielded the largest crop, and the appearance of the crop warranted the conclusion that it would continue to occupy the ground longer than the other two, which seemed likely to be overrun with weeds. At a meeting of the Society's Council, held on November 2nd, last, Dr. Voelcker, who is director of the experiments, again drew attention to the superiority of the Canadian alfalfa seed, but added that, unfortunately, it proved to be difficult to obtain the Canadian seed in sufficient quantity. The Council decided to institute a new set of alfalfa experiments at Woburn, taking for comparison those varieties of seed generally obtainable on the English market.

From the foregoing, it would appear that there is an opening for the production, in suitable localities in Canada, of alfalfa seed for export to Great Britain, and possibly, also, to the European continent.



"Fifty Bushels to the Acre Makes us Grateful to our Maker."

A 45-bushel-per-acre wheat field on the farm of John Murray, Lambton Co., Ont. The same field has yielded 50 bushels per acre in the past. The ensuing clover crop this season came out in full bloom. (Photo by W. R. Holmes.)