THINNINGS ON THE CYPRESS HILLS.

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By way of introduction are quoted hereunder extracts from a paper presented before the Canadian Society of Forest Engineers at its 1925 meeting by Mr. C.H. Morse, District Forest Inspector for Alberta. For the paper in full the reader is referred to the October, 1925, number of the Illustrated Canadian Forest and Outdoors.

"The Cypress Hills is a national forest lying south of the main line of the C.P.R., partly in Alberta and partly in Saskatchewan. The western and middle blocks, which bear a stand of conifers, cover an area of 154 square miles. The hills are really a dissected plateau, the general level of which varies from 4200 to 4800 feet. The top of the plateau or bench is mostly open grazing land which supports over 6,000 head of stock during the summer months. The coulees and side hills are all timbered with lodgepole pine with spruce on stream bottoms".

"Long before we took over the supervision of the reserve, fires ran broadcast over the forest, and the result is an even-aged stand of young growth varying from one inch in diameter to about six inches at butt".

"A favourable feature of the situation is that there is no timber for miles around, for the surrounding country being lower is more arid".

"We have had no fires on the reserve since 1919 and that one was $1\frac{1}{2}$ acres".

"There are two operations in thinning, (as at present being carried on). First, the wood-cutters go in and take out all dead and badly suppressed trees without any marking. Then the forester goes in and blazes trees to be removed. Trees left are about six feet apart, depending on light requirements. All material removed is taken down to a one inch top diameter. Brush is lopped and scattered. Narrow roadways are cut at convenient distances, and all material is carried and piled between standing trees along these roadways. A cord of fuelwood is considered to be a pile 4 feet x 4 feet, by whatever length it happens to be".

"The schedule of dues may be of interest:

Fuelwood, 1 to 3 inch, mostly dead, \$1.50 per cord.
Small poles, 3 to $4\frac{1}{2}$ inch, $\frac{1}{2}$ ¢ per foot or 3¢ per average pole.
Corral poles, $4\frac{1}{2}$ to 6 inch, $\frac{3}{4}$ ¢ per foot or 8¢ per average pole.
Logs, over 6 inches, 1¢ per foot or 20¢ per average log."

"It is just a question of the market conditions being such as to have created at least one place in Canada where some real forestry is being practiced and is paying its way."

Since the presentation of this paper the thinning of lodgepole pine stands in the Cypress Hills has been one of our major endeavours. Our ideas and methods have, however, been somewhat modified by experience gained these last two years.

Sales at our Mink Creek operation, the one referred to in Mr. Morse's paper, together with sales at two other operations, have brought to the fore a characteristic of the settler fuelwood market of the district, not heretofore fully appreciated. The Mink Creek cutting area is adjacent to the Cypress Hills Forest headquarters. The settler wanting a load of firewood had no appointment with a forest officer to make. He merely called at the forest headquarters on his way to get his load of wood. An officer measured his load, accepted payment therefor, gave him his receipt, and thereby completed the transaction. The other two operations were at a considerable distance from either headquarters or ranger station. The settler wishing to purchase fuelwood at either of these two points was required to make an appointment by mail or otherwise with a forest officer in order that the latter might be present at the time he accepted delivery of his load. Rather than go to this trouble, and then perhaps find the day of appointment too stormy for travel, he would go to his supplies town, get a permit application blank from his postmaster, forward same completed, and with remittance, to a forest officer, and in due course receive a permit to cut poplar fuelwood, which cutting may be done on any work day of the permit year. Thus two years ago we said, "We know that thinnings (fuelwood - 1 to 3 inch - as well as poles and logs) are now on a paying basis". To-day we say, "We know that thinnings (fuelwood, 1 to 3 inch) are on a paying basis only if the cutting area be at a point where a forest officer is on continuous duty".

Of thinnings (small poles, corral poles and logs) there is a somewhat different story to tell. We began at Mink Creek by having these cut by hired labour, and by selling them at a small margin of profit. See rates above. (The fuelwood was sold at cost.) To-day we find the settler, in order to get this material, will go to the trouble of making an appointment with a forest officer, will meet him at the time and place agreed upon, will cut, limb and skid trees himself, pile the brush and then willingly pay the same rate we had been charging after having had the cutting done from government appropriation. It is not necessary to state that the profit to the government in the latter case is much greater than in the former.

Two other considerations have influenced us towards having the purchaser do all the labour.

Mr. Morse has already stated that the country surrounding the Cypress Hills, being lower, is more arid. Near the Hills the residents are, for the most part, ranchers. Farther afield, whence come the bulk of our timber purchasers, they are farmers. It is

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no secret that since the banner crop years of ten years ago the farmer in southwestern Saskatchewan has had rather indifferent success. Often he has'nt had ready cash, whereas between seeding and harvest and between thrashing and snowfall, he has had some spare time. It is then that the Cypress Hills firewood, poles and logs, win out over coal from Lethbridge, and fuelwood, fence-posts, poles, etc., from British Columbia and northern Saskatchewan. In other words the settler's labour is a source of capital for improving our forest always available in moderate amounts. Who will say the same of government appropriations which as often as not are spent on fire-fighting elsewhere long before the season for cutting by hired labour (winter) has commenced?

Also the matter of insect injury is of some concern. At present our ideas in this regard are less clearly defined than on the other questions discussed above. At Mink Creek we piled all material one inch and over. We have found that the lopped and scattered brush one inch and less is for all practical purposes immune to bark-beetle injury. The bark-beetles, however, have attacked the green poles in piles. During the winter of 1925-6 a small but quite noticeable percentage of standing green trees, wholly or partially attacked by beetles, were cut out. The majority of these insect-attacked trees were previously attacked by a fungus very common in crowded pine stands here. We are, therefore, not in a position as yet to say whether or not methods adopted at Mink Creek accelerate insect injury. But we shall be on the safe side if we pile and burn our green brush as is now being done, and have the merchantable material hauled away as soon as cut,

In our thinning we now proceed as follows: An appointment, as to time and place is made by the intending purchaser with a forest officer. The latter marks the trees to be left. We sell as much of the balance as the market will absorb, the purchaser doing his own cutting. The residue is burned by ranger or hired labour.

To date we have found slacked lime in a light cotton sack the cheapest and least disagreeable material with which to mark trees, at the same time causing no injury. One or two slaps on the dry bark with a small bag of dry powdered lime leaves a mark sufficiently large and distinctive in colour to be seen from a considerable distance. We do not know yet how long this mark will remain visible on the tree, but of this we are certain, it remains long enough for the purpose for which it is used.

A double mark, one on either side of the tree, makes the tree easily noticeable to axemen, no matter what direction of approach.

Prices remain as originally set, namely as outlined by Mr. Morse.

Green brush is piled at the time of cutting. Operators are encouraged to skid trees with brush not yet cut off to the opening in the timber where they will load. Lodgepole pine trees crowns are below the average in size, and when one considers that our cut is usually small poles, such skidding is not difficult as might at first thought appear. Brush left in the interior of the stand may

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only be burned by starting a fire at the side and piling on the brush at such a rate as will not allow a fire of sufficient magnitude to injure the nearby trees. The brush is burned during the winter following the cutting.

Finally, a word as to hopes for the future. The most sought after material for fence posts up to the present in the Cypress Hills has been willow. The accessible willow is now largely cut out and on all sides we hear it no longer pays to cut this species. The next choice has been poplar. The cutting of coniferous timber was prohibited until recently. But poplar untreated lasts only half as long as willow, namely two or three years. Thus we find the larger users blue-stoning their poplar fence posts. Occasionally we hear of a user seasoning and charring. A party taking a thousand pine poles this winter proposes adopting this latter method. Blue-stoning pine is also suggested. The small user, on the other hand, ordinarily, does not plan his work sufficiently far ahead to procure for himself the benefit of treated fence posts. He takes no action until it is time to repair his fences. He will perhaps peel the portion of his post which is in contact with the soil. Apart from this he takes no precaution towards the preserving of same. If however, some agency had properly prepared these posts by blue-stoning, by seasoning and charring, or by seasoning and creosoting, and had them for sale at the time the settler wanted them, he would in many cases (not all) be willing to pay a reasonable amount extra for posts which would last so much longer.

A pleasing feature of our work this winter in the picking of considerable quantities of lodgepole pine cones for the Forest Nursery Station at Indian Head, Sask., and for the Dominion Forest Service in the Province of Manitoba. We are told that nursery stock from Cypress Hills seed is hardier for prairie planting than that from seed procured elsewhere. There are prospects then of cones becoming a valuable by-product obtainable in connection with a wood-preserving industry should the latter be established here.

It is the opinion of the writer, therefore, that there is an opening in the Cypress Hills for a man with a forestry viewpoint, with organizing ability, with a liking for the wood-preservative side of the forestry profession, with a small amount of capital and a willingness to work on a small margin of profit; a man who will take the settler as he finds him; who will, through helping himself, also help the Forest Service from which he receives his timber and the community of which he forms a part.