

Preservation of Mine Timbers

Treatment Necessary to Prolong Life Under Service

Timber in enormous quantities is used in mining operations in Canada and, owing to its high price in many localities, constitutes a large item of cost.

Ordinary mine timbers do not last in place for more than two or three years. To lessen the cost of replacement, and to conserve the supply, it is necessary to resort to some kind of timber treatment.

Timber used in mines is exposed to destruction from many sources. The relative importance of the different destructive agencies varies greatly with conditions with-

any of the above mentioned methods but, before the timber is treated, it should be peeled, seasoned and cut and framed to its final dimensions.

(a) *Brush treatment.* A cheap and effective treatment is to paint timber with two or three coats of hot creosote or some similar preservative. Care should be taken to get the preservative well into all checks, knot holes, and surface inequalities. The main disadvantage of this method is that the slight penetration is not enough to insure the protection of the interior of the timber for any considerable period.

(b) *Open tank treatment.* The timber is first immersed in a tank of suitable capacity containing the

DESCRIPTION OF MATERIAL	PREPARATION MADE	LIFE EXPECTED UNDER SERVICE (MONTHS)	LIFE	
			PERCENT REPORTED	PERCENT IN-CREASING
UNPEELED				
PEELED				
SEASONED				
SEASONED & PEELED				
SEASONED & PEELED				
SEASONED & PEELED				
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in the mines. The following shows this relative importance as observed in the United States: Wear 5 per cent Breakage and fire 20 per cent Waste from all causes 25 per cent Decay and insect attack 50 per cent

This shows that half the amount of timber is destroyed by decay and insects before it has given proper service. If this can be prevented at a reasonable cost, a considerable saving may be realized.

The following methods increase the life of mine timber.

- (1) Peeling
- (2) Seasoning
- (3) Preservative treatment
 - (a) Brush treatment
 - (b) Open tank treatment
 - (c) Pressure treatment.

PEELING. Peeling timber for use in dry workings may increase its life 10 or 15 per cent. Bark retards the loss of moisture from timber, and unpeeled wood therefore offers more favourable conditions for fungus growth than peeled timber.

SEASONING.—In dry, well ventilated workings, the life of seasoned timber is sometimes 25 per cent greater than that of green timber.

To insure thorough seasoning the peeled timbers should be piled with sufficient space between them to permit a free circulation of air throughout the pile. Too rapid seasoning, however, may result in checking, and so weaken the timber. Moreover, if left too long, decay is likely to develop. Summer-cut timber is more subject to deterioration than timber cut at other times of the year.

PRESERVATIVE TREATMENT.—Chemical preservative treatment of timber gives better results than

preservative and the charge heated to a sufficiently high temperature to drive off a portion of the air and moisture contained in the wood. Following this the timber is immersed in preservative at a lower temperature or left in the hot liquid and allowed to cool.

This method gives a better penetration of preservative than the open tank method.

(c) *Pressure treatment.* The essential difference between the open-tank process and the pressure process is that in the former atmospheric pressure is relied upon to secure the penetration of the wood, while in the latter the preservative is forced into the timber by artificial means. Owing chiefly to the difficulty of impregnating many species of wood by the open-tank process, the pressure treatments are the most widely used.

The diagram herewith gives the comparative life of treated and untreated loblolly pine gangway sets.—*W. J. D.*

Oil Burning Locomotives

Grand Trunk Pacific Will Use Them to Reduce Fire Risk on B.C. Division

The Grand Trunk Pacific railway has announced that contracts have been let and other arrangements made for the installation of crude oil as locomotive fuel on their passenger engines to be operated between Prince Rupert, B. C., and Jasper, Alta., a distance of 718 miles. It is expected that this installation will be complete by next June. The announcement does not cover the use of oil-burners on freight engines; it is understood that these will continue to use coal, at least for the present.

Farm Losses

WEEDS

During the past five years agricultural investigation work has been conducted along various lines by the Lands Committee of the Commission of Conservation. The weed question has received considerable attention and some facts have been revealed which show the real seriousness of this problem. Many of the worst weeds are getting ahead of the farmers and new methods of control are put into practice at once, the weeds will gain the upper hand.

In 1910, 100 farmers were visited in each of the Prairie Provinces and on 100 per cent of the Manitoba farms, wild oats were found. In Saskatchewan, 71 per cent and in Alberta, 3 per cent reported wild oats. In 1911 on the same farms in Alberta, 31 per cent reported wild oats while, in 1912, a still larger number reported this weed, showing that it was travelling westward rapidly.

The following table shows how some of the worst weeds are increasing. These figures are taken from the results of the Agricultural Survey of 1914:—

Weed	Manitota		Saskatchewan		Alberta	
	Per cent Reported	Per cent In-cresing	Per cent Reported	Per cent In-cresing	Per cent Reported	Per cent In-cresing
Ball Mustard	59	24	55	52	91	7
Canada Thistle	95	91	26	21	38	12
Sow Thistle	44	33	3	3		
Stinkweed	41	8	69	61	68	6
Wild Oats	95	80	59	56	83	13
	Nova Scotia		Prince Edward Island		New Brunswick	
Couch Grass	84	17	39	2	93	32
Ox-eye Daisy	92	14	73	24	93	21
Sow Thistle	3	1	34	18		
	Quebec		Ontario			
Couch Grass	96	82	53	12		
Ox-eye Daisy	69	51	34	7		
Sow Thistle	68	17	63	12		

This means that there is a great annual loss on Canadian farms due to weeds because:—

1. Weeds rob the soil of plant food and moisture thus increasing the effect of a drought by taking up the water and dissipating by evaporation the moisture which should go to the crop.
2. Weeds crowd out more useful plants, being harder as a rule and more prolific. As an example of this, alfalfa cannot do well where wild grass and weeds are mixed with it because the weeds will soon exterminate the alfalfa.
3. Weeds are a source of expense. From the time the farmer begins to fit his land for crop, these enemies increase the cost of every operation, of planting, harrowing, seeding, cultivating, cutting, binding, carrying and threshing, as well as of cleaning and marketing the produce. It takes more time to harvest a weedy crop. It costs

the farmer just as much per bushel to thresh useless weed seeds which go into the measure, as it does to thresh the grain. These are direct money losses.

4. The eradication of some of our worst weeds is very costly. It sometimes prevents farmers following the best crop rotations or may even compel him to grow a crop which is not profitable.

5. Many weeds are conspicuous and unsightly on farm lands. They thus depreciate the value of land.

6. Some weeds are poisonous to stock; others are injurious to animal products, as burrs in wool, and wild garlic and stinkweed, which taint milk. Some weeds, such as wild barley, cause irritation and painful wounds by penetrating the flesh, particularly the mouth parts.

7. Weeds attract injurious insects and harbour fungus diseases. Weedy stubbles and summer-fallows are breeding grounds for cut-worms and the rust of small grains may pass the winter on several kinds of grasses in a dirty stubble.

To overcome these losses or in a measure to curtail them, the following points should be observed:

1. Do not sow weed seeds; sow clean seed grain.

2. Do not allow new weeds to gain a foothold on the farm.

3. Prevent annuals from going to seed.

4. Practice a short rotation of crops including a sufficient amount of hoe crop to clean a good share of the farm each year.

5. Plough shallow immediately after haying and keep down all weed growth until autumn. Then plough again thoroughly and follow the next spring with a hoe crop. Gang plough shallow and work well just before planting.

6. Make use of smother crops such as heavy seedings of rape or buckwheat.—*F. C. N.*

Canada-made goods must always be good goods.

Safety in the home is as necessary as in the factory. Care can prevent accidents to the children as well as to the father.