

Commission of Conservation  
CANADA

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COMMITTEE ON FORESTS

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# Fire Protection in Dominion Parks

BY

J. B. HARKIN

*Commissioner of Dominion Parks*

Reprinted from the Seventh Annual Report of the  
Commission of Conservation

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OTTAWA—1916

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## Fire Protection in Dominion Parks

BY

J. B. HARKIN

*Commissioner of Dominion Parks*

**F**IRE protection in the forests in Dominion parks is undoubtedly one of the most serious problems confronting the parks organization. I intend, however, to deal with only two aspects of our fire work and not with our general fire work, which is much the same everywhere.

During the past year our special activities in fire protective work have related chiefly to the development of a portable gasoline fire engine for putting out fires when they occur; and to a campaign of education calculated to prevent the starting of fires.

Portable Fire  
Engine for  
Forest Fires

In regard to the engine I think it needs no argument to convince anyone that the surest way of putting fire out is to apply water. In forest fire fighting it is well-known, especially in a mountainous country, very little can be accomplished with buckets. It is a physical impossibility for men to carry water under fire conditions for any length of time, and it is equally true that usually when a man has climbed up a rough hillside with a bucket of water there is very little water left in the pail when he reaches the fire. It is the experience of nearly all who have been concerned in forest protection that most of the big fires are what are called secondary fires.

As a rule fires are discovered early enough to permit of their being isolated in a small area. The usual practice is to then have a body of men to watch the fire to prevent it spreading from the burning logs, tumps and humus of the segregated area.

Very often a big wind storm comes up, carries the fire forward, despite the efforts of the watchmen, and a conflagration is the result. It was figured that if water could be got on such a confined area quickly and in quantity we could remove one of the most serious forest menaces. It was this that led us to figure on a portable gasoline fire engine.

It is obvious that light weight and high power are essential. A great deal of time and thought was given the subject. We were fortunate in securing the co-operation in this work of Mr. H. C. Johnston,

of the Railway Commission Fire branch, whose mechanical aptitude and varied experience in fire fighting and fire equipment proved invaluable. One engine was completed last spring. Its weight stripped is 118 lbs.; equipped with solid oak base, etc., for work 143 lbs. The engine is rated 6 H.P. It delivers 20 gallons of water per minute through 1,500 feet of hose. Assuming that it would take one man with a bucket 10 minutes to deliver 10 quarts of water at a fire you will see that this engine will do the work of 80 men. And of course do it at insignificant cost. The outfit is provided with parallel handle bars by which two men can carry it anywhere.

There are narrow gauge trucks by which engine and hose can be taken by horse-power over the better trails. The engine in its field tests has exceeded our expectations. There were no forest fires of any significance last season in Rocky Mountains park (where the engine was placed), but it was tried out in connection with the burning of large brush piles. Let me read you some extracts from reports in this connection. Mr. H. E. Sibbald, Chief Fire and Game Warden, who was in charge of the engine part of the time, reported as follows:

"The engine enabled us to burn the brush in large piles within a clearing of 40 feet in very dry weather without scorching the standing trees; also enabled us to keep fire from spreading along the ground and entirely extinguishing fires before leaving in the evening. Not one fire started up after being put out. We carried the water in one instance over a steep hill 200 feet high and along clearing for 600 feet, the gauge showing a pressure of from 85 to 90 lbs. This enabled us, by holding the nozzle close to the edge of the fire, to make a ditch from four to six inches deep all round the fire from the force of the water. This will relieve us of digging a trench round a fire, as it is through the hidden roots that fires always get away."

Mr. C. Phillips, Fire Warden, who continued in charge of the engine, wrote:

"The whole apparatus was given a very fair four-day test at the Alien detention camp at Castle mountain last month, while the aliens were burning large piles of brush and small timber, and the pump undoubtedly kept the fire within the required area.

"Water was taken from the river and pumped through 800 feet of hose to points where required, varying from 5 to 150 feet above the water level. A pressure of 90 lbs. was obtained at the outlet of the pump, and a stream of water was thrown about 40 feet at the nozzle."

At a test in Ottawa, the engine was taken to the foot of the locks, and, while the engine was not working as well as it should, through an unfortunate mistake in the mixing of the gasoline and oil, it worked steadily and pumped water 173 feet vertically to the top of Parliament hill. An engine of that kind, that can be taken any place in the mountains, by man-power if necessary, should be of great value in extinguishing fires which are guarded, and possibly, may be of great use in direct fire fighting. The intention is to use a battery of engines. One engine would pump through 1,500 feet of hose to a readily portable canvas basin, and a second unit would pump from that on. We might require a good many units, because we are never sure of having water close to a fire. The installation is not expensive; were it so it would be useless to consider it. The engine cost \$210, the hose \$165, or a total cost of \$375. By ordering in quantity we could no doubt secure a considerable reduction in these prices.

Use of Aliens  
in Clearing  
Work

The Forests Committee of the Conservation Commission last year called attention to the desirability of removing inflammable material in the woods on Government lands outside of the railway right-of-way. We have made a beginning in that regard. I doubt whether we could have done anything under ordinary circumstances, because the wages of laboring men are three dollars a day in the West. We were fortunate, however, in having a camp of interned aliens engaged on road construction there, and, as the road ran parallel and close to the railway, we had them do a considerable amount of clearing along the railway tracks outside the right-of-way.

This cleared portion appealed so much to us that we extended it to our own roads. We had the aliens clean fifty feet on each side of the roads and they also trimmed off the trees. The improvement in appearance was such that, if we can ever get money for it, we intend to construct all our roads in that way. Incidentally, we protected our forest from fire. These roads are now being largely used by automobiles and carriages, and cigar and cigarette stubs and matches are carelessly thrown to the side; if there were debris there fires would likely be started.

Co-operation by  
Private Interests  
in Fire  
Prevention

Another feature of our work has been a campaign of education. We have devoted a good deal of attention to it and we hope we have secured some results. It has cost practically nothing, and will, we believe, contribute to the education of the public on fire prevention. Practically there are only two kinds of fires, so far as our parks

are concerned at any rate, those arising from human causes and those caused by lightning. We cannot prevent fires that are caused by lightning, but those of human origin are nearly always the result of ignorance or carelessness. Not one fire in ten thousand is started deliberately. It is simply another case of not knowing it was loaded—because the necessity for care is not realized. It is obvious that education is a first necessity. That has been said this morning and I presume, has been said for years. Those who have studied the psychology of it appear to be agreed that the way to influence the public is to use affirmation and iteration. This policy we have adopted.

Another factor in this campaign of education is the tremendous influence of habit. It is admitted that we are creatures of habit. Habit is at once our strength and our weakness, and we should, therefore, develop careful habits in regard to fires. With this object in view, we started our educational work with match boxes. We figured that, in the final analysis, practically all fires originate from matches and, therefore, that a match box would be a good medium of education. We took the matter up with the match companies of Canada, and they all agreed to put a fire warning notice on their match boxes. They had to change their labels, and they did it entirely at their own expense, because they thought the cause a good one. On every match box put out in Canada, except perhaps, a few safety match boxes, there is a fire warning notice. That means that nobody can take up a match box without seeing this notice, and we hope, by the process of affirmation and reiteration, to influence every man to some extent. On this notice, and all other notices which we arranged for later on, we had at the bottom, "Printed at the request of the Dominion Government," as we thought the man who, at his own expense, was carrying on this work, was entitled to that credit; we also considered it would add weight to the notice itself. So of the millions and millions of match boxes turned out in Canada to-day, practically every one bears a fire warning notice.

The match companies putting on the notices are: Eddy Co., Hull; Canadian Match Co., Drummondville, Que.; Dominion Match Co., Deseronto, Ont.; Eureka Match Co., Halifax, N.S.

Our object, of course, is to reach the people who are most likely to cause fires. It occurred to us that the hunters who go into the woods in the autumn were likely to cause fires; so we made the suggestion to the ammunition people that they insert a fire warning notice in each of their packages of ammunition. There are two companies in Canada manufacturing ammunition, the Remington Arms-Union Metallic Co.,

and Dominion, and both immediately agreed to put this notice in; the result is that every box of shells has a fire warning notice. Both of these firms went to a great deal of expense in getting out these notices. The Dominion people got out a nicely lithographed notice, showing a picture of a forest fire, with birds, moose, and various animals fleeing before the fire. It also contains a direct appeal to the sportsmen:—"The Canadian forests are your hunting grounds; will you not help to preserve them?" That is an appeal to selfishness. We try to induce the hunter to be careful of fire in order to preserve his own game. On the backs of the notices are the ordinary fire warnings about throwing away lighted matches, cigar stubs, etc., special attention being directed to camp fires, with a final injunction that a little extra care may save thousands of dollars, and innumerable birds and animals.

The Remington people have, on their own initiative, extended the campaign. They were much pleased with the original proposition because game preservation means a great deal to ammunition companies.

The greater portion of the sales of the ammunition people really is for hunting, not for trap shooting or the other sports with a rifle or shot gun, and it is therefore of vital importance to them to leave nothing undone to protect the game.

To extend the educational campaign the Remington people issued their ammunition box fire notice in the form of a poster stamp. This they furnish in quantity free to dealers for sticking on all parcels containing sporting goods. They thus reach the man who may start a fire, the man who may go into the woods. They also spread the gospel of care with fire by having a write up of their own efforts published in the trade papers and many of the newspapers. The ammunition companies have carried on this campaign entirely at their own expense.

#### Reaching the Campers

Another class of people liable to cause fires are those who live in tents, either for recreational or other purposes. An appeal was made to tent manufacturers to insert a fire warning notice in every tent, so that a man living in a tent would, the first thing in the morning, see a notice: "Be careful of fires," and every time he entered the tent he would have the benefit of the iteration of that notice. The result is that nearly all the tent companies are inserting the fire warning notice, at their own expense, in every tent turned out. The notice is printed on a cloth label and sewn into the tents. This entails some expense but the tent manufacturers are satisfied that it is good business for them



to help protect the forests, as there would be fewer tents used if the forests were to any serious extent destroyed.

The following companies are affixing the notice in their tents: Bromley & Hague, Winnipeg; Edmonton Tent & Mattress Co., Edmonton; Finnie & Murray, Winnipeg; Grant, Holden, Graham, Ottawa; Robert Soper Tent Co., Hamilton; T. T. Turner & Sons, Peterborough; Edw. Lipsett Co., Vancouver; D. Pike & Co., Toronto; Smart-Woods, Ltd., Ottawa. Others intend placing notices next spring.

**Educating the Woodman to be Careful**      Educating the man who goes into the woods and works with an axe was next undertaken. We had a special axe label printed and H. Walters & Sons, axe manufacturers, of Hull, Que., undertook to have a label attached to every axe they made. The label is on thin paper, the same as is used for their own labels and they say it will stay on almost as long as the axe lasts. The label contains a picture of a forest fire and the motto: "No work for the axeman if the forests are destroyed by fire. Save them by extinguishing camp fires, cigar and cigarette butts, and live ashes from pipes." This should influence the man working with his axe in the woods and induce him to be more careful with fire.

Many who use a telephone directory occasionally go into the woods, so we asked the Bell Telephone Co., to give us some space in their directory. We always ask for these things free and we get them. In the Bell Telephone book there is half a page of fire warning notice, which they have inserted entirely at their own expense.

**Co-operation of Railways**      The work already outlined, although started to benefit parks primarily, related to fire education in general, but the educational campaign was also carried on in other ways with special reference to the parks. The tourist and the railway are the two sources of danger in the parks.

The machinery developed by Mr. Clyde Leavitt, of the Commission of Conservation, for dealing with railway-caused fires is so effective that the railway-fire is no longer the thread-suspended sword it used to be. However, while developing our educational campaign, it occurred to us we might help a little by making an appeal to the railway-men who cause the fires—the men on the engines; consequently we arranged with the Canadian Pacific and the Grand Trunk Pacific for the posting of a card in the cab of every engine operating through the parks with the following legend:

## SAVE THE FORESTS

ENGINEMEN: If the forests throughout the mountainous Dominion Parks through which this railway runs are destroyed by fire, passenger traffic will decrease, fewer trains will be operated and you may be out of employment. Help the Dominion Parks Branch to protect the forests by exercising the utmost possible care with the fire apparatus on this locomotive.

J. B. HARKIN

Commissioner of Dominion Parks

Educating the  
Tourist  
Regarding Fire

To reach the tourist we naturally sought the cooperation of the railway companies.

The first step taken was to ask the companies to post fire notices in their coaches and to print notices on the time cards and on their dining-car menu cards. All the railways responded promptly. No doubt these various notices are now familiar to all of you. To further emphasize the warning, arrangements were made with the Canadian Pacific hotel department that a suitable fire warning notice should be printed on the menu cards of all the company's hotels in the parks. In addition, we printed an attractive card notice and had one hung in every guest room in every hotel in the parks. The card was worded as follows:

## SAVE THE FOREST

You are within a NATIONAL PARK and you are no doubt impressed with the grandeur of the scenery and delighted with the evergreen forests. These are beautiful to-day, but may be desolate to-morrow unless you are careful in the use of fire. Your camp-fire, lighted match, cigar, cigarette, or the live ashes of your pipe may destroy many square miles of trees, shrubs, flowers, ferns, bird nests, and other interesting things. Therefore be careful with fire in the woods.

J. B. HARKIN

Commissioner of Dominion Parks

This card, in addition, was freely distributed in restaurants, stores and places of business in the parks. There are a number of moving picture houses in the parks and to these special fire slides were supplied and arrangements made that they should be displayed at no cost to the Department at all performances.

Practically all visitors to the parks do a good deal of driving or horse-back riding. Consequently we had two types of attractive

metal fire notices prepared; one was attached to the reins of all livery saddle ponies in such a position that the rider could not grasp the reins without noticing it, the other was attached to the dashboard and the backs of seats of all livery rigs in order that every one driving would have the notice constantly before him. The notice on the carriages reads:

#### SAVE THE FOREST

Do not throw burning matches, cigar and cigarette butts or live ashes of pipes from this vehicle.

The notice on the reins reads:

#### SAVE THE FOREST

Do not throw burning matches, cigar and cigarette butts or live ashes on the road side.

Of course, in addition to these various schemes, we also followed the usual practice of having poster notices distributed on all roads and trails in the parks so that no one could even walk around without learning the gospel of fire protection. For this purpose we used a special enamelled metal sheet in several colors and bearing a picture of a forest fire calculated to arrest attention.

We printed fire warning notices on our Parks Office stationery and at our request most of the hotels and business places in the parks also did so.

Fire Protection  
Constantly  
Before the  
Visitor

In this campaign in the parks, it seems to me, we carried out a pretty complete campaign of affirmation and iteration. Fire protection was taught to the tourist from the time he began thinking of his trip, because he got it in his time card, he got it in the railway coach and in the dining car at every meal; he got it on the hotel menus and in the shops; he got it riding, driving, walking; in the picture shows; also when writing home, because it was on most of the hotel writing paper; and, finally, he got it when he went to bed. It may be that a campaign of this kind may almost drive him, in desperation, to set fires. At least that has been suggested, but it is a chance that we have to take.

Mechanical  
Equipment  
Essential

In the campaign outlined above, there are two or three points which it would be well to act on. Efficiency, in connection with fire fighting, can be promoted by paying more attention to mechanical means for fire protection purposes. So far as carrying on a campaign of education is concerned, our experience has been that the business

men of Canada have sufficient interest in fire protection and forest protection to co-operate at their own expense in carrying on a campaign of education. Acting on lines something like these, where you utilize as media various articles in constant and tremendous circulation, you have an opportunity of reaching almost everybody in the country, and, of course, the great advantage is that such a campaign does not call for the expenditure of large sums of money.

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