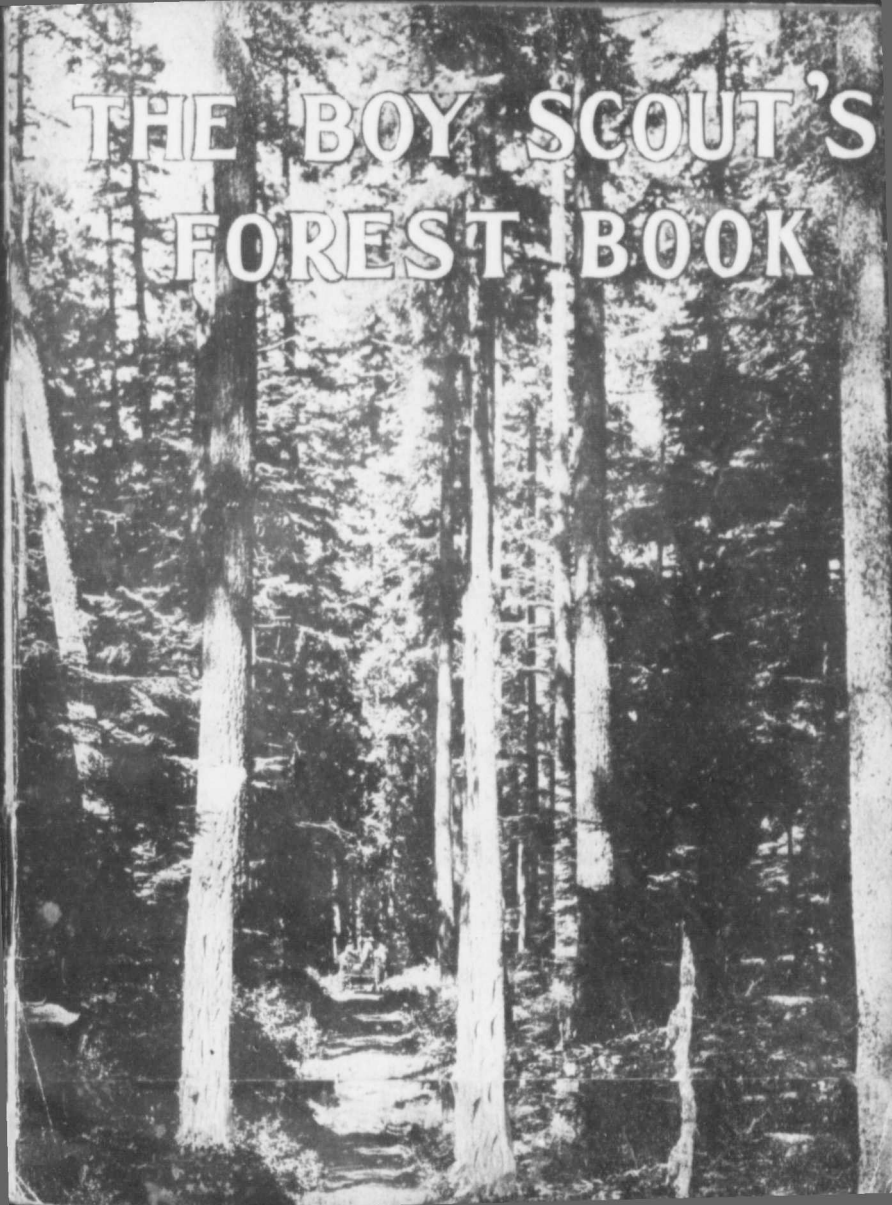


THE BOY SCOUT'S FOREST BOOK



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The Boy Scout's Forest-Book

By Robson Black.

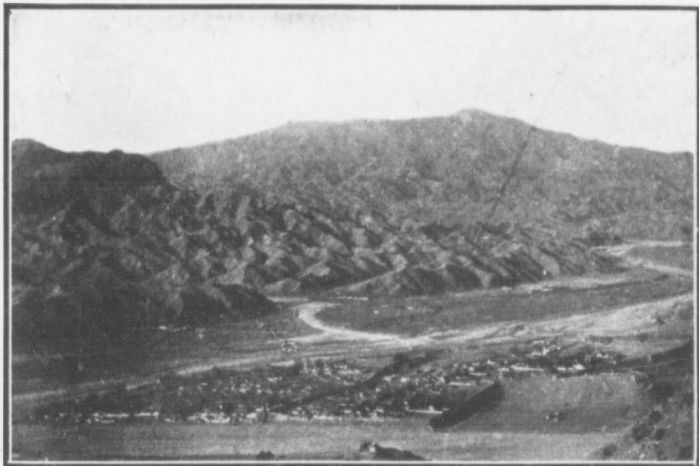
Here's for an excursion to the forest!

A new sort of excursion this time—no hauling water up hill or driving tent pegs or striking camp. Any boy is eligible, in or out of uniform. The only stopping-places allowed are the pictures, but outside of that one rule, the Scout is free to pursue his way independent of fellow troopers or his officers.

This trip to the forest follows a brand new path. You know the old way of hiking—take the main road north of the town, turn to the left at the second concession and up the cow path, other side of the farmhouse, until you see the maple woods. This time we hike with winged feet over whole provinces. Now we are in British Columbia stalking like pygmies through the marvellous Douglas Fir and Cedars, now in the dense Spruce forests of Quebec, this moment looking down upon an Ontario paper mill, and in the twinkling of an eye taking a snap shot of a New Brunswick waterfall.

The Boy Scout is the natural friend and ally of the Forest. He has none of the old-fashioned terror of it, because he has penetrated its long and beautiful lanes and knows how extremely kind and generous it is, how it has befriended him in the hot summer days, how it has given him shelter from storms, provided him with the fun of fishing and hunting, and asked hardly one favor in return.

Some man who makes his living twisting out facts and figures said that without the Tin Can,



Would you choose this country for a hike? It is in North-western China. Foolish people years ago stripped the mountain sides of their forests. Now, enormous districts are empty and ugly. Most of the population has moved away.



But look! Here we have a Canadian hillside. It has been badly swept by fire. One more fire and the land will be forever barren and bare, much like North-western China.

New York City would have been impossible. He meant that unless a way of preserving food supplies cheaply had been discovered, it would be physically impossible to feed the four million human beings in New York three times a day with fresh food delivered direct from the farms.

Some Ways We Use Wood.

It is even truer that our modern Canada would have been impossible had not the country been in possession of enormous forests of splendid quality close at hand for any pioneer to help himself. We simply had to have wood in this country and could not have lived comfortably one day without it. Our railways were built with millions of ties and thousands of wooden cars and coaches. Mining could never have commenced and would not continue to-day if wooden mine props were not continually supplied by the train load. The props used in Nova Scotia mines every year, if placed end to end, would stretch from Halifax to the Coast of Ireland. Our fisheries require wood for vessels, barrels, boxes and in other ways. Our farmers demand it for building material and fuel and fence posts. No newspaper in all Canada could issue without thousands of spruce trees to feed the hungry paper mills. Our homes are mostly built of wood, furnished with wooden articles, and kept snug in cold weather with wooden fuel. Maybe you drove last week in a wooden vehicle over wooden bridges and delivered a load at a wooden flour mill or cheese factory, sixty or seventy years old and of staunch old oak or pine timbers from cellar to roof.

Of course, we hear some talk, now and then, about *wood substitutes* but actually the use of wood in Canada is increasing from year to year.



When fire runs through a "watershed" forest burning off the spongy absorbent soil, Nature's great reservoir for holding the surplus waters of spring thaws and rain falls is thus destroyed and—



—we find our towns flooded, our power plants damaged, our factories idle. Nature designed the forests purposely to keep rivers from going to extremes.

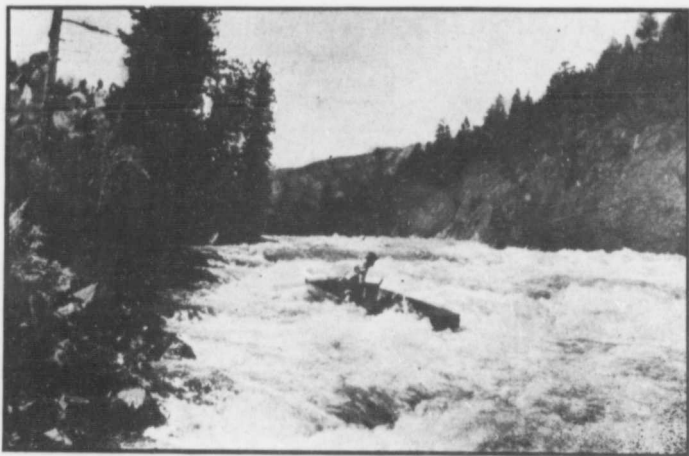
Just look at this: every twelvemonth we cut up enough trees to make a board-walk, 10 feet wide and 73 feet long for every man and woman, boy and girl, in the country. In other words, the 'cut' taken from our forests every winter would supply all persons, big and little, from Halifax to Victoria, with two cords of wood each. Imagine every man, woman and child in your district standing beside their two cords and then widen the picture to include all the thousands of communities in Canada. It looks like a lot of wood, doesn't it?

Tracing an Electric Wire.

Any Boy Scout knows that fence posts are wood and newspapers are just the pulp of wood. But here is a different story: Electricity for most of our homes and factories is also only a question of living forests and nearly all the power that runs Canadian street cars comes indirectly from the great dense masses of tree life on what we call the "watersheds." Our larger cities and towns are lighted by electricity developed from water powers in rivers. A big majority of the mills that employ armies of workers would come to a sudden stop if the flow in certain streams lost volume or evenness. Old Captain Water-Power is a splendid friend when treated right, but he can prove likewise a tricky enemy.

When we say that your electric wire runs back to a forest it is not a trick of mixing words or sense. The truth is the same as when we say: "A rifle ball is propelled by expanding gases" or "The rose takes its color from the sun." Nature's book of unchangeable laws is pretty safe to go by.

Canada, as you know, contains little or no anthracite coal, and to run factories by steam-power coal is necessary. Providence balanced that lack with a



Here is water power, enough of it to turn the wheels of a city. Useful, too, some day if the forests are left on the watersheds.



An irrigation ditch in Alberta. Millions of acres of land in Western Canada are useless without artificial water supply. The unburned forests on the Eastern slopes of the Rockies are sole guardians of this water supply.

marvellous lot of flowing water. We have more water going to waste in Canada than would drive every factory wheel on the continent. But the moment we say *that* we are heading straight into the forest again, for without living trees on the thousands of hills and valleys that act as "watersheds," the muscular power of most rivers would be worse than useless. Engineers will tell you that "forests regulate stream flow." They mean that the porous mass of needles, twigs, leaves and mosses in various stages of decay forms a great reservoir ready to absorb endless tons of water that come from the melting snows and heavy rains of Spring. Where a river is fed by streams that take their source in wooded areas, the surplus waters of the winter break-up are held in reserve and liberated very gently and regularly throughout the entire year. Burn down or hack down the greater part of tree life on "watersheds" and the spring snows and rains having no natural reservoir to lodge in, tumble pell mell down the hillsides into the streams and rush off at deadly speed to the bigger rivers, carrying disaster in their wake. A river without forests to back it up acts as freakish as an unbroken colt and is a source of danger instead of comfort. Nature knew her business when she designed the forests as the guardians of streams. We thoughtless Canadians have upset her wise arrangements in every province and we pay for it in the terrible losses every year connected with spring floods and summer droughts.

What is Our Biggest Business?

Providing cheap and plentiful power for running our factories and equipping our homes is, of course, just one of the things that the forests do for us. Only a small percentage of our tree growth need be



Part of the Forest-Army at work. Rolling logs down a hillside to be loaded on sleighs and taken to the railway siding.



Harvesting the tree-crop in Northern Quebec.

considered as absolute "watershed forest" where no trees should be cut. The remainder was intended to be used as lumber, fuel, pulp-wood for making paper, and for other purposes, but all should be preserved by law from careless cutting and burning.

Lumbering and all that depends upon lumbering is the biggest business in the whole of Canada. Without considering agriculture, lumbering and its allies employ more men, pay more wages, and carry more capital invested than any other in the Dominion.

If you could collect at one point all the Canadian men employed in lumbering or wood manufacture they would form a longer procession than all the inhabitants of Hamilton or Ottawa. No less than 110,000 men and their families get their livelihood from our Canadian woods. This does not take into account the many thousands who get their living in transporting wood products on railways, or making wooden parts of implements, or the merchants who serve this great class or all the other people who might correctly be counted in.

These armies of good citizens engaged in making up forest products into everyday articles depend entirely upon a perpetual wood supply for their employment. Not one of them gets his living out of a *burned* forest. So, every time a boy or man keeps fire from damaging the woodlands, he keeps some Canadian wage-earner from losing his employment.

Looking to a Tree for Meals.

Have you seen the "pulp and paper towns" at Espanola or Thorold or Iroquois Falls, in Ontario, or Grand Mére in Quebec, or some of the thriving lumber mill towns scattered all across Canada? It



How many logs are in all these piles? 48,000. The picture was taken in Nova Scotia, which needs every log it can grow for mine booms, ship building, fisheries, fuel and other uses.



What does a lumber camp look like? Nearly all of them are built the same—a short street of commodious log houses. The "lumberjacks" who live in them are well paid, well fed and clothed, and represent a big army of workers.

is a great sight. Every man, woman, and child literally looks to a tree for meals and lodging and clothing. If the wooded country from which these mills float down their logs was swept severely by fire through some person leaving a camp fire glowing or dropping a match in the pine needles it would destroy so much of the tree supply that practically the entire community would be thrown out of work and the value of the big mills damaged possibly for all time. These towns derive *all* their employment from the forests and in that way are exceptional, of course. But thousands of other towns and cities are kept prosperous by saw mills, boat building shops, box factories, furniture makers and the many other industries that need the forest to keep them running. How many Canadian merchants, railway employees, clothing and boot makers, farmers, carpenters, masons, clerks, etc., owe *part* of their living to the serving of the Canadian Forest-Army is impossible to guess at, but must be considerable.

Who Gets the Forest Dollar?

Get this fact clear!

The Dollar that comes out of a felled tree is Everybody's Dollar. It shares itself with all citizens from Atlantic to Pacific. No Dollar from any Canadian industry is broken into so many parts and so widely distributed.

Two thirds of each hundred cents that comes from a log goes to pay wages and buy supplies. The other third goes to meet the government dues and interest on the lumberman's investment.

But who *owns* these wonderful forests that give so many men and families a living and stand behind the prosperity and happiness of the whole country?



Look into this picture——



——and then into this. You can make the top scene as hideous as the bottom scene by "forgetting" your camp fire, by tossing away lighted matches, by any kind of fire.

Briefly, the provinces of Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and British Columbia own and manage their forests independently. The forests within the provinces of Manitoba, Saskatchewan and Alberta and a strip of twenty miles wide on each side of the C.P.R. tracks through British Columbia, known as the "railway belt" are governed by the Forestry Branch of the Dominion Government.

The People Are the Owners.

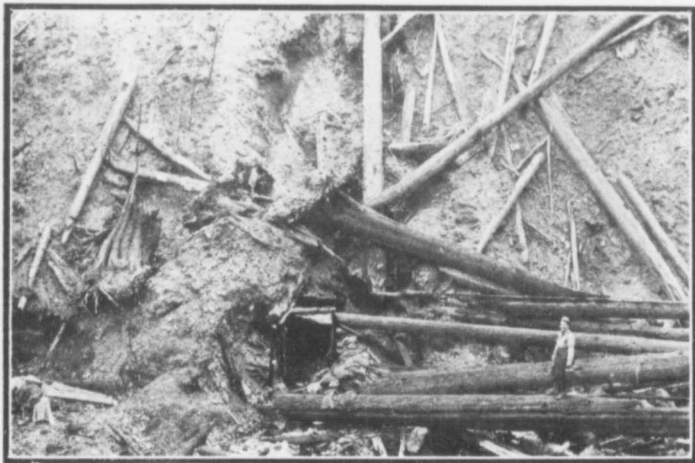
In all Canada there are estimated to be about five hundred million acres of various degrees and values of forest growth. Only one third of this acreage contains trees that can be sold in the market as saw timber; this does not take into account pulpwood or fuel or tie and pole material or small timber of any description.

Of the five hundred million acres covered with good and poor tree life, only about fourteen million acres are owned by private persons. The enormous balance is owned by our governments, who are, as you know, the agents and trustees of the Canadian people. A good proportion of these wooded lands is under lease to lumber and pulp companies who can cut under regulations and on payment of a scale of dues to the public treasury. Our governments collect about seven million dollars every year from the owners of timber leases. If the lumbermen did not supply this large amount for running our governments, it would have to come direct from the people in the form of new taxes.

Many people in Canada have come to believe that all the worth while timber has been handed over to corporations. This is not true. In Ontario, for instance, out of 150 million acres of woodland,



Big German guns hailed explosives into a patch of Belgian forest and this is what was left after two days' attack.



But high-explosive shells never sweep as thorough as a Canadian forest fire. This picture shows the wreckage of a beautifully timbered mountain side in British Columbia after two days' burning.

about 24 million acres have passed under lease. Not a single limit in Ontario, as far as is known, is *owned* by any private party. In Quebec, the amount of forest area that has got out of reach of the government by private ownership is almost negligible. You will readily understand the great importance of governments *owning* the timber lands. The people through their elected representatives can say at any time exactly what treatment the forests of the country shall receive. If they believe the forests are worth guarding for the enormous wealth and comfort they give us, they can insist that modern fire protection systems shall be promptly installed, with plenty of rangers and inspectors, the best kind of equipment, and generous appropriations from the public funds to make the task thorough.

We Can Do These Things.

Then, too, the governments being the owners of the woodlands, have power to regulate the cutting of timber so that a new crop of young trees will be sure to follow, and they have power to prevent settlers from burning down neighboring forests by carelessness, and power to stop destruction of our splendid "watersheds."

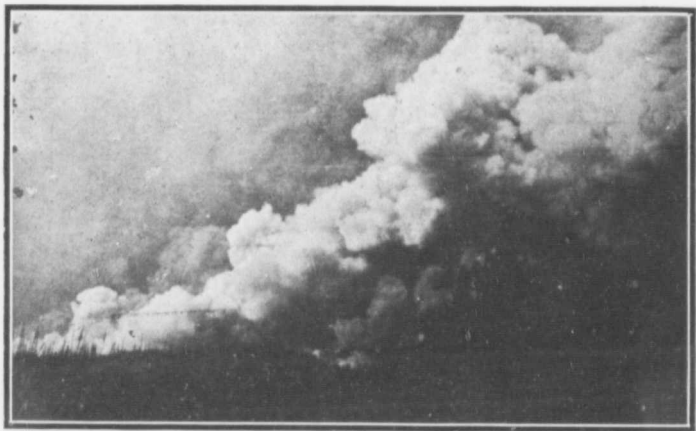
This surely is a great power to keep within the hands of the majority. Some day, with the aid of the Boy Scouts who are reading these pages, it will be wielded as fully as it deserves to be.

And now what do you think of the way we Canadians are *now* using our absolute power to guard the forests? This table is all facts:

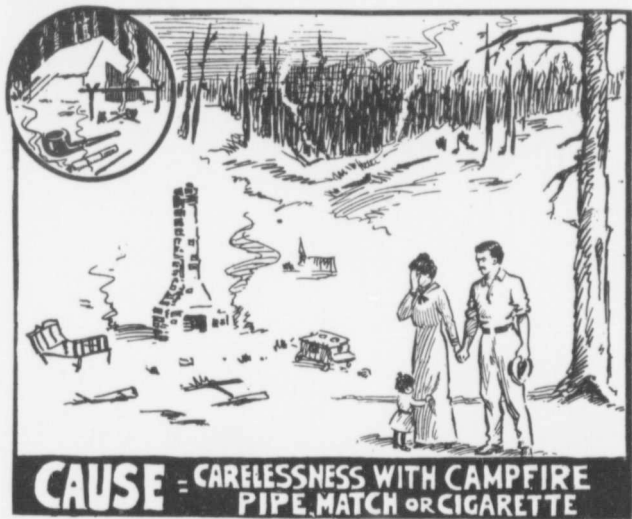
For every twenty trees grown in Canada in a year

We cut down.....17 trees.

We burn down.....170 trees.



From a photograph of a raging forest fire in Northern Alberta.



He would be a queer farmer who spent his twelve months in hard labor and then faced such a piece of book-keeping as this:

Planted in wheat.....187 acres.
Harvested17 acres.
Set fire to and destroyed....170 acres.

Such a man would certainly meet with little respect and would pile up a pretty small bank account. But we are not one bit better, as you have seen, in the way we handle our forests.

In the last century we allowed to burn down *one half of the whole forested area of Canada*. In 1915, 1914, 1913, and as far back as you please, our loss equalled many millions of dollars a year.

Killing the Forest Children.

Most of these fires not only killed all or part of the splendid mature timber that was ready for cutting but wiped out the tender young trees, the "forest children" which in a few years would have reproduced their elders and have kept the family going. Fire ends all that. If allowed to run through repeatedly it will burn off the soil itself and leave what was once a valuable and beautiful woodland just a ghastly and empty moor.

To say that Canada has plenty of timber both to cut and to burn is to say something that no forest engineer or lumberman will believe. We have only one quarter of the standing timber of the United States. Instead of our 'far north' being 'filled with inexhaustible forests' it is filled largely with the wrecks of burned forests and comparatively little growing timber fit for the market. We have to-day only enough growing timber to meet our needs. Already we have paid a severe price for what we have



Getting out British Columbia's "wood crop." Rails are laid right into the limits. Note the screen on the smokestack to stop sparks flying.



Winter is the season of greatest activity in the Canadian woods. These men are taking out logs to a sawmill which will turn them into lumber.

sacrificed to Fire; we will pay even higher for any of our present limited stock we allow to be thieved by burning.

"Why does this wholesale destruction go on? Why does not someone stop it?"

Who Is This "Some One?"

The only Someone in Canada who can stop forest fires is *you*. Whether eleven or eighteen years of age, it is up to you, Boy Scout!

Let us understand this thing once and for all.

The people who lose most by the plague of burning forests are not Lumbermen, but the thousands of fathers and brothers and families we bunch together as 'the masses of the people.' Most of the money that comes from the forests, as we have seen, goes to wages and supplies. But very few think of the forests in this light, and so when a million acres of pine and spruce go up in smoke, most people say: "Some lumberman will lose a lot of money." Doubtless the lumberman will, but for every dollar *he* puts up for a timber loss, it is safe to say the wage earners and tax payers put up twenty.

Here is another answer to the 'Why?'

We have come to look upon a forest fire as very different to a city fire because the growing of trees cost us not one particle of money or effort. A kind Providence made them a free gift, did all the work and supplied all the materials. We trustees have been asked only to protect this ready-made blessing from fire and other destruction.

The Sixty-dollar Woodshed.

A sixty dollar woodshed does not spring ready-made from the ground. It takes our cash and muscle to erect. So when a fire fiend starts it



In this cosy cabin lives one of the "lookout men" of the Lower Ottawa Forest Protective Association. He spends his days at the tower watching for a tell-tale wisp of smoke down in the valleys.



This man is a railway patrolman. He follows up freight and passenger trains and sees that no stray sparks set the neighboring forests afire.

blazing we have him arrested and clapped into prison. Let the same fire fiend burn down a million dollar forest and we make little effort to apprehend him. Why? Because we are so old-fashioned as not to see in a burning forest a share of our personal property.

Instead of saying: 'Why doesn't *some one* put a stop to this firing of our common goods—the forests?' suppose we get down to business and say: 'Let *me* make up my mind to do everything possible to save the woodlands from fire.' If all the Boy Scouts in Canada will say that and live up to it, we shall consider the problem more than half solved.

How the Fires Start.

How do forest fires start; by lightning?

Not one in fifty cases.

By 'spontaneous combustion?'

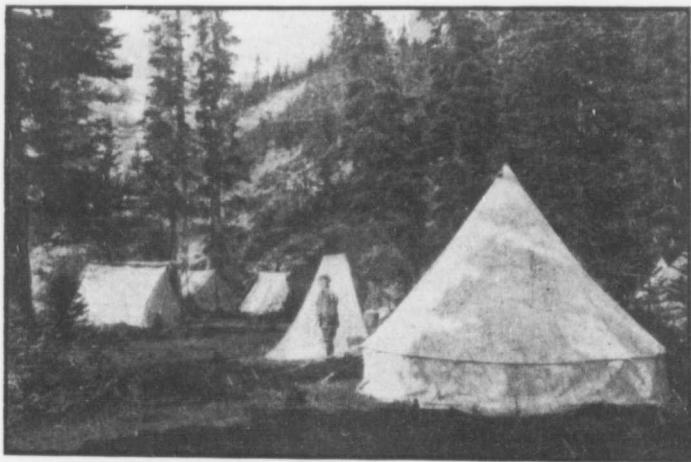
This phrase is handy for some fires but it means little in accounting for forest losses. The combustion comes usually from a neglected camp fire, or the clearing fires of settlers on the edge of growing timber, or a lighted cigarette or cigar or hot pipe ashes or locomotives. Human hands and human heads supply the spark, without which few of our great forests would ever be abandoned to flames.

"How can *I* prevent a forest fire?"

There is no better answer than is contained in these rules. Veteran hunters and fishermen, the best mountain climbers and guides make a point of carrying out such sensible prohibitions because they know for one thing that carelessness with fire is a sign of the amateur, and there are no good times for anybody in a wrecked forest.



In the lumbering operations of Nova Scotia, oxen are frequently used to haul logs out of the bush.



Tenting with the Alpine Club of Canada in a beautiful valley of the Rocky Mountains. Some of the finest pictures in the Rockies have been ruined by the violence of fire.

WHILE IN OR NEAR THE FOREST:

Never toss away burning matches; never let anyone throw down lighted cigars, cigarettes or pipe ashes.

Never start a fire in the woods among leaves, dry wood, or against a log, or against any tree, whether it be dead or alive.

Never start a fire in the moss or peat of a dry bog. It may smoulder for days, and at last break out in open flame.

Never leave a fire until it is surely *out*.

Never start to burn brush or stumps in a clearing in a dry time, or on a windy day, and never leave a fire burning in a clearing. Stay with it until the fire is completely *out*.

Fighting a Big Blaze.

But while an ounce of prevention is worth more than a pound of cure, what is a Boy Scout to do when he sees a forest fire already under way?

By that you probably mean a fire too big for one person to extinguish. Let us remember that the biggest blazes in the forest *started with a few sparks* that any boy could scuffle out in a couple of minutes. But when a fire actually commences spreading along the "forest floor" of dried leaves and needles and twigs it requires quick action and plenty of skilled help. If there is a fire ranger in the district get into touch with him at once by telephone or other means, or tell the nearest railroad agent. The ranger will gather assistants and organize them into a fire fighting brigade much as the chief of a city department marshalls his men about a burning house. Skilled forest rangers, given plenty of helpers, can overcome any but the most violent and



A group of Rocky Mountain goats surprised by the camera.



Once he was the monarch of the Canadian plains. Buffalo feeding in Rocky Mountain park.

widespread conflagrations in a comparatively short time, and are thus able to save areas of valuable timber. Systems of forest protection in Europe have mastered the fire danger to a degree that we Canadians accustomed to wholesale burnings have hardly dreamed of. Roads are built through the timber for the double purpose of breaking the progress of the flames and transporting fire fighters to the scene of trouble. Telephone lines connect the rangers with one another and with the means of emergency aid. The highest hills are surmounted by lookout towers where watchers, constantly on duty, detect the beginnings of fires on the slopes and immediately 'phone the news to other rangers who collect their men and attack the blaze. In Canada we have made a beginning at these scientific methods, but only a beginning.

Like Military Engineers.

In the very brief space allowed by this booklet it is not possible to describe the various plans of overcoming forest fires, once they are seriously under way. It may be laid down as a proven fact, however, that a burning forest section can usually be held in check by a strong and determined body of rangers and helpers. The equipment of the fire fighters consists ordinarily of a hand axe for felling trees, folding canvas bucket for conveying water from any nearby lake or river, a heavy jute bag for beating out sparks, a shovel for scattering earth over the burning "duff" as well as for digging trenches on the edge or directly in the path of the advancing flames. Large parties of fire fighters are organized like a body of military engineers, each man attending to a specified duty and obeying the orders of those in charge. It is exceedingly hard



A Lookout Tower on Devil's Mountain in the big forest district of Quebec Province patrolled by the Lower Ottawa Forest Protective Association. The rangers from this lofty point can detect a smudge in the valleys very quickly. They immediately telephone to the rangers nearest the point and inform them of the danger.

and unpleasant work, if conscientiously done. Good practice decrees that wherever possible, the fire shall be "turned" toward lake or river by cutting of lanes and trenches barring its progress in opposite directions. When an ordinary ground fire reaches water, of course, the flames are effectually confined. In the case of fire running up a mountain side, the brigade of fighters concentrate their efforts just over the summit to prevent the swath of destruction continuing downward into another valley. The fire sweeping at express speed up to the summit, pauses a moment before securing a hold on the descending slope. Wide trenches have already been constructed and scores of trees felled in order to create an impassable chasm. Sparks fly across the trench but are extinguished by the watchful rangers before they can ignite the dry litter on the ground, and set a new area of valuable timber into a swirl of flame. There are few cut-and-dried rules for fighting fires in the forest. Every 'job' has to be handled according to local conditions, which are not in two instances exactly alike. For this reason the skill of the ranger and his devotion to duty count heavily.



WHAT THE CANADIAN FORESTRY ASSOCIATION DOES.

It maintains a Publicity Bureau supplying hundreds of daily and weekly newspapers with articles and illustrations telling chiefly about the wood-using industries and the need of guarding their supplies.

It maintains a free service of effective newspaper cartoons putting a whole sermon in a nutshell; also a free illustration service to keep the forest guarding question before the people from every angle of interest.

Gives numbers of free public lectures on forest topics. Supplies a series of "ready-prepared lectures" with sets of lantern slides to local speakers in many parts of the Dominion. The same idea is being adopted for the use of school teachers with classes of children.

The motion picture theatres in timbered districts are utilized to show forest protection cartoons between the reels.

Influential public bodies such as Boards of Trade, farmers' clubs, women's clubs, etc., etc., are brought into direct touch with the forest protection campaign by the Association's efforts with results of a far-reaching character.

Scores of thousands of booklets in colors showing clearly that **every citizen** is a loser when timber goes up in smoke are placed in the hands of settlers and others. The Canadian Banks, Railroad Companies, and Forest Branches undertake to distribute our special literature through their managers and agents.

"The Canadian Forestry Journal," an attractive illustrated monthly of popular interest, is published at the Association's expense and is of undoubted value in the conservation movement.

National and provincial conventions are organized to discuss local and general forest problems. These events attract much interest, and exert a valuable influence.

These are some of the concerns of the Canadian Forestry Association now in its seventeenth year with a membership of 3,500.

It has no government affiliation whatever. It is an independent national institution. Financial support comes from voluntary sources alone.

The Boy Scout's Forest-Book is one of a series which the Canadian Forestry Association will present to the sixteen thousand members of the Boy Scout Movement in Canada. The contents do not aim even partially to meet the requirements of a juvenile text-book on Forestry but rather to acquaint the Boy with the economic importance of forest conservation. Until Canadian people understand what the forest means to *every individual*, how from the standpoint of our need for lumber, fuel, pulp and paper, water powers, recreation, etc., the woodland resources are absolutely indispensable and their destruction by fire a national menace, all efforts at practical forest guarding must endure a serious handicap. We save only what we value.

Additional copies of the booklet will be supplied free on application to The Canadian Forestry Association, Booth Building, Ottawa, Can.

