

The Illustrated

CANADIAN FORESTRY

Magazine

VOL. XIX

OTTAWA, CANADA, JANUARY, 1923

No. 1

This Issue Contains: -

Wasted Lives and Wasted Lands

By Robson Black

Canada Protects Her Rare Birds

By Harrison F. Lewis

Forestry Viewed as a Profession

By Dr. J. H. White

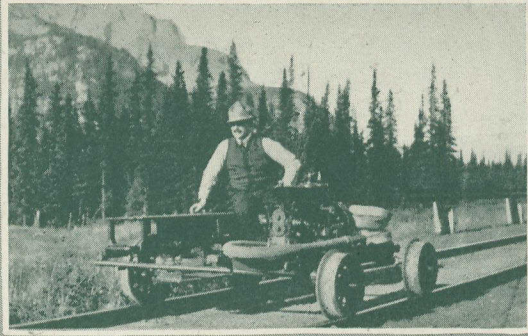
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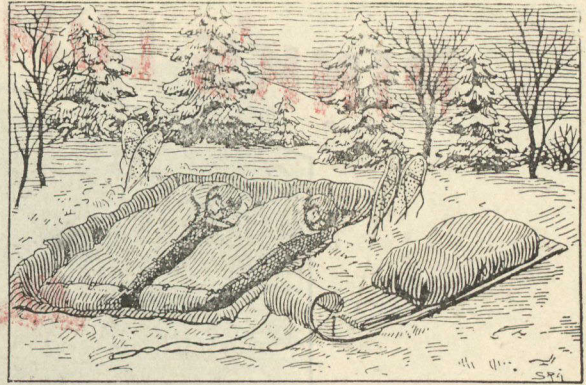
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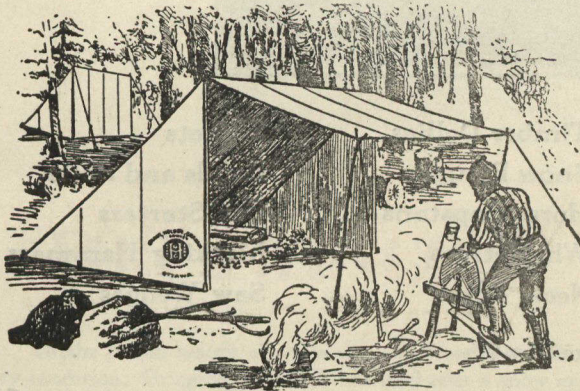
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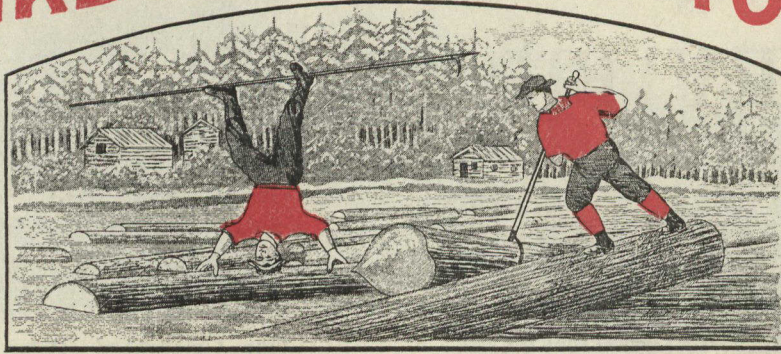
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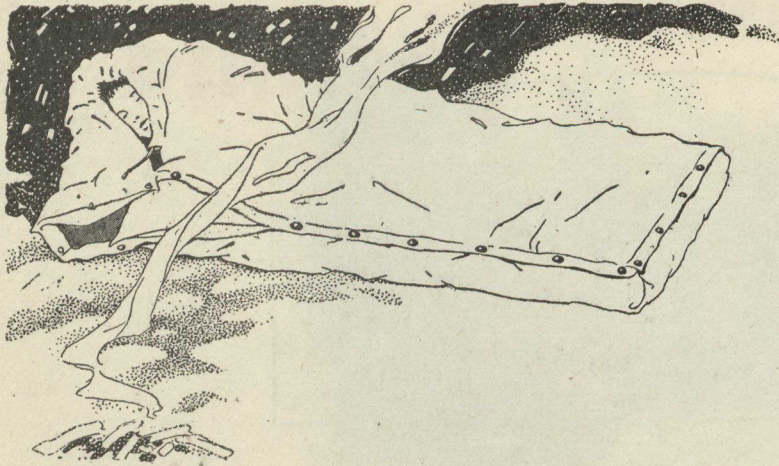
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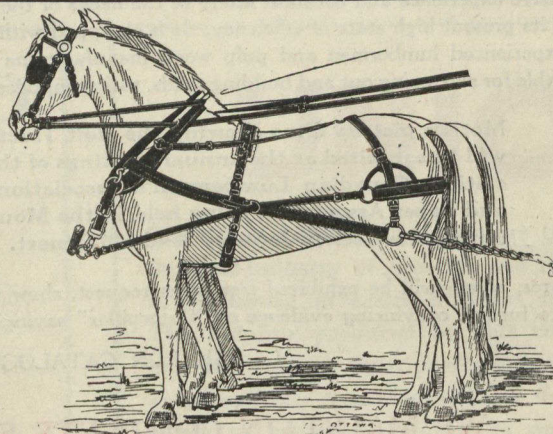
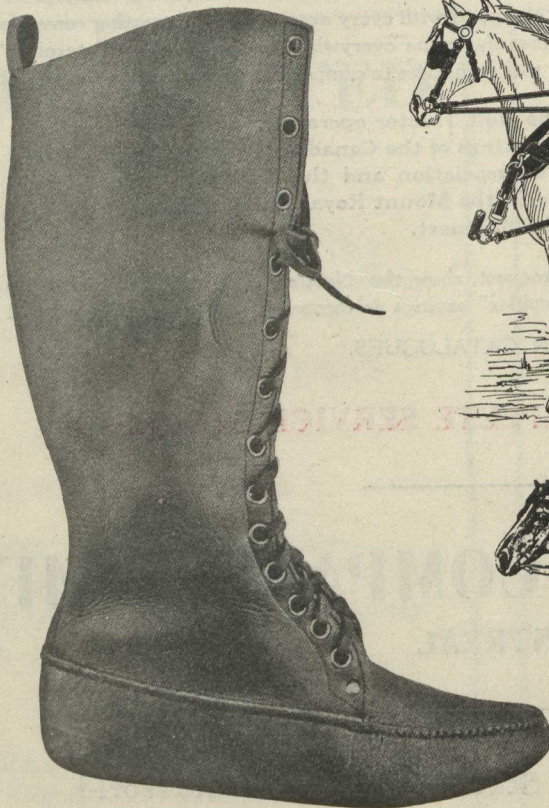
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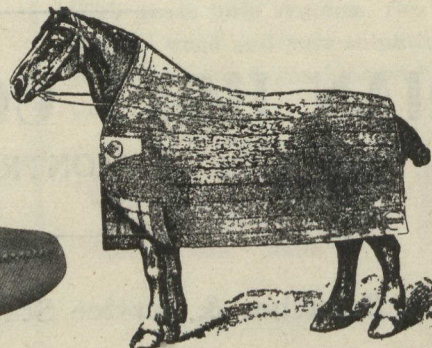
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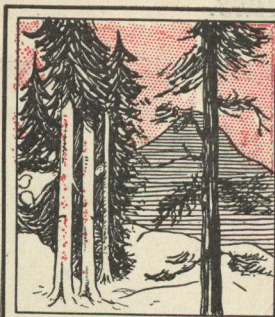
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THE ILLUSTRATED CANADIAN FORESTRY MAGAZINE



A Monthly Publication, National in Scope and Circulation, Devoted to the Conservation and Development of Canada's Forest Resources

VOL. XIX

OTTAWA, CANADA, JANUARY, 1923

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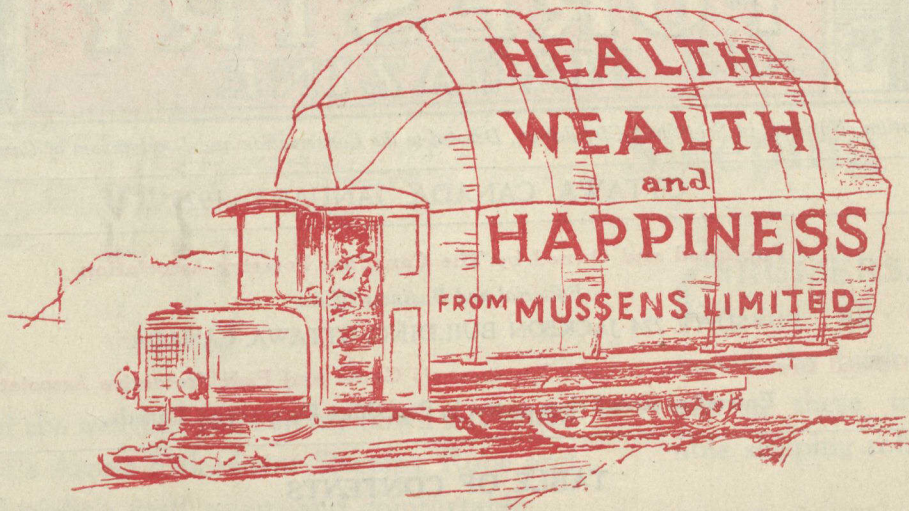
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Canada's Winter, a Drawing Card

Healthy Out-door Sports Attract Many Holiday-makers—Economic Life is Uninterrupted.

By E. L. Chicannot

(Reprinted with permission of the Editor "Agricultural and Industrial Progress in Canada".)

ACCORDING to various estimates made Canada played the host to about two million foreign visitors during the past summer. Unfortunately, before the first touch of frost had painted the maples, the great majority were compelled to return to their homes. The strictly holiday season for the bulk of the people was over and duties which occupied them the greater part of the year called them again. With the departure of the summer months there was not the same comfort or convenience in motor travel, by which means so many tourists gain access to the Dominion. December arrived to find but a tithe of that host in the country anticipating the revels of that other Canada which is born only when the Frost King assumes his throne and casts his snowy pall over the land.

But there is another invading army which comes to fill up the ranks, not yet so numerous, perhaps, but increasing in volume every year. It is composed of the various battalions of winter holiday-makers who place Canada above all as a land of unsurpassed winter enjoyment. They are those who realize the futility of travelling long distances and spending much money to disport themselves in the snows of Norway and Switzerland when close at hand is Canada, a series of ravishing Switzerlands stretching from coast to coast. They are alienated subjects of King Winter who come each year to do homage in his kingdom.

It is enormously gratifying to Canadians to see the evidences of a growing popularity of their country in the winter-time, for each fresh visitor initiated into the wonders of Canadian winter pleasure cannot but spread abroad the tidings of the good times. The summer tourist who may pride himself on a knowledge of Canada has but half completed his education if he knows not the hilarity of a Canadian winter. And seldom can he learn it except at first hand, for tradition dies hard and there are many misconceptions to be overcome. To those who have formed their opinions of the Cana-

dian winter upon popular novels and the movies and whose mind-picture is a weird maze of northern trappers, dog teams and blizzards, it is very difficult to imagine the gay winter life of the cities and towns of Canada and the pleasure the entire populace extract from bending the wintry elements to their enjoyment.

Economic Life Uninterrupted.

Winter does not to any extent interrupt the economic life of Canada, and the country's industrial activities progress in virtually the same manner. The only drastic change the life of the people undergoes is in that of sport, and the arrival of the cold months is attended merely by the relegation of tennis racquets and golf clubs to cupboards and the extracting from summer storage of skis, skates, toboggans and snowshoes. Though these instruments of summer pleasure are put away with reluctance there is a positive relish in anticipating the commencement of winter sports. Not everyone could credit the positive disappointment with which the prospect of a mild and snowless winter is regarded because they do not know the fascination of tramping to the twang of snowshoes, the keen delight of skimming on skates over the surface of a lake, the thrills of taking a hill on skis, of the breath-arresting shoot down a toboggan slide.

Greater numbers are coming to know these delights, however, as increasing numbers of tourists come to Canada to disport themselves at the centres of Canadian winter revelry. The growing popularity of the Canadian winter is most succinctly evidenced in the swelling traffic at localities where special arrangements have been made for visitors to participate to the full in Canada's hibernal gaiety with a maximum of comfort and a minimum of inconvenience, for instance at Quebec or at Banff.

Quebec and Banff in Holiday Array.

Quebec—quaint old Quebec with its narrow streets, its towering

churches, its old-world atmosphere and continental leisure—it seems, as it sleeps under its white mantle, to have been created solely as a locale for winter sports. It is veritably the throne of the Snow King. Here the visitor can pass rapidly, within a limited area, from one sport to another—skiing, skating, tobogganing, snowshoeing, dog-sleighting — and never wander far from the precincts of an ultra-civilization. He can spend a week-end there, crowded with incident and event from arrival to departure, and extract as much and varied pleasure as few places in the world can offer him.

Banff—a different Banff, which has shed her gay summer raiment for the simple white mantle of snow—the same exquisite jewel of the West set in a coronet of towering mountains. When carnival time comes at Banff the bright lights and colors, the sparkling gaiety combine to rival in brilliancy and exuberance the summer season, when hosts of tourists gather there to disport themselves among its varied attractions. There is the same ascending scale of hibernal merry-making in which the reveller passes from one sport to another in the exhilarating air of the Rockies.

The same thing is happening all over the country from the Atlantic to the Rocky Mountains and beyond. Those who deprecate the Canadian climate do not realize that to take it away (besides what Canada would lose economically) would be to remove one of the Dominion's greatest attractions and possibilities of enjoyable pastime. Sceptics should see Dufferin Terrace on a winter afternoon, or Mount Royal at the week-end, or visit Banff at carnival time. Observing the brightly clad throngs disporting themselves upon the snow in a crisp and invigorating atmosphere, they could not honestly judge otherwise than that Canada has a winter which is a distinct asset to her people and attractions for her visitors in that season which rival those of summer.

Canada's Winter Sports and Amusement Card

WINTER SPORTS IN CANADA



Above.

At top—Bob-Sleighting in the Laurentian Mountains
Middle—Happy young subjects of King Winter.

Bottom—Ski-joring in the snows of the Rockies.

On the Right

At Top—Ice Hockey, one of Quebec's many sports.
Middle—Snow-shoe Tramping on Mount Royal.

Bottom—Ski-ing away the week-end at Montreal.

Plate reproduced by courtesy of "Agricultural and Industrial Progress in Canada" publication of the Canadian Pacific Railway.

Wasted Lives and Wasted Lands

The Tragedy of the Bushwhacking Farmer when the Soil pinches out—
Human and Land Losses that may be Prevented.

By Robson Black, Manager, the Canadian Forestry Association

FEW Canadians realize the extent of the human tragedy associated with misplaced farm settlement. No one ever has assembled the startling facts which blot the pages of helter-skelter pioneering for truly if

agricultural merit. There exists no more pitiful exhibit than the staring skeleton of broken down houses and barns, the dismantled church and school house, representing the material remnants of an investment of

labor and precious time and high hopes of a score of Canadian families long since driven out by the poverty of the soil.

Classification Necessary

Land classification is already well under way in New Brunswick and is no more essential there than in Ontario, Quebec or Alberta. A mere mechanical inventory of the composition and depth of soil, the topography and climate is insufficient. A valley may be well adapted to agriculture and yet the interest of the State may decide that it should be kept growing pine. The deciding factors may not be soil composition at all, but availability to market, transportation facilities, the extent of unoccupied agricultural lands closer in to "civilization." But these qualifying and comparative factors are not all. A wise administration might designate that particular valley as "intermediate" in type; that is, the conversion of the area to plow land might be advantageously postponed for fifty years, until the sum of economic factors demand the removal of the timber. To be able to say that this or that township is good for agriculture does not necessarily mean that it should immediately be stripped of timber. One of the causes

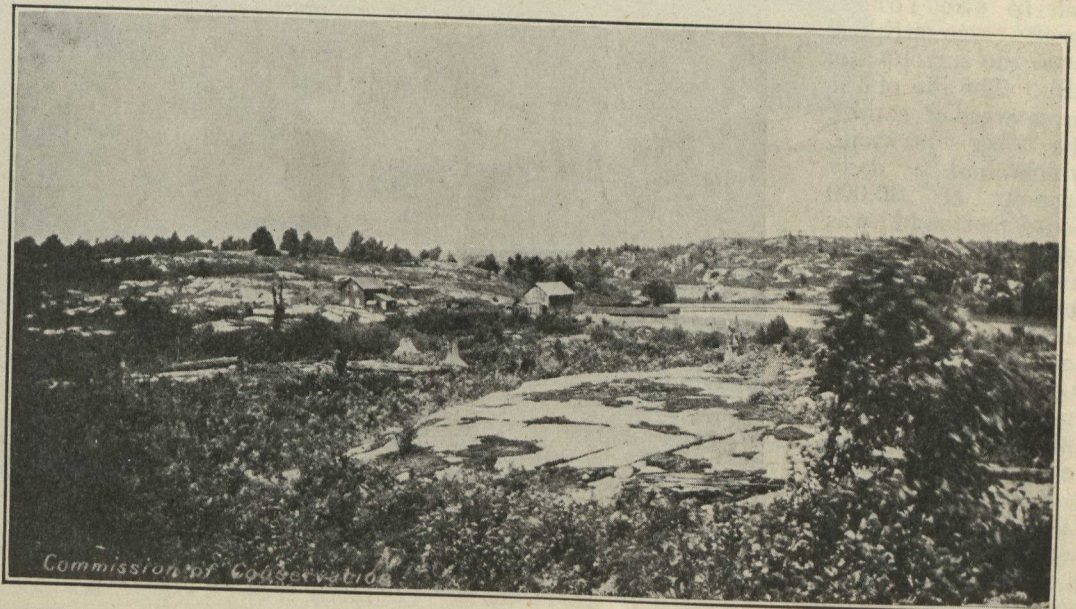


COMMISSION OF CONSERVATION

Ten years of human hopes thrown away. A deserted Canadian farm, falsely located on soil that was adapted only for growing timber. Thousands of settlers have made even more tragic mistakes and whole communities have been forced to move out. Land classification in advance of all settlement will prevent such blunders.

the story were ever comprehensively told public sentiment would compel a classification of all the provincial areas and the direction of settlement only to such lands as would sustain an agricultural community.

The family tragedies of the Muskoka regions, and sections of portion of Norfolk in Ontario, the dying communities of farmers in some parts of the Georgian Bay country, the abandoned farms in certain counties of Quebec and New Brunswick and Nova Scotia hold out such a warning as to cancel forever the right of any settler or group of settlers to take up land until the State first makes certain that the area has permanent



Commission of Conservation

The Trent Valley Watershed of Ontario, on arid parts of which many luckless farmers have been allowed to locate. The miserable lot to which any settler's family is condemned under such circumstances cannot be appreciated unless one has visited communities where the land is "pinching out."

of the relatively slow ingress of settlers to Canada and the regrettable losses of agricultural population to the towns is to be found in our failure to concentrate settlement and provide the social amenities of schools and churches and recreation. We have been too ready to scatter our settlement, one family to the square mile, and this mischievous practice in Eastern provinces has led to much wanton destruction of timber assets which should have been enriching the country for another half century.

Other Principles Violated

There is yet another vitally im-

portant point in the "bushwhacking," process which today has left Canada with millions of acres of utterly useless bare land mistakenly cleared of timber for the service of agriculturists who never arrived or who arrived and were driven out by poverty. It is an axiom of foreign administrators that countries with considerable hilly land will suffer from erosion unless twenty per cent. of the total area is retained under forest. This principle has been violated times without number in Canada with consequences of very great seriousness. It is equally an inviolable requirement that 100 acres of forest land to every 100 of population is a ratio

below which no nation can safely pass.

Such guiding facts will have to be incorporated in the new policies which now are taking the place of individualistic pioneering. Probably no computation of the wasted lives, wasted capital, wasted lands will ever be made. It may be the normal price for our stumbling progress in developing a nation. But we have fully sufficient national spirit and machinery of control to analyze scientifically the problems of our natural resources and stop for all time the squandering of our human and physical resources.

FOREST'S DEATH KILLS COMMUNITY

A Graphic Lesson in Forest Conservation Furnished by the Town of Cross Fork, Pa.

By Samuel T. Dana, U. S. Forest Service.

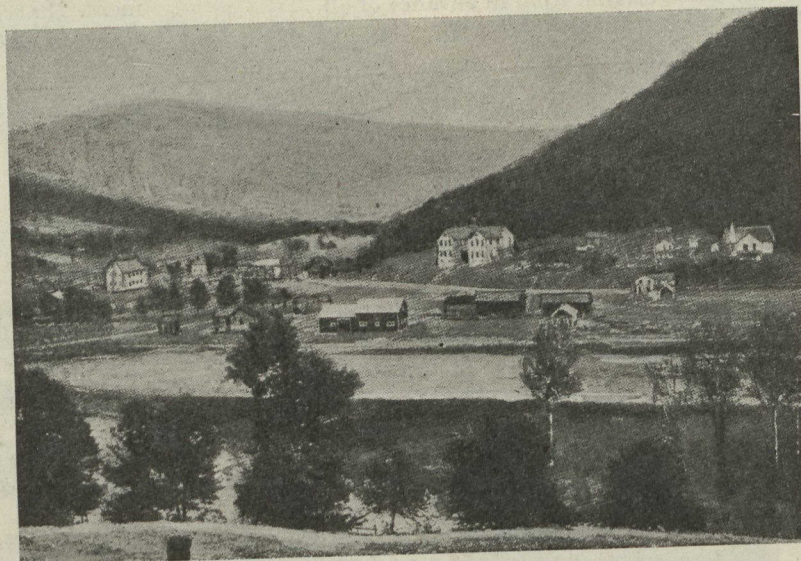
IN the Autumn of 1893, before lumbering operations started, perhaps five or six families were living on the site where two years later stood the busy town of Cross Fork, Pennsylvania. For some 14 years, Cross Fork led a feverish existence while the forest wealth was stripped from the surrounding hills. The life of the town was, of course, the big sawmill, which had a daily capacity of 230,000 board feet and was up to date in every respect. In 1897 a stave mill was established also, and various other minor wood-using industries existed at different times. In its prime, Cross Fork had a population of 2,000 or more and was generally known as one of the liveliest, most hustling places in the State. A branch line of the Buffalo and Susquehanna Railroad was built to the Town. Stores of all kinds flourished. There were

seven hotels, four churches, a Y. M. C. A. with baths and gymnasium, a large, up-to-date high school, two systems of waterworks, and two electric light systems.

shut down for good. From then on the population dwindled rapidly. Fires became so frequent that the insurance companies cancelled their policies. Five-room frame houses with bath

were offered for sale for from \$25 to \$35 without finding a buyer. In the Winter of 1912-13 the stave mill also ceased operations, and the next Fall railroad service, which for sometime had been limited to three trains a week, stopped altogether. Today the total population consists of but 60 persons. If it had not been for the State, which bought up the cut-over lands and has undertaken in earnest the work of reconstruction, the town would be as desolate as the surrounding hills. As it is, Cross Fork is now a quiet little hamlet, the merest shadow of its former self and

A PRESENT DAY "DESERTED VILLAGE"



Cross Fork, Pennsylvania, a town that shrunk from 2000 to 60. Once the forests were cut out, the sawmill closed and the assessed value of its real estate fell from \$896,000 to \$18,000.

But the prosperity of the town was as short lived as the timber supply. In the Spring of 1909 the big sawmill

without hope for an industrial and useful future until the timber grows again.

CANADA PROTECTS HER RARE BIRDS

Trumpeter Swans and Gannets Find Refuge in Government Sanctuaries

By Harrison F. Lewis,

Chief Federal Migratory Bird Officer for Ontario and Quebec

EXTINCTION has swallowed up the Passenger Pigeon which once darkened the skies with its millions; the Great Auk, which nested in populous colonies on rocky islets in the Atlantic; and the Labrador Duck, which frequented the northeastern coast of North America. Extinction still threatens other valuable North American species of birds. It is doubtful whether the Eskimo Curlew, the Carolina Parquet, the Whooping Crane, and the Ivory-billed Woodpecker will be able to escape it. Fortunately, however, some birds which, a few years ago were fast approaching extinction, or, at least, extirpation in North America, have been saved by the increased protection given through the influence of the growing interest in bird protection and wild life conservation. The wild life of Canada, in particular, is a great asset, and the need

for making use of it in a rational fashion and for conserving it for the future is being more and more realized.

One of the birds which, by unrestricted hunting, has been brought to the brink of extinction is the Trumpeter Swan, which formerly inhabited western Canada and the United States in considerable numbers. For some time ornithologists generally believed that this magnificent creature had actually been destroyed from off the face of the earth, never to return. It was a mark for the hunter from the days of earliest settlement, for it is a very large white bird, with a wing-spread

of about 10 feet, and with a weight of from 20 to 31 pounds, and was thus well worth the expenditure of a charge of powder and shot. Not only was it of value for food, but its soft white plumage caused its skin to find a ready market. According to MacFarlane a total of 17,671 Swan skins were traded between 1853 and 1877. No doubt the majority of these were Trumpeter Swan skins, as the Trumpeter Swan nested in what is now Alberta and British Columbia, whereas the slightly smaller Whistling Swan nests in the far north. Under

But, lo! investigation proved beyond a doubt that the Swans on the little British Columbia lake were really Trumpeters! Their long, narrow bills, large size, and sonorous voices, like the notes of a French horn, made identification positive.

Steps were immediately taken to protect these representatives of an almost vanished race. A warden was appointed to patrol the lake where the Swans wintered, and arrangements for making the lake and its vicinity a bird sanctuary were undertaken. Motion pictures of the Swans were

secured, so that, in case the species could not be saved, an accurate record of its appearance in life might be preserved. One copy of the motion picture film of the Trumpeter Swans was presented by the Canadian Government to the United States National Museum. Other copies are used by the Canadian National Parks Branch



Photo by Mr. Dusal, Bonaventure Island, Que.

Reproduced by courtesy of Canadian National Parks

A colony of Gannets on Bonaventure Island, Quebec.

these circumstances it is not strange that Trumpeter Swans decreased rapidly in number until, for nearly ten years, not one was reported.

At last, just as the doom of the Trumpeter Swan was being taken for granted, word was received by the Canadian National Parks Branch of the Department of the Interior that some Trumpeter Swans were known to winter regularly on a little lake in a mountain valley in British Columbia. An investigation of the report was promptly undertaken, although it was considered highly probable that the birds reported were Whistling Swans, which are still not uncommon in certain localities.

in connection with public lecture work, and they will be loaned by the Branch to responsible persons for public use upon request.

Another bird which has been rescued from persecution just in the nick of time is the Gannet, known to some of the older authors as the Solan Goose. The Gannet is a great white bird, as large as a Goose, but related to the Cormorants and Pelicans, rather than to the true Geese. The tips of its wings are black, its head and nape are washed in the breeding season with pale straw-yellow, and its long pointed bill is pale bluish. It formerly nested on many barren rocks and rocky islands on both sides

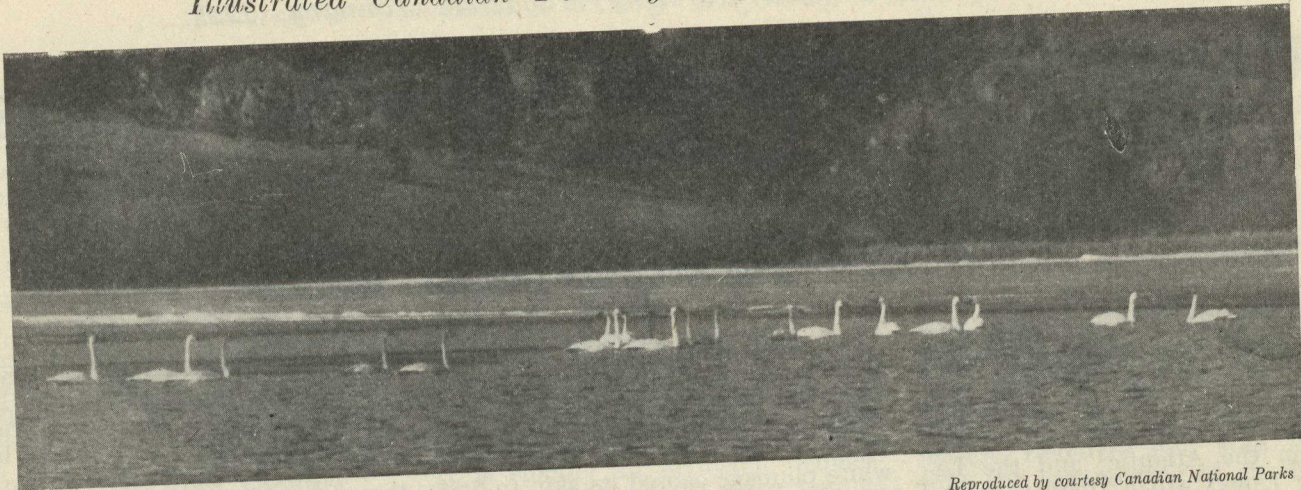


Photo by Mr. Harmon, Banff Alta.

Nineteen trumpeter swans, the last survivors of a noble strain. As far as is known this is the only flock of trumpeter swans in the world.

Reproduced by courtesy Canadian National Parks

of the North Atlantic, but by persecution its breeding became restricted to about a dozen rocky islets in European waters and three or four in or near the Gulf of St. Lawrence. Even in these remaining colonies its numbers were greatly reduced by unrestricted persecution.

When Jacques Cartier was exploring the Gulf of St. Lawrence in 1534, he came to what he called the "Iles de Margaulx," which are a group of small precipitous rocky islets now known as Bird Rocks, the northernmost of the Magdalen Islands. Here he found "a great and infinite number" of Gannets. When Audubon visited the Bird Rocks in 1833, the Gannets were still so numerous there that he and his party "stood astounded and amazed" at the sight of them. Great numbers of the nesting birds were being ruthlessly killed at that time, however, and used as codfish bait. In 1860 Dr. Henry Bryant estimated the number of Gannets on Great Bird Rock as 150,000. But by 1904 there were left, according to Mr. A. G. Bent's estimate, only 3,000 Gannets in this colony. No species of bird, nesting in such accessible colonies can with stand continued slaughter on its breeding grounds.

Another Canadian colony of Gannets which still exists is that at Bonaventure Island, near Percé, on the coast of the Gaspé peninsula. Bonaventure Island lies about two miles off shore, is roughly circular, and about a mile in diameter. A number of fishermen-farmers live on the north-west side of the island, where one or two small beaches provide landing-places, but the southern and eastern sides of the island rise in sheer cliffs of red sandstone to a height of from 220 to 340 feet from the sea. In places there are broad ledges on the face of the cliffs; at other points narrow crevices extend far back into the rock. About 8,000 Gannets nest

on the ledges, some hundreds of Murres, Razor-billed Auks, Black Guillemots, and Puffins nest in the crevices. Herring Gulls and Kittiwake Gulls nest where they can find suitable sites, and Leach's Petrels lay their eggs in burrows in the soil at the top of the cliffs.

Not far from Bonaventure Island, near the mainland, rises that unique scenic feature, Percé Rock. It is a great mass of beautifully tinted limestone, 288 feet high, 1,200 feet long and about 80 feet through, with an 80-foot opening, from which it derives its name, completely piercing it at one end. It bears a marked resemblance, from some points of view, to a great ship ashore on the reefs. Its precipitous sides are quite unscalable. On its top nest in security great numbers of Herring Gulls and black Double-crested Cormorants, while Kittiwake Gulls nest here and there on its sides.

A visit to Percé makes a unique holiday. The village is becoming quite a summer resort, and possesses good hotel accommodation, and connection with the rest of Canada by train, steamer, and highway. The view from the top of the cliffs of Bonaventure Island, with thousands of great white Gannets sailing on motionless wings among the other seabirds in the foreground, or fishing in the offing, is decidedly thrilling. The Gannets catch herring and other small fish by diving for them from a height above the water of 30 to 100 feet. With wings set at an angle, so that the bird resembles a gigantic spearhead, it hurls itself into the water, throwing the spray a dozen feet in the air, and disappearing completely from view. When hundreds are thus plunging in rapid succession into some small area where their prey has gathered, one wonders how they avoid striking and destroying one another.

Birds nesting on the Bird Rocks, and on Percé Rock and Bonaventure Island are now safe during the time of their stay there, for the breeding grounds there have been set aside as bird sanctuaries by the Dominion Government and by the Province of Quebec.

A great step forward in conserving our native birds was taken when the Migratory Birds Convention, between Great Britain, on behalf of Canada, and the United States was signed in 1916. This treaty provides for hunting seasons, three and one-half months in length, for most game birds in the Fall, and establishes rational protection of the migratory birds common to Canada and the United States, including such measures as abolition of Spring shooting, protection of migratory insectivorous and non-game birds throughout the year, and the establishment of bird sanctuaries. Under the powers conferred by the Canadian Act making this Convention effective there have been established not only the sanctuaries at the Bird Rocks, Bonaventure Island, and Percé Rock, but also a number of sanctuaries which protect the breeding grounds of numerous Ducks and other waterfowl about the lakes and sloughs of the western prairies. The establishment of additional sanctuaries at suitable points is contemplated.

As a result of the international protection which this Convention has brought about our migratory non-game and insectivorous birds are flourishing, and our migratory game birds have increased remarkably in numbers, so that they provide better hunting in the Fall than has been known for many years. With the co-operation of the Canadian people this Convention is proving to be a splendid instrument for the conservation of our natural bird resources.

FORESTRY VIEWED AS A PROFESSION

Some First-hand Facts Concerning Prospects of Employment and Remuneration

By Dr. J. H. White,

Associate Professor of Forestry, University of Toronto

IN a consideration of professions from the viewpoint of choice of career the Canadian youth usually has as a basis some knowledge of the nature of the work pertaining to the occupation and a fair idea of the financial returns. This information is widely at hand in the case of the older professions such as medicine, engineering and teaching, but the same cannot be said with regard to the profession of forester because of its newness in this country. Accordingly the writer will attempt to give some assistance towards an insight into a forester's work and the qualifications for greatest success.

Perhaps the outstanding feature of the work a forester is called upon to do is to be found in its great variety, with the consequent freedom from monotony. This arises out of the situation that his duties are to be found in the many activities

in a score of different directions constituting the organization and administration of a forest property. The first few years after graduation the forester may expect to be in the woods for the greater portion of each year, occupied with work of an exploratory and inventorial character involving surveying, mapping, land classification, estimating timber, reporting on agricultural, grazing and forest conditions; occupied with organizing and perfecting a forest fire service, and with the related engineering work of roads and trails, telephone lines, lookout towers and forest ranger cabins; or inspecting logging operations, scaling timber and making logging plans; or conducting technical studies in the field, largely of a

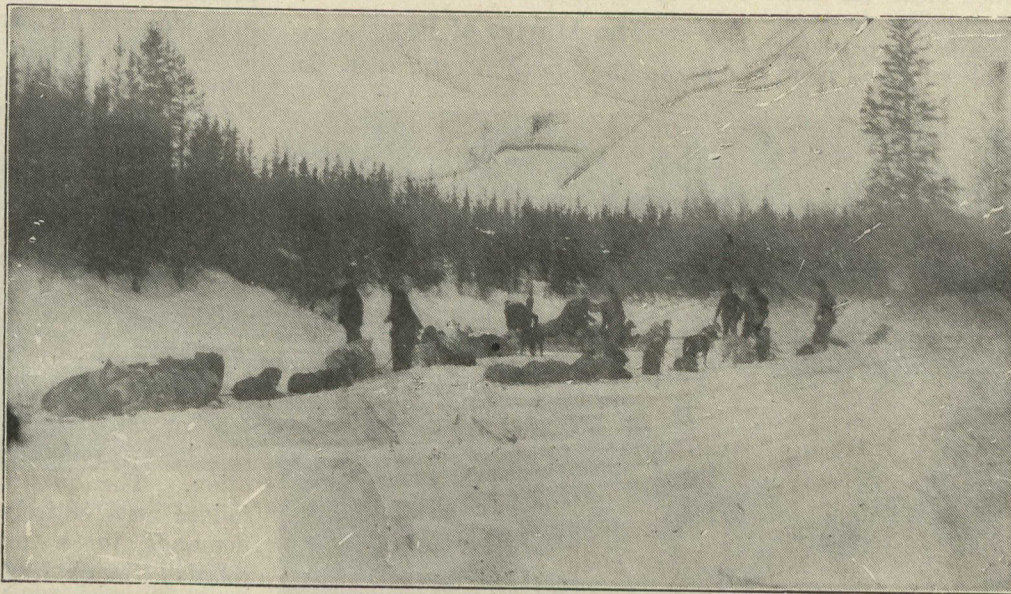
silvicultural nature. The work will be hard, with lots of it. Nevertheless, all the foresters one meets agree that they like it.

Must Expect to "Rough It"

On a survey of the above, one notes that a prime consideration is a strong physique and no physical disabilities, coupled with the ability to look after oneself in the woods,—this latter gradually acquired with Summer employment during the forestry course. There are many discomforts—though

pendability, and business sense. New problems crop up every day, seldom precisely similar to ones previously encountered, and requiring the thoughtful decisions of a trained mind. In this respect the Canadian forester's life is much less monotonous than that of the European forester. In this field of the profession personality counts for much, and a high type of all-round man (entirely outside his technical equipment) with faith in his work, and a fair share of imaginative far-sightedness is a basic requirement for permanent success.

The above has reference to the general field of forestry. In addition there are certain special lines open to foresters, such as forest tree nursery work, and investigative work of technological or pathological character, but such branches afford a limited number of openings.



Here is seen a party of Forestry Engineers on their way into the wilds of Northern Saskatchewan on an exploration trip.

nothing which could be called hardship—but no one should consider forestry as a profession who dislikes "roughing it" in the forest. On the other hand it must be borne in mind that a love of the woods and their inhabitants and the outdoor life do not necessarily predicate success in the profession.

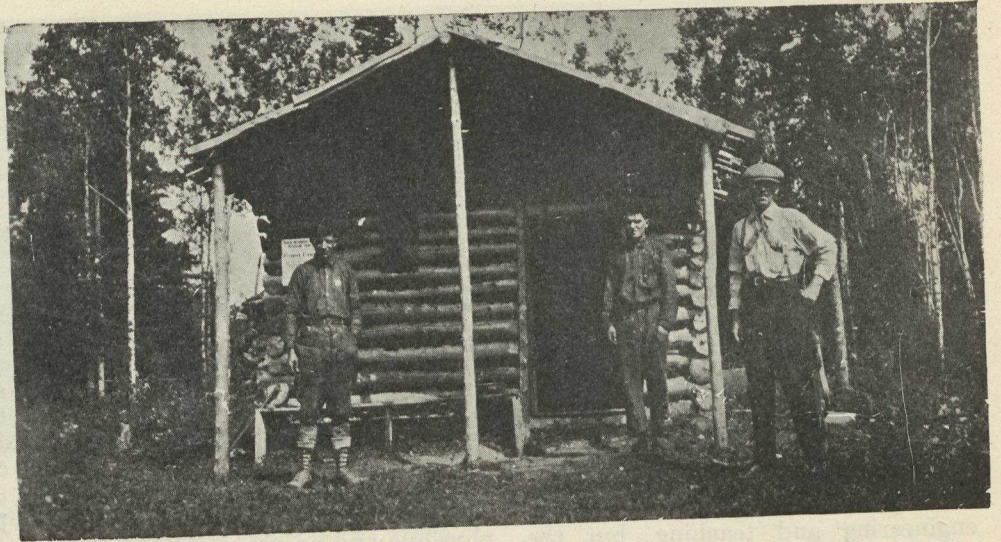
Such may be the earlier years of the forester's life. But as time goes on and he has acquired the necessary maturity, his duties will become more administrative in character, and less time will be actually spent in the forest. Great responsibilities must be shouldered calling for tact and judgment in dealing with men and the general public, calling for resourcefulness, initiative, aggressiveness, de-

Outlook for Employment

From this brief sketch of a forester's work we may pass to a consideration of the outlook for remunerative employment after graduation from a recognized school of forestry. The oldest forest schools in Canada date back some fifteen years, and the majority of those graduating since have gone into Government service, either federal or provincial; the remainder engaging with pulp and paper or lumber companies. In the beginning, students who registered for a degree in forestry did so largely on faith—faith that the mere existence of a specially trained class would create

opportunities for their employment; but now they enrol with the same assurance as in the older faculties of a university. There are today no graduate foresters in Canada who wished to continue their profession who have been unable to do so because of lack of opportunity.

The main field of employment in this country will always be with a Government organization. There has been a very radical reform in the last ten years in the administration of our forests on the part of all governmental bodies from Nova Scotia to British Columbia, as the work has been transferred to foresters. This movement along the lines of a more business-like handling of our forest resources is bound to continue, and the demand for foresters' services will keep pace with it. At the same time we are witnessing an enormous expansion of the pulp and paper industry with an increasing demand for technically trained men. As time goes on and timber supplies decrease there will be economic opportunity for the application of more and more



A picturesque camp of a Forester away back from civilization in the forests of B.C.

demand for foresters. Not an unlimited demand however, as it must keep in step with the progress of the forestry movement.

The Matter of Pay

As to the financial returns in the

profession like that of a doctor or an engineer, merely gives him a foundation to begin the practice of his profession. After leaving college he must stand on his own feet, and where he arrives depends entirely on his inherent capabilities and application. He has however, despite the fact that it is seldom a field of private enterprise, and owing largely to its newness in Canada, a profession holding few lines of work where all responsibility is higher up and to that extent free from one of the most deadening features of many occupations.

Further, in the last analysis, success or failure in any profession is largely a matter for personal estimation. The question of success or failure rests entirely upon what one demands in a profession or the relative weights attached to the money income and personal satisfaction with the type of work. The present day tendency probably is to put more stress on the former, but we are already diverging along the road of realization that the increasing provision for us by all the material instruments of civilization is not lessening our discontent. Man needs a field of constructive work centered around some animating purpose in order to be happy. This is the lure in the profession of forestry.



Foresters have their ups and downs. Tough going through muskeg.

intelligence in both the lumber and pulp industries where today the mill end is far advanced over the woods end. The same situation will lead to more intensive methods also on the part of the Governments, mainly towards recuperation of our forests, so that we must expect a steady

profession of forestry, one may sum the matter up with the statement that it pays neither better nor worse than any other profession. It must be kept in mind that the curricula of the best forest schools in Canada are not on a vocational but on an educational basis. The forester's edu-

Send your friend, at home or abroad, "The Illustrated Canadian Forestry Magazine" as a reminder each month of your thoughtfulness and good judgment. Send the name or names of those you desire to remember in this way, in to this office and they will be fittingly informed of your thoughtfulness.

Community Grazing in Public Forests

Farmers and Stockmen of Western Provinces Benefit by Comparatively Recent Measure.

By E. H. Roberts,

Assistant District Forest Inspector, Prince Albert, Sask.

WITHIN the last year or so there has been considerable interest aroused among the farmers and stockmen of Saskatchewan in regard to community pastures, particularly in the more thickly settled districts and in the south-western part of the province. Commissions appointed by the Provincial Governments to investigate farming conditions in the dry belt, both in Alberta and Saskatchewan, have commended the community grazing idea as an aid to settlers in this section of the country.

As the vacant land in many districts is taken up, fenced and placed under cultivation there is an increasing demand for more stock range to supplement the farmer's pasture. From the earlier days of settlement in the Prairie

Province with a large amount of open range the conditions have changed to where the progressive individual wishes to carry a certain amount of stock in connection with his farm but as he year after year places more of his land under crop he finds that he is running short of pasture. This is true especially in districts where mixed farming is practiced and in the south-western part of the province where the up-to-date farmer is now not altogether relying on his grain crops for a living.

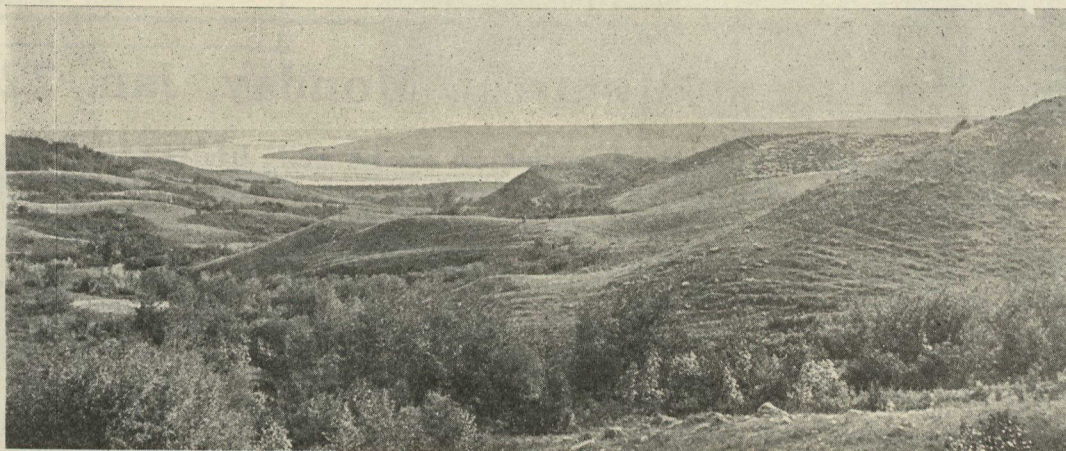
It is generally the case that the farmer or settler wishes to run stock but finds himself short of pasture, especially during the Summer season when mostly all his land is either in crop or summer fallow. He has to look elsewhere for range if he is to carry any stock in excess of the number actually required to work his land. Quite often he discovers that

there are some lands in the vicinity that are not suitable for farming, either being of poor soil, too stony or too rough for cultivation, he, therefore, immediately endeavors to lease or in some way acquire grazing rights over them without having to actually purchase. In the past a few individuals in many districts have been able to secure control of large areas of the best range land in this manner, which places restrictions on the remainder of the settlers and prevents them increasing the number of their stock.

range. The idea spread rapidly till in 1921 there were about 30 of these Stockmen's Associations organized in Saskatchewan and using National Forest range.

Following the report of the Better Farming Commission, appointed by the Saskatchewan Government in 1921 to investigate conditions in the dry belt, other associations were organized who mostly took over leased lands in the south-western part of the province and a number have now become incorporated under the Agricultural Co-operative Associations

Act of Saskatchewan. The Better Farming Commission commended the community grazing association idea mainly from results that had been secured from associations already operative on lands under the administration of



Rough lands on the Saskatchewan River, well adapted to forestry and grazing.

To avoid monopoly by a few individuals and to provide range for all who desire and justly deserve it in the community, there has sprung into existence the Community Grazing Association, who usually organize on co-operative lines with the object of securing control of any available range land in the vicinity and permitting its members to graze their stock on these areas, pro-rating the cost of the undertaking among the members according to the number of stock grazed.

The Stockmen's Association idea having in view a community range, a pro-rated charge and an equal and fair distribution of the grazing privileges among the settlers, most likely developed in Western Canada from the use of Dominion Forest Reserves for grazing purposes. In 1915 the first associations were organized in Saskatchewan to use Forest Reserve

the Dominion Forestry Branch.

There were this year about 50,000 head of stock grazing on National Forest Range in Saskatchewan and the bulk of this stock are run in community pastures held by organized Stockmen's Associations under permit from the Dominion Forestry Branch. These Associations have almost, without exception, been a success from the start, their membership consisting of settlers, farmers and small ranchers, who reside in the vicinity of the forest reserves. Some associations have as high as 75 members who annually elect their officers and appoint their range manager, levy their assessments and transact other business.

National Forest range usually requires certain improvements such as: fencing, wells, windmills, corrals, etc., which are constructed under permit and the cost usually pro-rated over

the number of stock grazed in the area. The association ranges usually contain anywhere from 5,000 to 50,000 acres. Most of the stock is grazed in the Summer months and then taken back to the farms or small ranches for Winter.

The costs are quite reasonable when compared with other outside range. Usually the initial cost to a member runs from \$5.00 to \$8.00 per head the first year to take care of the initial investment in permanent improvements but following years the costs get down to from \$1.00 to \$3.00 per head for the season. When you consider that the stock has been kept in a fenced range with plenty of water and salt and one or two men looking after them, the condition of the stock in Fall should be excellent, provided there is plenty of feed and the riders properly keep the stock distributed over the range. Whenever the range appears to be getting

over grazed the numbers are reduced accordingly.

There are many other benefits to be derived from better breeding to pure-bred sires, co-operative marketing, and the organizing of beef rings which can be worked out to the general advantage of the individual member. There is the closest co-operation between Government officials and the executive officers of the associations.

There still remain large areas of excellent Summer range in the National Forests in the north of the province. The reserves in the south have already been pretty well stocked up, due to the better development of the surrounding districts. It has been estimated that there is Summer range for at least 50,000 head more of stock in the northern forest reserves in Saskatchewan, and there is a large field for the organization of community stockmen's associations as the agricultural lands tributary to the national forests are settled up.

The National Forests are for rational use by the public and the grazing resources available are assisting the small farmer or rancher in their vicinity by providing him with range for his stock during at least part of the year when he is most busily engaged with his other activities. Besides providing lumber, fuel, fence posts and many other products, the national forests provide shelter, recreation, fishing, hunting, trapping and many other activities vital to the life of the nation. Wherever available, national forest range is open for public use as long as the stock do not damage the young growing timber. The grazing of stock is also a great benefit in reducing the fire danger by keeping down the long grass, weeds, etc., and their numerous trails through the range act as fire guards to stop ground fires; therefore, the grazing of stock is encouraged wherever they will not be detrimental to the forest.

Annual Meeting at Montreal, Monday, Jan. 22nd.

Members of the Canadian Forestry Association are heartily invited to attend the annual meeting at the Mount Royal Hotel, Montreal, Monday, January 22nd, 10 a.m. and 2 p.m.

The morning session will be of maximum importance to all interested in the Association for not only will the work of the past year be under review but the new programme of the Association will be open for discussion. Let every member who can come do so. It is YOUR meeting and the Directors wish YOU to participate personally.

The afternoon session will be thrown open to the general public and several distinguished speakers will be on the programme.

Other Forestry Meetings

IN addition to the annual meeting of the Canadian Forestry Association announced above, there are several other meetings of more than ordinary interest being held at about the same time and place. And excellent programme has been put together by the Quebec Forest Protective Association for the Annual Forest Protection Conference at the Mount Royal Hotel, Montreal, Tuesday, January 23rd. All members of the Canadian Forestry Association who can arrange to be in Montreal on this day will be well rewarded by spending some time at these forestry meetings. The programme announced is as follows.—Chairman, S. L. de Carteret; Our Forests, Hon. Honore Mercier, Minister of Lands and Forests, Quebec; Why is Forest Protection necessary? (a) From the foresters' point of view,—Dr. C. D. Howe, Dean, Faculty of Forestry, University of Toronto; (b) From the operators' point of view,—R. F. Kernan, Manager of Donnacona Pulp and Paper Company, (c) From the public's point of view,—Prof. Stephen Leacock, McGill

University; Co-operative Forest Protection,—E. T. Allen, Forest Economist, Western Forestry and Conservation Association; Wireless Telephony,—Description and demonstration of apparatus as practicable and valuable for forest protection,—R. B. Adams, U. S. Forest Service.

This Conference will not be confined to set addresses. While topics will be presented by careful students, time is provided to allow all to contribute the views of their interests and localities. Everybody's views are wanted.

Forest Engineers Meet Jan. 24th

THE Annual Meeting of the Canadian Society of Forest Engineers will be held on January 23rd and 24th at the Mount Royal Hotel, Montreal. A dinner will be held on the evening of January 23rd, and morning and afternoon meetings on the 24th. The subjects for discussion are Forest Inventories and Forest Research. Under these general headings the various phases of investigations prerequisite to the development of a comprehensive forest policy will be discussed by members of the Society.

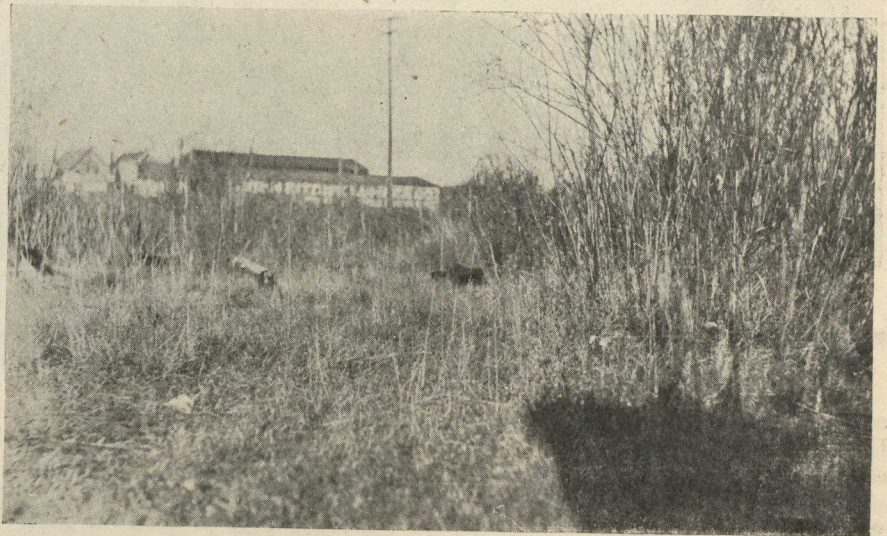
THE EVOLUTION OF A CITY WOOD-LOT

Photos and Copy Suggestion by Christopher Hunt, Edmonton, Alberta

After the Man of the House had concluded a painful interview with the ever-raising Landlord he told his Good Wife that he intended soon to be Master in his own Home and that she would then be able to lock her own Door. So the Wife began to have Visions and to dream Dreams of all the nice Things she would like in her new Nest. Among other things she visualized was a very charming Back-yard, rendered all the more So by a shady Bower of trees.

And at the Church on Sunday, when they sang Bernard of Cluny's great hymn, she noticed they omitted—

Upon whose banks on every side
The Wood of Life doth grow.
Presently a well situated and desirable building Lot was purchased and looking forward with hopes of the Garden that was to be, a joyous excursion was made and arriving the good Wife saw this—



However, the growth up here was originally Poplar groves with patches of Willow and dense undergrowth and as usual with the growth of a City the trees were destroyed leaving only willows and weeds, so the first process was to cut out every willow shoot and weed and keep them cut continually. In a little while the shoots from the old roots which appear to remain alive for a long time in the ground began to appear, together with shoots from seeds which had come from further away. With a little care and protection these flourished and presently looked like the picture to the left.



And in the course of time, while the Man was working and sleeping, these attained to the growth here shown. Although not entirely fulfilling the expectations of the Good Wife, this Young Forest constitutes a protection from the Wind which in the Winter as pictured here, is inclined to produce some Icy Blasts. It also serves as a screen from the car line and other Peoples' houses, so that an appropriate motto for the doorway of this "Little—Home in the West" would be "Parva Domus Magna Quies."





Photo Grand Trunk

THERE is no season of the year that provides such exhilarating, healthful and enjoyable sports as the Winter. There is no place in the world that makes a better scene of action than Montreal, Canada.

In Mount Royal, rising from the very heart of the city, the Canadian metropolis possesses an unrivalled playground. Snow-shoeing, sliding, skiing, tobogganning, riding, driving, kodaking, daily draw the population in hundreds to its splendid slopes. There is room enough and to spare for all who come, and throughout the Winter weeks, the bracing, clear cold air rings with the happy shouts of merry-makers, to which the silvery tinkle of innumerable sleigh-bells lends a harmonious note.

Montreal has always been a popular centre for Winter sports. There is a snow-shoe club here which recently celebrated its eightieth birthday. Another one was organized one hundred and seventeen years ago, and a hundred years before that and more, snow-shoeing was more than a pastime. It was then about the only means of Winter locomotion for man or woman. But it accomplished the same purpose then that it does today. It set the pulses throbbing and blood coursing

freely through the veins, flushing the pallid cheek and causing the eyes to sparkle with delight. It developed mind and body, bone and sinew, breeding a race of hardy, healthy, happy Northerners. It kindled the vivid imagination, turning the sordid commonplaces of life into poetry and

health as half a day outdoors in the languorous Summer? So a week or a week-end spent in a thorough indulgence in Winter sports will have all the healthful advantages of a July vacation that is twice as long.

Sporting circles in Montreal have organized this year on a gigantic basis. A complete cycle of Winter amusements has been arranged to cover entirely the months of January and February. Every week will have special attractions in the way of hockey matches between the big leagues, ski-jumping competitions, curling bonspiels, horse-racing on the ice, exhibitions of fancy skating, snow-shoeing contests, trap-shooting, and fancy dress skating carnivals, with tobogganning and bob-sledding at the famous Park Slide recently rebuilt.



Photo Grand Trunk

The "Take-off" in a ski-jump from Mount Royal.

romance and making of its tragedies the inspiration that should actuate successive generations to mighty efforts.

Participation in Winter sports is the best tonic in the world—a sort of scientific massage administered by the wisest and kindest of nurses, Dame Nature herself. Who has not found from experience that an hour's brisk walk on a Winter's day, drinking in the pure ozone of the frosty air, is as stimulating and beneficial to

Dog-teams of Eskimo huskies which have proved so popular in the White Mountains are to be imported and there has been a tremendous revival in favor of tandem driving for horses as well. The old-fashioned low Russian Sleigh, with its quantities of soft fur robes, has also come back into common use, and nothing is more suitable for an afternoon's drive along the winding roads of the Mountain, from which such wonderful views may be obtained over the city

for miles of the surrounding country.

Those who have never before taken part in any Winter sports will be delightfully surprised to find how easy it is to learn to skate, to steer a toboggan, or "soop'er up" at the curling rink. With competent instructors, whose services will be readily available for visitors during the Winter the novice after a few lessons becomes proficient enough to venture anywhere and so enthusiastic that the weeks of frost and snow seem all too short.

Dress plays quite an important part in Winter sports. Color is the predominant note and a since Fashion allows the most gorgeous hues for men as well as women, we find the members of the sterner sex revelling freely in the vivid blues and reds and yellows that their everyday garb forbids. Who shall measure the psychological value of this harmless indulgence of a primitive taste?

The blanket coat, white, or grey



Snowshoeing "Around the Mountain" at Montreal.



Sleigh-Driving on Mount Royal

or colored, is still the popular garment for the snow-shoer, with woollen tuque and sash and mittens of some bright contrasting shade. Ski-ers find a closely woven wool sweater

more suitable, while men and maid-ens alike wear knee breeches and short coats. There must be no hampering skirts for the girl who ski-is—no flying tassels or loose ends

to catch on the trees and stumps as she shoots down the runway. The curler who enters for the annual charity bonspiel would consider he might spoil his luck, if he appeared without the Scotch cap that is invariably associated with the roarin' game.

Visitors who prefer to be onlookers at the sports wear fur—long, rich-looking coats of seal or muskrat, Persian lamb or coonskin. It has been said that in no city of the world are seen so many fine-looking fur coats in proportion to the population. So the lady who comes up from a warmer climate to attend a league hockey match in Canada is advised to follow the Fashion and wear a fur coat, even if she has to rent or borrow it.

King Winter keeps a joyfu' court but he is a despotic old tyrant. Woe to the heedless individual who fails to obey his laws! For young and old alike he makes a rigid ruling of warm clothes, with plenty of exercise and properly-balanced food. Since these rules are so easy to obey, few may be found unwilling to conform. From all sides his subjects have enrolled themselves, for a day or a week or a month, determined to make the reign of 1923 a happy and a prosperous one.

PLEASE MAIL THIS COPY TO A SCHOOL TEACHER

Scores of readers of the "Canadian Forestry Magazine" make each copy do double work by mailing it to school teachers, clergymen, and other influential citizens of their acquaintance.

One man mails his copies to Wales, another to India, but what we are asking now is that you give your copy to a school teacher, if possible. Two cents will accomplish this service. You might mark any special articles that you consider more than commonly worth while.

The Forestry Magazine is a publication with a positive patriotic purpose.

Help to double its influence!

Growing 15 Million Trees a Year at St. Williams

Ontario Government's Mammoth Nursery Helps Restore Profitable Tree Crops to Barren Lands

By F. S. Newman

DURING the Fall of the year 1908, the Forestry Branch of the Ontario Department of Lands and Forests, established the first provincial forest nursery in Norfolk County, near the village of Saint Williams, Ontario.

Although the funds first voted to meet the expenses of operation of this nursery were exceedingly low, a start was made toward the growing of young trees for reforestation purposes with a probable output of 350,000 seedlings per annum.

Through the untiring efforts of the Provincial Forester, Mr. E. J. Zavitz, the station has been gradually enlarged until a block of land comprising 1,800 acres represents the Nursery in its entirety. Moreover, the annual output of less than one half a million trees, has grown to an annual stock on hand of several millions. The people of the province have really awakened to the fact that constructive efforts must be made if we are to grow wood as rapidly as it is being consumed. Applications come pouring in from all quarters, not only for a few hundred seedlings, but rather forty, fifty, even one hundred thousand trees are asked for by far seeing applicants.

That sandy hill or rocky knoll that never produced even poor pasture is now being planted and transformed from an eye-sore to a spot of beauty on the farm—a real asset.

Abandoned farms and waste lands are being purchased at low prices and planted out to forest trees. Municipalities are now carrying out planting schemes with the advice and co-operation of the Forestry Branch.

Dating from its establishment until the outbreak of the Great War the Norfolk Forest Nursery slowly but gradually increased its equipment and output. Similar to many other enterprises very little advancement was made between 1914 and 1919. The progress made during the recent four years can be best shown by the following table showing the annual stock on hand.

YEAR	CONIFERS	HARDWOODS	TOTAL
1919	1,018,370	64,550	1,082,920
1920	1,021,630	191,250	1,112,880
1921	8,739,500	364,710	9,104,210
1922	14,952,600	595,400	15,549,000



Part of the 750 seed beds at the Ontario Government Nursery, St. Williams, Ontario, where more than 15 million trees annually are being produced in order to re-establish barren lands.

In addition to the 1922 stock on hand a considerable number of coniferous seedlings were shipped during the months of August and September to the new Forest Stations that have been recently organized.

The Simcoe County Forest Station located at Hendrie, Ontario, received 1,190,000 seedlings consisting mainly of two year old White Pine and White Spruce. Over 500,000 trees were shipped to the Provincial Forest Station at Bloomfield, Ontario, while the Provincial Forest Station recently located at Orono, Ontario, received its first 225,000 from the Saint Williams Nursery. The trees distributed to these various points will be used to meet with the demands of the surrounding districts,

minimizing transit charges and loss through distant and delayed shipments.

The development of several million seedlings ready for permanent planting entails a great deal of equipment and labor. It may be shown, however, that the unit cost of production decreases with increased output.

The average number of men employed on the Norfolk Forest Nursery during the growing season of 1920 was 24. Referring to the stock on hand for that year one can observe that 24 men were required to produce 1,112,830 seedlings. A complete re-

organization was made during 1921 providing a personnel which now comprises a Superintendent in charge, one head foreman, one second foreman, five assistants, one clerk, two teamsters and forty men. Under this organization and increased staff it is gratifying to note that the stock on hand for the cur-

rent year now totals as follows:—

Table showing Increased Production

YEAR	Average No. of men employed	Total Stock on hand	Number of trees produced by one man
1920	24	1,112,880	46,330
1921	30	9,421,000	303,470
1922	50	15,549,000	310,980

Constant care and observation are essential from the moment the young seedling first appears until it is planted out permanently. The early days of the infant tree are fraught with dangers from disease, too much rain or too much sun. During the current year 750 seed beds were sown. These beds, 30 feet long by 44 inches in width, produced in some instances as many as 40,000 trees



A Forest Fire on "Sugar Loaf" Mountain, back of Campbellton, N. B.

Photo by Gaucher and Beaulet, Campbellton.

With the exception of spruce and cedar which remain in the beds for two years the majority of seedlings are transferred to nursery lines at the end of the first season or during the following Spring. The lining out of several million young trees presents no little task. The season during which the work must be done is limited. Speedy planting methods are necessary in order that a surplus of over-large nursery stock be avoided.

The use of planting boards has greatly facilitated the speed with which the seedlings are set out. A gang of eight men at Saint Williams recently planted 44,000 seedlings in one day. Speed is desirable but careful planting is essential.

After a period of from two to three years in the nursery, the young tree is ready for final planting. A great deal might be discussed regarding

Planting Record for Norfolk Forest Station

Approximately 4,000,000 pine and spruce seedlings have been planted during the 1922 season on Provincial Forest Station, at St. Williams, Ontario.

Mr. F. S. Newman, Forester in charge of this forest nursery, states that a similar quantity will be set out during the Spring of 1923.

The actual work of planting entails careful supervision and exhibits an interesting operation. The best planting record attained at St. Williams was 44,000 trees in one day with eight men in a gang.

Of the 4,000,000 seedlings planted, ninety-eight per cent. are thriving, well rooted and budded and in excellent condition to withstand the Winter.

what and where to plant. Our best guide should be found in a close study of natural forest conditions and congruent mixtures. An area of over 500 acres has been planted at St. Williams. The various aged plantations comprising this block are in most cases doing exceptionally well. The bulk of nursery stock, however, is distributed each spring to practically every part of the province.

With the increasing millions of young forest trees being broad casted annually, the waste areas of this province will be transformed by reforestation into not only places of beauty and attractiveness but former non-productive land will rapidly grow into wood crops that will provide an important resource to the country and ensure prosperity to future generations.

WINTER SCENE IN WOODS AT EDMONTON, ALBERTA

Photo by Christopher Hunt



Denmark's Method of Saving Public Forests

The Danish Heath Society and Its Public Service in Reclaiming the Waste Moors

Excerpts from "Impressions of European Forestry" By Ralph S. Hosmer, Cornell University

Plates reproduced by courtesy of "Forest Leaves", published by the Pennsylvania Forestry Association.
Photos by Prof. John W. Harshbarger, University of Pennsylvania

DENMARK is essentially an agricultural country. Its principal exports are dairy products, with bacon and ham, a large part of which goes to Great Britain. Forests play a relatively unimportant part, but because the forest area necessarily is limited—it was 8.5 per cent of the total area in 1912—it becomes all the more important locally to take good care of what forest there is. And this the Danes have been doing for something over a century. Denmark imports rather than exports unmanufactured lumber. All that the Danish forests produce is needed for home consumption. It follows naturally that forestry in Denmark is intensive, and it is because this is so that gives to the forest work of the Danes the interest that rightly attaches to it.

The total area of Denmark proper, excluding the Faroe Islands and Iceland, is 39,033 square kilometers (14,866 square miles). The forest area is about 333,000 hectare, or 822,500 acres. The population of Denmark in 1920 was reckoned as about three and one half million. To these figures must now be added the area and population of that part of

Schleswig-Holstein that the Great War restored to Denmark. The Danes called this region "Sonderjylland" (South Jutland). The area is about 3,900 square kilometers (1,506 square miles.) The population in 1910 was 166,600.

Some railroad fire laws have recently been enacted (1920) that provide for the payment of damages by the railways for fires set from sparks from the locomotives. These are of interest because the greater part of the Danish railroads are owned and operated by the government. These laws also make elaborate provision for fire lines to be constructed paralleling the right of way, on the privately owned land, but at the expense of the railway. The traveller in Denmark should not confuse these fire protective strips with the shelter belts along certain of the lines made to prevent the drifting of snow. These snow guard plantations are conspicuous and characteristic features of the Danish railways.

Beech is an important forest tree in Denmark along with the pine and the spruce, and there is also some oak. The best beech forests are in the southern part of Jutland where the stands consist of tall trees with 50 to 60 feet of merchantable length; clear straight stems with diameters in the mature trees of 13 to 16 inches, breast high. The oaks are usually not of as good form. But in the forest plantations one usually finds the conifers, pine and spruce, and in



Typical Beech Forest. Trees One Hundred Years Old. Multebjerg, Denmark.



Interior of Spruce Forest at Stortevad, Denmark. Cultivated Forest Trees Fifty Years Old.

some places the introduced Douglas fir and Sitka spruce.

The forest of Denmark (333,000 hectare) is divided into a number of classes of ownership; State forests, 17 per cent; sand dune forests, 7 per cent; communal forests, 2 per cent; estate and "foundation" forests, 21 per cent; those controlled by the Heath Society, 2 per cent.; association and corporation owned forests,

continuous management that forever keeps green the name of the man who established it. Individual memorial trees are very good in their way, but a forest that can be renewed in perpetuity is vastly better.

A popular Forestry Association established in 1888, issues a quarterly magazine, "Tidsskrift," which also serves as the organ of the association

The Danish Heath Society.

The unique feature about Danish forestry is, however, the work of the Heath Society. This is a private association formed in 1866 on the initiative of Captain Enrico Mylius Dalgas with the aim of reclaiming and making productive the extensive areas in Jutland that are covered with heather. This plant, so dear to the hearts of all Scottish folk, presents a most attractive sight when in bloom, but it is not an economic proposition, as are the pines and especially the spruce that in Denmark can be made to grow in its stead. Consequently the work of the Heath Society is of great local significance and has resulted in the development of Jutland in a rather remarkable way.

The Heath Society is managed by a board of 35 directors who elect an executive committee of three, with a technical deputy. This last position is now filled by Skovrider Christian Dalgas, a son of Captain Dalgas. It is interesting to note that his son, in turn, is also a member of the Danish Forest Service, being the compiler of a book of yield tables of beech, oak, pine and spruce. The work of the Heath Society falls into several divisions: The establishment of forest plantations on the heath; the construction of both drainage and irrigation canals for the improvement of meadow land; the making of marl railways — transportable tracks, whereby lime can be carried out easily to the fields; and, through the regulation of water courses and the making of dikes, the development of



Primeval Oak. Forest History Known Back to 1600. Largest Oak Trees Three Feet in Diameter, Near Viborg, Denmark.

4 per cent.; privately owned (largely in small holdings), 47 per cent.

Under old laws the forest lands belonging to the families of the nobility could be neither sold nor mortgaged, the idea being to make certain an assured income, but in 1916 a law was enacted to break up the entail so that these forests may now be subdivided and sold. The "foundation forests" are areas set apart, usually by provisions in the will of the owner, to provide an income for his widow or other dependents, or for some other specified purpose. Many elderly ladies of noble families are thus provided for. In American usage they might be called "old ladies' home forests." It is also a rather general custom in Denmark, particularly through the Heath Society, for persons of means to give or bequeath money for the establishment of memorial forests, that shall forever bear the name of the donor. This is a practice that might advantageously be introduced into the United States, especially in the establishment of town or village forests. Certainly no better memorial could be erected than a forest under

of the technically trained foresters. C. M. Moller acts as secretary for both associations and editor of the "Tidsskrift." To him also the writer is indebted for numerous favors.



Interior of Primeval Pine Forest at Elvessaeter, Norway.

marsh land areas. The headquarters of the society are at Viborg, in central Jutland, where from a handsome and commodious building the work of the several branches is directed. In 1866 the area of unproductive land in Denmark amounted to 11,464 square kilometers (3,425 square miles). In 1920, the figure was only 3,824.5 (1,476 square miles). To the Heath Society is due most of the credit for bringing into economic use the other 7,640.5 square kilometers (1,949 square miles), a reduction of the waste area of 1866 by considerably over one-half.

In all the activities of the Heath Society the actual work has been done by the people living on the heath with the consequence that prosperity has come to this section, both to individuals and to communities. Thriving towns have resulted directly from this development and a substantial increase in the wealth of the country.

The method followed in the tree

planting work on the heath is first to burn off the heather in the summer. That autumn the ground is plowed to destroy the roots of the heather. A second plowing and disk harrowing comes a year later, and in the third autumn a trench plowing that goes down to a depth of 22 inches. The trees, pine and spruce in mixture, are planted the next spring. In from 8 to 10 years the pines are removed and the spruces left to form the forest crop. Thinnings occur at frequent intervals, 3 to 5 years apart. On the better heath lands the rotation is 60 to 80 years; on the poorer, 80 to 100.

Everything cut in the plantations finds a ready market, even the branches that are trimmed off the pines at the age of 8 years being sold for fuel, while garden stakes, bean poles and the like use saplings down to one-half inch in diameter. Denmark can and does practice absolute utilization. This fact, coupled with the regularity of the forest—even-aged, fully stocked stands, with the

closely spaced trees all standing in marshalled rows—gives one a lasting impression of the extreme to which forestry can profitably be carried in countries of dense population and limited forest area.

Considered in terms of larger countries, the forests of Denmark are insignificant, but looked at from the standpoint of an example of a country that is making the most of scanty natural resources, Denmark has many lessons to teach to nations that are blessed with large areas and a greater variety of timber trees. Small countries may in a sense be considered as laboratories where can be tried out on a limited scale experiments that are of far-reaching importance in their application. So with Denmark. The achievements of the Danish foresters can with profit be studied by those who are charged with the administration of the forests of other countries. And nowhere does the visitor receive a more cordial welcome than he has at the hands of the Danes.

Climbing a Hoodoo

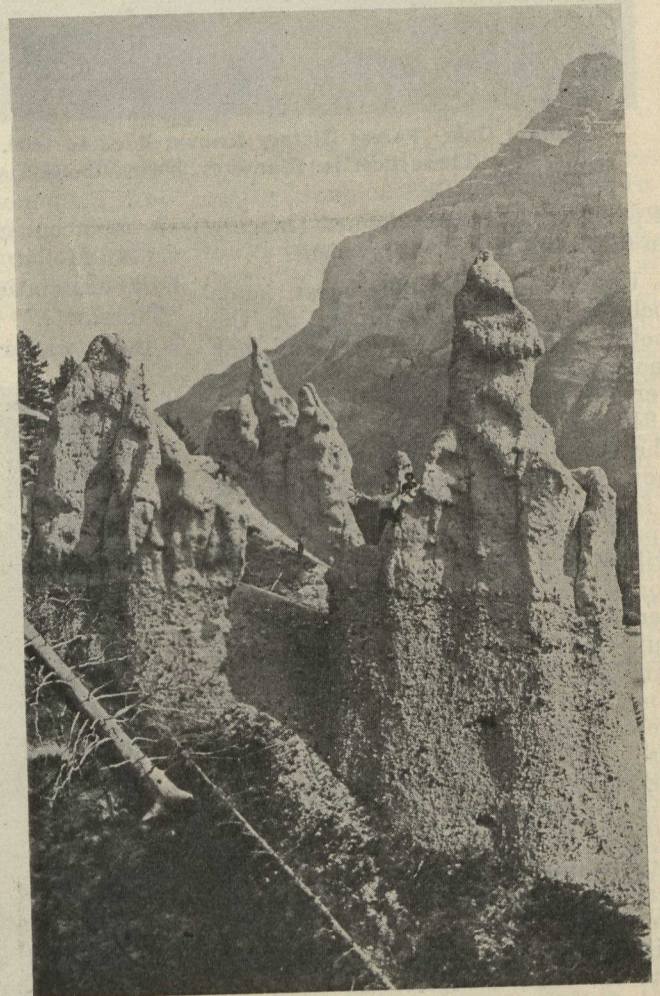
Sam McDonald made Perilous Ascent in Cobequid Mountains

By William J. McNulty

HOODOOS have no terrors for Sam McDonald. Sam, a gentleman afflicted with the wanderlust in a marked degree, is a building climber and a mountain climber. He has ascended many of the highest buildings in the United States and Canada. When in the Cobequid Mountains in eastern Canada recently, he decided he would do some mountain climbing to vary the monotony of hunting moose and deer when the moose and deer refused to be hunted. So, accompanied by some of the mountaineers, he made some ascents in the Cobequids, choosing some high peaks.

Among the mountains is a group of hoodoos, an irregular mass of stone and clay, with singular indentations, and the surface of which although hollowed abundantly, is entirely smooth. Some of the mountaineers defied Sam to climb to the highest point in the hoodoos, which is one hundred and fifty feet in altitude. The height is not the really formidable phase of climbing the hoodoos. The difficulty lies in the lack of facilities for making an ascent properly. There are no ridges, the indentations being unruffled. McDonald was accompanied part of the way up the highest hoodoo, by one of the mountaineers but the latter decided he had had enough when half way to the top. McDonald made the balance and the most dangerous part of the ascent, alone, and reached the peak of the hoodoo, in one hour of climbing. He is the first person to reach the top of the Cobequid hoodoos.

The name of hoodoo, was given the unsightly mass of stone and clay because of the fear in which the ill shaped figures were held by the Indians. Eight Indians who had sought to reach the highest point in the hoodoos, had met death before they reached their destination. The Indians then conceived the impression that the mis-shapen mass was an instrument of the evil spirit.



Sam McDonald photographed in course of his Hoodoo-climb. He is the figure with out-stretched, shirt-sleeved arms.

Lumbermen Protest Judson Clark Report

Condemnation of Doyle Rule is Particularly Resented—Lumbermen's Committee will Confer with the Government.

A DELEGATION of the Canadian Lumbermen's Association recently appeared before the Government of the Province of Ontario to present a memorandum from the Association and the Lumber Trade of the Province generally, protesting against the Judson Clark report on Ontario's forest management, particularly with reference to Dr. Clark's condemnation of the Doyle Rule of measurement.

At the conclusion of the conference between the Lumbermen's representatives and the provincial authorities, the Provincial Premier, Hon. E. C. Drury, stated that there would be no changes made with regard to existing licenses unless with the consent and approval of the lumbermen.

The Memorandum which was presented by Mr. A. C. Manbert, and was addressed to the Hon. Beniah Bowman, Minister of Lands and Forests in the Provincial Government of Ontario was as follows:—

Text of Memorandum

For two years or more, the Administration of the Department of Lands and Forests and the methods and practices of the Lumbermen and Operators in Forest Products have been under review and investigation by a Royal Commission. Following this, a report was prepared by Dr. Judson F. Clark, in which specific recommendations were made, covering the conduct of the Department in relation to the Operators dealing with the Department. The Canadian Lumbermen's Association, acting for the Ontario License Holders, has asked for an interview with you to discuss the various matters considered in the last named report. We ask this because the License Holders are not in accord with all of the recommendations of the said report, wherefore they conceive it desirable that their ideas should be made known to the Department in the interest of strict mutuality and equity.

Whatever is done by the Department is of paramount importance to the License Holders and we believe must be considered as it affects the life and perpetuity of the industry. The business of producing lumber is in a precarious position. During the years of 1917 to 1920 it made goods profits largely on paper and unliquidated but in the years following by the great deflation in values these profits have been largely lost and in many cases more than lost, involving heavy shrinkage in capital. The average Operator today finds it extremely difficult, and in many cases impossible, to produce at a cost less than the selling price. He is seeking to solve the problem of stabilization and we believe that any proposals which tend to further disturb or confuse the operations and understandings should not be lightly entered into.

The Forest Products industry is one of the chief businesses of Ontario and is largely concerned in the well being of the Province. In addition to the large employment which it gives directly it is perhaps the largest single consumer of food products of the soil. It furnishes directly and indirectly vast tonnage to the Railways. When it languishes, it affects vitally the prosperity of the entire community. It is at all times and in the nature of things must be a business of great vicissitudes. It has never been a sinecure. It requires the closest possible application

and industry and its history is one of heavy financial mortality.

Considering all this, we are forced to urge our views with great earnestness.

They are not lightly held.

They are not urged with partisan intent.

They are in all respects sincere.

Coming now to Dr. Clark's report, and taking it up in detail, while at the same time, being as brief as possible.

Departmental Re-organization

We do not presume to be in a position to deal with this question in intimate detail, but we would urge as strongly as we can that whatever organization or re-organization may be required in order that the Department be enabled to properly perform its legitimate function and discharge its onerous responsibility, should be by and under the specific direction and control of the Honorable Minister of Lands and Forests, the responsible Head of the Department.

Management of Wood

We quote from Dr. Clark's report as follows:

"The modern diversity of wood products has long since antiquated the measurement of the main forest product wood by the Doyle Rule, the Scribner Rule, Clarks International Rule, or any other products Rule. The Forest Administration of the Province sells *Wood*, and it should not in the measurement of that wood, concern its mind with what the purchaser may do with it after he has bought it and paid for it. The Province should sell its customers just so much wood, so many cubic feet of wood, and let the buyer saw it into feet, board measure, with a good or bad saw, or a good or bad sawyer, getting of course from the same sized logs various quantities of feet board measure, or let him pulp it, or burn it for fuel. Why indeed should the Forest Administration be concerned if a customer should convert the wood, which is sold and paid for, into sugar and eat it, or distil it for moon shine and drink it."

With this statement we take complete issue. First, it is based on one of two assumptions, either or both of which we hold to be fallacious, and incapable of being subjected to reasonable scrutiny. The first assumption would be that the Department of Lands and Forests when selling forest products to any given purchaser is not concerned whether that purchaser received value for his money or not, a position that we hold strikes at the very foundation upon which any sound or moral business can be carried on. The second assumption would be, that a cubic foot of wood would have the

Before the delegation withdrew, Mr. A. E. Clark, President of the Canadian Lumbermen's Association, volunteered the co-operation of the Association and it was finally agreed at the suggestion of Premier Drury that the Canadian Lumbermen's Association should nominate a committee to confer with the Department of Lands and Forests. The following gentlemen were nominated to serve on this committee:—Messrs. John Black, Ottawa; W. E. Bigwood, Byng Inlet; Dan. McLachlin, Arnprior; Z. Mageau, M.P.P., Field; Hon. George Gordon, Cache Bay; G. B. Nicholson, Chapleau; J. J. McFadden, Blind River.

same value no matter what part of the tree it was cut from, or the size of the log that went to make its volume, or what could be cut out of it. This is an assumption that, we submit, requires only to be stated to show that it has absolutely no foundation either in fact or practice.

Dealing with this statement from Dr. Clark's report in detail, and confining ourselves for the moment to the question of scaling logs that are to be converted into sawn lumber: The unit of measurement recognized in the lumber business, on this Continent is the board measure unit. No man either buying or selling lumber as such would understand what you meant if you began to discuss with him the purchase or sale of any given quantity of sawn lumber on a cubic content basis, or in fact on any other basis than that of the board measure.

So that from a practical standpoint the Manufacturing Lumberman must take the board measure basis as his standard, both in estimating the forest volume and in the product that he produces. Coming then to the practical aspect of the case, and applying the board measure unit of standing timber, there have, it is true, been a variety of rules applied, but assuming that any given rule or unit of measurement is applied intelligently it makes no difference to either the seller or the buyer what that unit is, so long as it is a unit easily understood and that properly comprehends what the product to which it is being applied actually is, and so long as it was the unit agreed on when the sale and purchase was effected.

The Doyle Rule

Coming to the rule immediately under consideration, known as the Doyle Rule, which rule has been in force in the Province of Ontario for almost half a century, and under which rule, all areas of standing timber now under license have been sold, and about which, if we may be pardoned for saying so, there has been so much misapprehension and perhaps unconscious misrepresentation, the point of attack against this rule would appear to have been that under it the accurate scale of the log in the round as related to the finished product—lumber—was not possible, because of the fact that in applying it to the round log, allowances necessarily have to be made for crooked, rotten and defective timber, slabs, etc. which resulted in a varying output in proportion to the total scale content of different groups of logs, and in addition that in modern practice the size of saw-logs, taken from the woods have gradually become smaller resulting in a wider disparity between the scale product of

(Continued on page 54)

Breeding Musk-Ox in Canada's Barren North

Royal Commission Report Indicates How Million Square Miles of Unproductive Land May be Utilized as Permanent Grazing Area

The feasibility of utilizing the million or more square miles of what is, at present, unproductive land in the Arctic and sub-Arctic regions of Canada as a permanent grazing area for musk-ox and reindeer herds is exhaustively dealt with in the Royal Commission report recently issued in book form by the Department of the Interior, Ottawa. The Royal Commission, composed of Dr. J. G. Rutherford, C. M. G., chairman; James Stanley McLean, manager Harris-Abattoir Co., Toronto, Mr. James B. Harkin, Commissioner of Dominion Parks, Ottawa, and Mr. Vilhjalmur Stefansson was instituted in May, 1919 and held four sessions at Ottawa in January, February, April and May, 1920. Subsequently, Mr. Stefansson, having applied for a lease for grazing purposes of a large area in Southern Baffin Island, resigned from the Commission. Thirty-five witnesses gave evidence at the hearing and in addition written submissions were received from a number of persons conversant with conditions in the Canadian Arctic and Sub-Arctic, and in Alaska. The findings of the Royal Commission are classified under three heads, viz: Musk-Ox, Reindeer and Caribou. Extracts from the Report referring particularly to the breeding of Musk-Ox are reproduced herewith. Reference to Reindeer and Caribou will be made in subsequent issues of this magazine.

Habitat of Musk-Ox.

"The musk-ox, which evidently at one time existed over the greater portion of the northern half of the North American Continent, has apparently been exterminated, so far as the mainland is concerned, except in that comparatively small region north and east of a line extending from Chesterfield inlet on Hudson bay to the western side of Bathurst inlet on Coronation gulf.

There is no exact or even approximate knowledge as to the numbers of musk-ox surviving in the area in question, but from the evidence given, it would appear that they are now comparatively few. Evidence was readily available from many witnesses as to the existence of musk-ox in this area during recent years, either through these witnesses having seen the animals themselves, their recent tracks, or their fresh skins in the possession of natives.

According to the evidence of Captain George Comer, there are no musk-ox on Melville peninsula, and no reliable evidence was adduced as to their existence on Boothia peninsula. There is a tradition that a musk-ox was once killed on Baffin island, but they do not now exist on Southampton island or any of the other islands in Hudson bay, or, so far as the evidence indicates, on any of the larger islands lying north of the mainland and south of Lancaster and Melville sounds. There is, however, ample evidence as to the existence of musk-ox in Melville island, North Devon island, Axel Heiberg island and Ellesmere island while they are also found on the northeast coast of Greenland.

Characteristics.

The musk-ox can apparently sustain life on the natural vegetation found in most parts of the Canadian

Recommendations.

The Commissioners after considering all evidence adduced with reference to the feasibility of developing herds of domesticated musk-ox in Northern Canada submitted the following recommendations:—

"That steps be taken, either by the use of aeroplanes or otherwise, to ascertain at the earliest possible date the approximate numbers of musk-ox still in existence in Northern Canada, and the localities in which they are to be found.

"That the policy of preventing any further slaughter of these animals, either by natives or by white men, except in case of dire necessity, be rigidly enforced.

"That a station be established in one of the northern islands, where musk-ox now exist and where young animals may be readily obtained for purposes of domestication, with a view to later bringing considerable numbers to some point further south and more readily accessible, at which their development from a national economic standpoint may be carried on and extended.

"Needless to say, the success of this undertaking will, from its inception, depend entirely on the personal and technical qualifications of those who may be entrusted with its management."

Arctic. Witnesses who testified on this point were agreed as to his preference for grass, but it was also shown that where grass was not available, lichen, moss or willow shoots were readily eaten.

Unlike the caribou, the musk-ox is not a migratory animal, preferring to remain indefinitely in areas where food is available. He apparently grazes quietly in much the same way as do domestic cattle, moving only as food conditions render this necessary.

Considerable doubt exists as to the real reason for the comparatively small proportion of calves and young animals found in musk-ox herds, various explanations being advanced by different observers. By some it is held that the female breeds only in alternate years; others attribute this condition to mortality among the calves from wolves, as also to the fact that while the calving season extends well on into the month of June, many calves are dropped shortly after April first, when the weather conditions are most unfavorable for new-born animals.

Numbers In Existence.

No exact or even approximate estimate of the number of Musk-ox now to be found on the Canadian islands is available, but the evidence would indicate that it is small, and, at least in certain areas, decreasing.

Mr. Storker Storkerson estimated that in 1917 there were four thousand head on Melville island, of which he and his party killed some four hundred for food.

Every year a small party of Greenland Esquimaux cross to Ellesmere island and kill a comparatively limited number. Professor D. D. Mac-Millan, who showed perhaps greater familiarity with this part of the north than any other witness, thinks

FIVE OF A KIND

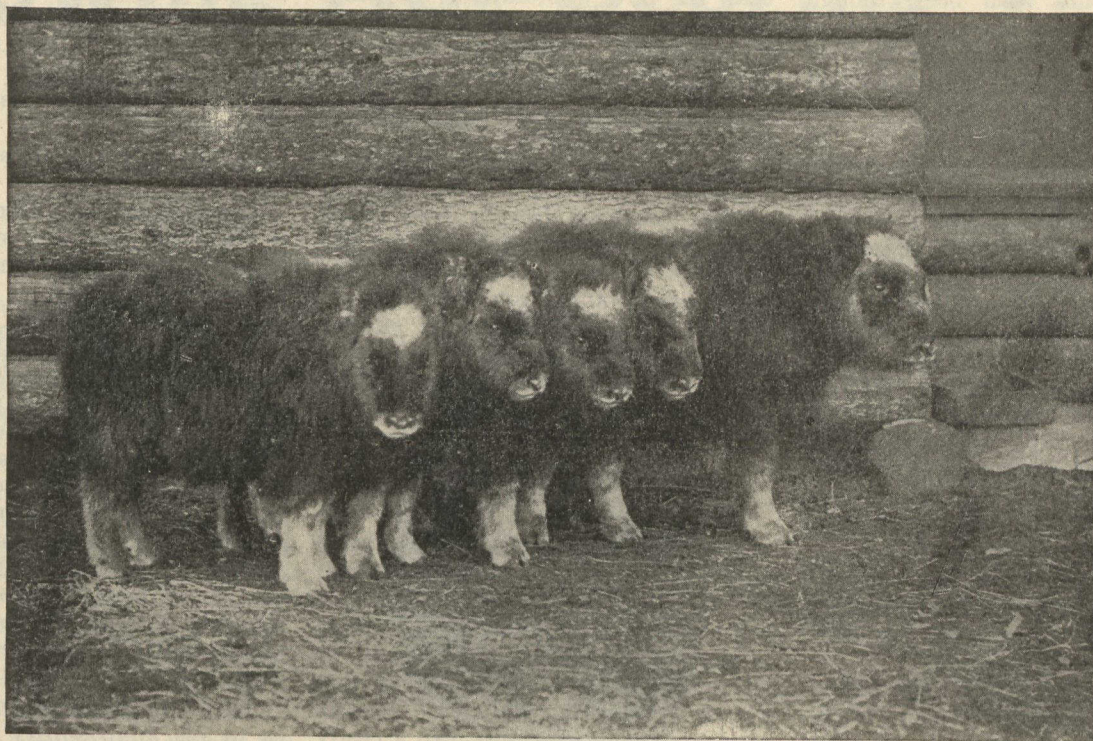


Plate reproduced by courtesy of Dr. W. T. Hornaday, Zoological Society New York

A Quintette of Musk-Ox Calves.

that this is not likely to cause any serious depletion of the musk-ox herds.

It must, however, be borne in mind that the Esquimaux are rapidly adopting the use of firearms and that, as a consequence, the extermination of the musk-ox will, in all probability, speedily follow as has been the case in some localities.

The rapid extermination of the musk-ox is largely due to the fact that unlike the caribou, he does not flee from hunters or other enemies. It is possible for man to approach within a very short distance before the animals take alarm, and when they finally do, they do not run far, but, especially if the hunter is accompanied by dogs, they form a circle or square with the cows and calves inside and the bulls facing outward, and they will thus remain until the whole herd is shot down.

Witnesses agree that the Esquimaux, like the Indian, is naturally improvident in the matter of food supply, and that he will, when opportunity offers, destroy an entire herd without regard to possible future requirements.

Domestication Possible.

The nature of the musk-ox is apparently mild and gentle, although there is evidence that, in the rutting season, the bulls will, as is often the case among domestic cattle, take the

offensive when the herd is approached by man. It is also stated that the bulls frequently fight and kill each other.

There is ample proof that the young musk-ox can be readily domesticated, the evidence showing that when cows having young calves are killed, the calves show no fear of man and are easily led away, or will often follow without being led. In many cases they have been taken on board ship and have become pets, though unfortunately these little animals often fall victims to the Esquimaux dogs which, unless constantly watched, will tear them to pieces.

As shown from the submissions of Professor W. T. Hornaday, Curator of the New York Zoological Gardens, musk-ox have been kept in domestication for many years in the unfavourable climate of New York city, while Mr. Stefansson, when in London in 1920, saw two healthy yearling musk-ox females in the Zoological Gardens there.

The evidence goes to show that there would be no insuperable difficulty in effecting the capture and transportation of even full grown musk-ox, though it goes without saying that for purposes of domestication, the younger animals would be greatly preferable.

In the matter of domestication, your commissioners would recom-

mend that a station be established at some carefully chosen, suitable point in the northern islands, and that a small staff of intelligent and competent men be charged with the task of capturing a number of the younger animals, these to be kept under reasonable and proper restraint until they become familiar with and friendly to human beings.

While some expense will be involved, it will be apparent that this will be small as compared with the cost of transporting any considerable number of wild musk-ox from their present habitat to points farther south and more accessible. Later, when suitable arrangements have been made for the maintenance of a herd or herds, possibly on one or other of the islands in Hudson bay, it will be much easier and safer to ship a number of these domesticated animals than it would be to attempt their transportation when newly captured and wild.

In addition to the establishment of a station in one of the northern islands a small number of young musk-ox might be brought down for purposes of domestication, in the event of an experimental reindeer herd being located in the Hudson bay region.

Uses of Musk-Ox.

All the witnesses were agreed that the flesh of the musk-ox is very

nutritious and palatable, comparing most favourably with beef, though more tender and luscious. It is generally admitted that the flesh of the older bulls is somewhat rank and musky in flavour, and in this connection Captain Munn, one of the witnesses, recommends that if domestication is undertaken, a number of the male animals should be castrated. Quite apart from the meat question, this would be a proper measure, as it would permit of intelligent selection of the best males to be used for breeding purposes. The milk of the musk-ox, while, of course, small in quantity, is said to be of excellent quality. From a fur standpoint, the skins of the musk-ox are apparently of little value except for use as robes, but there is no reason to doubt that they would make good leather.

Unlike those of the caribou and the reindeer, the hide of the musk-ox is apparently free from injuries caused by warble flies.

The value of the wool which constitutes the inner coat of the musk-ox is, as yet, problematical. In itself the wool is of fair quality, but though experiments to that end are now in progress, no machinery has so far been perfected which will successfully separate it from the coarse hair of the outer coat, with which it becomes mixed when being shed.

The shedding is a gradual process, the new wool taking the place of the old as this is shed, and there is, therefore, grave doubt as to the practicability of removing the latter until it has been properly replaced by the fresh growth.

In this connection it is noted that Professor Hornaday states that one of the musk-ox in the New York Zoological Gardens, from which the old wool was combed, died some three weeks later from pneumonia.

It is well known that a sudden change to severe weather will frequently cause serious mortality among sheep that have been recently clipped.

Are Hardy Animals.

The evidence goes to show that the mature musk-ox, in normal health and condition, does not fear and is not attacked by wolves or other predatory animals, but there is every reason to suppose that, as in the case of domestic cattle, any young calves which may become separated from the herd, fall a ready prey to the wolves which are always on the lookout for opportunities of this nature.

No evidence was secured as to the susceptibility of the musk-ox to flies and other insect pests. The northern islands appear to be largely free

from this drawback, but in any case, the hairy coat of the musk-ox is of such a nature as to render him practically immune to such attacks.

Your commissioners are of the opinion that the conservation and domestication of the musk-ox are matters of great domestic importance.

The existence of an animal capable, in these far northern regions, of sustaining life, reproducing its species and laying on flesh, is a matter not to be lightly regarded.

It is more than doubtful if, even after years of painstaking effort, it would be possible to produce from any of our most hardy strains of domestic cattle, an animal which could even approximate the musk-ox in those qualities which so admirably fit him for his environment and for the needs not only of the natives but of the white men who will unquestionably, and that in the near future, be inhabiting our northern possessions.

There is apparently no question as to his adaptability to domestication and your commissioners are convinced that if the matter is gone about in an intelligent and business-like way, any expenditure which may be incurred in his preservation and further development will be amply repaid."



Plate reproduced by Courtesy of Dr. W. T. Hornaday, Zoological Society New York

A SMALL HERD OF MUSK-OX.

Growing Nut-Bearing Trees

Some Information About a Comparatively New Yet Interesting
Branch of Horticulture

In Two Parts—Part One

By J. A. Neilson, B.S.A. Dept. of Horticulture, O.A.C.

THE conservation and improvement of our native nut trees and the introduction of suitable varieties from foreign lands has not occupied a prominent place in Horticultural activities until just recently, except in the Southern and Western United States, where a great deal of interest has been shown during the past twenty years in this phase of horticulture. In the Southern States, Pecans are being grown to a large extent and in the Pacific Coast States the English or Persian Walnut is widely cultivated. As a result of this development millions of pounds of walnuts and pecans are produced annually in the United States.

The interest in nut culture or the possibilities of nut culture are fortunately not confined to the American South or West. In the Northern States and in Canada there is a growing interest in this useful but much neglected phase of horticulture. The Northern Nut Growers' Association, an organization formed quite recently, is trying to interest the public in the planting and improvement of the best types of native and introduced nut trees. At the instigation of members of this organization the State of Michigan has undertaken an extensive programme of nut tree planting along the State highways and in other Northern States good work has also been done to encourage people to plant more and better nut trees.

In Ontario comparatively little has been done to improve and plant our valuable nut trees and unless something is done to interest the public in this movement we will lose a golden opportunity to save for ourselves and posterity the remnant of the fine nut trees which formerly grew so abundantly in some parts of this province. Realizing that some action should be taken an attempt was made during the spring of 1921 to interest the public in the possibilities of nut culture. A letter asking for information on nut trees was prepared and sent to officers of Horticultural and Agricultural Societies, agricultural representatives, agricultural and



PROF. J. A. NEILSON, O.A.C.

daily newspapers, school inspectors and other interested parties. Numerous replies were received and as a result a great deal of information on the occurrence and distribution of native and introduced nut trees in Ontario is now on record.

The chief native nut trees are the Black Walnut, the Butternut or White Walnut, the Hickory, of which there are four species—the Chestnut, the Beechnut and the Hazelnut. Of introduced nut trees there are the Persian, Japanese and Chinese Walnuts, the European, Japanese and Chinese Chestnuts, the Pecan and the European Filbert.

The Black Walnut (*Juglans nigra*)

The black walnut is one of our finest native nut trees and is found growing naturally along the north shore of Lake Erie and Lake Ontario and around Lake St. Clair. It has been planted in many other parts of Ontario, and does well where protected from cold winds. The tree grows to a large size, often attaining a height of 90 feet and a trunk diameter of 5 feet. When grown in the open it makes a beautiful symmetrical tree, having a large rounded crown with drooping lower branches.

Trees which produce superior nuts have been located and are now being

propagated extensively. The Thomas Ohio, Ten Eysk and Stabler are some of the best cultivated varieties. The latter variety produces a nut which generally has one lobe and when cracked the kernel often comes out entire.

Butternut (*Juglans cinerea*)

The butternut is much hardier than the Black Walnut and has a wider distribution in Ontario. It is found from Ottawa to North Bay and southward to the Great Lakes and the St. Lawrence. It will grow on a variety of soils but succeeds best on a rich, well-drained loam. The tree sometimes attains a height of 60 feet and a trunk diameter of three feet. When growing alone the trunk divides into several large branches which spread forming a triangular shaped outline.

The tree varies greatly in productivity. Some trees produce up to twenty bushels of nuts while others yield rather lightly.

The Shagbark Hickory (*Carya ovata*)

This species is the only one of value for the production of nuts. It occurs from south-western Quebec to south-western Ontario and is found chiefly along the St. Lawrence River and the Great Lakes. It reaches a height of 50 to 90 feet and a trunk diameter of one to three feet. In the open this tree forms a few short, heavy limbs, which form an outline resembling an inverted cone. The bark is rough and shaggy and peels off in long strips which curl up at the ends. The husk surrounding the nut is very thick and is composed of four sections. The nut has a hard, thin shell with a sweet kernel and is highly esteemed by many people.

The Chestnut (*Castanea dentata*)

This tree is found growing naturally on sandy ridges in that part of Ontario extending from Toronto to Sarnia and southward to Lake Erie. It has been planted outside of its natural range and is doing fairly well. At the Central Experimental Farm,



A hardwood grove on a Kent County, Ontario, farm where thousands of walnut trees grew 75 years ago and were regularly cut down for fuel. It is stated that each mature walnut would have been worth from \$100 to \$500 today as cabinet wood alone.

Ottawa, there is a fair sized tree and near Newcastle there are a few fine specimens.

It grows to a large size, sometimes reaching a height of one hundred feet and a diameter of five feet at the base. When grown in the open it forms several heavy branches and makes a broad rounded crown, but when grown in a dense stand it makes a tall, straight tree.

The native chestnut is subject to a fatal disease called Chestnut Bark disease. This disease is not known to occur in Ontario, but there is no assurance that it will not appear and, therefore, the planting of this tree is attended with some risk.

The English or Persian Walnut (*Juglans regis*)

The English walnut, or the Persian walnut, as it should be called, is found growing in the Niagara District and to a lesser extent in the Lake Erie Counties. It is stated on good authority that there are about 100 of these trees growing in the fruit belt between Hamilton and Niagara Falls. There are several quite large trees in the vicinity of St. Catharines, which have borne good crops of nuts, one of which produced nuts of sufficient merit to be included in the list of desirable nuts prepared by C. A. Reed, Nut Culturist of the United States Department of Agriculture. This variety has been named the

“Ontario” and is now being propagated, experimentally, in the United States. In the vicinity of St. Davids on the farm of Mr. Jas. Woodruff, there is a fine English walnut tree which produced ten bushels of shelled nuts in one season. This tree is one of the largest of its kind in Ontario. It is about sixty feet tall, has a trunk diameter of three feet at one foot above the ground and a spread of branches equal to its height.

The English walnut is not as hardy as the Black walnut and is adapted only to those sections where the peach can be grown successfully. At present this tree cannot be recommended for any part of Ontario except the Niagara District and the Lake Erie Counties and even in these areas it should not be planted unless it has been grafted or budded on the hardier Black walnut.

Japanese Walnuts

The Japanese Walnut is known to occur in Canada in three different forms—*Juglans cordiformis*; *Juglans Sieboldiana*; *Juglans mandschurica*.

Juglans Cordiformis

This species is cultivated extensively in Japan and is the most valuable one for Ontario. The tree is very beautiful, comes into bearing early, bears heavily, grows rapidly and is reported to live to a great age. It is believed to be as hardy as the Black

walnut and ought to do well wherever the native walnut grows satisfactorily. The nuts are distinctly heart shaped, have a thin shell, crack easily and contain a large kernel of good quality. In the best varieties the kernel can often be removed entire from the shell with a light tap from a hammer.

Juglans Sieboldiana

This type was first introduced into the United States about 1860 by a Mr. Towerhouse in Shasta County, California. Since then it has been widely distributed and is now found in many parts of the United States and Canada. It is much the same in appearance as the one first described and grows just as rapidly and bears just as early but does not produce so valuable a nut. The nut has a smooth shell of medium thickness with a kernel of good quality. It does not crack easily and the kernel cannot be taken out entire, therefore is not so desirable as the cordiformis type. In rapidity of growth the Japanese walnut is only excelled by the Willows and Poplars. In the vicinity of Grimsby there is a tree eight years of age which is about 25 feet high and has a trunk diameter of seven inches at the base. It began to bear nuts in the third year and in the sixth year produced one bushel. The leaves are very large and of a beautiful shade of green.

(End of Part One.)

WITHIN THE FAMILY CIRCLE

(Some Encouraging Comments from Canadian Forestry Association Members.)

With becoming modesty but with no small amount of satisfaction, nevertheless, we take the liberty of reproducing herewith, extracts from letters, which have recently come from our membership and readers in various parts of the Dominion. We are grateful for these appreciations, and will endeavor to merit increasingly such words of approval.

From Mr. C. L. Sanders, 163 Grey Ave., Montreal:—

"I am proud to be one of the Canadian Forestry Association."

From a British Columbia district forester:—

"I wish you mighty success in your big field as an Association. You have done much but there is still a great work to be done. More power to you."

From a Sudbury, Ont., Member:—

"I certainly want to continue as a member of the 'Canadian Forestry Association'. I am thoroughly in accord with your work and objects."—R. H. M.

From Mr. C. E. Lund, Sackville, N.B.:—

"I regard the 'Canadian Forestry Magazine' as a very valuable and an increasingly interesting publication and well deserving of the splendid success it is achieving."

From a Calgary member:—

"Things are not very good out West and some of us are hard up, but I think so much of the work you are doing that I enclose cheque covering subscription of a new member."—R.B.R.

"I am very much interested in your Magazine, which is devoted to the conservation of Canada's Forest Resources and the beautifying of farm homes, and would be glad to know that your Magazine could reach every home in Canada."

From Mr. C. E. Friend, Comptroller Canadian Northern Rly. System, Toronto:—

"Your magazine is getting more interesting all the time and has improved to a very great extent during the last year or two. It seems to me that almost anyone owning property in the country districts would value the magazine, not only in connection with cultivation of their own immediate property, but also in connection with the general preservation of the timber areas."

From Mr. C. C. Smith, Estevan, Sask:—

From Mrs. J. B. Learmont of Montreal comes the following kind expression:—

"Your printed appeal to subscribers some weeks ago asking them to give their copy of the magazine after using it to others is a very good one. Might I suggest that you repeat this frequently. This magazine should be in every family, especially where there are boys and girls. It would prove a valuable teacher in the education of the young people regarding our forests as an asset to Canada."

From Mr. G. W. Lee, Chairman of Temiskaming and Northern Ontario Rly. Commission:—

"I congratulate you on the great and excellent work you are doing."

From the Secretary-Treasurer of the Town of Vulcan, Alberta —

"The Council of the Town of Vulcan wishes to express its appreciation of the work being done by the Forestry Association in sending out the Tree Planting Car."

From a Shawville, P.Q. physician:—

"I deem it a great privilege and indeed an honor to belong to such an organization and thoroughly enjoy the reading of your excellent Magazine, and I pass it on to my son, who is equally interested, at Iroquois Falls, Ont."
—H. B. F."

From a New York Magazine Editor:—

"It gives me great pleasure to send in my subscription for the coming year and to congratulate the Association on the delightful magazine you are giving us and which I enjoy more than I can tell you. Hoping that your subscription list will some day reach the million mark, and with best wishes for your continued success in the good work you are doing."—I. A.

From a subscriber at Meaford, Ont:—

"As I have been manufacturing lumber for sixty years, you can realize how very much I appreciate the 'Canadian Forestry Magazine.' When I started in the lumber business I could get all the logs I wanted at \$4.50 per M. and when I quit cutting about two years ago, the same kind of logs, only a lower grade, were fetching \$55.00 per M."—G. T. K.

From C. A. Robinson, Calgary:—

"Enclosed find two dollars, Subscription for 1922, to the 'Forestry Magazine.' I also received the pictures for which I wish to thank you. They are very beautiful and much appreciated by me, being a lover of the Great Out Doors, particularly the forests. Also I want to thank you for the promptness with which my Magazine has been received and I as a lover of the forests take much pleasure and derive a considerable amount of very interesting and useful knowledge from that same Magazine. The public are just beginning to realize the benefit they will ultimately derive from the conservation and re-forestation of thousands of acres of land fit only for the growing of timber in this Dominion of Canada of ours. Give it plenty of publicity in order that more of the residents and visiting tourists may be made conversant with the good results that are bound to follow."

E D I T O R I A L

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NOTICE TO CONTRIBUTORS

The Editor will consider for free publication articles, photographs and communications of general interest. Rejected matter can only be returned if the necessary postage is enclosed, and no responsibility is undertaken for the safe return of such matter. When payment is desired the fact should be stated. Letters and articles must be written on one side of the paper only. The views expressed by contributors writing over their own signature are not necessarily endorsed by the Editor.

The New Army of Conservation

THAT the present state of public or private forest management in Canada is wholly inadequate to safeguard the rights of the future is one of those self evident facts that grows prose by reiteration. Limit holders know it. Paper companies know it. Government foresters have no two opinions concerning it.

The forest resources East of the Rockies are on the down grade. Non-agricultural areas as big as Belgium or Holland have been cut out, burned out, or eaten out times without number by plagues of forest insects. The yearly count is almost wholly on the debit side. Quebec planted last summer a thousand acres and over half a million acres were fire swept. Ontario's record runs not much different. Where is all this to end?

It would be an ugly compliment to the sagacity of Canadian citizens to suggest that they will put a bankrupt sign on five thousand forest industries before they will admit the bankruptcy of their public forestry policies. Unless a public forestry policy is **maintaining** at par the forest resources; indeed, if it does not from year to year **increase** the forest stock it is not a public policy at all, for public rights must fully comprehend the unborn Canadians of 1995, rather more than the passing show of 1923.

The writer of these lines has had occasion to address some hundreds of audiences of Canadian business men on the more elementary economics of forestry. The addresses, indeed, were little more than popularized forestry. In not a single instance did he encounter the apathy and cynicism that some public leaders

cite as the obstruction to governmental progress in forest management. The precise opposite is everywhere manifested. Whether in Hamilton, Toronto, North Bay, Three Rivers, Quebec, Fredericton, Winnipeg or Vancouver, the Canadian business man instantly grasps and accepts the proposition that the State, being owner of 85 per cent. of the forest lands of Canada, is the responsible steward of the forest resources. He sees without argument the common sense of forest surveys and the classification of land so that every square mile may be permanently set apart for timber growing or farm crops. He has neither apathy nor cynicism for the suggestion that the State and the wood using industries are business partners and that the State should be the very pattern of just dealing with private operators while rigidly insisting that the **regeneration of the forest** is a vastly more important consideration than the cheapness of this season's logs.

Furthermore, the writer has yet to encounter many Canadian citizens who, with the facts before them, will say that any government is justified in taking millions of revenues from the forest while the capital stock of the forest is rapidly depreciating. That tax money represents not annual increment but a capital levy which, as in any other business, must in a few years choke itself to death. Rightly spent money will put our forest fires out of business, which does not mean that rangers and canoes are the only, or the most important ways of counteracting forest fires. If more liberal expenditure and better administration would cut off half of the four thousand fires of 1922, is any government justified in taking away from the forest in taxation three or four million dollars a year without putting at least fifty per cent. of the amount back again into the most perfect fire prevention efforts that the Forest Services can devise?

The plain fact is that the ancient saw regarding "inexhaustible forest" still dominates government expenditures on forestry. A wholesale hardware house would never dream of calling a box of hinges or a row of nail kegs "inexhaustible," nor would it spend the receipts from sales of hinges on the boss's limousine until it knew for certain that enough money was left to keep the hinge supplies at par.

Let no one be so sidetracked by purely local incidents and prejudice to assert that the business men, the voters of Canada, are not interested in the present forest conservation crisis. A few years ago the whole subject was a private tilting ground between limit holders and government departments, with mutually unsatisfactory results, much unfairness to the wood using

The Voters Are Interested

industries and an almost total eclipse of the most important forestry function which the State is called upon to exercise.

The participation of the millions of Canadians who are coming to see the cause of forest preservation as a challenge to their patriotism will automatically supply a jump spark to State activity and just as certainly guarantee the wood using industries the equality of treatment and the industrial security to which they are entitled.

Responses to Appeal

IN the December issue of this Magazine, under the heading "An Unintentional Appeal," mention was made of a letter received in the ordinary course by the Canadian Forestry Association from a soldier settler who with his wife has been struggling manfully to set up a home in the Canadian West. Our correspondent, whose name was withheld, had no idea of course, that the Canadian Forestry Magazine would attempt to secure some aid for him and his wife. His good-natured description of the difficulties through which he had passed and the troubles still ahead this Winter was designed merely as an explanation why he could not pay his subscription fee as a member of the Canadian Forestry Association.

Following the publication of his letter, an anonymous subscriber in Montreal sent five dollars to the *Canadian Forestry Magazine* to be forwarded to him and this was quickly followed by a second Montreal subscription for a similar amount, which as the writer stated, was "a small Christmas Greeting with every good wish to the writer of that splendidly written letter in the December Number of your Magazine."

A few days later a kindly disposed subscriber in Cobourg, Ontario, notified us that a box of warm clothing was available, and this has been sent on through the Canadian Forestry Association, so that the various gifts will reach our soldier settler friend several days before Christmas. Needless to say, the Association also presented him with a paid-up subscription to the Magazine for 1923.

Mr. Dwight in a New Field

MR. T. W. Dwight, Assistant Director of Forestry of the Department of the Interior, was recently selected by the Board of Governors of the University of Toronto for an important appointment on the professorial staff of the Faculty of Forestry and has already taken up his new duties. He joined the staff of the Dominion Forestry Branch in June, 1911, and has been an indefatigable worker in its development.

Mr. Dwight, who by the way is a grandson of the late Rev. Dr. Timothy Dwight, former President of Yale University, brings to his new position distinguished qualifications which are certain to add lustre to the already high reputation of the Forest School at Toronto. For several years Mr. Dwight has been a Director of the Canadian Forestry Association, to which he has given generous and valuable assistance.

Disagree with Mr. Hall Caine

Many of our Ontario readers may have read an editorial in the Toronto "Globe" of December 21st last, entitled "A Conflict of Opinion." Mr. G. R. Hall Caine, M.P., an English Director of the Saguenay Pulp and Paper Company is credited with the statement that Canada's natural wealth is "not even scratched," and the editorial goes on to say that Mr. Caine's inquiries "in conjunction with the Canadian Forestry Association" have convinced him that there is enough pulpwood in Canada alone including the natural regrowth to last the world, even with a greatly increased consumption of paper, for many generations to come.

The Canadian Forestry Association is not associated in any way with Mr. Hall Caine's extreme declaration which it believes runs counter to well-ascertained facts. Two years ago another British visitor made the interesting statement that enough pulpwood was growing on the shores of Hudson Bay to last the newspapers of America at least a century.

It is safe to say that no qualified forest engineer and few if any responsible heads of the Canadian pulp and paper industry will agree with the statement attributed to Mr. Hall Caine.

Boosting Prairie Forestry

ONE of the most enterprising lumber organizations in Western Canada is Rogers Lumber Yards, Limited, of Moose Jaw. This firm publishes monthly a live house-organ entitled "The Rogers" and as an indication of the cheerful public service accomplished by the 'Magazine,' the November issue devotes several pages to a general invitation to Western farmers and townspeople to take an interest in tree-planting and to proceed wherever possible with a planting programme. The Canadian Forestry Association has undertaken to answer all enquiries sent to the Rogers Lumber Company and has arranged for the publication of Questions and Answers from month to month in "The Rogers." From 25 to 30 thousand copies of "The Rogers" monthly will reach the hands of Western customers, so that from the point of view of the good of prairie forestry the Canadian Forestry Association's propaganda will thus receive very substantial aid.

A "Touching" Note

That the letters reminding members of the Canadian Forestry Association of their membership fees are taken in good part, no matter how insistent they sound, is indicated by the following note from a well-known Canadian author:—

"Your nice little note about 'the 12,000 Canadians gathered around the family table' has touched my hard heart—touched it so hard that I reached out and filled in the cheque form, as you see. I send it now with deep contrition for my long silence. I do like the magazine and I do not want to do without it.

With every good wish—"

Quebec Undertakes Excellent Forestry Projects

ON December 19th the Legislature of Quebec, through Hon. Mr. Mercier, endorsed several excellent projects for the establishment of several rangers' schools and the founding of a school in paper-making, as well as other important forestry projects.

Hon. Mr. Mercier presented resolutions granting a total of \$120,000 for the foundation of schools for forest rangers, instruction in paper making, forest research stations and laboratories, and \$85,000 annually for maintenance and upkeep, of the maintenance of a chair or school of instruction in forestry and surveying.

Funds for buying sites for the schools will come out of consolidated revenue, and maintenance grants will be voted out of consolidated revenue, and maintenance grants will be voted each year in the budget.

A sum of \$40,000 is set aside for building and equipping the school of forest rangers, \$30,000 for installing and equipping of schools or chairs for instruction in paper making; and \$50,000 for the construction and equipment of forest research stations and laboratories. The grant of \$15,000 for the chair of forestry and surveying will be paid to the Laval University at Quebec.

Forecast Fire Loss.

Incidentally Gen. Smart asked the Minister if there was any information available as to the damage done by forest fires this year. Mr. Mercier said the reports received showed that the fires had spread over about 1,200 square miles, but that the loss was less than at first anticipated, as some of the land had already been previously burnt over. Full reports had not yet been received.

In reply to questions by C. E. Gault, the Minister of Lands and Forests said he was not prepared to say where the schools would be established, but they would be in centres most convenient to the industry. The province had started the first mill in 1800 and had been keeping ahead of all other provinces ever since. There was \$104,000,000 invested in pulp and paper making in the province. Quebec produced about 55 per cent of the total output of the Dominion. There were a very large number of people employed in the mills, and the Government thought it was time to do what was being done in other countries and establish schools to enable employees to become better acquainted with their industry.

It might be that the school would be established in the St. Maurice River district, which was a most important centre, but it would be considered with an open mind.

Forestry Training.

The forestry school might possibly be established near the Government nursery at Berthierville or they might come to an understanding with lumber companies that had nurseries of their own so that foresters could go there for training. The chair of forestry and surveying would be in Quebec, because the students could get practical experience in the department and also be able to attend lectures. The Chief of the forestry department, Major G. C. Piche, would be ex-officio inspector-general of all the schools, he having made special study

of forestry in Europe and the United States, and being well qualified to supervise the schools.

Mr. Mercier added in later explanation that the forestry schools were to train fire rangers and cullers, and would implement the work of the school of forestry engineers in Quebec, training not only new men, but aiding those at present employed by the Government and the protective associations to better understand their duties. The course would be about two years, of which six months would be theory and the remainder practical work.

A small museum would be created so as to educate students as to the various kinds of woods, as well as a laboratory. The paper making school would be along the lines of the school at Grenoble, France, which had been established 15 years and does good work. There would be an elementary school in addition, so that students could work in the mills when not studying. The course would be probably for two years and the forestry associations had promised to support it.

Causes of Destruction.

In regard to laboratories and research work it was necessary that there should be more study given to the different causes of destruction of forests, especially in regard to insects and fungi which had wrought such havoc with certain species of trees in the Dominion. Experiments in the utilization of wood by-products would also be undertaken. He hoped that some of the schools would be in operation next fall.

The bill was afterwards passed through committee and third reading, incorporating the resolutions and providing that the head of the forestry service shall be ex-officio inspector-general of instruction in forestry and paper making and director-general of the stations or laboratories of forest research.

Spruce Bud-Worm Treatise

THE *Canadian Forestry Magazine* is in receipt of a handsomely prepared copy of the \$5,000 prize treatise on the spruce budworm, bark beetle, and borer, written by Mr. O. Schierbeck, F.E., Forester of Price Brothers and Company, Quebec. This essay is one of the important results of the competition instituted by the generosity of Mr. Frank J. D. Barnjum of Annapolis Royal and Montreal, who has prepared a sufficient number of copies to be sent with his compliments to those definitely and directly concerned. The use of substantial cash prizes as a reward for distinguished service by fire rangers and others is a form of public service which Mr. Barnjum has utilized to excellent effect.

ANNUAL MEETINGS.

The annual meeting of the Canadian Lumbermen's Association will be held in the new Mount Royal Hotel, Montreal, on January 24th and 25th, 1923.

The annual meeting of the Canadian Pulp and Paper Association will be held on January 26th at the Ritz-Carlton Hotel, Montreal. The Technical Woodlands and other sections will meet at the Ritz-Carlton Hotel on January 24th and 25th. The council of the Association have appointed Mr. G. M. McKee, Mr. H. F. E. Kent and Mr. Edward Beck, the secretary, as a committee to make all arrangements.

Le rôle des forêts dans l'économie d'un pays

Comment les forêts contribuent à l'enrichissement de la vie humaine ainsi qu'à la prospérité et au confort du peuple

Par Avila Bédard, B.A., M.F.,

Directeur de l'école d'arpentage et de génie forestier.

(Suite du mois d'août)

Sur les cartes militaires russes, au début du XIXe siècle, la rivière Tiligoul était représentée par une ligne bleue continue depuis les environs de Balta jusqu'à la mer Noire. Elle était alors tenue pour importante, étant d'ailleurs capable d'activer les quelque 50 moulins de toutes sortes qu'on avait élevés sur ses bords. Elle n'apparaît plus sur les atlas que comme un mince filet s'épanouissant à quelque distance de la mer en un minuscule lac, qui n'a point de décharge. La Tiligoul est maintenant, si l'on peut dire, une rivière paresseuse qui vient mourir contre un isthme, qu'elle a elle-même construit avec les terres de toutes sortes que ses eaux ruisselantes enlevaient aux

pentes dénudées, et sur lequel passe, aujourd'hui, la route de Nicolaïev à Odessa. Ajoutons que les moulins, si actifs alors qu'elle était toute énergique, tombent en ruines maintenant qu'elle coule mollement.

On ne compte plus, dans le bassin de la Méditerranée, depuis l'Asie Mineure jusqu'en Espagne, les rivières qui, cessant partiellement ou totalement d'être flottables et navigables, parce que la forêt n'était plus là pour leur assurer un approvisionnement suffisant et régulier des eaux pluviales, ne participent en aucune façon au développement matériel des pays qu'elles traversent.

Ici même, dans la province de Qué-

bec, plusieurs rivières, comme le Saint-Maurice, la Chaudière, le Saint-François et la rivière du Sud, ne doivent de conserver leur importance, l'une au point de vue de la navigation, toutes au point de vue du flottage des bois, qu'aux dragages répétés qu'on y a faits et aux écluses nombreuses dont on a coupé leur cours, et cela, depuis que l'agriculture et le pâturage ont pris, sur les pentes et les sommets, la place qu'au-

Encore faut-il dire que, malgré ces travaux de creusage et de barrage, toujours fort coûteux, la navigation ne cesse pas d'être intermittente sur le Saint-Maurice, entre les Grandes-Piles et la Tuque, et que sur les autres rivières les billes qui viennent de la forêt continuent de s'attarder, très nombreuses, au cours du flottage, jusqu'à l'époque des crues.

Si l'on a pu dire que la navigabilité des rivières et leur aptitude à servir au flottage des bois sont intimement liées à leur régularité de régime, n'est-on pas fondé à affirmer que la valeur et l'utilité des chutes d'eau se mesurent à leur uniformité de débit?

IT CAN BE DONE

If you can't be a pine on the top of the hill

Be a scrub in the valley—but be
The best little scrub by the side of
the rill;

Be a bush if you can't be a tree.

If you can't be a bush be a bit of
the grass,

And some highway some happier
make;

If you can't be a muskie then just be
a bass—

But the liveliest bass in the lake!

If you can't be a highway then just
be a trail,

If you can't be the sun, be a star;
It isn't by size that you win or you
fail—

Be the best of whatever you are!

—Douglas Malloch.

Value of a Woodlot

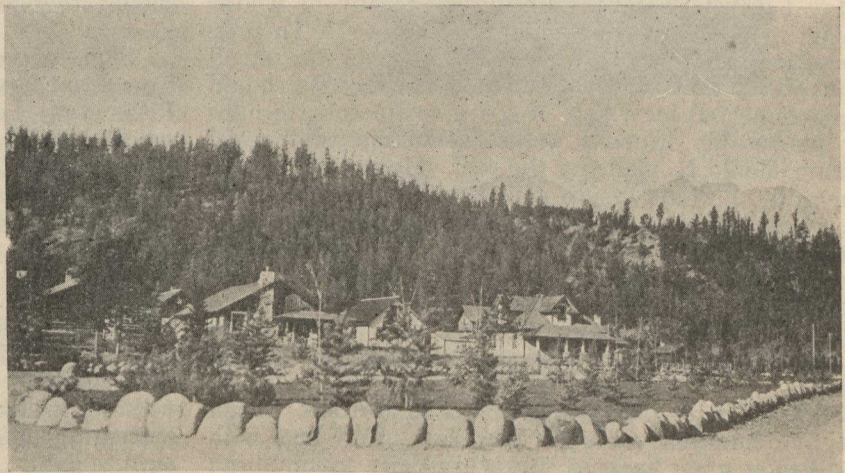
A woodlot on every farm maintained under the rules of scientific forestry, drawn upon for fuel annually would make about half of the population of Canada wholly independent of the coal miners and the coal-mine operators in the matter of keeping the home fires burning.

THE SMELL OF TREES.

Surely of all smells in the world the smell of many trees is the sweetest and most fortifying. The sea has a rude, pistolling sort of odor that carries with it a fine sentiment of open water and tall ships; but the smell of a forest, which comes nearest to this in tonic quality surpasses it by many degrees in the quality of

softness. Again, the smell of the sea has little variety, but the smell of a forest is infinitely changed; it varies with the hour of the day not in strength merely, but in character; and the different sorts of trees as you go from one zone of the wood to another seem to live among different kinds of atmosphere.—R. L. Stevenson.

A BEAUTIFUL PIECE OF BOULEVARDING



At Jasper Townsite, Alberta, the work pictured above was done under direction of Colonel S. Maynard Rogers of the Dominion Parks Branch. The trees are Douglas Firs, Spruce and Jack or Lodgepole Pine in the centre, and Manitoba Maple and many indigenous shrubs to help protect the roots during growth.

Harking Forward Through Radio

Some Present Performances and Future Possibilities of this Most Modern Science.

By A. H. Morse,

Managing Director, The Marconi Wireless Telegraph Company of Canada, Limited.

DURING the past three years there have been very many developments in commercial use of Radio on this continent.

If Canada has appeared to lag in the application of radio, it is because it was in the United States that radio was first taken up by the Press and also because we have, until recently, been depending upon imports for some of the raw materials required in the manufacture of radio equipment. Both of these disabilities have now been removed and we face the future with enthusiasm and optimism.

I would like to say a word about the receiving gear that is now available. People who use single-circuit crystal receivers often complain that they cannot tune out local broadcasting stations, and I want to tell you that it is not possible to do so with that kind of apparatus. The same complaints are made in Pittsburg, New York, etc., etc. With skilful handling of a properly-designed single-circuit regenerative receiver, you may listen to any of the broadcasting stations within range when your own city is broadcasting; and you can, of course, procure receivers with very pronounced selective qualities, but these involve many adjustments, and their use usually results in much good entertainment being missed because of the lack of precision in the necessary variable adjustments. A compromise is therefore advisable.

It seems to me that whatever one's interest in life may be, radio must have a fascination for him. A few weeks ago I heard an able address on Forestry Protection and, during that address, I couldn't help thinking that it was out of deference to the telephone company that the lecturer omitted to point out how the wider application of radio would spare the lives of many trees which otherwise would become telephone poles.

Build Houses For Radio

May I give just one word of advice to anyone who is building, or contemplating building, a house? There is no question whatever, especially in view of the small cost involved, that every room in all new houses should be interconnected by a pair of space conductors, terminating in suitably disposed wall-sockets, and that aerial provision should be made on the roof. However sceptical you may be, I would assure you that there will certainly come a time when you will enjoy listening to good music, a lecture or perhaps a sermon. When my own wife was recovering from a serious illness last August, it was certainly a great pleasure to her to have radio entertainment at her bedside, and my children have fallen in love with the lady at East Pittsburgh who tells the Bedtime Stories.

Think of it, a dozen wealthy organizations within about five hundred miles of Montreal are vying with each other at great expense to put on daily programmes of instruction and entertainment. Anyone can enjoy these programmes by the expenditure of about \$150.00. In all the world's history, a better hundred-and-fifty dollars' worth was never offered.

In the country to the south of us, it is already suggested

that the three "R's" now stand for "reading, writing and radio" and, judging by the steadily increasing number of ornamented roofs which one sees, I think we are inclined to support that view. It is not seriously suggested that radio supplants arithmetic, but it certainly supplements and almost threatens to supplant, reading and writing.

Bearing in mind that Montreal broadcasts are heard from coast to coast—we have reports from Washington, California and from Nova Scotia—and in view of the very distant stations which are regularly heard in Montreal, it is interesting to note that the broadcasting programme in the United Kingdom contemplates the operation of five broadcasting stations in a territory of much smaller area than the province of Quebec.

When broadcasting becomes general in Europe where a different language is spoken every few miles, imagine what the effect will be. It would seem that a lingua franca is now unavoidable and while I hold no brief for or against Esperanto, it seems to me that it would be a wonderful coup if the Esperantists could arrange that all announcing in Europe was done in Esperanto.

Looking Into Future

We shall, I think, have to wait half a generation to see the full effect of radio upon our social life and I feel confident that we shall find that certain wavelengths will come to be reserved at certain times of the day for educational purposes. The educational facilities now available in our large cities will then become available in the most remote country schools. Certain progressive educational institutions are already considering the broadcasting of their regular lectures and, without doubt, one result will be that the next generation will, in general, attain to a much higher educational standard. Moreover, it will probably enjoy better eyesight through not having to rely so much upon reading for its instruction. Oculists should, therefore, beware, and get into the radio business at once.

Some of you who have listened to radio broadcasts from Minneapolis, Chicago, Davenport (Iowa), Detroit, Pittsburgh, Louisville (Kentucky), etc., etc., when the speech has been so loud and clear that you have imagined that you felt the breath of the speaker in your ear, will, I think, agree with me that a "loud-speaker" may some day find a place on every breakfast-table?

While we are looking into the future, I venture to prophesy that, within a few years, there will be two distinct kinds of broadcasting, one being purely wireless broadcasting, as practised today, which will be relied upon by farmers, miners and others resident in remote country districts; and the other, upon which residents in cities will rely, will be confined to the city's power distribution system and will be on tap in every house equipped with electric light. For the latter kind of broadcast, no receiving aerial will be necessary and, if a "loud-speaker" is not required, the necessary equipment will be available for about \$25.00.

I hope I will not be asked how I think this service will be financed, but I venture to say that such a means of

Made Official Organ

MR. Sam Harris, president of the Ontario Sportsmen's Game and Fish Protective Association, writing to the Editor of the *Illustrated Canadian Forestry Magazine* under date of December 28, 1922, made the following announcement.

"At the last meeting of the executive of the Ontario Sportsmen's Game and Fish Protective Association they unanimously approved of the *Canadian Forestry Magazine* being the official organ of the Association.

In addition to Mr. Harris, the officers of the Association are:—Jack Miner, Kingsville, Hon. Pres.; Dr. H. L. Reazin, Toronto, 1st Vice-Pres.; F. N. W. Brown, Queensville, 2nd Vice-Pres.; Major E. H. Kelcey, Loring, 3rd Vice-Pres.; John V. Gray, Toronto, Hon. Treas.; George A. Lester, Toronto, Hon. Sec.; Trustees, Donald A. Cameron, Lieut.-Col. H. S. Cameron and F. S. Taylor, Toronto.

disseminating good-cheer, entertainment and education even to under-privileged persons, cannot (in this day of grace) fail to be used for lack of funds; and no doubt it will, in the end, be financed by the State.

Commercial Application

There is no doubt, in my mind, that the broadcast, of whatever kind, will find definite commercial applications, and that there will be developed in connection therewith something approximating to the present "ticker" service. That isto say; at certain definite times each day, broadcasts of special commercial information will be made telegraphically. By means of the adoption of either high-speed transmission or what is known as the five-unit system of telegraphy, these broadcasts will be made unintelligible to non-subscribers. The receiving equipment will be started and stopped automatically and the record will be either in Morse Telegraph or Roman Characters. All the essential equipment is now available and no new invention is necessary in order to make such a service practicable. To be thoroughly successful and commercial, however, it would have to have a very expert organization behind it and good financial backing, plus the support and goodwill of the Government.

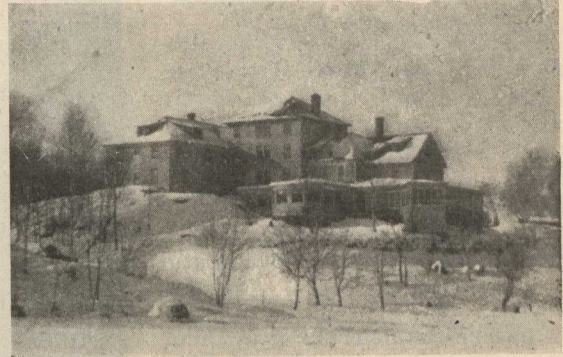
Within a few years, the orchestra that plays in an hotel will be audible in every room, and without distortion. Guests who desire to hear the music without wearing head 'phones will be supplied by the hotel management with sound-magnifiers, for which a small fee will be added to their room rent. All this could be done today.

There is no end to the possibilities of Radio, and it may yet prove to be the instrument for destroying distrust misunderstanding and prejudice which have their roots in ignorance and which are at least contributory causes of all wars.

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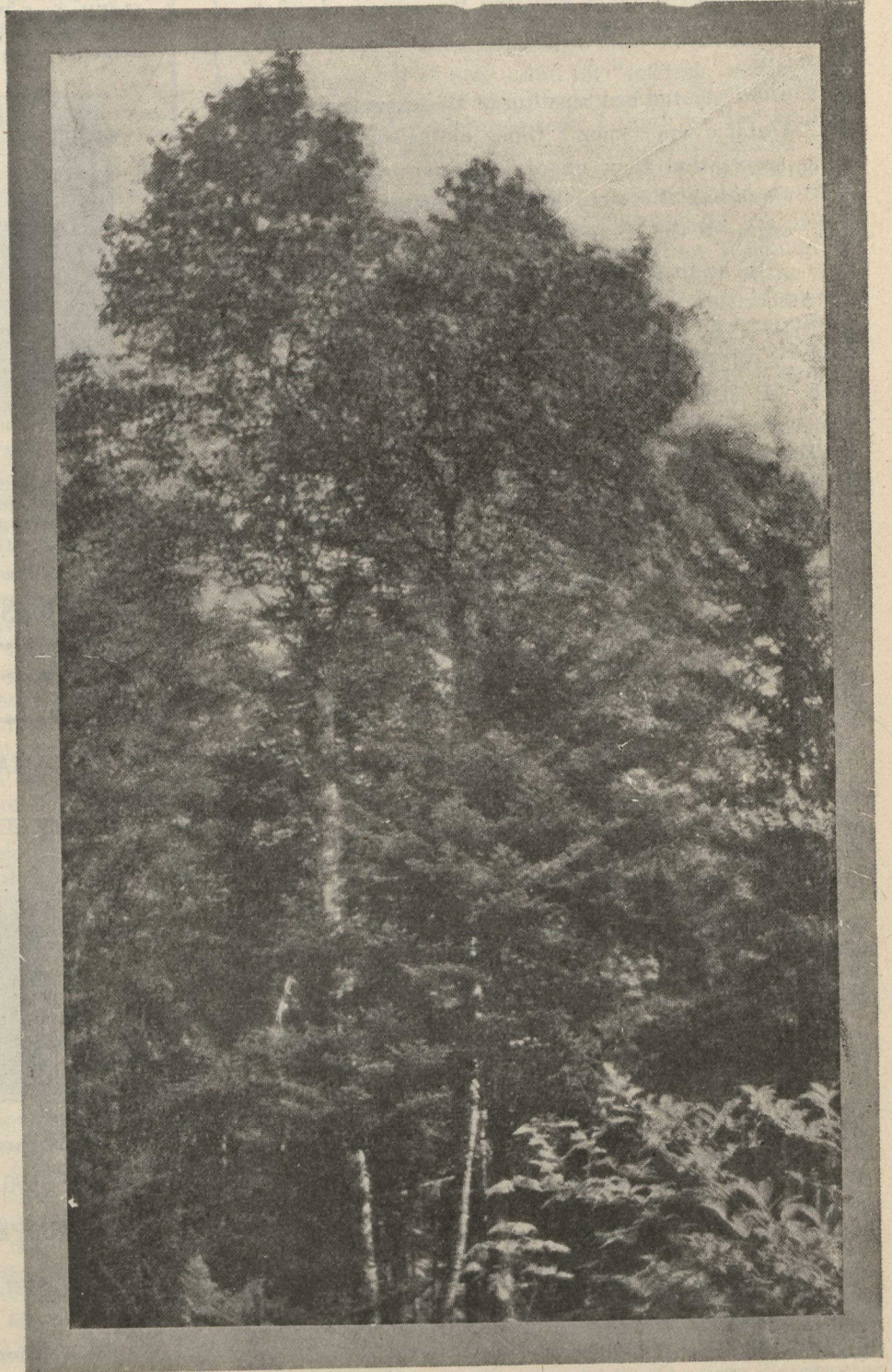
Growth of Spruce and Balsam Fir in Nova Scotia

By A. B. Recknagle, B.A., M.F.
Professor of Forest Management
and Utilization Cornell
University



TWO recent visits to Nova Scotia have enabled the writer to gather data on the growth of spruce and balsam fir in Nova Scotia, which, as far as known, have not hitherto been available. The methods followed are those set forth in a recent article in the "Journal of Forestry," with such departures as local conditions made necessary.

The figures of growth are given in the form of tables. Table I is for white spruce (*Picea canadensis*) in Guysborough County and the data were taken in second growth stands on well drained ridges or flats. Table 2 is for balsam fir (*Abies balsamea*) in the same locality and stands. Table 3 is for red spruce (*Picea rubra*) in Cumberland County on Chignecto Bay. These data were taken on recent cuttings for saw timber. The growth of red spruce is slower than average because of the site—which was a low ridge above an extensive bog, with shallow soil, often sour, cold and wet.



Every square mile of forest in this Dominion is an incubator of new industries and new population. To kill the forest is to deliver a death blow to our future development. A scene in Nova Scotia showing fir and red spruce coming up under paper birch

TABLE I.—WHITE SPRUCE.

D. B. H. inches	Volume in cords (Cary).	Years required to grow last inch of diameter (curved)	Current annual increment per cent. (Pressler) curved
5.....	.05	5½	4.00
6.....	.06	5¾	4.00
7.....	.08	6	3.75
8.....	.10	6¼	3.75
9.....	.13	6½	3.50
10.....	.16	6¾	3.25
11.....	.19	6	3.00
12.....	.22	5¾	3.00
13.....	.25	5½	2.75
14.....	.29	5¼	2.50
15.....	.32	4¾	2.25
16.....	.36	4½	2.00
17.....	.40	4	1.75

Note.—When applied to a sample acre of this type containing 12.84 cords of spruce to the acre, the annual increment was found to be .387 cords or 3.01 per cent. of the present volume.

TABLE II.—BALSAM FIR

D. B. H. inches	Volume in cords (Cary)	Years required to grow last inch in diameter (curved)	Current annual increment per cent. (Pressler) curved
5.....	.04	5¼	4.4
6.....	.05	6¾	4.1
7.....	.07	7¼	3.7
8.....	.09	8	3.2
9.....	.12	8¼	2.9
10.....	.14	9¾	2.5
11.....	.17	10½	1.9
12.....	.20	11	1.5
13.....	.23	11½	1.0

Note.—When applied to a sample acre of this type containing 13.60 cords of balsam fir to the acre, the annual increment was found to be .416 cords or 3.1 per cent. of the present volume.

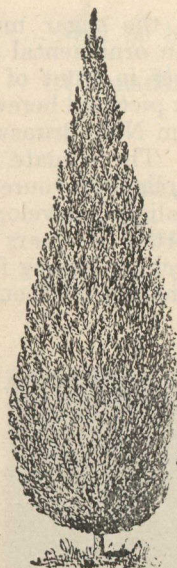
This warrants the conclusion that, with conservative cutting of softwoods, an average annual increment of three per cent. of the volume left after cutting can be secured.

TABLE III.—RED SPRUCE

D.B.H. inches	Volume in cords (Cary)	Years to grow last inch in diameter (curved)	Total age on stump (years)	Current annual increment per cent. (Pressler) curved
5.....	.04	64
6.....	.06	8	72
7.....	.08	11	83	2.48
8.....	.10	11	94	2.22
9.....	.13	12	106	1.95
10.....	.16	14	120	1.61
11.....	.19	14	134	1.30
12.....	.22	14	148	.92
13.....	.25	20	168	.50

Note.—Dr. Fernow's Report on Forest Conditions in Nova Scotia (p. 32) states that in general red spruce attains a diameter of 12 inches in 85 years. This is on sites more favorable to rapid growth of spruce than those where the above data were taken.

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From New Brunswick to British Columbia

It is an uncommon sight to see the sugar maple growing in Western Canada even as an ornamental tree imported from the east. The two trees in front of the home of Mr. and Mrs. J. C. Kirkpatrick pictured herewith are two of a row of maples brought from New Brunswick to delight the eye of "down easters". The climate and soil at Arrowhead, British Columbia, have favoured a healthy rapid growth of luxuriant foliage, developing exceptionally large leaves. When imported ten years ago these maples were first set out in an orchard among fruit trees and in 1916 Mr. Kirkpatrick transplanted them to their present position.



It is when autumn tints appear that these maple trees become conspicuous on the Arrowhead landscape, for Mr. Kirkpatrick's place commands a view for many miles south down the beautiful Upper Arrow lake. Towards the last of September and into October the bright red foliage of these trees stands out as a glorious flare of colour against the prevailing sombre yellow and green shades assumed by the forest-clad slopes of the mountains.

The orchard and garden in the background are well worth a close-up view. The trees are heavily laden with bright coloured, delicious fruit and small-fruit bushes have grown to unusual size. Watermelons grow in the garden. Mrs. Kirkpatrick's flower garden with roses blooming in October and other flowers high above the stature of human beings adds greatly to the beauty of "this home in the west".

Goose-Killer Converted

Referring to Mr. Norman Rankin's recent article in this magazine concerning Jack Miner's Bird Sanctuary, Mr. Oli Kirkwold, well known land man and hunter of Calgary, was moved to indite the following:—

"That goose story in the October issue of 'Canadian Forestry Magazine' is a dandy. It affected me—an old hardened goose killer, so that I am afraid my decoys and other goose killing paraphernalia will be of no use to me again. Of course the geese are gone for this year and perhaps I shall have recovered when I hear them honking again next Fall."

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Impressions of European Forestry

By *Ralph S. Hosmer, M.F., Professor of Forestry,
Cornell University*

ANNOUNCEMENT is made of the publication in book form of a series of letters descriptive of the forests and forest work of six of the countries of Continental Europe and of the great afforestation programme now under way in Great Britain.

The letters originally appeared in the "Lumber World Review" of Chicago. They were written en route during a seven months' journey made in 1921 and are now reprinted because they contain much information about the countries visited that is not easily accessible, yet is of general interest.

The book sets forth in a non-technical way the observations of an American forester who had rather unusual opportunities to see at first hand many sorts of forest work in England, Scotland, Norway, Sweden, Denmark, Germany, Switzerland, and France.

Orders will be gladly filled at cost (\$1.00) through the "Canadian Forestry Magazine."

TREATISE NOW AVAILABLE

The treatise on control of the spruce bud worm, bark beetle and borer, written by Mr. O. Schierbeck, Forest Engineer of Price Brothers, Ltd., Quebec, winner of the Barnjum \$5,000.00 prize, open to the world, is now available for distribution. In the interest of the conservation of our small remaining wood supply, Mr. Barnjum will mail copies of this work, free of charge, to bona fide timberland owners, foresters or entomologists, upon request by addressing Frank J. D. Barnjum, 707 New Birks Building, Montreal, stating whether owner, forester or entomologist.

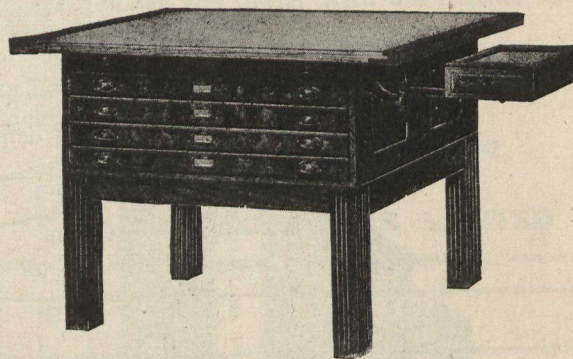
Definition of Stumpage Value

By *Prof. N. H. Chapman, of Yale Forest School.*

STUMPAGE value is the sale value of merchantable standing timber—its value on the stump previous to felling and removal. The term "merchantable" is not so easily defined. Timber is merchantable when it is of sufficient size to furnish wood products suitable for definite commercial purposes. There can be no fixed standard of size to coincide with the general definition of "merchantable timber. Trees merchantable for cordwood or paper pulp are not large enough to yield saw timber. It follows that stumpage value is the sale value of timber intended for certain specific uses. The industry which can pay the most for the timber determines its stumpage value.

Prices for stumpage are determined by actual sales, whenever a price per unit of product is quoted. But the price obtained for one body of stumpage is seldom a safe basis for appraising the value of another stand. For no other product is there such need of checking sale values by a careful appraisal as for timber stumpage. Practically every body of timber should have a separate price, determined by the factors which are peculiar to the stand in question. Standard or uniform prices are often established in a region, for small bodies of stumpage bought by a single company, but this uniformity is usually explained by the fact that the purchaser is in position to dictate the price, and could, if he wished, pay more for the better lots.

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The Woods of Nova Scotia

From "Agricultural and Industrial Progress in Canada"

Published by the Department of Colonization and Development
of the Canadian Pacific Railway.

THE forests of Nova Scotia constitute one of that province's first natural resources. Economic settlement in the peninsula province has taken place about the coasts, convenient to the pursuit of the first industry which springs from the fertile waters off them. Parallel to the coasts lie undulating fertile valleys where many phases of agriculture have been followed from the earliest days of Canadian history and where countless small farms and orchards exist. The vast interior is one expanse of forest and lakeland, a magnificent area of wild beauty, a material resource of great worth and the haunt of many species of Canadian fauna.

The forests of Nova Scotia probably display a greater variety of arboreal growth than any other section of the Dominion. There, growing side by side, one encounters the spruce, pine, hemlock, oak and maple. Nor do the forests stretch in one monotonous sweep across the peninsula, but are broken by myriad lakes of varying expanse and entrancing beauty, many of them forming chains of waterways from the interior to the Atlantic. Conditions are the best for the multiplication of game and fish, which constitute one of the province's main attractions.

Thousands of visitors are attracted to the Nova Scotia woods each year and at all periods of the year. Whilst the majority are fishermen and huntsmen, drawn by the excellence of the sport in lake and wood, there are many nature lovers and students for whom the provincial forests have a peculiar lure. Many such visitors have permanent lodges or cabins there to which they return each year, and not a few volumes on the fauna and plant life of the northern part of the continent have had their origin in the heart of the Nova Scotia woods.

The Economic Value.

Economically the woods of the provinces have a considerable value, being worth in output about \$20,000,000 each year, not including about \$50,000 which annually accrues from the sale of hunting licenses and which might justifiably be credited to the woods. The estimated forest area of the province is 7,812 square miles, practically all of which is in private ownership. The Nova Scotia forests are estimated to contain about 25,000,000 cords of spruce and balsam suitable for pulp and paper manufacture. The annual cut for this purpose is about 300,000 cords. There are no newsprint mills in the province, but six pulp mills, capitalized at \$20,000,000, with a production of about 25,000 tons of wood pulp annually, which is exported in its entirety to the United States.

Nova Scotia's contribution to the papermaking industry of the United States is not inconsiderable, and the province, though not actually making paper, gets the benefit of the industrial development due to the local manufacture of the pulp.

BURNING THE CHILDREN'S PROPERTY

The far-reaching consequences of the annual forest fire plague throughout America has been well phrased by the editor of the "Boston Herald":—

"What adds to the pity is that most of the timber burned in our woodland fires is so young that it belongs to generations not old enough to protect it."

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WILD LIFE CONFERENCE

A ROUND Table Conference of Federal and Provincial game officials was held at Ottawa on December 6th, 7th and 8th. This was under the auspices of the Canadian National Parks, and is the first convention of its kind ever held in Canada.

Those present were: J. B. Harkin, Commissioner, Canadian National Parks, O. S. Finnie, Director of Northwest Territories and the Yukon, G. P. MacKenzie, Gold Commissioner for the Yukon Territory, J. A. Knight, Commissioner of Forests and Game for Nova Scotia, L. A. Gagnon, Chief Game Guardian for New Brunswick, Benjamin Lawton, Chief Game Guardian for Alberta, F. Bradshaw, Chief Game Guardian for Saskatchewan, J. H. Evans, Deputy Minister of Agriculture for Manitoba, D. McDonald, Deputy Minister of Game and Fisheries for Ontario, J. A. Bellisle, Chief Game Guardian for Quebec, C. C. Parker, representing the Department of Indian Affairs, Hoyes Lloyd, Supervisor Wild Life Protection, Harrison F. Lewis, Chief Federal Migratory Bird Officer for Quebec and Ontario, R. W. Tufts, Chief Federal Migratory Bird Officer for the Maritime Provinces, Norman Criddle, Dominion Department of Agriculture, J. W. Coffey, District Inspector of Game and Fisheries for Ontario, I. Heckt, Game Inspector for the Province of Quebec, Dr. Seymour Hadwen, of the Northwest Territories Branch, Arthur Gibson, Dominion Entomologist, Lieutenant-Colonel C. Starnes, Assistant Commissioner of the Royal Canadian Mounted Police, Dr. R. M. Anderson, Chief of the Biological Division, Department of Mines, Professor E. E. Prince, Dominion Commissioner of Fisheries, P. A. Taverner, Ornithologist, Department of Mines, Mrs. Elizabeth Hewitt, Convenor, Conservation Committee, National Council of Women, and others.

The Conference was opened by an address of welcome, which was delivered by Hon. J. H. King, Minister of Public Works. Mr. King referred to the potential value of Canada's wild life and the obvious reasons for conserving it.

The proceedings of the Conference were marked by a splendid spirit of co-operation, and all the resolutions adopted were adopted unanimously.

These resolutions dealt with many important matters, such as, a Dominion wide educational campaign in the interest of wild life conservation, general prohibition of the sale of game, uniform adjustment of the "bag limit" for Canada and the United States, federal assistance for the Provinces in controlling illegal shipments of game and fur, a gun license system for all hunting, alteration of present open and closed seasons for several species of birds, and protection of marine mammals.

The problem of controlling the wolf and coyote menace in the West, was thoroughly discussed and the opinions of those taking part in the discussion were frequently at variance, but many helpful suggestions and interesting points were divulged.

It was obvious at the Conference that both the Provinces and the Dominion realize their district responsibilities in the matter of the guardianship and development of Canada's wild life resources, and that with intelligent conservation and utilization there is no reason why this natural asset should not be preserved and constitute a perpetual source of profit. It was felt that conditions in other countries are such that, at least insofar as big game is concerned, Canada is destined to soon enjoy a practical monopoly on this continent.

RADIO

One frequently hears that time-worn adage—"The best is the cheapest in the long run." But what is the best?—What is the cheapest?—On what grounds does one form an opinion?—Is it the most expensive?—not necessarily. Is it the largest, the most imposing?—again, not necessarily, for one frequently finds that these features have been embodied in an article to increase its selling points. Then how is one to form an opinion?—what should one primarily look for?—the experience and reputation of the producer.

Marconi Services

Trans-Atlantic and Shore to Ship Telegraphs, Marine, Direction-Finding, Aerial, Railroad, Forestry, Mining, Broadcasting, Telephone and Telegraph Installations—sold outright or on a maintenance basis. Amateur apparatus of every description.

Canadian Craftsmanship backed by Twenty Years' Radio Engineering Experience and Two Hundred-odd Exclusive Patents, are behind Each and Every Marconi Product.

THE
Marconi
WIRELESS TELEGRAPH COMPANY OF
Canada
LIMITED

Questions and Answers on Forestry

(Circulated weekly by the Canadian Forestry Association to four hundred newspapers)

Memorial Roadways

Q.—We are considering the planting some hundreds of memorial trees along one of our local highways. What trees are recommended for his purpose?

A.—As you are residing in Ontario, we may pass on the advice of Mr. H. J. Moore, the Forester of the Ontario Department of Public Highways, who urges that trees for memorial avenues should be selected above all for permanency. Long-lived subjects alone are worthy of such use. White Elm, Red Oak, Hard Maple, White Ash, Black Walnut and Native planes are splendid native trees. There should be no mixture of trees in the avenue. It should be an Elm avenue or an Oak avenue. Soft or Silver Maple should not be too extensively used. They are subject to injury by both wind and sleet storms. The Manitoba or Ash leaved maple should be avoided. There is nothing permanent about it. It is also advisable to leave Poplars and Horse Chestnuts alone as a general rule. As to the proper method of planting, write the Canadian Forestry Association, Ottawa, for full details.

German Forest Policy

Q. Please give some information as to the forestry policy of the German Empire.

A. The timber resources of Germany are not only thoroughly protected against forest fires but have been intensely developed by scientific forestry practice so that Germany in 1914 cut more timber than comes from the whole of Canada each year and at the same time Germany is rapidly increasing its "capital stock" of forests. The explanation is that in the last decade the German foresters have so succeeded in excluding forest fires and in operating their entire forest area as a self-reproducing "timber farm" that while taking great timber crops out of the forest year by year they have not in the slightest degree weakened the national store of commercial woods. Canada on the other hand has allowed her forest wealth during the past few decades to be so ravaged by fire and so destructively lumbered that her forests, unlike Germany's, have been cut easily in half. One quarter of the whole German Empire is wooded and practically every acre controlled and exploited by skilled foresters.

THE MAN WHO LIKES A TREE

I like a man who likes a tree,
He's so much more of a man to me;
For when he sees his blessing there,
In some way, too, he wants to share
Whatever gifts his own may be,
In helping others, like a tree.

For trees you know are friends indeed,
They satisfy such human need;
In summer shade, in winter fire,
With flower and fruit meet all desire,
And if a friend to man you'd be,
You must befriend him like a tree.

—Charles A. Heath.

Causes of Forest Fires

Q.—In the minds of many people, the cause of most forest fires is ascribed to lightning, action of the sun on quartz, broken bottles, etc., and to "spontaneous combustion". How far is this true?

A.—If lightning fires and fires set by broken bottles etc., were the only menace of the forest, nine-tenths of the fire rangers would lose their jobs. Unfortunately, while lightning sometimes is a factor in certain districts, and now and then it is just possible that broken glass may concentrate the sun's rays and start a blaze, the serious fact we have to bear in mind is that four fires in every five are started by a careless human being. The camp fire, the lighted cigarette, land-clearing fires employed by settlers to burn up debris, are responsible for some of the main losses.

Railways and Fires

Q.—Is there any Dominion law obliging the railways to guard against setting forest fires?

A.—The control of the privately-owned railway, such as the Canadian Pacific, as regards precautions against setting forest fires, is amply taken care of by the Board of Railway Commissioners and careful regulations have been drawn up and closely adhered to by which railway fires are being rapidly reduced. The Government Railways are now giving good co-operation in forest fire prevention so that the total losses from railway sources per annum are becoming a less serious factor in Canada's yearly forest destruction. The monthly records sometimes show large numbers of fires set by railways but further enquiry will bring out the fact that the greater number of

fires were quickly put out without material damage.

Wood to Supplant Coal

Q.—Is it not possible to develop in Canada the use of hardwood fuel as a substitute for imported coal?

A.—The answer to this is not as simple as may appear. Canada has a superabundance of hardwoods but the bulk of the supply grows in districts not accessible by railways or roads and hardwood cannot profitably be transported by water owing to the heavy percentage of what is called "sinkage". The cutting and marketing of hardwood fuel has seldom been a satisfactory or profitable business except for the farmer owning a wood lot near his market. As long as anthracite coal can be secured it seems improbable that our hardwood areas will be largely utilized for fuel purposes. A cord of our finest hardwoods, beech, birch, and maple, is barely equal in heating power to a ton of the best anthracite.

Who owns our Timber Lands?

Q.—I have read somewhere that the Canadian people own by far the greater part of their timber resources and that this is in direct contrast to the situation in the United States. What about it?

A.—It is quite true that the Governments of Ontario, Quebec, New Brunswick and British Columbia own all but about 15 per cent. of the forest lands, although a considerable quantity of the timber growing thereon is under annual lease to the wood-using industries. Canadians, it is to be feared, often forget the enormous advantage they possess over the people of the United States who have wholly alienated both land and timber over nearly 75 per cent. of the Republic. The particular advantage in Canada's position is that the State, which in all lands is the one qualified authority to ensure the perpetuation of the Nation's forests, retains constitutional authority to impose whatever conservation requirements the needs of the public demand. The citizens of the United States, recently aroused to the need of forest conservation, find themselves without that public power over the timber areas which has so wisely been retained for the Canadian people.

Ontario's Aerial Enterprise

Government Department of Lands and Mines will increase use of Aircraft
in Forestry Programme for 1923

(Specially written for The Illustrated Canadian Forestry Magazine)

THE development of Canadian Civil Aviation has been in large part due to the strong support given it by most, if not all, of the Provincial Governments. Ontario, because of its tremendous forest resources, has been in an exceptionally favourable position to make use of aircraft and by the adoption of a progressive policy, has secured very valuable results. Their aviation programme has been developed by the Hon. Beniah Bowman, Minister of Lands and Forests, and Mr. Zavitz, Provincial Forester, whose work has had the strong support of Premier Drury. A large part of the field work has been under the control of Mr. R. N. Johnson, a forestry engineer who flew overseas, and so is particularly fitted for the development of forestry aviation.

During the past season several large operations were carried out on fire patrol and reconnaissance, the former having been done by the Canadian Air Board from two bases, and reconnaissance by Laurentide Air Service Limited from Remi Lake, Ontario. This operation included the survey and mapping of the section of Eastern Ontario lying between the Quebec boundary and Mattagami River, bounded on the south by the Transcontinental Railway and on the north by James Bay. A very efficient method of timber survey has been developed which combines the best features of ground surveys and aerial reconnaissance. An air reconnaissance is carried out from which the general formation of the country and the position and class of the timber is determined. As this is completed ground parties are flown into various lakes in the otherwise inaccessible sections, who make accurate surveys of representative sections of the timber on the ground, and fix reference locations. With these ground sections as a guide, and using their determination of exact points as a skeleton, a detailed air survey is then made, and from this the type, age, condition, and value of the timber in the various stands is determined. At the same time, and without any extra work, the course of the rivers, locations of lakes, potential water power developments, and storage areas are determined, and it has also been proven that a great deal of information can be secured as to the geological and mineral formations of the country which is flown over. A very careful study of this subject has been made by one of the senior officers of the Mines Department and his report is a striking tribute to the value of flying in this connection.

Made An Aerial Survey.

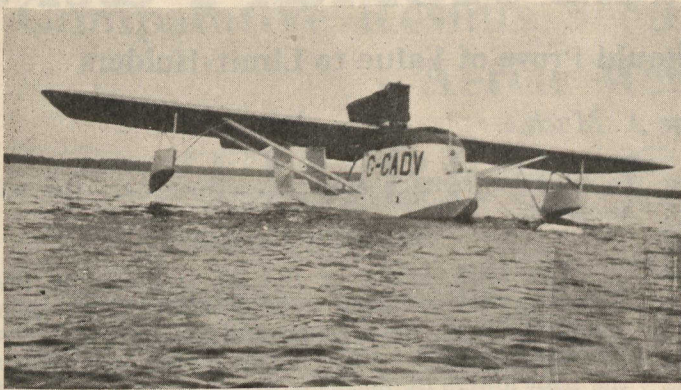
The work being done by the foresters of this Provincial Department makes a tremendously interesting story. During the past season a group of about a dozen forestry engineers, during the months of June, July, August and September, completed the field work and a great deal of the completion work of many thousand square miles of accurate survey and timber estimation, as well as determination of water power developments,

verified by the taking of numerous photographs, both oblique and vertical. It is particularly interesting to learn of the great speed with which the results of surveys in remote sections were returned to the base, and from there to the Department at Toronto. In one case, a lake which was admirably suited for landing of aircraft, was located in a most inaccessible section of this area near the Quebec border. Owing to the difficult topography of the country, any trip on the ground required the use of canoes down one of the big rivers, several arduous portages, continuing across the foot of James Bay, and then paddling up another river which called for many difficult portages and progress against an extremely strong current. The trip on the ground required several weeks of hard continued effort and the transportation of large quantities of supplies on account of the very lengthy period required for the round trip and maintenance of the survey party while in this area. An air survey required a flight of 2½ hours from the base to this lake, and a return flight of additional 2½ hours. The results of the survey were available in as few days as a ground survey done by the ordinary methods would have taken months.

Surveyed Fire Damage.

During the recent disastrous fire in the Temiskaming area, Mr. Zavitz, realizing the seriousness of the situation, and the necessity for securing accurate first-hand information immediately took steps to secure the services of one of the Laurentide Air Service machines, which, having completed its forestry work, had returned to its depot, a distance of 500 miles from the scene of the fire. In spite of tremendous handicaps due to the fog and bad winds, the machine covered the distance of 523 miles in record time. Upon arrival, Mr. Zavitz was flown over the devastated area in order to make a personal survey of the damage and to determine the relief measures necessary. In two hours, full information regarding the areas affected, the damage done and the relief measures necessary had been secured, and reconstruction was put under way immediately. By any other means of survey, the information obtained in this two hour flight would have taken several weeks to secure, and the relief work would have been delayed by that period.

The 1923 programme is now being drafted, and while not yet complete, it is possible to state that the aerial survey, timber and water power reconnaissance will be continued, working west from the Mattagami River, between the Transcontinental Railway and James Bay. It is hoped that a very considerable area will be completed during the summer. In addition to this, the Department is planning to continue and extend its aerial fire patrol surveys, which have proven most effective, not only in the detection of fires, but in the transportation of personnel to fight fires which start in the inaccessible sections, and which cannot be reached on the ground.



Wishing You a Prosperous New Year



The illustrations on this page are of a monoplane flying yacht—one of the types operated by Laurentide Air Service Limited on fire patrol and forest reconnaissance. The machine illustrated flew many thousands of miles carrying several hundreds of passengers without mishap—and never failed to complete a trip undertaken.

If you are anxious or even willing to find out how aircraft can serve you—Laurentide Air Service Limited will be pleased to help—without your incurring any obligation.

Their fitness to advise you is shown by the fact that in 1922 their volume of business was greater than that of any other Commercial Aviation Company in Canada.

LAURENTIDE AIR SERVICE Limited

407 Lake of the Woods Building

MONTREAL

Quebec Base:

Lac à la Tortue,
Grand'Mère.

Ontario Base:

Remi Lake,
Moonbeam.

Associated with

FAIRCHILD AERIAL SURVEYS, CO.,
(of Can.) LTD.

Canada's forest resources will probably be the greatest single factor in her prosperity this year of 1923. Wood products are the great stable element in her exports, and future trade depends upon an adequate, continuous and reasonably priced supply of raw materials in the future. This means that efficient conservation and intelligent utilization of our great publicly owned forests are matters of supreme importance to every Canadian.

In practically every phase of forest protection and development, aircraft have already taken an important part. Their role is becoming an increasingly valuable one as public interest grows, and greater opportunities are given to demonstrate their value. When efficiently operated, aircraft possess mobility, speed, adaptability and safety to a greater degree than any other means of transportation.



Radio Phone Aids Aerial Patrol

Experience in Forests of Alberta Should Prove of Value to Limit-Holders

By George A. Mackie.

RADIO-TELEPHONY, as a connecting link between Aviation and Forestry, has had a very thorough demonstration during the past Flying Season in Canada's Western Provinces. The experience thus obtained promises to be of great importance in the development of Aerial Reconnaissance and Fire Patrol work over forested areas in Canada during the years to come.

Last year the Air Board of Canada carried wireless operators on the planes doing duty over the Bow and Crow Reserves in the foothills of the Rocky Mountains in Alberta. These operators used ordinary wireless telegraph sets and would send written or verbal messages back to the ground station at High River. This was never satisfactory for the reasons that the extra passenger made the plane hard to manage in the wind currents over the mountains; that communication between the pilot and the wireless operator was never very good, and a large wireless telegraph staff was required, making the cost of communication high.

Installed Wireless Telephony

When the Air Board was absorbed by the Department of Militia and Defence this year and the Royal Canadian Corps of Signals took over all communication work for the department, consideration was given to the possibility of installing radio-telephone sets on the planes to be operated by the pilot himself and so obviate practically all of the difficulties associated with wireless telegraphy. Some small type radio-telephone sets designed by the R. A. F. were purchased in England and sent to High River.

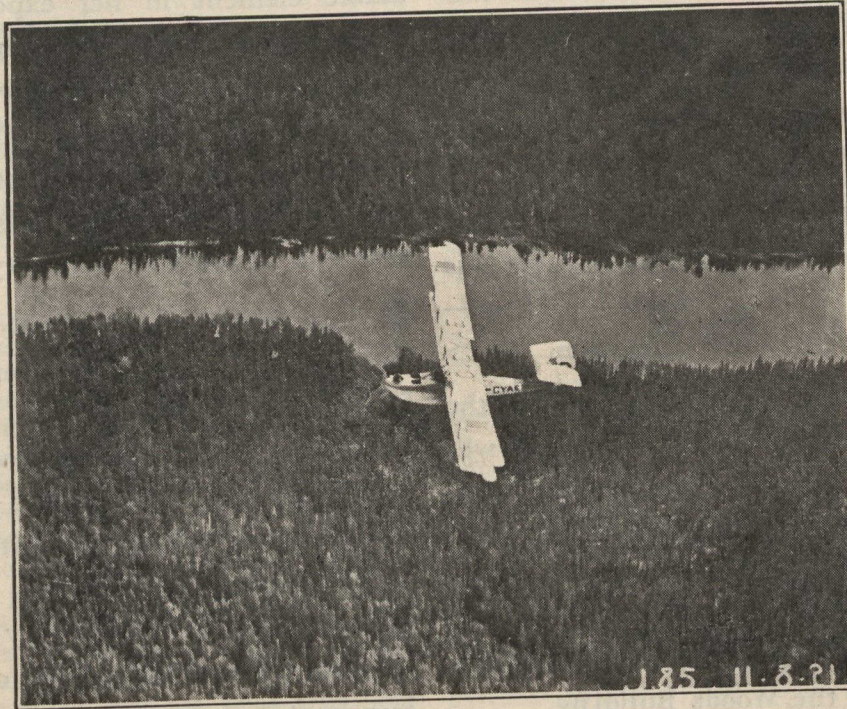
The tests were an encouraging success and pilots ascended daily from the Air Board station at High River, and from their planes, phoned at intervals by the radio medium the location of campers, forest fires and anything of interest that was to be seen in the wide panorama that came within the area under their supervision. Through special instruments in the cockpit of the plane the spoken word of the pilot is carried to the listeners at the ground station. It is an in-

calculable advantage and convenience over the wireless telegraph.

Set Easily Carried

The total weight of the set is under 50 pounds. Power is obtained from a small wind driven generator mounted on one of the wings and the aerial consists of a trailing wire with a small weight on the end. This aerial the pilot lowers by means of a reel as soon as he gets his machine off the ground, and it is kept practically horizontal when out, due to the speed of the machine when travelling.

One of many difficulties to be overcome was the noise of the engine of the aeroplane and the rush of the air when flying. This trouble was obviated by the use of a special microphone, in which the noise was balanced out without in any way affecting the voice. As a result of these preliminary trials it was estimated that a distance of 100 miles could be covered on the average with a strength of voice comparable to that received over a long distance telephone line of equal length. After the completion of the tests the sets were installed in the planes, and when the pilots took over the handling of the system the only operations required of them, after they had taken off in their machines, were to lower the aerial and turn a switch on when they wished to talk and



Aeroplane on Forestry Patrol.

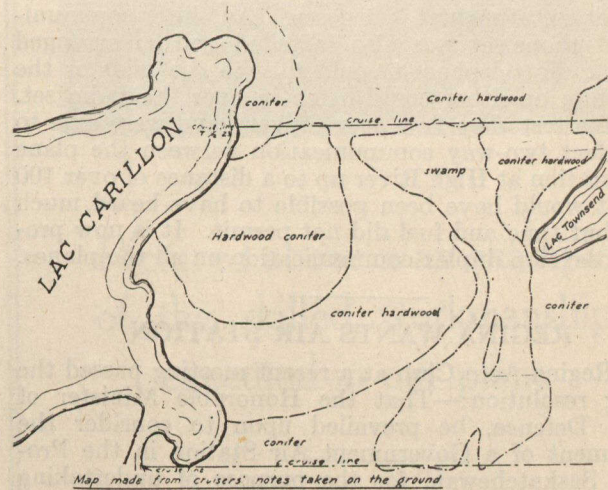
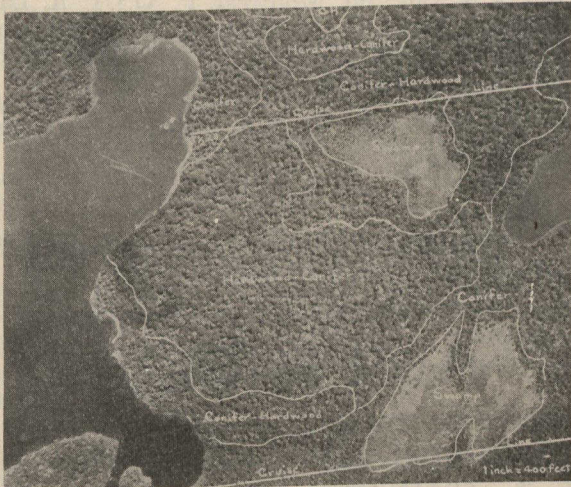
off when the conversation was ended.

Range Surprisingly Great

When the pilots had become accustomed to speaking from the air then it was that a pleasant surprise followed. It was found that the estimated range of 100 miles was much too conservative. In practical operation the daily range is more nearly 150 miles and distances of 175 miles have frequently been covered without any appreciable loss in the strength of voice. On one occasion a pilot observed a forest fire away north in one of the reserves. He found it 190 miles from High River and at this distance was able to give quite distinctly the exact location of the fire to the representative of the Forestry Branch of the Dominion Department of the Interior, who is permanently on duty at the air station. He at once got in touch with the ranger nearest to the fire and in a very

Comparative Results Secured from Ordinary and Aerial Methods of TIMBER CRUISING

The accompanying pictures show the fundamental errors which may easily occur from ordinary methods of cruising. Areas of types of timber burns, etc., are necessarily inaccurate because they are only sketched in. If these areas are parallel to cruise lines they may be missed altogether.



Aerial photographs such as the one on the left (which is a small scale reduction of the original) show areas correctly. This is most strikingly shown by the difference in the size of the hardwood-conifer area determined by these two methods of cruising.

Mapping and timber estimating can be carried out more quickly, more accurately and at lower cost by aerial photography than by ordinary means. Depending on the kind of work required and the location, distance from base, etc., the cost is for reconnaissances \$15 to \$25 per square mile; closer work with more accurate control, from \$30 to \$37.50 per square mile and complete map showing timber types, burns, drainage, etc., with timber estimate of 100 per cent. of area, controlled by sufficient ground survey work \$45 to \$65 per square mile. In all cases, size and quality of timber and amount per acre checked on the ground.

In asking for estimate, please give general location, distance from railroad and send rough map if possible.

FAIRCHILD AERIAL SURVEYS CO. (of Canada) LIMITED

Associated with the Laurentide Air Service Ltd.

Grand'Mère, Québec.

short time the blaze was under control, and this result was obtained with a set that only requires the same amount of power as that used by a sixty candle power tungsten lamp. It is said that the introduction of this system at High River and of the wireless telegraph stations at Victoria Beach, on Lake Winnipeg, and sub-stations at Norway House and Le Pas at the northern end of the lake have already saved Canada more money than the total annual vote this year to the Militia Department.

Two Way Sets Installed

In order to find out if two-way communication was possible a duplex set was built and installed in one of the planes for experimental purposes. An inter-communication telephone set was also installed and so arranged that the radio telephonist could talk to the pilot or the pilot to him or either could listen in over the radio set. During the test they flew over Calgary and were able to keep perfect two-way communication between the plane and the station at High River up to a distance of over 100 miles. It would have been possible to have heard much farther, but time and fuel did not permit. It is now proposed to develop duplex communication on all the planes.

REGINA WANTS AIR STATION

The Regina Aero Club at a recent meeting passed the following resolution:—That the Honorable Minister of National Defence, be prevailed upon to consider the establishment of a Government Air Station in the Province of Saskatchewan, for the purpose of undertaking work for the following Dominion Government Departments:—Indian Affairs, Interior, Customs, Inland Revenue, Mines, Marine and Fisheries, Railways and Canals, Trade and Commerce, Public Works, Agriculture, Royal Canadian Mounted Police and National Defence. It is further pointed out that by the establishment of

such a station, a chain of stations would then be completed across Canada; also that providing sufficient work as outlined were given to each Provincial Station, it might justify using that Station as a training centre for Canadian Air Force personnel in each respective Province. Thus saving a large expense in the transportation of Canadian Air Force personnel to Camp Borden, Ontario.

Air Board Statistics

THE AIR BOARD announces Civil Aviation Certificates and Licenses issued, cancelled and renewed, under the various classes as shown for month ending November 30th, 1922, as follows:

Private Air Pilots' Certificates

Issued:—C. S. Caldwell, Lacombe, Alta.,

Commercial Air Pilots' Certificates

Issued:—C. S. Caldwell, Lacombe, Alta.

Lapsed:—B. D. Hobbs, Vancouver, B.C.; G. A. Thompson, Hazelton, B. C.; G. R. Howsam, High River, Alta.; W. R. Kenny, Ottawa, Ont.; W. R. Maxwell, Hamilton, Ont.; C. C. Caldwell, Fort Rouge, Man.; H. D. Wilshire, Montreal, P. Q.; R. B. J. Daville, Montreal, P. Q.; L. R. Charron, Montreal, P. Q.; T. A. Lawrence, Cookstown, Ont.; R. S. Grandy, Fort William, Ont.; J. R. Ross, Winnipeg, Man.; W. R. May, Edmonton, Alta.; F. J. Stevenson, Burketon, Ont.; C. J. Green, New York City, U. S. A.; J. E. Drummond, Ottawa, Ont.; E. O. W. Hall, Toronto, Ont.; H. S. McClelland, Saskatoon, Sask.

Renewed:—A. Carter, Calgary, Alta; G. A. Thompson, Hazelton, B. C.

Certificates of Registration of Aircraft

Lapsed:—J. V. Elliott, Hamilton, Ont.

VICKERS "VIKING" AMPHIBIAN

Brief Specification:

"VIKING" MARK IV, Six passengers and baggage or 1,360 lbs.
Freight RANGE: 340 miles, SPAN: 50ft. HEIGHT: 15ft. 1 in.
LENGTH: 35 ft.

The 'Viking' was the winner of the First Prize of £10,000 for the Amphibian Class of Aircraft entered for the British Air Ministry Competition, Sept., 1920.

**VICKERS
LIMITED**

HEAD OFFICE: Vickers House, Broadway, London, S.W.1.
Canadian Representative: R. S. Griffith, 225 Beaver Hall Hill, Montreal.



Vickers "Viking" Amphibian on the Thames.

A Keen Young Observer

ONE of the consequences of the tour of the Forest Exhibits Car of the Canadian Forestry Association is the writing of essays in hundreds of public schools the pupils of which have been aboard the car with their teachers. From a friend of the Association in British Columbia comes a copy of a prize essay following a visit to the car. It was written by Dorothy Pittaway, of Castlegar, B. C., an author of very tender years, whose power of observation, however, is uncommonly keen. The little essay is reprinted herewith exactly as written:—

"The Canadian Forestry Association's Exhibit.

"Yesterday we were down to see the Canadian Forestry Association's Exhibits when we went in the first thing we saw was Insect Pests of the borer family then there was the Pest of Fire.

"A fire is caused by the carelessness of people throwing matches away, cigarettes and other different things like that and making camp fires in the forests and leaving them.

"The protection of fire is a pump and hose there is a phone that a man carries around with him in his belt, and when he sees a fire he has a kind of a knife he puts in the ground and then he takes his phone out of his belt and puts a wire to the knife he has in the ground then he phones to the headquarters and they send people out to fight it.

"When persons are logging they should not leave the bits of branches and logs around. They should burn them up in the evening and then it would cause no harm. There are lots of uses of lumber such as for making of stockings, houses, furniture, blouses, and potato sacks. A little canoe, a silo, organ pipes and matches are made out of pine woods.

"There are different kinds of birds that would not be so plentiful if we had not the beautiful forests, birds such as the blue birds, woodpecker, robins and other kinds of birds. Then there are the fur bearing animals that we would not have at all if it was not for the beautiful forests, animals such as: Muskrat, Skunk, Mink, Bear, Deer and many other animals.

"A pulpmill which the paper come from, Rags that blotting paper can be made out of.

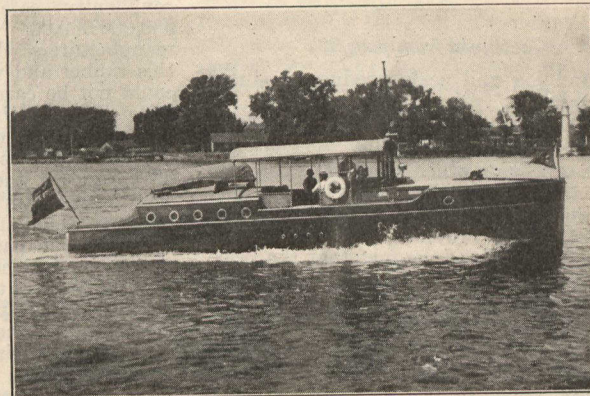
"In the car there were different kinds of woods, the maple, fir and cedar, pine and seeds of fir, pine, cedar. The Douglas Fir has a bark twelve inches thick.

"There was a peep and inside the peep was a picture of where a forest fire had been and then after it was all gone and the new trees had grown up again it was all nice and green. It looked much nicer after it was all grown up than when it was burnt, and it was dirty and black.

DOROTHY PITTAWAY.

Lumber for Autos

In the manufacture of automobiles and trucks last year more than 313 million feet of lumber was used.



Pictured above is an example of the skilled workmanship executed in our plant.

WE are qualified and equipped to undertake original or standardized designs and carry them out in detail. On our staff we include a Naval Architect who will act in an advisory capacity in the preparation of plans and specifications.

No work is too large and none too small to receive our most careful attention.

We solicit enquiries regarding the construction of all types of motor driven and sailing craft.

**MONTREAL BOAT BUILDERS
LIMITED**

371 St. Joseph St. Lachine, Que.

Lumbermen Protest Judson Clark Report

(Continued from page 27)

the round log and scale product produced from the log.

But, if we examine the result and apply to it the test of real value, as between the seller and the purchaser which after all, is the only genuine test that can be applied, we are confident that in both of the cases cited, the seller, being the Province, has been amply protected, because of the fact that the price paid for the standing timber in every case, was based on the practical knowledge of the man who was buying and the expert knowledge in possession of the Department, as to the ultimate product that could be got out of the round timber that was being sold and bought. For example, when the timber on any given area of crown lands is advertised for sale, prospective purchasers who are practical men examine such area in order that they may know the class and size of timber, that is on it and they base their price one in competition with the other on three definite factors. First, the quality of the timber second, the size of the timber, and third, its convenience from an operating stand-point. If the timber is of a class that will produce a large percentage of small or defective saw-logs, from which they will give a substantial, over-run or margin in mill output over log measurement they will adjust their price accordingly, and against this, the Province as Vendor with its expert technical knowledge is protected in the same way and always has the right of withholding an area if the price named by the highest bidder is not satisfactory to it. So that, summing the matter up, and without making any reference for the moment to vested rights existing on account of purchases already made, we take the position that the Province is not only amply protected, but has been getting and will continue to get out of its standing timber as great a financial return, under the Doyle Rule, as it possibly can by the application of any other rule or unit measurement.

Dr. Clark refers to what he terms "The Ridiculous side of using the product unit instead of the volume unit, etc." and Dr. Clark proceeds to say, "The troubles of the Province with its habit of measuring the wood it sells by the product unit have long since well begun and have bred much undeserved loss and unearned gain."

Take Issue with Dr. Clark

The assumption in this statement is that the men who have been cutting standing timber in Ontario and manufacturing it into the commercial product lumber have by reason of the Doyle Rule been getting something from the Province for which they have not been giving a proper return. This statement makes an assertion of fact that strikes at the very vital of the lumber industry, and with regard to which we wish to state as emphatically and definitely as we can put it that his statement is not well founded. The meaning of the statement, if it means anything, is that lumber operators as a class, have been getting as already stated a large quantity of timber for which they have not been called upon to make a proper return and that the Province has been the resultant loser to that extent.

We hold that an examination of the facts in relation to the business generally furnishes the most ample proof in refutation of that assumption. "What are the facts?" How much money has been paid over to the Government, say during the past 25 years, by Lumbermen for standing timber, and with what success to the manufacturer? The

Department has a record of the millions paid to the Province by the operating lumbermen during that time, which amounts we feel confidently safe in placing at 45 to \$50,000,000.00. Now what has become of the manufacturers who purchased and paid for this timber and without whom the business could not be carried on, and without whom instead of the Province getting its millions as it did, those deadly enemies of standing timber, fire, tempest, disease and age would have exacted their toll which would have been from 50 to 70 per cent. of that cut by the lumbermen and paid for to the Province.

During the past 25 years, practically all of the lumber cut in Ontario was manufactured West of the Ottawa River and North of Georgian Bay, developing an industry to which many new Ontario towns owe their creation and their existence. Now what has happened to the men who were engaged in and to whose energy and courage the development of this business was made profitable.

We are handing you a confidential list of the saw-mill owners, 77 in number who sawed at least 75 per cent. of Ontario's lumber output in the time mentioned, which list shows a casualty record of disastrous proportions and which we believe is greater than in any other mercantile pursuit. At any rate, we are safe in saying that the losses involved more money proportionately than that of any other business carried on in Canada and proves conclusively that the Lumber Manufacturing business contrary to the prevalent idea, has been a huge financial failure as experienced by the many men of indomitable courage, energy and ability, who bravely faced conditions which were bound to be insurmountable.

In analyzing the statement submitted you will find that of all the 77 manufacturers 56 became bankrupt, or lost all of their investment, 7 never paid any dividend, 14 made very moderate returns on their investment. Of the above there are now twenty-one in

PRINTING

We wish to announce that we can supply on short notice and to any part of Canada the following:—

LETTER HEADS
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BILL HEADS
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CARBON PAPER
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BOOKLETS
FOLDERS
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317 LISGAR STREET

OTTAWA, CANADA

business, 50 per cent of whom are struggling against adverse and extremely difficult conditions for existence, which existence if not maintained, means the wiping out of several new Ontario towns. As the proof of the pudding is in the eating, so the proof as to whether the Province has been getting its share of the value of the standing timber, is demonstrated by the money lost and the failures amongst the lumber manufacturers as expressed so forcibly by the record we are presenting. To further emphasize that statement, we would point out that amongst the men who are now carrying on what appears to be successful and profitable lumbering operations, many cases can be cited to show that such men have found it possible to build up their business, only because of other men's failures, by reason of the fact that they were able to purchase saw-mills and operating equipment of very great cost value on practically a bankrupt basis.

Lumber Industry a Partnership

One further example—we hold that, the lumbering industry as such is in reality a partnership between the Province, the owner of the Standing Timber and the lumber manufacturers who furnish the capital and energy necessary to convert the raw product standing timber into a commercial product sawn lumber. Taking a practical operating example under the Ontario Sale and Bonus system, and selecting any given area of standing timber now vested in the Crown, and undertaking to convert that standing timber into a saleable commercial product as above, the first thing the lumberman has to do is purchase by public competition a timber limit, upon which he must deposit with the Province a substantial cash deposit and provide at heavy expense a bond of a recognized guarantee bonding company as a guarantee for the fulfillment of his part of the contract. He must then provide capital or credit necessary for the erection of a modern saw-mill and all of the fixed operating equipment required which capital and credit will be at least from \$250,000 to \$500,000.00 and up in fixed investment. This capital and credit has to be furnished by the operating lumbermen and when that is done an additional sum of an equal amount must be provided on operating account which sum again must be furnished either in capital or credit by the lumbermen who take all the risk. At this point the operation begins with the Province on the one side owning the raw product in the form of standing timber and with the lumberman who has provided all the capital and credit, and who as again already stated, is taking all the risk. And this will be found to be the result. The history of the business shows that 75 per cent. of the men who have undertaken this one-sided task have lost out in the end, while the Province has been always guaranteed. And here, we would refer briefly, to the question of capital and credit so vital to the lumbering industry and without which the business cannot be possibly carried on. The time was when a license to cut timber on Ontario Crown lands was recognized by financial institutions as all the security required to guarantee advances on plant and operating account up to the reasonable limit, warranted by the size and character of the area under license, but that condition no longer obtains. As a matter of fact, so uncertain has become the business within the past two years that a license to cut timber in Ontario is not being accepted as security at all, with the result that many operators are finding it exceedingly difficult to finance, and during the past year more than one has found it impossible to carry on because of this curtailment of his credit.

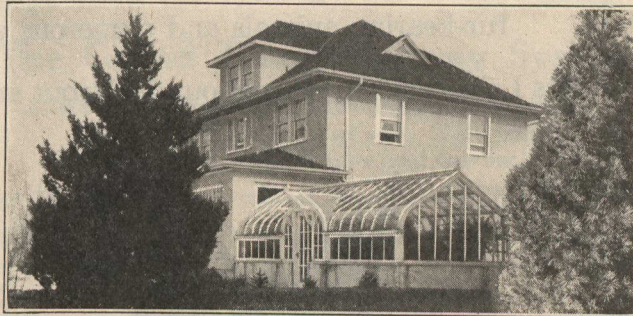
In a general way, this statement from Dr.

Clark's report, in which he refers to much undeserved loss and unearned gain, is typical of many of the loose, thoughtless and unjust statements that have been made in recent times with regard to the lumber industry as a whole. Statements which we are confident you have long since become convinced have no shadow of foundation in fact, but which nevertheless have done incalculable harm, and would if allowed to influence your department in its relation to the business mean ruin to Ontario Lumbermen as a class and the complete paralysis of the industry.

Cubic Measurement Impracticable

Dr. Clark again says, "There can of course be no question that the cubic measurement of wood is the ideal measurement. It is also clear that it is entirely practicable, and that as this unit of measurement has already been applied to the scaling of pulpwood, the cullers are already familiar in a practical way with measuring wood according to its cubic content." With this again, we disagree, because we hold that, as already stated, it is

(Continued on page 57)



A Greenhouse Link-up With an Interesting Origin

The owner's wife was city born and city bred. She, however, had ever recurrent yearning for a home away from pavements and city congestion. The long winter, however, without the city's diversions looked very dull and drab to her. A friend suggested a greenhouse attached directly to the sun room. An inside garden filled with its never ceasing interest. An inside garden giving of its perpetual joy and contentment. Five years have passed and to use her own expression, "wild horses could not drag me back to the city." All of which may hold a suggestion for you. Our method of greenhouse building is surprisingly free from the usual building botherments. Can we serve you?

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THE DEPARTMENT OF FORESTS AND GAME

J. A. KNIGHT, COMMISSIONER,

HALIFAX, NOVA SCOTIA.

Lumbermen Protest Judson Clark Report

(Concluded from page 55)

wholly impracticable both in its application to the finished product sawn lumber and in its application to any reasonable estimate that can be made on the value of standing timber, and the comparison between Lumber and Pulpwood cannot be maintained for a moment. No one will suggest that it is impracticable to measure wood according to its cubic content. Our point is that when you come to apply the cubic content measure to a product that is to be reduced to something entirely different the impracticable side immediately comes in. Pulpwood is bought and sold on a cordage basis, the volume determining the factor of value.

Lumber is an entirely different commodity. If for instance a lumber manufacturer proposed to sell to a builder a cord of lumber simply furnishing that cubic content, the builder would, to say the least, have some difficulty in estimating what he was likely to receive and that simple illustration shows at once the diversity between the two, and how impossible it would be to apply the same unit of measurement to each. On page No. 6 of Dr. Clark's report it is pointed out in considerable detail that the size of the logs being taken from the woods is from year to year becoming smaller and it is argued that because of this fact and because the Doyle Rule gives a greater over-run or margin between round timber measurement and the sawn product in the case of small logs, that the Province is losing as a result. But if 30 years ago, the operating lumberman because of the economic nature of the business left all of the small, coarse and defective logs, lying in the bush to decay while today they are all taken out, measured and converted into a commercial product the Province is getting the resulting return therefore, can it be argued that the Province is losing as a result. This brings us back to the point that in order to establish a case, of this character, it would be necessary to demonstrate that a small, crooked, rotten or defective log, had a value in proportion to its cubic content equal to a large straight, clean log, which again only has to be stated in order to carry with it its own refutation.

Dr. Clark, on pages No. 8 and No. 9 of his report gives what he claims to be an illustration from an assumed sale made in 1906 at \$12 per M. Doyle Rule to show how the cubic content factor could be converted to equalize with a board measure factor, and he holds in that illustration, that by checking the average of logs cut on a particular limit in 1907 and converting such logs into their cubic content volume a basis could be found for converting all logs cut on the same limit in all future years. The assumption being, that because logs cut in any given year averaged a certain diameter it could be taken for granted that all logs in future cut from the same limit would average the same diameter and be of the same quality, overlooking entirely the practical fact that on every known limit or area of standing timber, the size of the timber and the quality of the timber varies from mile to mile.

Coming now to the question of vested rights already held. We hold that these constitute a solemn contract between the seller and purchaser that cannot be changed without violating the most primary fundamentals of honest business and the Canadian Lumbermen's Association representing Ontario License holders will stand absolutely on these vested rights. These we hold, also constitute an additional argument why the



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unit measurement should be left as it is, because, to introduce into any business where the same two parties are concerned, two separate units for determining the value of the product sold and bought, is to immediately introduce confusion, and in the case of the lumber business, where the same operator would be cutting timber on adjoining areas measured by different standards must assuredly result in suspicion and distrust as between the Department and the operator.

Referring to the adjusted change in the measuring of pulpwood from a converting factor of 115 cubic feet to 100 cubic feet per cord, this can only be a suggestion for future sale and not applicable to existing contracts which contracts stipulate 115 cubic feet, to the cord as the converting factor, agreed upon between buyer and seller, unless proper compensation is made in rates, or unless the sanctity of contracts duly sealed is to be violated by the Provincial Government and Legislature whose duty it is to see that justice is done to all parties and to guide business relations generally along sound and moral lines.

Conclusions Drawn

In presenting the foregoing, we have not attempted to deal exhaustively; time does not permit. We do not wish to be controversial; the issue is too serious. We have no interest in strained argument; we desire to convince. Precedent is not sacred to us, except as it justifies by its practice, and experience. We oppose no changes in method or practice, if they can promise real improvement and increased efficiency, but we do oppose changes which tend to confuse and not to clarify.

The impression has unfortunately gained currency that we have taken from the Province what does not belong to us. Our integrity has been questioned. This we deplore even as we resent it. We assert that the dignity, the honesty, the honor of our business, ranks with that of the best of our fellows. If any man has offended against

these cannons, we do not defend him, but we ask that judgment be rendered upon facts and not upon misapprehensions. The technology of our practices must not be misunderstood. We must have good relations with the Government. The security of our business rests upon this. Without it, our credit falls, our Bankers become querulous, our loans are restricted, our operations contracted.

Ours is a business of great hazards—fire, flood, tempest, and tide. No other business endures equal jeopardy in proportion to the amounts involved. We are subject to all of the caprice of nature in any departure from the normal of Sun, Snow, Rain or Drought. We are even as the members of the U. F. O. We have said that our business is in a precarious position. All business is suffering at this time the pains of readjustment to new conceptions of values. We who are largely concerned in the White Pine business, in particular, are suffering more. Easy operations no longer exist. Comparative costs increase with more remote situations. Substitutes in other woods and other materials interpose. The cheaper woods of the Western provinces, and the Southern States are more than at our door; they are in our house. Our exports are pushed back at our borders. We cannot compete as formerly.

We are already faced with the broad question—"To what extent is our business possible?" These, are not overdrawn statements. They are well known to those who are familiar with our business. They can be verified. We present them not to urge favors but to enjoin understanding and justice. They are facts which the Government should know, because if we are to translate the Forest wealth of this Province into currency, the conditions of doing so must be possible.

This is our position. We would co-operate in all reasonable provisions, for economical and practical Administration, Forestration and Conservation, but we ask that these be at all times conceived and projected with a full understanding of the considerations involved. The Government and ourselves cannot go in conflict. We must abide.

Prizes Stimulate Rangers

IT IS possible that in seeking the road to "efficiency," our government and private forest services have not taken sufficient account of the human instinct for "prize winning." Some months ago Mr. F. J. D. Barnjum offered forest ranger prizes amounting to \$825 for the Provinces of Quebec, New Brunswick and Nova Scotia.

In New Brunswick the prize of \$250.00 was awarded to H. C. Lynn, Kedgwick, though the decision in this Province was very close owing to the keen rivalry for this prize, which has resulted in a well organized effort by the entire force to keep forest fires down to a minimum, resulting in the smallest fire loss in New Brunswick for many years. The results obtained have been of such great value to the Province and the men have responded so heartily in this fire protection work that Mr. Barnjum felt that an extra bonus should be paid to the second and third best record, though only one prize was offered in each Province, and he has accordingly forwarded a check for \$50.00 to E. Baldwin, West Bathurst, and for \$25.00 to W. R. Davidson of Five Fingers, N. B., as a slight acknowledgement of their splendid efforts in protecting the forests of New Brunswick from fire.

In Quebec the prize of \$250.00 was awarded with the unanimous consent of all concerned to the widow of Albert L'Heureux of St. Michel des Saints, Berthier County, not only from the fact that he was one of the best Rangers in the Province but from the added reason that he lost his life in the performance of his duty; having given his life for his country just as much as if he had died on the battle field, for the saving of trees is the equivalent to saving life, for without trees life could not exist.

In Nova Scotia the prize of \$250.00 was awarded to W. J. Scott of Middle Musquodobit who had the best fire fighting record for the season.

Commenting on the success of the competition, Mr. G. H. Prince, Provincial Forester of New Brunswick, writes in part as follows:—"You would be astonished by the wealth of splendid suggestions that have come in. The prize has stirred up efforts and interest almost in all parts of the province, and many of the suggestions that have come in in regard to improving fire protection are already being carried out and others are being planned for. It is simply splendid, the way many of our fire wardens entered into the spirit of this contest and gave it their hearty support, even if only one could win the prize."

A SEAMLESS HEEL MOCCASIN

A notable feature of the boot shown in the S. & H. Borbridge Co's. advertisement which appear elsewhere in the current issue of the "Illustrated Canadian Forestry Magazine", is that it was used with the utmost satisfaction by the entire party making up the recent Steffanson Expedition into the Far North. Hunters, trappers, lumbermen and others who are constant users of boots of this type will welcome the news that there is now obtainable a moccasin with a seamless heel which will do away with annoying rips, sore heels that generally follow constant rubbing against a bulging seam and will keep the water out, being guaranteed absolutely waterproof at all times.

The S. & H. Borbridge Co., Ltd., Ottawa-Winnipeg, will be pleased to forward any further information on application.

Depleted Forests of China furnish Opening for Australia

By Edward S. Little, Australian Trade Commissioner

THE wooded areas of China have been so drastically dealt with that they now only exist in remote districts which are difficult of access. Forests have entirely disappeared except in these remote regions, which are found chiefly in Manchuria in the north-east section, western part of Hunan, Kweichow, North-western Kwangsi, and parts of Fukien and Yunnan.

From Fukien are exported to other parts of China large quantities of Foochow poles together with other softwood timbers; the value of the wood so exported amounts to between four and five million taels annually. The Commissioner of Customs at Foochow, in a recent report, estimated that in the next decade or so the trade will disappear owing to the exhaustion of the forests. The Chinese improvidently cut the trees before they are fully grown, and do not undertake the task of replanting them.

From Hunan and Kweichow there come large rafts of soft wood timber floating down the Tungting Lake and thence down the Yangtze River to the various cities and towns on the banks of the river, and finally, to the coast. These rafts are valued at about \$10,000,000 annually.

I have seen forests in Yunnan which were being burnt in order to clear the hillsides for other purposes. The means of communication over lofty mountain ranges without water or rail by which to bring the timber to rendering it unprofitable to cut the trees and transport them to the great cities.

How Michigan is Paying the Piper

MICHIGAN'S wood-using industries are now paying the economic piper for the State's quarter century timber debauch, according to a statement just issued by the Forest Service of the United States Department of Agriculture, whose experts are engaged in a study to determine the effects of forest devastation on population, agriculture, industry, and economic life in that State.

The forest of Michigan, the statement continues, as a result of devastating fires and reckless cutting are now so greatly depleted that they produce chiefly fuel-wood and other minor forest products instead of high-grade lumber on which the State's main industries depend. The building trades and the automobile and furniture industries of Michigan must largely import their supply of high-grade lumber from other States instead of growing it at home.

For the most costly classes of wood, such as those used for automobiles, furniture, and building, Michigan goes as far south as the Gulf and as far west as the Pacific; it imports all told a little more than a billion board feet of lumber and timber annually, of which 400,000,000 come from the Gulf Coast region and nearly 180,000,000 feet from the Pacific Northwest. For these amounts the State pays not only an enormous freight bill but also the high prices incident to constantly dwindling forests.

The reforestation of Michigan's denuded lands would after a few decades, say forest experts, not merely stop these costly importations but go far toward re-establishing the State's lost leadership in her once greatest industry, lumbering, and put it upon a permanent basis.

Briefs About People and Events

\$10,000 FOR FORESTRY.

Providing for the payment to the University of Manitoba of \$10,000 to be used in advancing forestry in the province, the will of the late Hugh William Kennedy, a prominent Winnipeg resident who died May 15 last, has been submitted for probate.

Forest Fire Prevention.

A great deal of interest has been stirred up by the application of the Westmoreland County Act as a new method of circumventing the forest fire menace in New Brunswick. By this Act, the County of Westmoreland in effect assumes responsibility for forest fires occurring within its boundaries. The Canadian Forestry Magazine learns that the County Council has given splendid co-operation in the matter of fire prevention and that the Westmoreland County Act has worked well and has been favorably received by the people of the County.

Burning Wet Slash.

In order to assist the settler in conducting slash-burning operations successfully and safely, the New Brunswick Forest Service has been supplying a special kerosene torch which gives a very hot flame and will ignite damp material with which it comes in contact. The torch has been used successfully in some of the new settlements. Some of the farmers have been much surprised at the comparative ease of burning wet slash. The New Brunswick Forest Service has been making extra efforts during the last three or four years to have the greater part of the slash burning completed in the Fall when conditions are fairly safe. Some of the N. B. rangers report that in certain of the new settlements the Fall slash burning leaves very little to be undertaken next Spring.

Lumbering in Michigan.

S. J. Hall, Forest Engineer for James D. Lacey and Company, and party recently returned to the New York Office from a six weeks' cruise in the upper peninsula of Michigan. The examination was made for the Lake Independence Lumber Company

of Big Bay, Michigan, for which a bond issue of \$1,000,000 has recently been floated by the Lacey Securities Corporation. Conditions in this region are reported by Mr. Hall to be exceptionally good as to lumber demand, all mills having orders ahead. The labor situation, however, is serious, sufficient men to handle the woods operations being available only at top prices.

Pennsylvania's Tree Planting.

Applications for trees for the spring planting season now coming into the Pennsylvania Department of Forestry indicate that the movement for the reforestation of waste and denuded lands in Pennsylvania is growing steadily. Each succeeding year it is brought home to the people of the State, as well as all the country

at large, with increasing force that the only hope of a timber supply in the future lies in new forests, produced either artificially or naturally. In order to make forests more attractive as an investment, the State is spending large sums to protect them from fire, and today its system of forest fire protection has been pronounced by the U. S. Forest Service to be the best among the States. To date the number of applications for young forest trees is far more than for the corresponding period last year. Land owners in all parts of the State have applied for trees in large quantities and the entire supply, about 4,000,000 trees, of white pine, Norway spruce, Japanese red pine, European larch, red oak, catalpa and black walnut has been allotted.

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Fires annually destroy more timber than is used by all the industries depending on it. A moment's carelessness may cause an irreparable and national loss. This space devoted to the cause of forest conservation.

by

CANADA PAPER CO.

Windsor Mills, P.Q.



FOREST FIRES

TAKE AWAY JOBS

Size up Every Timber Fire as Your Personal Enemy and get After Him; Put Out Your Camp Fires. Never Toss Away a Lighted Cigarette. There are hundreds of jobs in a live forest. Dead forests drive out population.

This advertisement inserted in the interests of forest protection by

The Spanish River Pulp & Paper Mills, Limited.

Outlook for the Fur Trade

THE outlook for the fur trade this year is decidedly promising. Trappers are facing what has every indication of a busy winter, while buyers are entering the market freely. They also state that this is true of the wholesalers and this statement is borne out by a recent report of Bradstreets'.

Buyers with offices located in close proximity to the trapper centres say the outlook is good but that they would not be surprised if there was a falling off slightly in the quantity of furs brought in. The quality, they say, will be up to standard.

It is estimated that 75 per cent. of the fur trapped this Winter will be beaver, and that prices will hold up compared with those of last season. Marten and fisher will realize less money than formerly owing largely to the decrease in "Choker" style furs in the fashion world. Prices for lynx will be low.

Buyers anticipate a smaller catch this Winter because the recent fires will have wiped out a great number of fur-bearing animals or driven them further out.

The prices on silver grey fox will be much lower than formerly, chiefly owing to the fact that the United States government has set up a 50 per cent. tariff on this class of furs. Canadian fur sales for the year, according to government statistics, amounted to \$1,498,105, as compared with \$1,151,556 a year ago.

Saskatchewan in 1922 put a royalty on all furs. It went into operation November 1. The Schedule of fees runs from 3c. a pelt on weasel and 5c. on muskrat to \$1.50 on fisher, white or cross fox and \$5 on silver and black fox.

The American Nature Association

AFTER rendering generous public service as President of the American Forestry Association, Colonel Charles Lathrop Pack has resigned in order to become President of the American Nature Association, which, through a new and handsome publication, "The Nature Magazine," will stimulate public interest in birds, animals, trees, plants, and all outdoor life. Mr. Percival S. Ridsdale, who did energetic work in building up the American Forestry Association, becomes the Manager and Editor of "The Nature Magazine." Under such highly competent auspices the American Nature Association should rapidly engage public confidence and meet with the fullest success.

Aerial Dog Police Now

ACORRESPONDENT of an Ottawa newspaper suggests seriously that in order to help out the forest fire fighting organizations, all kinds of equipment be used and that trained dogs be dropped down in parachutes to detect campers, motorists and other miscreants who have started conflagrations. The writer of the letter concludes with these words:—"All I have to say is that teach a dog his work and he will faithfully perform his duty, no matter how dangerous the fire."

U.S. Expects Pulpwood Embargo

THE embargo on pulpwood exports from Canadian crown lands is likely to be extended to all forest lands in the Dominion, says Chief Forester William B. Greeley, in the annual report of the Forest Service, United States Department of Agriculture, just issued.

Should this be done, he adds, raw wood from Canada will be completely shut off, as a source of supply for the paper industry of the United States. The paper mills of this country now draw one-third of their requirements from Canada and northeastern mills have already been seriously handicapped by the present embargo.

This illustrates, the report continues, the hazard of becoming dependent upon foreign supplies. The rapid increase in lumber shipments through the Panama Canal foreshadows the time, in the near future, when the principal source of softwood lumber for the entire nation will have shifted to the west coast and the average freight cost paid by the home builder or manufacturer will have advanced to a new and higher level.

When the coniferous virgin timber of the far west is exhausted in its turn, if the principal source of supply shifts to Siberia or South America, the transportation conditions which control the present lumber market will become different only in degree. Further, as the sources of supply become more restricted and more distant from the principal centers of consumption, opportunities for competition are lessened; and temporary shortages due to bad seasons, labor troubles, or congestion of transportation facilities are more probable and more severe. Thus the conditions of the trade become more favorable to monopolistic control, to violent market fluctuations, and to high prices. And we are dealing with a basic raw material, as widely used and as necessary to national existence as coal.

A Pioneer Passes

ONE of the great agricultural pioneers of Western Canada passed away in California recently in the person of A. P. Stevenson. Mr. Stevenson was among the first farmers of the West to make a success of fruit growing and at the Stevenson farm, a few miles Northwest of Morden, Manitoba, every variety of small fruit from strawberries to peaches, has been successfully grown. Mr. Stevenson was a great believer in ornamental tree planting and shelter belts and his example not only as an experimenter but as a splendid type of Canadian citizen has left its impress on Western life.

An Appreciation

From Hon. O. T. Daniels, Attorney-General and Commissioner of Crown Lands for Nova Scotia.

"I am amazed at the impetus given to public sentiment, particularly in regard to forest conservation, by reason of a magazine like yours, and it is certainly well worthy of perusal by any person who appreciates the value of the forest wealth of Canada."

Canadian National Railways

The Problem of Canadian Development

The Industrial and Resources Department is engaged in developing Canadian industries and commercial opportunities.

The lines of the Canadian National and affiliated railways serve the nine provinces of Canada, its principal towns and cities, and a vast undeveloped area containing unmeasured natural resources that offer unequalled opportunities.

Intelligence Service

The Department has a wide range of information on Canada's Natural Resources available to the public and invites enquiries of all kinds:

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To Curtail Forest Fire Losses

PROPOSALS for the curtailment of fire losses in British Columbia forests were considered by the Forest Protection Committee, which met in Victoria recently, and it is expected that some of the plans favored by the majority will be incorporated into legislation at this year's session of the legislature.

The three main suggestions discussed and approved by the committee were the following:

1. Enactment of a law to make it obligatory upon every citizen to report bush fires witnessed to the proper authorities.

2. Legislation to control smoking in the woods during that part of the year when the fire hazard is greatest.

3. Authority for the Lieutenant-Governor in Council to declare any area of forest a "danger zone" and to order the cessation of logging and other operations in the region so described.

The Haileybury case is taken by some officials of the British Columbia forest branch as proof that no fire is really safe during the hot season. It is an example that will certainly lead to even greater precautions here in respect to regulated burnings.

"It would be unreasonable, in fact, impossible to prohibit all fires during the hot season," Chief Forester P. Z. Caverhill told the *Pacific Coast Lumberman*. "So long as all the fires are reported and are managed in accordance with the instructions of our own men, there should be no danger, but the lighting of fires indiscriminately must be checked. We already have ample regulations to cover the burning of slash.

"The reason we want legislation to control smoking in the woods is that something stronger than company's orders is required to curb the menace. Under present conditions, many logging concerns have issued instructions to their employees, prohibiting smoking while on the job. The most severe penalty for violating the order is dismissal. Something in the way of a stiff fine or imprisonment would probably be better, and the legislature alone has power to fix that.

"When the fire situation was at its height last year the government issued a proclamation asking the logging operators to suspend work until conditions had improved. The request was obeyed in the majority of cases, but it is felt that it would be wise for the government to have power to make suspension of operations compulsory in cases of extreme danger."

Among those who attended the Forest Protection Committee meeting were: C. D. McNab, of Waldo; Neil Murray, of Arrow Lakes; S. G. Smith, of Vancouver; E. J. Palmer, of Chemainus; M. A. Grainger, Vancouver, and officials of the Forest Branch.

The status of the Forest Protection Fund was discussed at some length. This fund is maintained by the timber owner on the basis of three to two. The government's appropriation is \$300,000, but owing to the lapsing of many timber licenses last December when the war relief measure terminated, the total fund has fallen about \$25,000 below the \$500,000 mark yearly. There is at present a deficit of around \$615,000 in the fund.

There were 2,591 forest fires in British Columbia this season, according to the final returns of the Forest Branch. This shows an increase of 95 per cent. over last year. Officials estimate roughly that the losses in standing timber, equipment, plant, and so on, will be about \$2,000,

000 when all reports are checked up, but only about sixty per cent. of them have been filed so far.

The losses this year will exceed those of all previous years by a wide margin. The worst previous year was 1914, when there were 1,832 fires. Logging equipment is so much costlier now than then that the losses of machinery and tackle will amount in dollars to much more than in 1914, although the actual amount of physical damage done may not be proportionately as great.

A Remedy for Borers in Floors

The following letter recently came to the Editor:

"Last winter the writer laid a floor of Red Oak lumber in my house, it was planed locally and kiln dried, and I did not trouble to cut out all sapwood, so long as it showed a good face. When stained slightly it made a real nice job. Floor was finished with light Oak stain, one coat white shellac and two coats floor varnish. Shortly after starting furnace about three weeks ago the small borers which work in dry Hardwood showed signs of working, cutting through the surface and pushing the borings up. They are constantly becoming worse, and I now often count 50 to 75 separate workings on 300 sq. ft. of floor surface. They do not show up where there is any traffic, but mostly under furniture, chairs, etc. In 24 hours each worm will put up a pile of borings as large as a grain of wheat. They work mostly in strips along the edge of the boards apparently in pieces with sapwood along the edge. We could drill the holes and putty them, but they are constantly coming up in new places.

"We would like to know if there is any way of combatting these borers, as they will soon have several pieces of the flooring badly honeycombed."

To which the Forest Products Laboratories at Montreal kindly furnished the following reply:—

"A number of methods for eradicating such pests as have attacked your flooring may be employed where the trouble occurs in sawn lumber. But in the case of borers already in a floor, measures which may be adopted are somewhat restricted. A thorough penetration of the affected material with kerosene oil has proved effective with sawn lumber. For your floor such an application with kerosene would destroy all borers. Copious application of the oil in all places where tunnels show up, would surely reach a large number of the borers. If tunnel openings continue to appear in new parts of the floor we would suggest that the varnish be removed from all the sapwood areas and that such exposed surfaces be given a thorough soaking with kerosene."

SOME "HOWLERS"

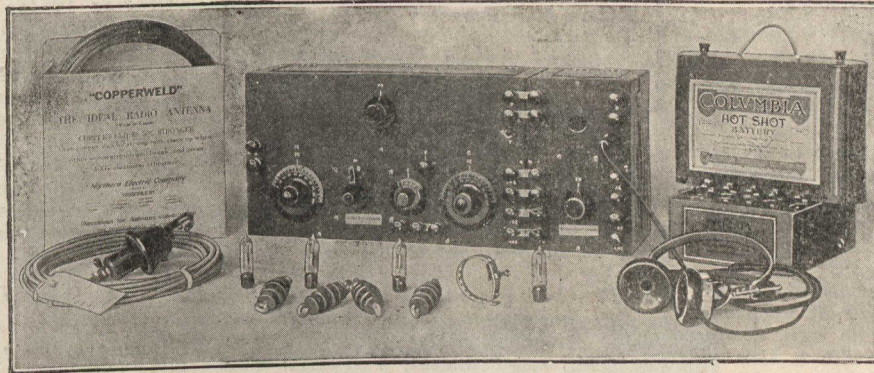
An examination held in British Columbia recently for Fire Rangers produced the following:

(Q). Give details of organization of fire crew on a 50-acre fire, etc.

After dividing a crew of fifty men in various proportions, the candidate displays cannibalistic tendencies and states—"This uses up forty-six men and leaves me four for a food supply."

(Q). How would you estimate damage to burned timber?

"Take a small piece and examine it carefully."



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I.—Name.

The name of the Association shall be: The Canadian Forestry Association.

II.—Object.

(1) To advocate and encourage judicious methods in dealing with our forests and woodlands.

(2) To awaken public interest to the sad results attending the wholesale destruction of forests (as shown by the experience of older countries) in the deterioration of the climate, diminution of fertility, drying up of rivers and streams, etc. etc.

(3) To consider and recommend the exploration, as far as practicable, of our public domain and its division into agricultural, timber and mineral lands, with a view of directing immigration and the pursuits of our pioneers into channels best suited to advance their interests and the public welfare. With this accomplished, a portion of the unappropriated lands of the country could be permanently reserved for the growth of timber.

(4) To encourage afforestation wherever advisable, and to promote forest tree plantings, especially in the treeless areas of our north-western prairies, upon farm lands where the proportion of woodland is too low, and upon highways and in the parks of our villages, towns and cities.

(5) To collect and disseminate, for the benefit of the public, reports and information bearing on the forestry problem in general, and especially with respect both to the wooded and prairie districts of Canada, and to teach the rising generation the value of the forest with a view of enlisting their efforts in its preservation.

(6) To secure such forestry legislation from time to time from the federal and provincial governments as the general interests demand, and the particular needs of the people seem to require.

III.—Membership.

Its membership shall include all who pay an annual fee of \$1.00, a Contributing fee of \$5. or a Life Membership fee of twenty-five dollars. Subscription to the Canadian Forestry Magazine shall be charged at one dollar addition except for the Contributing and Life Members.

IV.—Honorary Officers and Territorial Vice-Presidents.

The Honorary Officers shall consist of a Patron, Honorary President and Honorary Past President.

There shall be not more than fifteen Territorial Vice-Presidents, and the aim in selecting the same shall be to appoint a representative for each province and territorial division of Canada.

The above shall be appointed at the annual meeting of the Association, and they shall not be members of the Board of Directors.

V.—Officers.

The officers shall consist of a President, a Vice-President, a Manager, a Secretary, an Assistant Secretary and a Treasurer. The Manager may perform the dual offices of manager and secretary.

VI.—Board of Directors.

The Board of Directors shall consist of the officers and not more than forty-five directors, elected annually, and all Past Presidents of the Association, from and including the year 1909-10.

Constitution and By-Laws

Canadian Forestry Association

As Revised at the 1914 and subsequent Annual Meeting of the Association

VII.—Nominations and Elections.

The President, Vice-President, Treasurer and Directors shall be elected at the annual meeting of the Association, and shall hold office for one year, and until their successors are elected. The Office of President and Vice-President respectively shall not be held by the same person for two years in succession. Nominations for Honorary officers, President, Vice-President, Territorial Vice-Presidents and Treasurer and Directors shall be made by a Nominating Committee of not more than seven members who shall be elected by open vote on nomination of presiding officer or others at the first session of the annual meeting of the Association. The Nominating Committee's report may be adopted by open vote, or, if amendments to it are moved, the vote shall be by ballot.

VIII.—Executive Committee.

The Officers and Board of Directors shall constitute an Executive Committee, and five of the same shall be a quorum.

IX.—Annual Meeting.

The annual meeting of the Association shall be held during the month of February in the City of Ottawa, unless otherwise determined by the Executive Committee of the Association and a notice of one month of the date selected shall be given to each member by the Secretary.

X.—Special Meetings.

Special meetings shall be held at such times and places as the Executive may decide, a sufficient notice of which shall be sent to each member by the Secretary.

XI.—Amendments.

Amendments of the Constitution can only be adopted by a two-thirds vote of the members present and entitled to vote, and at the annual meeting of the Association, and a notice of such intended amendment shall be given with the notice calling the meeting.

BY-LAWS.

President.

It shall be the duty of the President to preside at all meetings of the Association and of the Board of Directors. He shall be *ex-officio* a member of all committees.

Vice-President.

In the absence of the President, a Vice-President shall preside at all meetings of the Association; and in the absence of all of them a President *pro tempore* shall be elected by the meeting.

Manager and Secretary.

The Manager and Secretary shall be appointed by the Board of Directors whenever there is a vacancy in the offices and shall hold office during the pleasure of the Board of Directors unless otherwise ordered by two-thirds of the members present, and voting, at the annual or special general meeting of the Association. It shall be the

duty of the manager and secretary to keep the minutes of each meeting, have charge of the books and records and other documents belonging to the Association, conduct all correspondence connected with the affairs of the Association, notify members of the time and place of meeting and to perform all duties prescribed by the Board of Directors. The manager and secretary shall not engage in any other business without the consent of the Board of Directors. The Secretary shall be the Secretary of all standing committees. Salaries shall be determined from year to year by the Board of Directors.

Treasurer.

The Treasurer shall have the custody of all moneys received, and shall deposit or invest the same in such manner as the Board of Directors shall direct, and shall not expend money except under direction or approval of the Board of Directors or the Executive Committee.

Board of Directors.

It shall be the duty of the Board of Directors to manage the affairs of the Association, and the Board may appoint any necessary assistants required by the Officers. Any position among the officers or directors which may become vacant during the year may be filled by the Board of Directors.

Annual Audit.

At the annual meeting of the Association there shall be appointed two auditors, whose duty it shall be to examine and audit the books, accounts and records of the Association or of any officers, employees or committees thereof, and shall report to the annual meeting of the Association.

Financial Year.

The financial year of the Association shall close on December 31st of each year.

Conduct of Meetings.

- (a) Parliamentary rules shall govern all meetings of this Association.
- (b) All motions shall be made in writing.
- (c) In the event of conflict of opinion, the Chairman shall decide all questions of order.
- (d) Having once spoken to a motion a member must obtain permission from the Chair to be again heard regarding it. The Chair may at any time declare a subject open for general conversational discussion, and may in like manner determine same.

Order of Business.

At the regular meeting of the Association the order of business shall be that proposed by the Board of Directors and announced by the Presiding Officer. In the absence of such prepared order of business, the following shall be observed.

1. Reading of minutes of previous meeting.
2. Business arising out of minutes.
3. Receiving communications.
4. President's address.
5. Directors' report.
6. Treasurer's report.
7. Reports of standing or special committees.
8. Unfinished business.
9. New business.
10. Notices of motion.
11. Election of officers and directors.

The order of business may be varied at any meeting by a majority vote of those present; or it may be suspended at the discretion of the Chair.



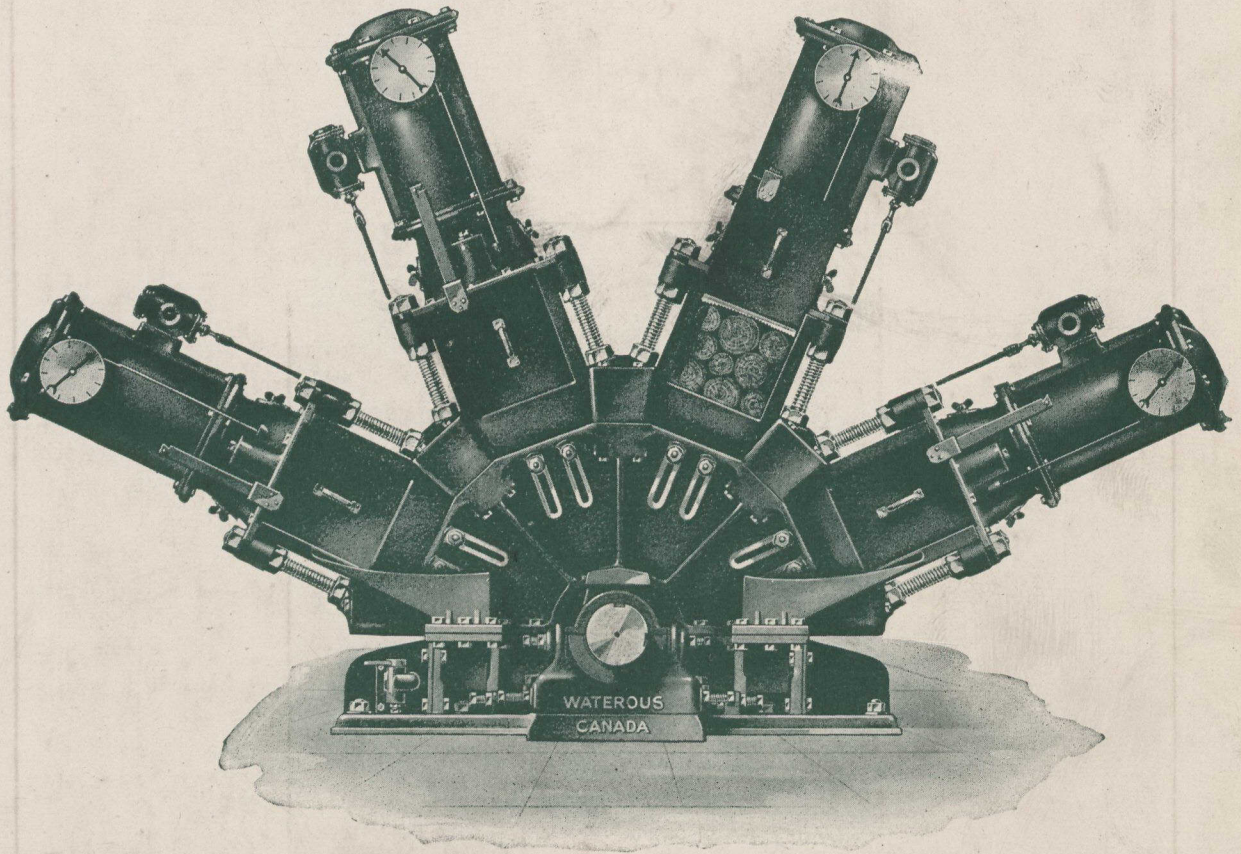
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