


WINCHESTER



REPEATING RIFLES

repeat. They don't jam, catch, or fail to extract. In a word, they are the only reliable repeaters. Winchester rifles are made in all desirable callbers, weights and styles; and are plain, partially or elaborately ornamented, suiting every purpose, every pocketbook, and every taste.

WINCHESTER AMMUNITION

made for all kinds of shooting in all kinds of guns.

FREE—Send name and address on a Postal for our 104-page Illustrated Catalog.

WINCHESTER REPEATING ARMS CO., NEW HAVEN, CONN.



3 IN 1 FOR GUNS

All sportsmen use and prize

3 in 1

as the only real gun oil on the market. Lubricates perfectly, cleans out burnt powder (smokeless too), prevents rust on barrel and polishes the stock.

FREE Sample bottle sent for two cent stamp to pay the postage. Tax. At All Dealers.

G. W. COLE CO.
143-145 Broadway New York City

Agents Wanted in every Town and City in America to canvass for subscriptions for **ROD AND GUN IN CANADA**. A liberal commission allowed. For particulars write to Rod and Gun Pub. Co., 605 Craig Street, Montreal.

HAMILTON POWDER CO.

HAS MANUFACTURED
SPORTING GUN POWDER

Since 1865, as a result you have "CARIBOU" made from best materials, perfectly put together. "DUCKING" hard pressed, slow burning, keeps well under all conditions. "SNAP SHOT" high velocity, moist residuum Cheap. The powder for every day use.

ENGLISHMEN SAY

Powder can be bought in Canada as good as ever put in a gun. It has a positive advantage over home make, the dirt is soft.—J. J. W in London Field.

AMERICANS SAY

The finer English or American Powder and Canadian "Caribou," I am quite familiar with. They give so little recoil that one may shoot all day without bruised shoulder or headache—Forest and Stream.

CANADIANS ABROAD SAY

Can you send over some Trap? I don't mean to flatter but it is ahead of anything we get here.—A. W. W., Batavia, N. Y.

JUST FROM THE PRESS

A Sportsman's Taxidermy and Photography

A PRACTICAL TREATISE ON THE ABOVE TWO ARTS. PROFUSELY ILLUSTRATED.

Address

**L. H. SMITH,
STRATHROY,
ONT.**

Every Sportsman and lover of out-of-doors should have this pretty little volume in his library. Price \$1 postpaid.

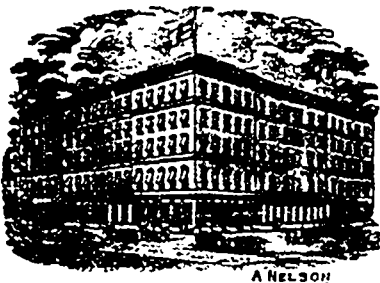
BRITISH AMERICAN HOTEL

WINDSOR, ONT.

LEADING HOTEL IN THE CITY.

SPECIAL RATES FOR TOURISTS.

T. W. MCKEE, PROPRIETOR.



In point of cuisine and equipment, **THE ROSSIN** is the most complete, the most luxurious of modern Ontario hotels. The rooms, single or en suite, are the most airy and comfortable in the Dominion. The Union Depot and Wharves but two minutes' walk.

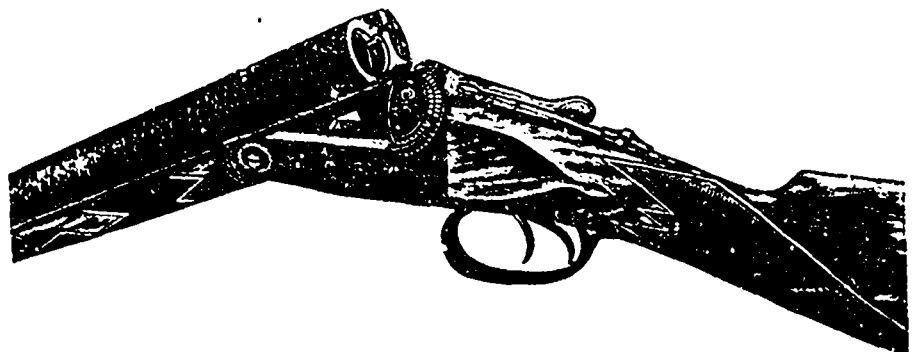
A. & A. NELSON,
Toronto, Ont. Proprietors.

Four Times a Winner of the Grand American Handicap

GUN, killed 43 straight, winning \$600.00 and the straight, 7 shot PARKERS, and 86 of the 201 shooters faced the trap with PARKER GUNS.

The 201 shooters in this year's event, at Queen's, L.I., N.Y., could not defeat the "OLD RELIABLE" in the hands of an AMATEUR. E. C. GRIFFITH, Pascoag, P.I., with a PARKER Gun.

SEND FOR CATALOGUE.



N.Y. Salesroom
32 Warren St.

PARKER BROS., MERIDEN, CONN.

ROD AND GUN IN CANADA

DEVOTED
TO
THE
FISHING
GAME AND
FOREST
INTERESTS
OF
CANADA.

One Dollar Per Annum.

MONTREAL, JANUARY, 1902.

Single Copies Ten Cents.

A TRIP TO MATACHUAN.

By C. C. Farr

(Continued from the December Issue.)

This part of the Montreal River is simply beautiful, white waterlilies, and yellow, grow in great profusion along the shore, and in the grass fringed bays.

Boiled hills arise beyond the level valley of the river, at times approaching the very banks, at others receding into the distance, so as to become invisible from the river.

As we paddled along, little Harry became restless, as children will, and to keep him quiet his father told him to watch for partridges on the trees, while his mother assured him that if he would only stop his tears he would certainly see a marten come out of the bush.

I thought how all humanity is akin, all doing the same kind of things, modified alone by the conditions that surround them.

Meechell pointed out to me a beaver house built in the bank of the river. In fact, he showed me two.

He assured me that these bank beavers were not idle bachelors, but that they lived a most respectable life in pairs; raising a family every year, as all good beavers should. I noticed that these beavers had certainly not been idle, for they had cut many good-sized trees, and had evidently commenced to lay in their winter stock of provisions.

I noticed, and indeed it is now a well-known fact, that all the tamarac has died or is dying.

I asked Meechell if he could explain the reason why.

He told me that some four or five years ago a late frost cut the trees when they were first out in leaf. Any other tree but a tamarac could stand this, and live; but a tamarac could not, hence the phenomenon. I have suggested this theory to lumbermen, but by them it has not always been accepted as valid. They say that some worm has done this, a worm that bores into the wood, commencing at the topmost branches.

I am inclined to favor Meechell's theory, and to believe that the lumbermen are accepting the effect for the cause. Of one thing, I feel convinced, namely, that the cause is a climatic one. Be what it may, the fact remains that we have lost our tamarac, a loss that will take over a hundred years to make good.

At the Odush-koon-i-gam we went ashore to eat. Boy cut a rod, and went off to fish. I followed him, and we sought for frogs, but finding none, we made use of a mussel, from off which Boy had crushed the shell. I let him do the fishing, while I hunted better bait. As I wandered further on, I saw a monster bass leisurely swimming along the shore, evidently on

the feed. Back I rushed to Boy, who had missed a fish, and was vainly trying to induce the fish to bite again.

I had him collect some mussels, and kept an eye open for a frog as we walked back to where I saw the bass.

It was there, and hardly had my bait touched the water when it made a rush for it. I struck too soon, and though slightly turning it, I missed it.

At the same time, Noowi rushed up, having secured a diminutive frog. Quickly I popped him on to the hook, and this time I thought I had my fish, but alas, after playing it a few seconds, it got away. Then was I filled with grief and rage. In vain I dangled the lacerated remains of the frog in the water. It heeded not, and, as a forlorn hope, I bade Boy strip the shell from off another mussel. This I threw far out into the deep water, and then, oh joy, the line began to tighten. Once more I struck my fish, and this time I had it. I felt it in my very bones. Boy wanted to grasp the line and haul in by main strength. Luckily, I caught on to what he was at, and stopped him, for he would have smashed my frail hook like a pipe stem.

Long we fought, I and the bass. I had no landing net, nor gaff. My only chance was to tire him out, and then slide him up the gently sloping bank. This I succeeded in doing, so that Boy could rush in between the water and the bass, which he did, throwing up the monster high and dry. He was a happy boy. He danced and shouted. I felt like doing the same thing myself, so I couldn't blame the boy, for it was a beauty. I know that there is no use talking weights of fish without the truth compelling scales, but I have caught many bass which I have weighed, and I certainly would put this fish at six pounds. It was the largest bass that I have ever seen. One may say that, when cooked, it nearly made a meal for the whole party.

After eating, into the canoes again. The sun was very hot. We had eaten a good meal, and, as the Indians said, "we were lazy to paddle," but the canoes pushed steadily on. I must confess that this part of the river was uninteresting. That is, after we left the lakes, and wended our way up the narrow, tortuous river. Not a bad showing from an agricultural point of view, but tedious to the tourist. At the rapid, which is at the foot of Round Lake, we eat again, but the sun was still high, so we pushed on.

When we turned the point into Round Lake, the wind was fine, so we hoisted sail, and rested our weary arms.

There is something very attractive in canoe sailing. The motion is so essentially a gliding one; so restful and conducive to sleep. The gentle wash of the water adds to the soporific effect.

I must confess that I myself indulged in forty winks, as we smoothly sailed along; not before, however, Meechell had pointed out to me the ancient burial ground of the Indians, a promontory jutting out into the lake, a breezy, restful spot, where the dead are serenaded by the gentle zephyrs of summer, and the howling blasts of winter. A fitting home for the dead children of the forest; so full of solitude, unmarred by the busy hum of men. And yet the day is not far distant when this lake and the surrounding country will become a thriving community of farmers, for civilization and an age of progress have marked it for their own. At the head of this lake, lives Joseph Quo-hon-jie. Old Joseph he is called, and nearly thirty years ago he was called the same.

Many thousand dollars' worth of furs has this man brought to the Hudson's Bay Company.

He is one of those faithful hunters, relics of bygone days, whose creed has been, fidelity to the Company. It is true that the priest has taught their religion to these men, as evidenced by the enormous wooden cross raised in front of Joseph's door, but the older creed amongst them, was a reverence for the Gitchi Ataway-wi-nini, (The Hudson's Bay Co. Big Trader), instilled into them upon their mother's knee, and of greater significance to them than all the creeds of Christendom.

Of this kind is Joseph, but the race is dying out, and the younger men see things differently.

Of course, we called, and the usual chattering took place amongst the women.

Seeing the importance of the visitors, a musical box was set in motion, as the show piece. But our Soosan had bought a hat in Hailebury, and it was tied up in a red handkerchief. As a set-off against the music box, this hat was produced for inspection, and passed around from hand to hand amidst many ejaculations of wonder and admiration.

The musical box was not in it, and it soon went itself into silence.

The hat probably cost about sixty cents, and was at least within five years of the present fashion.

It is strange how civilization creeps up these streams, and saturates society in the northern wilds.

I remember the first day that I saw Joseph Inohonjie. I was an apprentice clerk in the Hudson's Bay Company. A

fellow apprentice, probably my senior by about a year, was attending to Joseph's needs in the store. His knowledge of the Indian language was a little better than my own, at the time, but was even then not of much account. He made out that Joseph wanted egg-cups. Joseph heard of them from some Indian who had travelled, and as he was doing a little trading, as well as hunting, he thought that he ought to have them. They were to him symbols of civilization. How we laughed, and yet we gave him egg-cups; not from the store, for in those days they were counted as unnecessary luxuries, but from the house. He expected to pay about five dollars apiece for them, and was agreeably surprised when he found they only cost a

dollar. But I am again digressing. I must hurry up, or I shall never get through my trip. So far, we are only about half way to Matachuan, and there is much left yet to tell.

We camped that night on Spruce Lake, or Elk Lake as it is marked on the maps.

Next morning, as we were about to start, we saw a canoe coming down the lake, with four Indians paddling it, and two white men sitting down comfortably amidships.

We knew that it was the Hudson's Bay Company's Agent, returning from a trip of inspection.

We exchanged civilities, but there was an anxious, enquiring look upon his face, as much as to say, "I wonder what that chap is after?" The Hudson's Bay Company officials live in a constant nightmare of dread of opposition. He could have possessed his soul in peace, for I have no



MEECHELL BAPTISTE.

hankering after the fur trade.

At the Muk-o-bee River, we found some more Indians camped, so we went ashore, and were entertained by the display of a fine matchbox, with beautiful pictures upon it, but the glory of it was immediately eclipsed by Soosan's hat.

I felt proud to be travelling with that hat, and began to realize that, with it, we could eclipse anything in sight.

The wind was fair, so we sailed in a lazy manner up this lake. The scenery was beautiful, and I regretted that we had to exchange it for a long stretch of monotonous river, wherein nothing occurred to break the monotony but the sight of the ever present moose tracks, and the slaughter of a covey of partridges. We met many squirrels swimming across the river. The Indians played with them, lifting them out of the water

with their paddles, and throwing them at the women, over whom the poor frightened little things would run. This kind of battledore and shuttlecock seemed to afford them much sport, and they all laughed heartily, but it had a very depressing effect upon the squirrels. However, they, the Indians, were not mischievously inclined, and the poor little chaps usually managed to escape. Meechell told me, that, at this time of year, squirrels take to the water in great numbers, but that it was only young squirrels that were thus caught swimming. They, probably, after being reared by their parents, were seeking homes and mates of their own.

Above the Kay-kah-be-kayguan, the highest falls on the river, we saw a canoe lying close to the other shore. There was evidently a white man sitting in it, so I suggested that we should interview him. I was steering, and I ran our canoe across. Sure enough, it was a white man, with two Indian guides. I hailed him in a friendly manner, but he did not reciprocate. He seemed reticent and reserved, so, dropping into the Indian language, I asked his guides who he was, and what he was doing. They told me all they knew about him, and then we discussed other matters for a while, until we parted. When we had gone out of sight, and out of earshot, Meechell and his wife began to laugh. They fairly roared, and naturally I wanted to know the fun.

"Did you not see him?" said Meechell.

"Did you not notice what the Sagemash, (white man), did?"

"No," I said, "I saw nothing to cackle about."

This made them laugh the more, and then they told me that he had taken our photographs as we came up.

"Perhaps," said Meechell, "he is wanting pictures of Indians?"

And then I saw the point, nor did I fail to rub it into my wife.

I learned afterwards that he is expecting to publish articles (illustrated), in the Detroit Free Press, so that I have every expectation of appearing as a good intelligent type of Indian in that funny paper.

It was a hot, sultry evening, and as the river here becomes just a succession of small rapids, or swift currents, we did not make much progress. A dark cloud was looming up in the west, and the distant rumble of thunder betokened a storm.

Meechell chose a small grassy island on which to camp. As the other canoes were slightly in advance, he hailed to them to return. The Baldheaded Eagle threw words of scorn and reprobation at him for choosing such a place. But he answered good-humoredly enough, that he did not want to be caught in a deadfall like a bear. "For," explained he to me, "if you camp amongst high trees in a storm, there is always a chance of a tree being blown across your tent, or of being struck by lightning." Then he told me of the crew that had left Moose Factory with a load for Frederick's Lake post, and how most of them were killed by the lightning. I have heard it told myself years ago, but perhaps the readers of ROD AND GUN have not, so I give it as I heard it.

A storm, just of the same kind that threatened us, was coming up, so they camped upon a portage, beneath a large pine tree. The storm broke after they had gone to bed. They were sleeping, as is the custom of voyageurs, beneath their large canoe. Next morning, out of the seven men who composed the crew, only two got up. They thought that the rest were still sleeping. So they were, but it was the sleep of death.

The lightning had killed them, and yet the men who escaped knew it not, though they were lying beside them. These two managed to make their way back to Moose, carrying their fearful tale, and a fresh crew of men had to be procured to put the load to its destination.

Shortly after we had turned in to sleep, the storm came down upon us, and I recognized Meechell's wisdom in the selection of our camping ground. The wind raged and the thunder roared, while the lightning flashed in sheets. Then the rain came down in torrents, and it kept me busy training the little rivulets of water down the roof of the tent, so as to turn them from off the blankets; but what gave the finishing touch to the weirdness of the whole, was the howling of wolves close to the camp. I have lived many years in this northern country, and yet never had heard wolves, until this evening. I have heard them further south, but never here. Of course, I discussed the matter with Meechell in the morning, and he gave me much interesting information. He said that the wolves had become very plentiful of late years. Not the small tawny wolf, which is to be found south, but the big white wolf, which has come from the north.

The Indians find it difficult to put their meat in a place of safety in the winter, for the wolves destroy it. The only way to insure it being left intact is, to place a trap under it, for wolves abhor traps.

"Do you know," said Meechell, "that the wolves are destroying the moose?"

"How can that be," I asked, seeing that I never saw the moose so plentiful. "Look at the tracks. How thick they are?"

"True," said he, "but you only see large tracks. Where are the small tracks? For the last few years I have seen hardly any calves, for the wolves are killing them."

"I thought that the moose could fight the wolves?" I said.

"So they can," he answered, "but it is not hard to get the calf separated from its mother by worrying it. Then the calf is easily killed, for it cannot run as a red deer."

I then asked Meechell how long it was since he first saw a moose?

"About forty years ago. I was coming up the Montreal River, and at Round Lake I saw a moose. I was just a little frightened, for it was like nothing I had ever seen before. I can tell you one strange thing about moose," he continued. "There is a small lake at no great distance from my home, and around the shores of this lake, covered by a layer of black muck, of about a foot in thickness, there are lots of moose bones. You can see, too, their roads cut deep in the ground. They, too, are covered with earth to the same depth, and alongside of them, running in the same direction, in fact, often on the very same tracks, are the roads of the present generation of moose. Can you explain these things?"

I could not explain. Have the wolves been the instruments of extinction in the prehistoric past? It must have been long, long ago that these creatures lived, for there is no tradition concerning them amongst the Indians. It would be interesting to verify these things. Could these bones be the bones of the elk? But speculation is useless. Investigation alone would be satisfactory.

Many things Meechell told me about wolves, bears, wolverines, and other wild animals on that rainy day, while we were camped on the small island, but they must be left for another story. I am supposed to be on a trip to Matachuan, and it looks as if I should never get there.

I became hungry for fish, so I asked Meechell if he could not get some. He answered that he could, so off he went in the afternoon, with his wife, Noouri and Harry, to set a net. Next morning we overhauled the net, on our way up, and there must have been over a dozen beautiful pickerel in it, fine, dark, handsome fish. I thought that they would have given excellent sport with rod and line.

Strange that there are no bass in these waters, especially seeing that they are so plentiful lower down the stream.

It strikes me that the habitat of the bass is much restricted.

The Temagamingue system of lakes is full of them, but north, probably to the North Pole itself, bass do not abound. If this is so, then it is well for us to economize and encourage our bass. Let the authorities look to it.

We met Meechell's brother at the next rapid. By the by, what an interesting sight it is to watch these Indians handling their canoes in these swift currents. They use poles, usually shod with iron, and it is wonderful the pitch of water up which they will force their canoes with apparent ease.

I am no greenhorn in a canoe myself, and yet, I noticed, that whenever we came to a pretty stiff pitch of water, Meechell ordered me out of the canoe, and put his wife in my place.

It was not complimentary to me, and my wife laughed to see a "male person" ousted by a woman, but I felt it to be no disgrace, for Meechell's wife is as good as any man at such work, in fact a great deal better than many who think they know it all. She is a wonderful woman in every way, and the most light-hearted creature I ever met, always laughing and chaffing with her husband, and in excellent humor. The only time I ever saw her put-out, was one evening when he brought her wet wood with which to bake her cakes. Even then she pitched the wood at him in a friendly way, and laughed when a small stick struck him. Here is another instance of how all humanity is akin. How many a woman's temper has been roused by wet wood. We who live in a wooden country know all about it.

As Meechell and his brother had not seen each other for some weeks, they naturally had much to talk about. One of Meechell's first questions was —

"What have you killed?"

One red deer, one bear, and one moose. The moose was caught in a trap set for a bear," came the reply.

We fried our fish that morning in the grease of the bear.

I must not forget to say that we saw a bear in one of the rapids, but it saw us, and vanished.

Meechell's brother was then on his way to set some bear traps. He is a good hunter, this William Batist. Since I came home, he shot six wolves. He saw them eating a moose. There were ten of them, the old mother and nine pups. He crept up to them, and killed the old wolf first, and the young wolves would not leave her; so he shot five of them before they scattered. He lost two of them, so he was only able to secure four skins. These he brought out to get the bounty. But what a family. Nine in a litter. No wonder that the young moose are becoming scarce. And the brutes will continue to increase and multiply, as long as the food supply is sufficient for their needs.

And now at last we come in sight of the Hudson's Bay Company Post, our destination. By this time, we had a flotilla of canoes accompanying us. The gentleman in charge had the flag up in honor of our arrival, and it was with a strange

mixture of sensations that I landed at this outpost of civilization.

I had spent fifteen years of my life in the Hudson's Bay Company, and our arrival recalled reminiscences of by-gone days.

I could hardly persuade myself that I had not then arrived to take charge of the post. There was, and probably is, considerable fuss made over the advent of the new trader, the rising sun, and one with whom, in this autocratic business, it is well to stand in favor. I felt myself stepping back nearly twenty years of my life, and yet, after all, there was consolation in the thought that the morrow would see me speeding on my way back to my home again. The life of the Hudson's Bay Company's service has its charm, but the isolation of it, the almost perpetual banishment from real civilization to a man who, like myself, has tasted the sweets of independent intercourse with my fellow men, would be to me intolerable, and the temporary impression was like a nightmare to me, the recalling of a perplexing dream. Nothing could exceed the kindness of our reception by Mr. Stephen Lafricain, the gentleman in charge. He has spent nearly half a century in the employ of this wonderful company. He, like myself, forgot the intervening years, and treated me as of the company.

We discussed the trade, until the air seemed fairly laden with the smell of rats, we discussed the past, men who have long been dead, and manners, that, at least in this locality, are becoming mere traditions.

To discuss the future is the sign of youth, to discuss the past is the sign of advancing age. I know the verdict, and accept it as part of the inevitable. So let it be. It takes an experience of this kind to bring it home.

But the morrow came, and I needs must hasten home. Those rapids which had been such a source of hard work and slow progress on the journey up, became a delightful experience on the journey down. Under the skilful guidance of Meechell, we glided over the rounded pebbles of the river bed, which, in the clear water, seemed so close that one expected every moment to feel them scraping on the bottom of our canoe. But Meechell knew the way, and as, he in the bow, made all the necessary twists and turns to keep the deepest water, I merely had to watch him, taking my cue from him, and steer as his motions directed.

That night we camped far down below the big falls, upon that apparently fishless, uninteresting stretch of river when every reach seemed alike, only a little longer.

Meechell had promised fish, and he kept his word. We camped at the mouth of a small creek, where one would not expect to find a fish within five miles of us. But Meechell knew better. After the tents were all set up, he started up the creek with his wife, Noowi, and the inevitable net. Next morning, before we were up, he overhauled his net, and brought back a multitude of fishes. There were pickerel, pike, perch, and whitefish. The perch were beauties, more like the perch we used to catch in England, good, broad, heavy fish, of a dark brown color, and heavily banded. He told me that with a rod and line splendid sport could be obtained where he had gone to set his net. I asked him if there were no brook trout up this river. He said that within one day's journey of his home, there were splendid brook trout, the largest he had ever seen. I should judge by his description that they would run the Nippigong trout hard as to size. And as to quantity, he assured me that they were as plentiful as minnows. Then there was another place, about the same distance off, but in another

direction, where the trout, though not so large, were even more plentiful. I mean to pay those trout a visit yet, if only for the sake of politeness. But my journey is now nearly ended. I need not take my readers back over the same ground again. Suffice to say, that we arrived home without mishap, tired but healthy. Even to the last, nature was kind to us. As we paddled in the gloaming, through the narrows in Sharpe Lake, Basil's eagle eye discerned a deer feeding on the waterlily leaves in the shallows.

"Where is the rifle?" he whispered to Meechell.

"What do you want the rifle for?" asked Meechell. "We don't want to kill the little creature." Then, turning to me, he

to call, but we must oat, and, besides, the instincts of our prehistoric barbarian ancestors are still strong within us, and we call it sport.

I am home now, and I miss my Indians.

THE END.

*

AN EXPLORATION TO THE HEIGHT OF LAND.

By St. Croix.

(Continued from our December Issue.)

John told me that he knew of a group of lakes to the south of Narrow Lake which were admirable feeding places, and as I was very anxious to get some photographs of moose, and the



FALLS AT THE MOUTH OF THE NORTH BRANCH, WHITE RIVER.

When this photograph was taken the pitch of water in the North Branch was very low, in late spring and early summer a very large volume of water passes over these slab rocks, and a scene which is at all times beautiful becomes magnificent.

asked:—"Do you want the meat?"

"Certainly not!" I answered.

"Then let it live," he said.

And just to see how near we could get, we paddled cautiously along without making a sound. The pretty thing looked up once or twice, but seemed to think us harmless, as it continued to stretch out its slender neck and cull the succulent leaves of the lily, though we were now within less than twenty yards of it. But humanity could stand it no longer, that is, Indian humanity, for Basil slapped his paddle upon the water, and let out a shout, which sent the creature bounding into the bush. And thus the red gods did not call. It is a pity they have

weather was favorable, we took the canoe and camera and started. We paddled about a mile across a bay of Narrow Lake, then portaged for 400 yards over some slab rocks to a perfect gem of a lakelet, one of Nature's goblets, filled to the rocky rim with crystal water, with pine clad islands which seemed to float on its mirror-like surface. Here we left the canoe, and walked almost half a mile south-west to a rushy pond, where the moose tracks made the mud look like a barn yard. But there was no moose; so we walked half a mile east to another pond. The rocky shore was very high, and as we came near the brink, John stopped short—I looked over his shoulder; and there were two moose feeding, far out in the lake. One was a

very large cow; and the other a yearling calf. A few minutes later I saw a third, also a calf, at the head of a little bay. The sun was very bright and the water absolutely calm. The cow was feeding greedily. Every now and then she would take a long breath, and stick her head under water, and fully a minute would elapse ere her head reappeared. She was feeding on the roots of the lilies, in water about four feet deep. We went back to the canoe, taking our time, for there was no hurry, the moose having evidently only just reached the water, while it takes them several hours to satisfy their hunger. We carried the canoe over to the head of the lake in which we had seen the moose. I lashed the tripod of the camera in the bow, and trained the instrument so that anything from twenty-five to fifty yards from the bow would be on the plate. I was using a long focus lens, and had some hope of getting a good photograph. I knelt immediately behind the camera with the bulb in my hand; the boy lay flat on his back behind me; and good, steady-going old John, stoical as a cigar store Indian, paddled us toward the moose without making a sound that even I could hear, near as I was.

To cut a long story short, although it was broad daylight and bright into the bargain, John paddled me up within forty yards of that moose, and, until the shutter clicked, she had no idea that any of the hated bipeds was near her. But those great ears of hers heard the snap, and then she was not long in getting ashore. The calves had already disappeared, being nearest to the forest. We were back in camp at seven o'clock.

It was now time to start for Te-gou-sie-wabie, and on the morning of Thursday, August 15th, at 8 o'clock, we resumed our journey up the north-east branch. The river comes into Narrow Lake from the north-east, flowing for fifty miles down a narrow valley, bordered on either hand by remarkably regular lines of cliffs. All the strata in that part of Ontario dip to the south-east. The average course of the river is about N. 10 E. The dip of the rock is here about 20°, but as one proceeds further to the north-west it becomes steeper, until at Te-gou-sie-wabie the dip is fully 80° to the south-east. The formation is Huronian, and it is more than probable that mineral discoveries will be made about here, as this formation is about the most promising one we have. After leaving Narrow Lake the water became much clearer.

Without going into too much detail; we camped at six o'clock on Island Lake, having paddled about 14 miles and made seven or eight portages. The bearing of Narrow Lake from Island Lake is S. 39 W. (magnetic; the variation of the needle here being not over 6° W.)

According to John there are many small lakes immediately east of Island Lake, and they are sure finds for moose. I noticed that the season was further advanced here than it had been down at Temiskaming. The aspens were already turning yellow. The country was burnt over about fifteen years ago, and the forest growth is, consequently, very sparse and small. This fire is said to have driven out the last of the caribou. The more one looks into the factors governing the distribution of animals, the more one is impressed by the evident fact that their movements are governed by the abundance or scarcity of food. They are very tolerant of great differences of climate, but their choice of food is narrow. Should the fire destroy the white moss which grows so abundantly in the rocky districts of the north, the caribou will shun that part of the country until such times as the moss shall have reappeared; the yellow pond lily appears to be an essential summer food of the moose, at any rate in Eastern Canada, and where the streams are rocky

and rapid you will find few of these animals, while, on the other hand, in a district of many ponds, back-waters, and bogans, moose, unless driven out by man, are certain to be numerous.

Shortly after leaving camp next morning we reached a lake which appears to have no name, but which is shown on the map of the province, as the inter-provincial boundary crosses it. This crossing, however, occurs at the far end of the lake, while I left it at a point not more than a mile from its foot. Forks-of-the-Road Lake will do as a name, for the want of a better one. Here two canoe routes diverge; the one going to the Quinze River, the other to Te-gou-sie-wabie and the Height of Land. We chose the latter. After paddling a mile or so from the foot the canoe was turned toward the westerly shore, at a point where a picturesque but small waterfall came down the high bank. This is the discharge from Te-gou-sie-wabie. I was very much disappointed at the small volume of water, inferring wrongly, as it turned out, that the lake would be but a small affair.

After the usual carry—in this case one about half-a-mile, and all the way up hill—we launched our canoe on a beautifully clear little stream, with a very moderate current. Its general course was about N. 36° W. mag. There is but one rapid of any consequence between the lake and the mouth of the stream, the portage by which it is passed being a quarter of a mile in length. Here we lunched. From the rapid to the lake moose tracks were extraordinarily numerous, and in one case we noticed that the tracks of a big bull were so fresh that the water was still soiled, that is to say, the mud had not settled, as would have been the case had the animal passed more than an hour or so before our arrival.

We soon emerged into the lake, and then I realized that John had not lied, and that Te-gou-sie-wabie is a lake of large size and great beauty. The wind was blowing very hard from the westward, so we hugged that shore pretty closely, but did not escape a wetting when we had to cross the mouth of one or two deep bays. We camped for the night at the Narrows, where a remarkably bold cliff juts out, dividing the lake almost in two. This is one of the most perfect camping grounds in the White River country, where good camping grounds are the rule, not the exception. It has additional charm from the fact that the eye ranges over miles and miles of distant scenery, and that the vision is not limited by the surrounding forest, as is usually the case. A great square-topped butte bears N. 80° E. from the centre of Te-gou-sie-wabie. It is well known to the Indians, who call it Chiminis; its position is exactly 43 miles due north of Temiskaming. I estimated this mountain at 15 miles from the of Te-gou-sie-wabie.

While I have nothing but good to say of the scenery, I cannot say much in favor of the fishing. John had a yarn to spin about the vast quantities of huge trout that are in this lake, but although I fished industriously with fly, bait and troll, I did not catch one, and I noticed later at the old Indian camping place, near the portage which leads out of the lake, that the only bones and scales lying about were those of doré, so that I think we may look with some suspicion upon John's yarn. Mind you, John did not say that he had himself caught any; all his own information was second-hand from another Indian. I believe that other Indian handled the truth carelessly.

Next morning something prompted me to get up very early, and it was grey dawn when I put my head out of the tent door to take a look around. I saw a very pretty sight. There were seven foxes sitting on their hams about eighty yards off gazing

fixedly at the camp. Presently the whole seven drew together—there was an old dog fox, the vixen and five cubs—and when I fired into the bunch they all sprang into the bushes and disappeared, so I thought another miss had been scored. But after breakfast I strolled down to the sandy little bay, where they had been sitting, and on looking carefully saw a drop or two of blood. A short search showed the vixen lying dead.

There are many islands on the lake, and as we could not see the northern extremity from where we were, I decided to leave the camp standing and explore it. We were away by seven o'clock, and did not return until half-past eleven that night. It was six miles from our camping place at the Narrows to the

tracks of moose, caribou, deer and bear, and they have evidently been little hunted. They are hunted occasionally, however, and unfortunately the head of the lake has been visited a week or so before my arrival by Jean Baptiste No and his numerous progeny, so that, though we saw many moderately fresh tracks, we did not see the animals themselves, and it is our common belief, that is to say, that it is the conviction of myself, and of John, and of John's little son, that the flesh of those moose was converted into provender for the use of the said Jean Baptiste No and the issue of his loins, and that the hides of the defunct animals are probably by this time made into *babiche*.



READY TO EMBARK.

This snapshot was taken at the foot of one of the rapids on the main White River between the mouths of the North and N.E. branches. The canoe shown in the foreground is a good specimen of the birchbark as made by the Temiskaming Indians.

head of the lake, and a very pretty paddle it was too; the water clear, the sun hot, and the scenery beyond description. I should have to live far beyond the allotted span of man's life ere I could forget the delicious sweep of those blue hills, which are really and truly the boundary between the Arctic slope and the basin of the St. Lawrence—for Chiminis is at the apex. Along the eastern shore of the lake a bold ridge runs almost north and south, its western front sufficiently abrupt, its eastern flank dipping at the same angle as the strata of which it is composed. Then the charm of this region is emphasized by the fact that there are no *men* in it; here you have nature unspoilt and uncontaminated. On either hand were the fresh

I shall have a good deal to say about Jean Baptist. No, but I will defer the saying of it until we meet him, as we shall do further on in this narrative.

We arrived at the head of the lake for luncheon; and after having eaten we ascended a crooked, sluggish, dead water for several miles, until at last it terminated in a beaver meadow, which John said was the height of land. Then, as we were not bound for the North Pole, we homeward turned and arrived at the mouth of the dead water just as the sun was sinking, or rather apparently sinking, in the north-west. Of course we boiled the kettle once more, but could not leave well enough alone, and so instead of paddling to camp like sensible men, we

must needs wait for the dark and then prowl around trying to flashlight a non-existent moose. It was almost ten o'clock when we gave it up, and although all hands were dead beat we managed to make that old canoe go faster than I ever saw a canoe go before. It takes some hard shoving to make a birch-bark cover four miles in the hour in slack water, and when you are able to do it as a finish up after twelve hours of previous hard work, you may congratulate yourself upon being in fairly good trim.

I had now spent as long a time as I could spare on the north lake, but there yet remained the southern sheet. So we passed through the Narrows, and by a large number of quartz veins, most of which seemed to have been staked by the ubiquitous William Judge, before mentioned—though not legally so, I fancy—until at length we arrived at a small rocky point which we scented from afar off. It was evidently an old Indian camping ground, and as it did not seem to be honoured by a name, I ventured to call it Stinking Fish Point, feeling sure that the tribute was not undeserved. Jean Baptiste had camped here on his way through to the North branch, and had left behind some doré which had not improved with age. However, trilles like this have little effect upon the wilderness traveller. Seated six or seven feet to leeward of an ancient and decayed doré, he can yet enjoy the bright sunshine, and the glorious scenery, almost as much as if the fish were not there.

TO BE CONTINUED.



EXPLORATION IN NORTH-WESTERN CANADA.

By H. G. Tyrrell C.E.

(Continued from the December Issue.)

Beyond Barre Creek we crossed an almost level plain, not a hill of any kind being seen to relieve the monotony of the landscape. As far as could be seen in all directions was nothing but the level prairie, and at this season of the year the grass was very short and poor, in many places being killed out entirely, and the surface covered with clay and boulders. In the morning, after a frosty night, thick mist was found lying over the prairie so it was difficult to keep a straight course, but after travelling a few miles this would clear away. A fine herd of antelope was seen in this vicinity but to get much closer than a telescope shot was very difficult. Some of the more venturesome members of our party followed them on horseback trying to get within rifle shot, but the antelope were found to be very wary indeed, and excepting at long range could not be approached. There had, however, been some hunters in this vicinity not long before for we found remains of several antelope, including a pair of fine horns, which were brought home with us. I was informed afterwards by an expert that why men did not often chase the antelope, was probably for the same reason that they do not chase coyotes. I have several times heard a coyote described as a streak of red across the prairie, and whoever attempts to chase one will find the description about correct.

On reaching the Sand Hills we discovered a pass through them about one hundred and twenty feet deep, followed by a gentle slope. This descended another hundred feet or so, down to Egg Lake, which contained clear water though a little saane in taste. It appeared to be the best in the vicinity, so it was used to make some tea. We again climbed the sloping hill and passing over another ridge came down to the creek on the other side, where good water was found in all sloughs. Provisions were very low and in fact nearly exhausted. Two of

the men were sent out early in the day to hunt for game and came in with six ducks, which were used for breakfast.

On the morning of September 2nd we left our camping place in the coulee and crossed the undulating prairie to the bank of the Red Deer River. On descending this we found the water to be very high and the ford washed away, so we set out to look for another crossing, but after a search of an hour or two returned and decided to launch our little canoe and in it cross all the supplies and camp equipment. Mounting our horses we swam them across, and as it was now evening and nearly dark we camped for the night on the west side of the river. Our provisions had now entirely given out with the exception of one piece of salt pork and a half a pound of tea. Here a herd of fifteen antelope in the valley and a bear or two ran by us in the bushes but none of these were we able to shoot. On the following morning the wheels were taken off the cart, the body of which was floated over, drifting all the while down stream. The wheels had been loaded on the top of the cart and the whole was then towed up stream with ropes to the landing place. The wagon, too, was brought across in a similar manner and then our baggage ferried over in the little canvas boat, taking only a few hundred pounds at once. With the older horses we had no trouble, but two of our younger ones for a long time refused to swim the current. It was decided that two riders should mount the other horses and, tying a rope around the neck of the young beasts, to urge them in this way into the stream. It required considerable coaxing and beating to make them enter, but they were finally all safely across, and the wagon loaded on the other side. This crossing is the one made several years ago by the Marquis of Lorne when travelling on horseback with his party. There had evidently been a camping place made by them, at this crossing for a number of interesting relics were seen, such as bottles, cans, playing cards and other articles that seemed to indicate no great privation. Living as we were on nothing but one piece of salt pork, we could not help wishing for a little of the luxury that had preceded us in the other party.

It required fourteen trips of our little canoe to take all the baggage over. The wagon box and cart drifted at least a quarter of a mile down stream, and landed at a place where it could not possibly be taken up the bank, so it was necessary to tow it back again to the landing place. The valley was quite deep at this crossing, and it required a big effort on the part of our tired horses to haul the loads up the steep hill. In all such efforts as this, where an extra pull on the wagon was required, the service of old Pinto was of great value. We were inclined at first to consider him balky, for when hitched in the regular way ahead of the team he would refuse to pull. Coaxing and whipping had no effect for he would walk ahead of the team, but to pull he would not. On this account for several weeks he escaped this duty, but thanks to a band of Indians who chanced along one day, we discovered the horse's secret. He had been used to pulling, not by the collar and traces like other horses, but only by his tail, so whenever occasion arose requiring the service of a third horse at the wagon, such as at this crossing of the Red Deer River, where heavy loads must be hauled up the hillside, big Pinto was securely tied by the tail to the end of the wagon pole and up the hill he would go pulling at his very best. At first the suggestions of the Indians was considered as a joke, but when tried we found it to be actually the case, that the horse preferred to work in that way, and indeed would pull in no other. As he was our best saddle

horse it was very seldom that such duties were required, but when wanted he was always ready to pull in his own fashion.

September 5th brought us bad news. Two only of our horses, out of seven, could be found. The other five were nowhere to be seen. After an hour's search before breakfast, Maloney came in, having seen no trace of them, and after breakfast three more of the party went out to look, but came in at noon having seen nothing of them. In the afternoon we secured the service of an Indian from the Blackfoot camp to help in the search, which continued all through the following day. At ten next morning an Indian boy came in saying that he had seen our horses and would bring them to us for the sum of two dollars. This we paid him but saw nothing more of the Indian. Meanwhile we rode around the country as much as possible with the two tired horses that remained. The third day came and still they were not found, neither the Indian nor the horses putting in an appearance. Riding over to the Indian agency we secured the services of Crowfoot's son. At that time Crowfoot was the Chief of the Blackfoot Indians, and was a man very much feared and respected by his tribe. Though we could not converse in the Blackfoot language, this Indian signified to us by motions that he could find our horses provided he was paid enough. We offered him the sum of ten dollars and he at once started out to search for them. Coming back later he said the amount offered was not sufficient, that he should be unable to find the horses for ten dollars. We then doubled the amount, making it twenty dollars, and about seven o'clock in the evening, while we were at supper, he came riding into camp with our five horses. The Indians had doubtless had them hid waiting a sufficiently large offer for their return.

While camped in the vicinity of the Blackfoot reservation I had some amusement with the Indians. One old chap seeing a long barrel Merwin and Hurlburt's revolver in our tent was anxious to match me shooting. A can was put up at fifty paces, and old Jack was given a chance to show what he could do. To the surprise of all our party we found the old Indian a much better shot with the revolver than we were, as he was able to mark the centre of the can at nearly every shot. An Indian boy, too, that came with him asked to try his hand, and proved to be nearly the equal of the old man. The efforts of the Blackfoot Indian to make us understand by signs was very interesting. He told me by signs that he had been up Crowfoot Creek way towards Red Deer River. He had shot an antelope which was hanging on his saddle. He said that when the sun was low he slept and when it appeared again in the east he was off again.

Another day's ride on my favorite saddle horse brought us to the valley of the Bow near Gilchen station, on the Canadian Pacific Railroad. While conversing here with an employee of the railroad company, I was informed that a cousin of mine from Toronto had passed through there a few days before with Major-General Middleton. This officer was then in command of the volunteer regiments that had all summer been fighting the Indians in their effort to subdue the Riel rebellion. I could not help regretting that I had missed seeing this relation, for old acquaintances are very cordially greeted in a frontier country.

An amusing incident occurred here with an old Indian and his squaw, who had been following our outfit all day. They were entirely without provisions and were expecting to live on our generosity. On reaching our camp that night the Indians came to our waggons and unsaddled their horses and let them

run, they themselves sitting behind our waggons waiting for their supper. It is their custom to receive all that is given them, without any expression of thanks or gratitude whatever. But the unfortunate Indians certainly had many grievances. Whether or not they had enough to provoke them to open rebellion of 1885 the writer will not discuss here. One incident, however, may be mentioned. The government had established Indian agencies throughout the west for the purpose of distributing to the natives a regular supply of flour and other rations. It was the custom of these dishonest agents to receive money from the government sufficient to procure good food, and to spend this on the poorest kind that could be had in the way of making larger profit for themselves. On one occasion the Indians showed me a sample of the flour given them, and pointing to my camp fire gave me to understand by signs that the flour resembled and perhaps contained wood ashes. In any case it was entirely unfit for use.

When on the home stretch for Calgary our intelligent horses seemed to understand the situation, and were anxious to race with each other. Hamilton and I were riding the freshest horses, and as they would come abreast, immediately there would be a race. It was difficult to hold them in, so eager they seemed to get back again to stable food.

On the morning of September 16th, on riding to the summit of a little hill, before us in the valley of the Bow lay the little town of Calgary. Only those who have experienced it know how enjoyable it is after weeks of hardships to return again to the comforts and luxuries of civilization. Many, unfortunately, indulge themselves too freely so that the frontier towns are often the scenes of much lawlessness and crime. This, however, is overcome to some extent in the Canadian west by strict prohibition laws which forbid the sale or importation of liquors into the country, except on special permits.

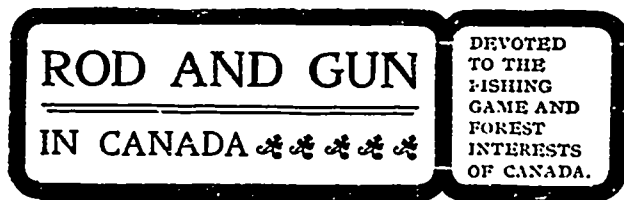
Two days were spent in preparation for our journey. Since leaving the railway I had travelled a distance of fifteen hundred miles on horseback and in canoe.

THE END.

An unfortunate and misguided whale found its way up the St. Lawrence into the harbor of Montreal a short time ago. It showed a great lack of common sense as, notwithstanding that hundreds of sportsmen (?) made a target of it, it refused to go away, and for several days its movements were chronicled by the daily press with great minuteness. One fine morning it floated ashore at Longueuil and became the lawful prize of a man who had got up early to shoot ducks. It is said that he made \$800 by the capture, and, if this be true, those who compile books for the edification of the young should make a note of it, because we recall no more impressive instance of the advantages attendant on a habit of early rising than this.

*

A new and very charming canoe route is said to have been discovered between Lake Temagaming and the Montreal River at Bay Lake. This route is, of course, not a new one as far as the Indians are concerned, but few, if any, white men seem to have travelled by it. The route passes up the N.E. arm of Temagaming, and then into Caribou and Net Lakes. From the latter sheet the voyageur proceeds due north through a watery chain, finally emerging at the foot of Bay Lake. While nothing could be more beautiful than a trip down the Metabetchuan River, it is quite probable that this new route will be far better for game and fish. There are said to be speckled trout in some of the lakes passed through.



PUBLISHED MONTHLY

SUBSCRIPTION RATES:

ONE YEAR, - - - - -	ONE DOLLAR.
SIX MONTHS, - - - - -	FIFTY CENTS.

PAYABLE IN ADVANCE.

ADVERTISING RATES:

TWO DOLLARS PER INCH PER ISSUE.
A discount of 15 per cent. on annual contracts.

Communications on all topics pertaining to fishing, shooting, canoeing, the kennel and amateur photography, will be welcomed and published, if satisfactory. All communications must be accompanied by the name of the writer, not necessarily for publication, however.

ROD AND GUN IN CANADA does not assume any responsibility for, or necessarily endorse, any views expressed by contributors in these columns. All communications should be addressed to:

ROD AND GUN PUBLISHING CO., 603 Craig Street, MONTREAL.

Various estimates have been made as to the amount of money which, on the average, the visiting sportsman leaves in Canada. The problem is one that does not admit of a mathematical demonstration, and quite naturally different estimators vary widely in the totals they arrive at. We have always considered that, if the truth could be known, it would be found that the average was far higher than had ever been claimed by the most enthusiastic statistician.

We recently had an opportunity of questioning three sportsmen who had returned from shooting trips in the west. They had done everything *on principle*, and their expenses had naturally been much heavier than would ordinarily have been the case,—but the excesses of the amounts they spent over the figures usually quoted were quite startling. Each man had spent some \$1,800 in railway fares, provisions, horses, and labor, and although the disbursements of wealthy men are by no means a criterion of the necessary cost of a Canadian hunting trip, we feel tolerably certain that a great majority of our visitors spend larger sums than have been credited to them, and that few spend so little as the accepted average, which may be put roughly at \$100.

We think that this fresh instance of the generous expenditure by these gentlemen is a fresh instance in proof of the statement which has been made in these columns, that our game is one of the most valuable assets we have. Supposing that a murrain were to sweep away all our big game, none of these sportsmen would visit us, and the farmer, the ranchman, the trapper and the Indian would miss many a welcome bill which now finds its way into his hands. We must decide for ourselves whether we wish this golden stream to continue with an ever-growing volume, or whether we consider that as a nation we are so wealthy that we can afford to do without this source of income. As the great, prosperous republic at the south fills up with human beings, they will desire to make a playground of this Canada of ours, and if our forests, prairies and waters continue to yield such sport as they do to-day, we may be very sure that in comparison with the multitudes which will visit us, the two hundred thousand men who now resort to Maine each autumn will be a mustard seed to a pumpkin.

We desire to offer no excuse for reproducing this month, as a frontispiece, another of those lovely landscapes, which make

the Devil's River such a charming stream to follow. Few outsiders have visited it yet—and it has absolutely no residents along its shores, but the day is fast approaching when it will be better known.

Unlimited numbers of rabbit skins are to be obtained from Australia at a merely nominal price. Now the warmest fur that the Indian knows of is that of the rabbit, and a rabbit-skin blanket will keep a man warm even when camping out at 40 below zero. If some enterprising genius would merely introduce Australian rabbit-skin blankets, they should soon be in great demand in Canada, and it is quite possible that jackets of heavy canvas, or other wind-proof substance, and lined with rabbit-skin would fill a long felt want. Our own rabbits are not available in any great numbers, and the Indian method of making blankets—by weaving long strips into a coarse network does not meet with much favor—but a blanket lined with fur such as that of the rabbit would be a perfect godsend to the camper out.

A visit to the different markets and game dealers of Montreal during the spring and fall flights will often yield a rich reward to the naturalist. Some very rare birds may sometimes be picked up at a bargain.

We are happy to be able to announce that a bill is to be introduced next session to further protect the wood buffalo until January 1, 1906. Instructions have been issued by the Commissioner of the North West Mounted Police to police officers in the Territories, giving this information and instructing them to warn half-breeds and Indians that the wood buffalo must not be killed under any circumstances.

According to the latest reports received by the Commissioner of the North-West Mounted Police, there are certainly not more than 400 wood buffalo alive. Dr. McKay, who was in charge of the district in which these buffalo range, for ten years, is of the opinion that they do not exceed this number. Another estimate by a fur trader is 300 in all. A Mr. Emerson, who is well acquainted with the district, is inclined to believe there are not more than 150 animals.

That wonderfully interesting animal the white goat is to be known in future (until they change the name again) as *Oreamnos montanus*. For many years it has been *Mazama*; this name was given it by Gill. Other writers have called it *Heploceros*, Smith being the donor of this name. But Ord was the first to capture this queer-looking mountain animal, and he called it *Oreamnos*—so let it be.

In the far away lakes of British Columbia there is a so-called land-locked salmon which differs, of course, from the land-locked salmon we know in the east. It bears, however, the same relation to the sock-eye as our fish does to the salar. The fish in question is a small, red-fleshed salmon, and it exists in great abundance in Shawnigan Lake, B.C., as well as in Seton and Anderson lakes in the State of Washington. The habits of these fish have been investigated by ichthyologists connected with the Smithsonian Institute. They say in their report, that, although this small salmon has free access to the Columbia River, and, consequently, to the sea, yet that it never leaves the lakes in which it is found.

The fish is abundant in the lakes discharging into the Stikine and Skeena rivers, although they are seldom seen excepting during the month of October.

CONTENTS

	PAGE
Frontispiece—	
A Trip to Matachuan	1-5
Exploration to the Height of Land.	5-8
Exploration in Northwestern Canada.....	8-9
Editorial.....	10
Canadian Horses in Foreign Markets	11
Photography.....	13-14
The Kennel	15
Forestry	16-20

CANADIAN HORSES IN FOREIGN MARKETS.

C. J. Alloway, V.S.

In the year 1900 there was much written concerning the kind of animal that was most desirable for war purposes, and even during the current year a deal has been said on this subject. A recent London correspondent of the Montreal Herald made the statement that:—

"Canada has temporarily lost the footing she once held in the British markets,"—thus intimating that at the present time horses that are being shipped to England are of a low grade, and inferior in many ways to the animal of twenty years ago. This may be true in so far as the products are concerned that have in the past two years been sent to the English and South African markets, but it is not the case if the exports are taken as a whole.

A quarter of a century ago Canada produced and shipped many remarkably fine animals, and such as would reflect credit upon the district producing them, even if shown in the best hunting shires of Britain, but it must not be forgotten that conditions have materially changed, and that a comparison cannot be made without a full comprehension of the situation at the present time.

As a matter of fact, and the assertion can undoubtedly be verified, there are ten horses of a high order produced in the Dominion to-day to the one that there was at the period referred to. There was then but a limited demand for the higher type of the horse in European countries, and there was none or very little enquiry for such from the neighboring republic.

What are the conditions to-day?

With the innumerable packs of hounds now existing in the New England and Middle States, as well as in Virginia, Maryland and Kentucky,—with horse shows in almost every prominent city, and the keen emulation for quality which such public tests have awakened, together with the increased interest in riding, polo and fox-hunting, tandem and four-in-hand clubs, a revived and developing interest is apparent. This state of affairs, and the large sums devoted to the opening of speedways in New York and other metropolitan centres, have conduced to create a demand for higher qualities in horseflesh than were required twenty-five years ago.

To a large extent the Ontario farmers, particularly in sections contiguous to Toronto, have always been alive to the importance of breeding the best, and have in consequence kept fairly abreast of the times, but the unexpected demand for horses of all kinds, which has been created during the past two years, has of necessity drained the country of many of the choicest animals. It must also be remembered that the "tops" are seldom purchased for exportation. The market for high-

priced animals, more particularly those adapted for steeple-chasing, cross-country work and high-steppers, is to a large extent in the neighboring States. With the demand for these better classes in New York, Boston, Chic. go, Buffalo, and other large American cities, prices have so rapidly advanced in recent years as to make it almost impossible for Canadians themselves to get what they require for their own hunting and amusement. As an illustration of this it may be cited that good animals in the larger Canadian cities have nearly doubled in price during the past five years. All this means revenue to the agricultural classes, and the intelligent breeder should take advantage of these promising conditions and breed the animal that is most marketable and that will bring in the best returns. It is to be regretted that our Quebec farmers have not awakened to the situation and its possibilities, which they should be ready to take advantage of, and that with the least possible delay, for there can be no reasonable doubt that this demand for good horses will reach still greater proportions in the near future.

The phenomenal prosperity and increasing wealth of all the provinces of the Dominion and the United States point to this culmination, and those who do not look seriously at what should be patent to every Canadian live stock grower will be the ultimate losers.

As before stated, Western Ontario has for many years held pre-eminence in the production of the best thorough and half-bred stock in the country, and this is accounted for by their wisdom in using the very best thorough-bred sires procurable, and there is no good reason why the Province of Quebec should lie dormant in this matter any longer. For almost any purpose, well-selected, thorough-bred stallions with bone, substance and action, are the animals which should be used in this province. The American standard-bred trotter also produces an excellent cross with our Canadian mares, more especially when the object sought is action and endurance in our carriage and driving classes.

During the closing years of the century it was repeatedly asserted that the use of the bicycle, automobile and various electric contrivances would result in what was poetically termed the "Passing of the Horse," and with present facts in mind it is not necessary to attempt to prove how unfounded was the fallacy. As a matter of fact, the partial obliteration of the horse-car and temporary popularity of the wheel have only resulted in a reaction which places the horse in a better position and makes him more sought after than he has ever been in the history of the world.

A greater number of people ride and drive to-day than ever before, and more people hunt and play polo than at any previous period. Another notable fact proved by the war in South Africa is, that a soldier unmounted is almost as useless in modern warfare as would be one of the old flintlocks of our grandfathers' day.

The cry now is for mounted regiments to do effective work, or none at all. As an evidence of the truth of this the British government has recently scoured both hemispheres for the proper kind of mounts, and the statement is in every paper and periodical that the supply is in no way commensurate with the demand.

Our butter, cheese and grain industries have increased marvellously, so let us see to it that our live stock, and especially our horses, hold a position in the English markets second to none. To secure this end, buy the best, breed the best, and secure the highest possible prices, should be the watchword of the up-to-date Canadian husbandman.

CORRESPONDENCE.

Editor ROD AND GUN,

I quite agree with Anglo-Saxon's views, in your October issue, regarding reduction in weight of outfit, and, to my mind, there is no way in which you can sooner convince yourself how necessary is the minimum—consistent with reasonable comfort—than by assisting personally in portaging. On my present trip I have travelled twice each way over all portages loaded with as much as I cared to carry—50 to 65 pounds—and one portage was 1½ miles through swamp. On my back was an additional rifle, which I was foolish enough to bring along, also a shotgun which I have never used, (my chum attending to that end of the business,) and also the pails, pots, knives and forks, which are at least ten pounds heavier than needful. While I was laboring and perspiring through that swamp, knowing that 25 pounds of unnecessary stuff was on my back, I vowed a vow that hereafter there will be a severe cutting down of weight.

It seems strange that those who have written about light outfits have not spoken of the weight which can be saved by using waterproof silk, or cotton, tents. One ordinary 8 oz. duck, or even a light drill when thoroughly wet, holds many pounds of water. If there are two hunters and two guides, there will be one tent for the hunters and another for the guides, and the weight of those two tents when wet and soggy is very great. Two light, waterproof tents, while expensive, are really so light and non-absorbent, that the difference is probably 50 pounds in water and material. If the trip involves a different camp site each night, lightness of material will assist greatly in quick travelling.

I am writing this while in camp. We have to move tomorrow towards home. It is 4 p.m., and the rain has fallen unceasingly since 7 o'clock last night, and the prospect is not pleasing, but thank fortune that 1½ mile portage through the swamp was done yesterday, with fairly dry tents, and the five portages to be made to-morrow are not too bad.

Why do not the manufacturers of rifle and shotgun cases put on the market an article made of oil tanned leather, or something as light, which will shed water? The neat, slick looking leather, or canvas, case is for show, and so long as it has to travel in fine weather, or stay under cover, it is a thing of beauty, but for practical use in protecting the shooting iron from rain and damp its usefulness is very little. I had one of the "slick" leather variety two weeks ago, and it, with my Winchester in it, looked quite cute. On a certain morning, desiring to assist at the funeral obsequies of a large bull moose killed the evening previous, I took my rifle along for company, and, thinking there might be rain, the case came along outside the 30-30. There was wet by bucketfuls within a short time and no place to protect anything, so the case lay there and absorbed water until it had taken all it would hold. The rain continued all day and night, and more or less the next day, and the two days following were snowy and wet. Then, we adjourned from our tents to an old lumber camp some miles away that we knew of and proceeded to get that case, and our clothes, and some other things dry. A good fire and persistence accomplished the job. That settled the matter for me. I used about a quarter pint of neatsfoot oil on the rifle case, and now it will shed water like an oil tanned moccasin. A thick canvas case could not have absorbed more water and would have dried out faster.

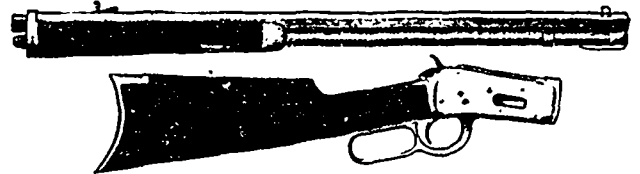
Case makers, it is up to you to help us out.

In Camp, Kippewa, Que.

MONTREAL.

A NEW WINCHESTER CARTRIDGE.

Not content with its present magnificent line of rifles, including such thoroughly up-to-date weapons as the .30 U.S. Army, the 30-30 and the .238, all built for smokeless powder cartridges, the Winchester Repeating Arms Company, of New Haven, Conn., now offers a .32 which is expected to fill the gap between the powerful .30 U.S. Army and the 30-30, and to offer the



THE NEW TAKE-DOWN .32 CALIBRE WINCHESTER SPECIAL RIFLE

additional advantage of a special cartridge which may be re-loaded with black powder. The description of the cartridge is as follows: Loaded with smokeless powder and a 165-grain bullet, it has a muzzle velocity of 2057 ft. sec., generating a muzzle energy of 1150 ft. lb. At the standard testing distance of 15 feet from the muzzle of the rifle, this cartridge, with a full metal-patched bullet, will give a penetration of 37 ½ inch pine boards. Its trajectory is—100 yards, 1.23 inches; 200 yards, 5.92 inches; 300 yards, 16.38 inches. From these figures it will be readily seen that the advantages of this cartridge are its great striking energy, penetration, high velocity and consequent flat trajectory. Next to the .30 U.S. Army and .303 British, it is the most powerful small bore cartridge of to-day. With a



CARTRIDGE FOR THE .32 WINCHESTER SPECIAL.

charge of 40 grains of black powder, the .32 Special develops a velocity of 1385 ft. sec., which makes it a powerful black powder cartridge.

The Winchester Repeating Arms Company has adapted the model '94 rifle to handle this special cartridge, but will furnish it only in [take-down style, with a 26-inch octagon, nickel-steel barrel, the list price being \$28. Rifles for the .32 Winchester special cartridge are fitted with a novel rear sight, which is graduated for both smokeless and black powder cartridges.

*

A very rare animal recently passed through Montreal on its way to the Sportsmen's Exhibition in Philadelphia. It was a silver-grey fox in excellent condition, and apparently destined to enjoy a long life in captivity—if captive animals may be said to enjoy life. The fox was captured on the south side of the St. Lawrence, within a few miles of Quebec city. It is valued at \$200.

*

A terrible destruction of caribou seems to be going on in Newfoundland. If it be true that hundreds of carcasses are at this moment rotting on the barrens, where they were shot for the mere lust of killing, then the people of Newfoundland would do well to see to it that the practice were stopped; otherwise, when it is too late they will be filled with unavailing regret. In their magnificent herds of caribou the colonists have undoubtedly their most valuable asset, with the exceptions of their cod fishery and sealing catch, but if half the tales be true a very few years will result in the practical extinction of the Newfoundland caribou, [should present practices continue.

AMATEUR PHOTOGRAPHY

Conducted by Hubert McBean Johnstone

THE FOREGROUND IN WINTER PHOTOGRAMS.

As the title of this article would imply, it is the intention herein to treat of that part of the landscape which is nearest the camera, dealing with it under the aspect it presents when the snow covers the ground. In ninety-nine out of every

hundred landscape photograms, whether they be made in winter or in summer, the foreground is the principal part, and middle and backgrounds are subordinate to it and act rather in the capacity of a back setting. If the scene be one of action and life and figures, the figures naturally fall in the foreground; if it be one of nature alone, on the foreground—perhaps assisted by the middle distance—must we rely for our interest. And if the background does have to be made of more importance, the foreground must usually be additionally thought of in order that the balance may be preserved. If a picture be strong it is in the foreground that we look to find the cause of its strength; if it be weak it is here we look to discover its weak points.

More particularly is all this so in the case of a winter photogram. During the summer when Dame Nature presents



READY FOR THE PORTAGE.

Haileybury, Ont., is "the jumping off place" for the Tamagaming chain. The above photograph was taken as a party of American sportsmen were about to begin the portage to Sharp Lake, where the canoes are launched for a 200-mile paddle.

in her garb hundreds of different tones and half-tones for the dry plate to take hold and work on, there is but little difficulty experienced in accentuating those parts which it is desired to make strong. Even the blue haze which hangs in the air is of inestimable assistance in the securing of aerial perspective. But in winter it is all changed. The haze is gone, and there is almost no such thing as aerial perspective. The hundred and one little objects, grass, vines, logs and what not, on which we have been wont to rely on as space fillers for the front of the picture, are lost and gone, swallowed up in the mass of powdery

drifting white that covers everything. Those delicate little half-tones that snuggled in on the side of every little grass-covered hillock and gave us such delicate tonal values have disappeared. True enough, in their place we have a few set of tonal values in the snow, but these are vastly different, and, except in the hands of one who has made the matter a study, almost impossible of reproduction. Each rift and hollow is more or less marked, each wave of fleecy white has its own light and dark parts. But how delicate. Are they ever reproduced the way they should be? It is almost necessary to look

to other things to insure a good foreground in a winter landscape.

In snow work you will always find that a small bit will prove superior as far as picture-making qualities are concerned, to an attempt to embrace a large portion of country. A twining vine, a half-buried fence, a snow-roofed cottage or anything else where the subject is all in the foreground, is what you want to work on. One of the most striking winter landscapes that I ever saw was made by Rudolf Eikemeyer, in just such a way. The scene, to look at the picture, appeared to be of a vast tract of land, embraced a country road and several barns, as well as a number of large trees. Come to find out about it, the whole spot included only a few hundred square yards; the "country road" had been made by the simple expedient of trotting up and down in the snow a couple of times and kicking it well up; the thatched barns were wee hillocks that showed black against their white background where the icy blasts of winter had swept them bare; the trees that over-hung the highway were nothing more than ordinary bushes in the foreground and big tufts of grass a little farther back. And yet it all made a perfect picture and one that would deceive almost anyone who had not been told how it was made. There was another touch employed in this particular photogram that is worth noting in the depicting of foregrounds. The exposure was made when the sun was low in the heavens, and not only did the long shadows of the bush at the right add materially to the effectiveness, but each lump of snow in the pathway, each hollow in the footprints, even each blade of grass cast its own mark on the dazzling white landscape, most effectually breaking its monotony. Had the sun been directly overhead this would not have been possible, and one of the most striking features would have been lost.

It can hardly be said, however, that there is anything new about this using of shadows in a snow scene. One of G. E. Vallean's photograms, "Where the Shadows are Long," has been made in just this way. It is a picture of a tall pine that leans forward out of a bank by the roadside and throws a vague, black, weird shadow in irregular patches over the frozen surface of the snow. The title is most appropriately chosen, for there is nothing else to the picture. In fact, there is not intended to be. It is simply a picture of a shadow, though the artist has, probably without intending it, made a striking example of one class of foreground work. Again in his photogram, "Winter," J. H. Field uses the same method of working when the sun is near the horizon. The scene is a typical country one. It is from way back on the fields on a farm, looking up toward the rear of the house and barns. The foreground is broken by a few tracks in the snow and a deeply cut road such as one would naturally expect to find in such a spot. Long straggling country fences break up the distance. By having the sun low, emphasis has been given to this road and these foot marks in the foreground, and enough strength and vigour made to associate with it to make it stand out bold and clear against the exceptionally strong background.

Another subtle touch has been used in this picture, which in summer photography has absolutely nothing to do with the foreground but which, in winter, possesses a very important bearing on the result. The sky is filled with a mass of dark gray clouds. The average photographer takes his pictures of winter scenes with a clear sky and when the sun is shining, trusting to obtain relief from the shadows. If the exposure be made when the heavens are overcast with dark clouds, each rift and hollow will be more conspicuously marked and all the

depths and drifts more apparent to the observer. When, as in this case, the photographer is fortunate enough to hit on a day on which the sun is shining behind and the sky is dark in front, what an opportunity there exists for good work.

But let us pass to another style of winter photography and another method of accentuating the foreground. This time at the expense of the middle and far distance. It is somewhat along the line of aerial perspective. But aerial perspective plays after all a very unimportant part in summer work, *i. e.*, relatively speaking, of course—while in winter photography the class of work to which it is intended to refer here is very important. I am speaking now of pictures that are made when snow-storms are in progress, so that the background is shaded off in a misty veil, leaving the foreground standing out against it, so strong and so bold and yet without any harshness of outline. Perhaps it will be better understood just what is meant if an instance be given. T. F. Brogden's "Snowstorm" is an excellent example. I suppose that no picture ever was composed of just so much of the utterly commonplace, and yet owing to the peculiar way in which it was handled, made so good a picture. The picture is of an omnibus standing in the foreground with two poor miserable horses shivering in the cold. Diagonally across one corner runs a sidewalk, half buried in the snow. On the side is a row of dreary suburban villas. But all these things are mere accessories. The real making of the picture is the fact that there was a snowstorm when the exposure was made, and the consequences are that all these so common things of every day life are vested with a strange sort of beauty. True, the beauty is not their own, but is lent to them for the time being by the snow. The receding side street dissolves into nothingness and affords the perfect gradation that makes the picture. The background is composed of snow, nothing but snow. The foreground is the picture. As an example it is excellent. Another picture of somewhat the same type and equally good for the purpose of illustration, except that it is not so much of a landscape pure and simple, is that well known production of Prescott Adamson's, "Mid Steam and Smoke." Comment on it is almost unnecessary. This is the picture of the exterior of a busy mill surrounded by quantities of steam and smoke and snow. Though the material was unpromising, the artist has made an excellent thing out of it. Just one more example of this. Wm. S. Meyer's "Winter" is along the same lines. It is simply a photogram of a street; snow piled deep on the roofs and distance enveloped in a mass of blinding, drifting snow; foreground much cut up with wagon tracks. A very pretty thing indeed. There is probably no means of giving emphasis to the foreground, that will so effectually do it and at the same time shade off the background and with all that may be objectionable, as that little scheme of making the exposure in a snow-storm.

But why go on to tell of all the varying methods that may be employed to give interest to the foreground and cause it to catch and hold the interest that winter pictures demand. I want to impress upon you more the necessity of making the foreground amount to something, make it a living, breathing part of the picture, a something that one cannot get past without noticing, than to waste time and space telling you how to do these things. I have herein hinted at a few of the ways in which well-known photographers do it under various circumstances, and given you a hint or two if you only take it up. It must remain with yourselves whether or no you take advantage of it and study the question of foregrounds for yourselves. One thing you must grasp if you intend to photograph winter landscapes satisfactorily, and that is that there is no more important part than the one with which this article deals.

KENNEL DEPARTMENT

Conducted by D. Taylor

Montreal Canine Association.

At the last regular meeting of this Association, held Dec. 5th, in the library of the Natural History Rooms, there were several matters of importance under discussion. The new president, Mr. D. W. Ogilvie, occupied the chair for the first time, and acquitted himself like a veteran in the art of conducting a public meeting, especially towards the close, when some of the members showed a tendency to become inquisitive as to the financial position of the association, and they were diplomatically referred to the report which had been read at the annual meeting.

An interesting talk took place on the advisability of co-operating with the Society for the Prevention of Cruelty to Animals in regard to founding a dogs' home, and also to take joint action in urging upon the City Council to institute a system of rounding up and destroying all unclaimed dogs. The large number of stray animals in this city has become an unmitigated nuisance, as well as a source of danger to children, and it was also pointed out that these nomads were the principal medium by which communicable diseases were conveyed to household pets and other valuable dogs. It was finally left in the hands of the president to name a committee to confer with the executive of the S. P. C. A. in regard to both matters.

Two notices of motion were given to change the constitution and by-laws, the object being in both cases to increase the funds of the association. One seeks to provide for associate members with limited privileges at a small annual fee, the other to levy an annual subscription from the shareholders, failing payment of which, within a given period, their privileges may be forfeited. The matter will be dealt with at the January meeting.

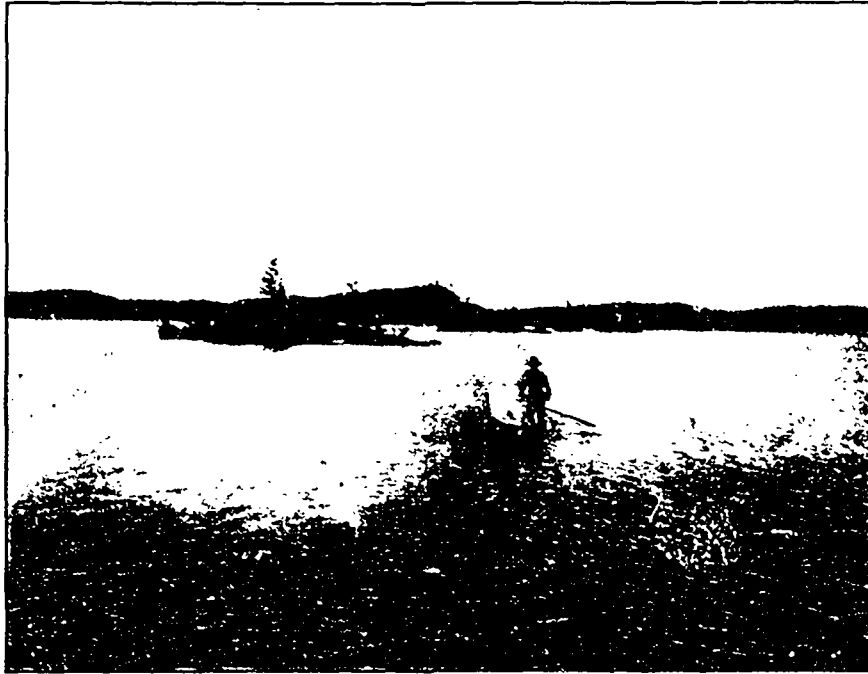
The next business taken up was a show in the early spring of 1902, and the matter was threshed out at some length.

However, no decision was arrived at, it being the sense of the meeting that a definite decision should be delayed until after the vote on the proposed amendments.

How to provide entertainment and instruction for future meetings was the next question. It was felt by those present that lectures by canine experts on different breeds, open to the public, would make profitable and attractive entertainment for the winter months. The names of several prominent gentlemen were suggested, and finally the matter was left in the hands of the executive, with a request to take immediate action.

The settlement of this matter included the business, and the meeting adjourned with a vote of thanks to the chairman.

At a subsequent meeting of the executive, W. J. Innes, Canada Life Building, was appointed to the vacant secretaryship at an annual salary.



MUDDY WATER BAY, LAKE TEMAGAMING.

This magnificent bay deserves a more poetical name. It is only "muddy" by comparison with the remainder of Temagaming, which is as clear as crystal. There is excellent fishing for small-mouthed black bass around the shores of the islets shown in the cut.

Mr. Joseph Laurin is to be congratulated on the honor conferred upon him by the South of England Airedale Terrier Club, one of the leading canine clubs of England. He has just received official notification of his appointment to their list of judges, a compliment which is as well merited as it will be popular, on this side of the water at least, where his famous kennel of Airedales has carried off so many blue ribbons at the principal shows.

*

The feature of the month was the show in New York, under the auspices of the Ladies' Kennel Club, held December 17, 18, 19 and 20. Apart from the Westminster Kennel Club's show, it was the largest ever held in America, there being 1,148 dogs benched, making 1,625 entries. Every breed of dog was well represented, and with two or three exceptions there were no walk-overs. Boston terriers were in the front rank with 147, followed by fox terriers with 129, bulldogs 96, cocker spaniels 88, toy spaniels 87, beagles 85, bull terriers 68, St. Bernards 62, Scottish terriers 58, collies 43, Airedale terriers 36. There was a falling off in many breeds which were formerly strong favorites and a marked favor shown to others which lately have been in the background, notably in the case of the "Scotty." Airedales seem also to be getting quite popular. The conduct of the show reflected the highest credit on the ladies.

FORESTRY

"Rod and Gun" is the official organ of the Canadian Forestry Association. The Editors will welcome contributions on topics relating to Forestry.

Edited by the Officers of the Canadian Forestry Association.

MEASURING STANDING TIMBER.

A. Knachtel, Forester with the New York State Forest, Fish and Game Commission.

If all the trees of a forest had the same diameter, height, and form, the determination of the quantity of wood would present no difficulty. One would need only to count the trees, ascertain the volume of one tree, and multiply its contents by the total number of trees. Such stands, to be sure, one does not find in nature, but the trees of a timber forest are, after all, not so different from each other that a very exact measurement of each tree is necessary.

In very irregularly grown stands, the conditions are, of course, somewhat unfavorable, but even here special ascertainment of volume can be limited to only a few trees. In the greater number of cases it may be taken for granted that, in the same stand, trees of similar basal size do not differ very much in height and form, and therefore also in their volume. It is necessary then in such stands only to form classes of the same or nearly the same diameter in order to obtain trees of similar height and form. For every such class, representative trees can then be chosen and the cubic contents found, and from their contents the volume of the whole class can be calculated. In stands in which height and form cannot be considered a function of the basal size, it may be necessary to divide each diameter class into height classes.

DETERMINING THE NUMBER OF TREES AND THEIR BASAL AREAS.

All methods of ascertaining the volume of a stand by measuring depend upon a knowledge of the basal area. The determination of this is therefore the first and most important part of a volume survey. The basal area of a stand is the sum of the basal areas of the trees. To determine this, calipers are applied to the trees.

The trees are measured at breast height, generally four feet three inches. Measurement at the ground could only be made with difficulty, and, besides, the cross area there is very irregular on account of the manner in which the roots spread.

In measuring the trees, diameter classes are made, and sometimes height classes, especially where the trees of the same diameter differ much in height. In mixed stands, the species are recorded separately.

One or two men take the diameters and call them out, giving the species where several are present. A tally man keeps record of the measurements upon blanks suitably prepared for the purpose. A note-keeper can generally keep two men busy measuring, but in densely stocked young stands only one. In order to avoid measuring trees twice, or overlooking any trees, they may be marked by the caliper men

after the measurement has been taken. This can be done with an iron instrument or with a piece of chalk.

The work should proceed in strips, and on mountain slopes in a horizontal direction, in order that the breast-high measurement may be the mean between the heights on the mountain side and on the valley side. The strips should not be too wide. Thirty to forty feet for each caliper man is usually a convenient width. The tally-man goes ahead of the measurers, and, if there are two, he may mark the line between their strips by means of a strong cord fastened to his clothing. A cord, or chalk-line, as it is called, such as is used for laying shingles, would be found quite suitable. While running ahead the length of the string, one hundred feet, for instance, he follows a direction as indicated by a compass which he carries. While noting down the dimensions called out, he may give heed to the manner in which the calipers are placed upon the trees, and to the correction of any gross errors that may be made in reading off the diameters. This is advisable, however, only to a very limited extent, for the tally-man, diverted from his own work, easily forgets to note down the dimensions.

The United States Bureau of Forestry, in measuring this year the timber on townships 5, 6, and 41, Hamilton County, New York, employed parties of four men each—a tally-man, two caliper men, and a man who ran the compass line and made a general description of the territory gone over. Instead of the cord, a chain was used, and each caliper man measured a strip half a chain wide. The strips were run in the same general direction, a quarter of a mile apart. A separate tally was kept for each acre measured. That is, whenever the strips reached the length of ten chains a new tally was begun.

Large forests may, in order to facilitate measurement, be divided into smaller parts by lakes, rivers, roads, ditches, etc., that may be present. Each part can then be measured by itself.

In the measuring itself, due regard should be given to the following:—

1. Before the work begins, and while it continues, one should see to it that the movable arm of the calipers is not too loose.
2. The calipers should be placed on the tree at right angles.
3. If, at the place of measurement, there is an extraordinary thickening or other irregularity, the measurement should be taken higher or lower.
4. The dimensions should be read off while the arms of the calipers lie close against the tree, and at this moment the caliper man should step close up to the caliper bar.
5. The height at which it is decided that the measurements are to be taken must be held to strictly. It should be marked in some way on the clothing of the caliper man, by a button, for example. According to the investigations of Grundner, a German, a deviation of six inches higher or lower makes on the average a difference in the basal area of 1.05 per cent. When measurements are to be taken repeatedly, as, for example, in a standing experiment, a mark should be put upon the tree with a scratch-awl.
6. Ordinarily only one diameter measurement need be taken on each stem, but on stems which are very eccentric, two measurements may be taken crosswise, and a tally kept of the mean diameter.

The following tally blank is the one used by the New York State College of Forestry :

Station	MEASURING OF VOLUME.					Date	Measure.....	NUMBER OF TREES.	NUMBER OF LOGS. (14-T)	Saw Material.	Pure Wood.
	Diameter	Maple	Birch	Beech	Spruce						
	12										
	14										
	16										
	18										
	20										
	22										
	24										
	26										
	28										
	30										
	12										
	14										
	16										
	18										
	20										
	22										
	24										
	26										
	28										
	30										
EXETER	SIZES.										
FORM	FACT.										
VOLUME:	TIMBERWOOD:										

According to Hesz, one tally-man and two caliper men can measure 600 trees per hour, (maximum 971, minimum 422); according to Baur 765 trees, and in one day of ten hours about 7,000 trees. In the measuring done by the United States Bureau of Forestry in New York, twenty-five acres has been considered a fair day's work for a party of four men. A party can measure at the most about five acres per hour for four or five hours, or forty acres per day of ten hours.

FORMING OF SIZE CLASSES AND ROUNDING OFF THE DIAMETERS.

For scientific work, diameter classes of whole centimeters are allowed by the German Forestry Association. When the fraction amounts to .5 cm., an addition is made to the preceding class.

The United States Bureau of Forestry makes inch classes; the New York State College of Forestry, 2-inch classes, as will be seen by the blank given above. In our forests, 2-inch classes are allowable, especially for trees over nine inches in diameter, as will be seen by the following demonstration :-

Let C = half the range of the ten inch class.
Let D = the mean diameter of the class.
Then D + C = diameter of the largest tree.
And D - C = diameter of the smallest tree.

Diameter D gives area $\frac{\pi}{4} D^2$.

Maximum area = $\frac{\pi}{4} (D + C)^2 = \frac{\pi}{4} (D^2 + 2DC + C^2)$.

Minimum area = $\frac{\pi}{4} (D - C)^2 = \frac{\pi}{4} (D^2 - 2DC + C^2)$.

Mean area = $\frac{\pi}{4} \frac{(D^2 + 2DC + C^2) + (D^2 - 2DC + C^2)}{2}$

$\frac{\pi}{4} (D^2 + C^2)$.

Error of area = $\frac{\pi}{4} (D^2 + C^2) - \frac{\pi}{4} D^2 = \frac{\pi}{4} C^2$.

Percentage of error = $\frac{\frac{\pi}{4} C^2}{\frac{\pi}{4} D^2} \cdot 100 = \frac{C^2}{D^2} \cdot 100$.

Suppose 2 p.c. be the limit of error which we agree as allowable:

Then $\frac{100 C^2}{D^2} = 2$.

And $C = \frac{D \sqrt{2}}{10}$.

Practically, $C = \frac{D}{10}$ = half range of 10 inch class.

Therefore, $\frac{D}{5}$ = the range of the class.

That is, $\frac{D}{5} = 2$ inches, the range for the 10 inch class.

To be sure, this reasoning is based upon the condition that the trees in the half range above the mean diameter be equal in number to those in the range below, a condition which will, I think, be fairly satisfied by the fact as found in the wood. With trees of a larger diameter than those considered in the demonstration, a two-inch range will give less than a 2 percent. limit of error.

The reckoning of the sum of the cross section areas from the diameter measurements can be accomplished by the use of a table, which may be found in Bulletin 20 of the United States Bureau of Forestry, Washington, D.C. Such tables have also been prepared by the Germans—Kunze, Ganhofner, Pressler, and Eberts. Grundner has shown that reckoning the square feet to more than three places of decimals, even for scientific purposes, does not obtain a degree of accuracy which warrants the extra labor, and that for most practical purposes two decimal places are quite sufficient.

HEIGHT MEASUREMENT.

In order to calculate the quantity of timber in a forest it is necessary not only to determine the number of trees of each diameter class of each species, but the average height of the trees of each diameter class should also be determined.

There are various instruments for measuring the height of a standing tree, all based upon the principle of similar triangles,

(π) π = 3.1416.

a principle familiar to all mathematicians. The most convenient of these is Faustman's Hypsometer, a small instrument which can be carried in the pocket. In using this instrument, the observer selects a convenient spot where he can distinctly see the top of the tree. Then measuring his distance from the base of the tree, and arranging the instrument accordingly, he looks at the top of the tree through an eye-piece on the instrument and reads off the height of the tree as indicated by the thread of a plumbline resting against a scale.

A "height party" consists of two men. One uses the hypsometer, while the other takes the diameter with the calipers and measures the distance between the trees and the observer. A party can measure from 200 to 400 trees per day.

From 1,000 to 2,000 trees of each commercial specie should be measured on a township of, for instance, 30,000 acres of our forest. The greater the number, the value, and the average diameter of the trees of a species, the greater should be the number of heights taken.

In taking heights, it has been found most convenient to measure one species at a time. It is not necessary to go regularly through the forest, but care should be taken to measure trees growing under all conditions of soil, elevation, exposure, etc.

To be sure, the measurement of timber without methods of working up the results would be useless, but as this paper is intended to treat only of the measuring itself, such methods have been omitted.

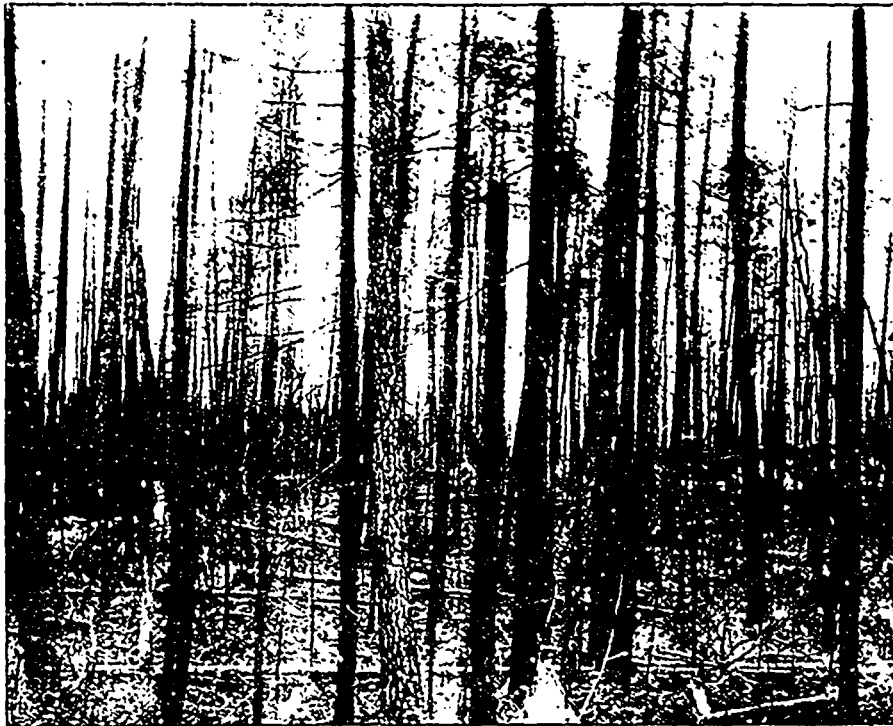
✱

The Temiskaming Fire.

We again take occasion to bring before our readers the forest fire which occurred during the past summer in the Temiskaming district, for, having had an opportunity of visiting that district recently, and seeing some of the destruction caused by the fire, and hearing the accounts of eye-witnesses of the scene, we have a clearer appreciation of the great loss which the country has suffered by the practically total destruction of the timber on the fire-swept area. For though the bare black trunks may still be standing almost as they were before the fire and to the careless observer there is but little change except

such as may appeal to the esthetic sense, the insect population are industriously taking their place in the activities of nature, and reducing to dust again that which has ceased to live, and has therefore become only an impediment in the way of future growth. We attempted previously to give an estimate of the extent of the fire, and the value of the timber destroyed, and we find no reason to decrease in any way that estimate. The loss to the Government in the dues on the timber, both as to present and prospective revenue, is very large. The lumbermen are heavy losers, and the timber swept away removes to that extent the opportunity for the employment of their men. Messrs. Gillies Bros. suffered the greatest loss, over forty square miles of their pine limits being destroyed, as well as buildings and stores, valued at about \$6,000. The pine which was burnt on the limits of this firm has been estimated at 35 to 40 million

feet, very little of which could be saved. The Hull Lumber Company had five million feet burnt, a considerable portion of which it was possible to take out. Mr. Booth's loss was about four million feet, and was practically a total loss. Other firms also suffered considerable losses. And when to the figures quoted are added the young pine and the spruce, which do not enter into the estimate, and which would before very



BURNT FOREST NEAR THORNLOE, ONT.

many years have been of a marketable size, some idea can perhaps be formed as to the meaning of the sudden stoppage of productiveness over such a large area, which will not again be in such a condition of wealth-creating potency in the present generation.

But timber is not the only thing of value in that country. The buildings and stores of the lumbermen and settlers as well were in the greatest danger. One firm lost heavily in this way, as already mentioned. At the depot of the Hull Lumber Company on Lake Ostoboning, the distributing point for the shanties working that company's limit to the north, and at a distance of forty miles from the starting place of the fire, the smoke was so dense and the fire apparently approaching so rapidly, (it did not reach a point within three or four miles of the depot), that it was considered advisable to pack up books and papers and make ready to push out into the middle of the

lake, abandoning everything else to the mercy of the flames. For this was no ordinary fire. It was of the kind described by Bryant :—

. the Fire
Gathers his annual harvest here,
With roaring like the battle sound,
And trains of smoke that heavenward tower,
And streaming flames that sweep the plain,
Fierce, as if kindled to devour
Earth, to the well springs of the main.

The air dark with smoke, the appalling roar of wind and flame loudly heralding the approaching destroyer, but leaving a dread uncertainty as to the moment when it might burst forth, the heavens filled with flying pieces of birch bark fiercely blazing, and spreading the destruction before and on every hand, these were the startling features of a scene that might have made the stoutest quail, and which has left an indelible impression on the minds of all who passed through it. And in the midst of it were the strain and struggle to save life and property, the narrow escapes of parties and individuals, the desperate but futile efforts to contend with an enemy too powerful even if only to be met in one place, but which, sown on every wind, sprung up hydra-headed to its work of destruction. And this experience was duplicated at Hay Bay and other points, where the fire was being fought. Can anyone say that such scenes should be repeated? Does anyone desire that they should be?

From the esthetic point of view, which should certainly not be disregarded, the change from the living green to the dead blackness of the burnt forest, from the beauty of moss and bud and leaf to bare stone and black earth, from the leafy canopy and dim arches of nature's temple to the gaunt trunks standing naked and unashamed, a curse instead of a benediction, cannot but bring a pang to every lover of nature and every admirer of our Canadian scenery. It is almost pitiful to see trees, still immature, which had apparently made it their life purpose to cover rocks and boulders with verdure, standing with the soil burnt clear away from their poor blackened roots, which still grasp vainly the bare stones, as if even yet reluctant to believe that their efforts have been so completely frustrated.

And of the inhabitants of the forest, birds were found lying dead everywhere, some with feet burned off, some injured in other ways, all suffocated by the smoke. The number of young partridge destroyed at that time of the year must have been enormous. The large game also suffered. At different places moose were found mired and suffocated and the general opinion on the matter, although there were some dissenting voices, was that the moose were not as plentiful in the district this year as they were the previous year. This much is certain, that not nearly as many were taken out by hunters.

And to what object was all this waste? It is quite certain that the fire started from the settlement back from Baie des Peres, on Lake Temiskaming, where settlers were clearing land. A number of fires were set out and allowed to run, ultimately joining in one, and sweeping clear across to Hay Bay and Lake Ostoboning, through as good a pine and spruce district as there is in Canada. The provision of the Quebec Fire Act in regard to the setting out of fires is as follows :—

"No person shall in the forest, or at a less distance than one mile from the forest, set fire to or cause to burn any pile of wood, branches or brushwood, or any tree, shrub or other plant, or any black loam or light soil, or any trunks of trees that have

been felled at any period during the year. It shall, however, be permitted for the purpose of clearing land at any time except between the 15th June and the 15th September in each year." The Government has also the power in a time of drought to prevent the setting of fires at any time for any purpose.

As the fire occurred on the 26th June, it appears to be fully established that this very destructive conflagration was caused by fires being set out in contravention of the law, at a time of the year when the dry condition of the forest made the danger very great. And this was apparently not the work of one person, but it was so generally indulged in that it might be considered as the custom of the district. There is no desire on our part to add to the difficulties of the settler, but surely it cannot be considered a hardship to ask that some steps should be taken by the Government to make the above quoted provision of the act effective. We speak in no spirit of hostility either to the Government or the settler, we have no brief for the lumbermen, and are not concerned to advocate their welfare except in so far as it may affect the general welfare of Canada. It may be pointed out, however, that the settlers have often found their best market in the lumber depots; that out of a total revenue during the previous year for the Province of Quebec amounting to about \$4,700,000, at least one-fourth is derived from the forest, and if this source of revenue is swept away there is really nothing left but direct taxation, of which the settler will have to help bear the burden. This very possibility has been used as a rallying cry against some of our Provincial Governments. We believe that some steps should be taken to teach those who have set out fires illegally to see the evil of their ways and learn to transgress no more, and that some extension of the fire ranging system should be made so as to keep the setting out of fires under proper control, particularly in timber districts. This is in the interest of the Government and the settlers, as well as of everyone who is interested in the prosperity of the Province of Quebec.

*

Reciprocity.

The American Lumberman remarks that the careful reader of reciprocity editorials in the daily newspapers can readily see the pulp between the lines (a neat bon mot), and it probably contains a large amount of truth. It is but recently that, as noted by us, the Lumberman called attention to the very difficult situation in which the spruce lumbermen found themselves, with the price of spruce in the log forced up from \$11 to \$16 a thousand by the pulpmen, and suggested that the manufacturers of pulp should try to make some arrangement for a supply of wood from Canada, so that instead of chopping up beautiful clear logs for pulp they might be reserved for cutting into lumber. It is quite certain that in any negotiations for reciprocity between Canada and the United States, the lumber industry will raise questions of great importance, and any action which may be taken will have important results on the future of this country. The present situation appears to be that the great expansion of the lumber and pulp industries in the United States, has brought those interested in them to a position where they begin to see the effect of the decrease both in the white pine and spruce supplies, and, although this situation has been relieved somewhat by increased activity in other woods, particularly among which may be noted Southern yellow pine, which has in recent years proved a rich investment, there has been developed a desire to obtain access to the Canadian supplies. The policy recently adopted in Canada, of requiring the manu-

facturing of lumber on this side of the line, instead of exporting the log has also had its effect in this direction. The resolution passed at the Reciprocity Convention held at Washington recently could hardly, however, be described as radical, as it favored only reduction of duties on articles not produced in the United States. While the States, whose supplies of lumber are at the point of exhaustion, will be the strong supporters of the movement for reciprocity in lumber, there will certainly be decided opposition from the lumber-producing states, and, as the number of people employed in the manufacture of lumber in the United States is estimated at five millions and a half, their influence will be a potent factor in the consideration of the problem.

But from the point of view of the Canadian Forestry Association, the chief consideration is as to the effect of reciprocal arrangements on the method of dealing with our forests. The present condition of the forests on the southern side of the international boundary is not particularly reassuring, and whether the cause be found in defective legislation or elsewhere, the fact remains that American lumbermen, generally, have attained the reputation of being anything but economical or provident in their operations. Canadians themselves are not as yet alive to the necessity for improvement in their own methods. On very uncertain information we talk largely of our inexhaustible forest wealth, and on unverifiable figures we give bold estimates of our ability to supply the world for centuries to come, and we conclude that we need worry ourselves no more about the matter. But if we cannot keep the fires from devastating the forests within our reach, the far-off fields that now look so green may be but a barren brûlé, when we have need of them. More care and study should be given to what we have presently available, and we should be careful that our hands should not be tied by treaty arrangements, in such a way that we cannot take the necessary measures to provide for the proper management of our timber resources, and while expansion is not necessarily evil, it may be made so if we do not know how properly to manage or control it, and do not make the effort in proper time.

*

The Forest School at Biltmore, N.C., conducted by C. A. Schenck, Ph. D., is in a very favorable position from the fact that the forest, which is under Dr. Schenck's management is available for the practical demonstration, which is a very necessary adjunct to theoretical work. From a notice which has reached us, it appears that the course of study followed provides, in the first place, for practical instruction in the forest where actual work, such as planting, cutting, road-making, etc., is going on. The forests comprise an area of 110,000 acres, there being three separate tracts—Busbee forest, which controls the water supply of the estate, and is dealt with accordingly; Biltmore forest, which has a near and ever ready market in Asheville; and Pisgah forest, a great rugged tract of Appalachian virgin forest, which has supplied yellow poplar and other woods to the mills for some time. A system of roads is being developed to open up this tract, and make it easily accessible for all purposes to which any part of it may be devoted. Tree planting is undertaken only on a small scale, natural reproduction being relied on.

The theoretical instruction includes Sylviculture, Forest Utilization, Forest Management, Forest Finance, Forest Protection, Forest Politics, Forest History. This part of the course also includes a study of Fish and Game-keeping.

Forest Researches, such as Stem Analysis, Sample Acres, Test Growth, Construction of Yield Tables, form the third part of the course.

The full course, which occupies a period of twelve months, is concluded by a three months' tour of the European forests, commencing in April, which gives an opportunity for investigating the forestry systems practised there and comparing them with American methods. Those who have read the last report of the Canadian Forestry Association will understand that Dr. Schenck is no visionary, that he understands the limitations of the present situation on this continent, and will not ignore them with his pupils. We believe most thoroughly that it would be a most valuable experience for all those who are *intending to devote themselves to the lumber business* to have the opportunity which a course at this or some of the other schools of forestry would give of getting an insight into scientific methods of forest management. The effect on the future of Canada would be very important if we had a large number of men who had a clear appreciation of the meaning and methods of scientific forestry. Any further information in regard to the Forest School at Biltmore may be obtained by communicating with C. A. Schenck, Ph. D., Biltmore, North Carolina.

*

Professor J. W. Towner, of the Yale Forest School, has become a life member of the Canadian Forestry Association. This is the kind of American aggression that we welcome. And we must further say that the kindnesses we have received from our friends in the United States who are interested in forestry, make us wish that in this respect we were able to give a reciprocity that would be of anything like an equal value.

*

Some time ago we announced that we had made arrangements to have any questions in regard to forestry, tree planting, or allied topics that any of our members wished to submit, answered by experts in these subjects. Up to the present time advantage has not been taken of this offer, and we must therefore conclude that no unsolved problems vex the souls of our subscribers. Our offer is still open, however, and we hope it will be made use of both for the sake of those desiring information and in order that we may understand better the subjects that should be brought before our readers.

*

We have had the pleasure recently of a visit from Rev. A. E. Burke, of Alberton, P.E.I. Father Burke has been working vigorously for some time to interest the Government and people of the island in the work of preserving and managing scientifically their timber supplies. Unfortunately the area of land still in the hands of the Provincial Government is very small, amounting to only 15,000 acres, and even this is a scattered tract, so that the field to work on is not extensive from the forester's point of view. The land is mostly of a character unsuitable for agriculture, so that it could not be used for any other purpose than tree growing. Father Burke states that a number of bush fires have occurred in the Province this year, and that the country is becoming so bare as to affect very injuriously the water supply. It is to be hoped that Father Burke's untiring efforts may have the success they deserve.

FOR SALE! To be sold, a well-mounted head of Dall's Mountain Sheep from Alaska. SIWASH, care of ROD AND GUN.

CANADIAN SHOOTING AND FISHING

ARE UNRIVALLED

THE

Canadian Pacific Railway

ALONE GIVES EASY
ACCESS TO THE BEST



AN UNNAMED LAKE

The General Passenger Department,
Montreal, P.Q., will answer enquiries,
and send copies of Game Map, Fishing
and Shooting and other useful publi-
cations, on application.

CANADIAN PACIFIC RAILWAY.

THE BEST SHOOTING AND FISHING IN NORTH AMERICA ARE TO BE HAD ALONG
THE LINE OF THE CANADIAN PACIFIC RAILWAY. THERE IS A CHOICE OF MOOSE,

CARIBOU,
BIGHORN,
GOAT,
DUCK,
PARTRIDGE,
SNIPE,
SALMON,
RAINBOW
PIKE,
and



BRINGING OUT A KIPPEWA HEAD.

DEER,
BEAR,
ANTELOPE,
QUAIL,
GEESE,
WOODCOCK,
BROOK TROUT,
TROUT,
MASCALONGE,
DORÉ.

Send for copy of our Game Map, our Fishing and Shooting and other
useful publications, to General Passenger Dept., Montreal, P.Q.

Established 1845

**Canada's Largest
Exclusive Sporting
Goods Store**

WE keep in stock all the requirements for nearly every known sport. A few of our specialties are:

W. W. Greener Hammerless and Hammer Guns. Mauser Rifles and Pistols. Winchester Rifles and Ammunition. Forest Salmon Rods, Reels and Leaders. English, Scotch and American Fishing Tackle. Scotch Golf Clubs and Balls. Wright & Ditson's Tennis Goods. Eagle Brand and Spalding Base Ball Goods. Bicycle Material and Sundries. Sole Agents for Canada for **EAGLE BICYCLES**. Best Goods at Lowest Prices. Send for Catalogues of your favorite sport.

T. W. BOYD & SON

1683 Notre Dame St., MONTREAL.

HUDSONS BAY COMPANY



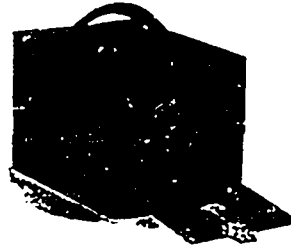
**THE HUDSON'S BAY
COMPANY**

HAS HAD OVER 229 YEARS
EXPERIENCE IN PROVIDING
FOR HUNTERS

EVERYTHING NECESSARY CAN BE SUPPLIED. **CIRCULAR LETTERS OF CREDIT** ISSUED ON ALL THE COMPANY'S INLAND POSTS. **FURTHER PARTICULARS ON APPLICATION TO**

HUDSON'S BAY COMPANY, WINNIPEG.

Kodaks
PREMOS
VIVES



\$12.00 PREMO
FOR \$7.00

SPECIAL FOR 1 WEEK

**Montreal
Photographic
Supply**

R. F. SMITH

1756 Notre Dame
Street

UPTOWN BRANCH

148 Peel Street
MONTREAL
CANADA

FOR RIFLE



SUPERIOR IN QUALITY
FOR
SERVICE, HUNTING
AND
TARGET PRACTICE

AMMUNITION

REVOLVER



ITS MARK



AND GUN



MANUFACTURED BY

UNITED STATES CARTRIDGE CO.

AGENCIES { 121 Worth Street, New York.
} 114-116 Market St., San Francisco, Cal.

LOWELL, MASS., U.S.A.