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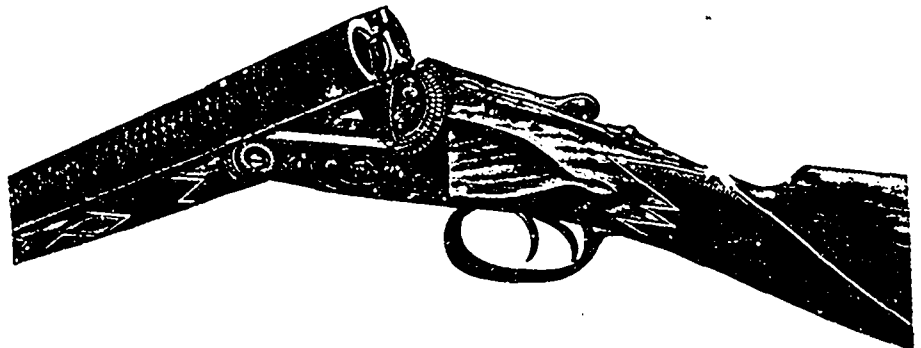
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AN EXPLORATION TO THE HEIGHT OF LAND.

By St. Croix.

(Concluded from the January Issue.)

That afternoon, just before sunset, we started for the southern end of the south lake. On the way we passed another "mine." This one consisted of an enormous vein of apparently barren quartz, having an almost vertical dip. On the discovery stake was the following affecting legend: "This claim discovered by L. H. Timmins, June 7th, 1900."

At the head of the lake two streams debouch; the one coming from the south-east, the other from the south. We ascended the former for some miles. We got no snap-shots of moose, but we frightened one badly, which is something to be proud of. It happened this way: We were returning down stream, in the most inky darkness, and chilled to the very marrow by a cold mist which lay upon the face of the waters, when we ran upon a sharp snag, and, not knowing that we were near game, began discussing loudly the best manoeuvres to avoid a shipwreck. In the confusion something slipped into the forest, and we then knew that a big moose had escaped being shot with the camera.

At 9 a.m. the next morning Messrs. Miller and Leheup came in sight. Mr. Miller was hunting iron ranges, and round his neck dangled a miner's dipping needle, and in all his pockets he carried choice specimens of hematite and jasper. I do not know whether he has staked any mines, but I am sure I hope he has, and that the reward will be proportionate to his great labors. I myself now know of several gold mines, thickly studded with iron pyrites, which I am willing, nay eager, to sell to any wealthy syndicate which wishes to make a bid for them. (N.B.—My address may be learned from the Editor.) Mr. Miller was bound for Beaver Lake, which is the head of the north branch, and after a short delay went on, leaving us to follow. This we did after luncheon, carrying all our stuff first over a half mile portage to a little pond (where there are some beaver left alive); after crossing which we made another portage, of about half a mile, to a slightly larger pond, and finished up by a third portage of a mile and a half to the east branch of the north fork. All these trips had to be doubled, so that altogether we walked nine miles, and carried as heavy loads as we could stagger under for five of them. I find in my diary the following entry: "A very tough half day." Old bushwhackers will know what that means.

All we had to do now was to run down stream until we reached the main White River, where we knew all would be plain sailing. Now this sounds very easy, but before you can

run down stream in a satisfactory manner you must have water, and this was just what was lacking. We dragged our canoes for the first mile, then paddled for a couple more to the main north fork, which we navigated for three quarters of a mile. Then followed two long portages, crossing which were many moose, deer and bear tracks, but by noon we had reached the head of Grassy Lake. The lake itself is two miles in length, and at its foot we found the camp of Jean Baptiste No, of Abitibi. He had for companions his wife and youngest boy, twelve dogs, three cats, and a little half tamed beaver—the latter I bought, but four days later had to let it go again, as the little creature was getting so weak I felt sure it would not live to reach the settlement. No is a strange, lupine creature; his obliquely set eyes have all the shiftness and cunning which you see in those of the wolf; he is old, disreputable and dirty, but, nevertheless, he is an object of admiration and envy to all the other silent, smoky ones of the northland. His fame has been carried far and wide to every Hudson's Bay Post, and his reputation is known to hundreds who may never hope to see that grizzled, tangled mop of hair, those cunning eyes, and that rugged countenance which seems to have dodged soap and water successfully for more than a generation. And why is No so famous? Because Jean Baptiste is the one man in all that country who can eat a full grown beaver at a single sitting. When No kills a moose he camps alongside it, and feeds steadily until nothing but the skull and the big bones remain. He has been known to devour seven rabbits at one meal, and then finish off with a beaver's tail, by way of desert. If any manufacturer of tonic pills could persuade Mr. No to travel in the interests of his preparation, I am sure the result would be satisfactory. I asked John if No did much hunting. John looked straight in front and without moving a muscle grunted: "Of course; he must"—and I understood. What a terrible fate! Think of this old Indian, this very old man, ceaselessly tramping the forest, Hudson's Bay muzzle-loader in hand, hopeless of relief, and forced to work overtime to satisfy his relentless appetite.

There were four green moose hides drying on a poplar frame work showing how the Ontario moose are thoroughly protected by the game laws made by the wise men of Toronto. For the greater part of the year No, together with those who belong to his family, that is to say his wife, sons, daughters-in-law, and grand-children, fifteen in all, live off the country, and to feed these people about five hundred pounds of meat or fish must be provided each week. Of course, they keep their nets out, and procure large numbers of pike, dore and whitefish,

but, nevertheless, the flesh of the moose is their mainstay. This country would swarm with game if somebody could persuade Mr. No to emigrate. He is a perfect thorn in the flesh to the animals, birds and fish of that region. At one point in Te-gou-sic-wabic I saw seven bear skulls, the animals to which they had belonged having fallen victims to No and his boys.

Next year, however, the moose may have a rest, because it will be the big rabbit year. They are very numerous now and in 1902 they will swarm. In 1903, however, they will be conspicuous by their absence. As is well known to those whose business or inclination has taken them into the northern wilderness, the rabbits increase during seven years, and are then almost exterminated, by outbreaks of tuberculosis, such as that which has devastated the over-stocked preserves of the British Isles this summer. When rabbits are plentiful the Indians are not so keen to hunt big game, because the rabbit is the woman's prey, and the men can indulge in a restful time while the squaws supply them with food.

We got away from No's camp early in the afternoon, and went about five miles down the deadwater before camping. It was very uninteresting, as there were no fresh tracks, and when night overtook us we had to camp in a wet willow swamp where there was no firewood to speak of. I noticed all through this country that the climate was very much better than I had expected. On August 20th there seemed to have been no frost, though the trees were yellow from the heat, and hundreds of white fish were floating dead on the lakes owing to the water having become too warm. On the morning of the 21st we got off early, and reached the end of the dead water, ten miles from the lake, in good season. A couple of short rapids followed, and at the end of the second we lunched, then another two miles of a puddle and we had to tackle a formidable carry of one and three quarter miles. This made a good day's work, because, of course, we had to double trip everything. We were rewarded by a most delightful camp, the tent was pitched on a level flat, free of undergrowth, and bearing the most wonderful forest of mixed growth. Many of the spruces were over two feet in diameter, and had evidently escaped the ravages of the big fire which I have alluded to. This was practically the end of the good farming tract, and from this point down to the main White River we saw little land fit for settlement. Next day we managed to negotiate the "Long portage" of two and a quarter miles, together with another couple of miles of paddling before the rain came down. Then there was a deluge, which lasted thirty-six hours and kept us close prisoners to the tents, but, so hungry was the soil, this heavy rainfall only caused the river to rise two inches, and by the evening of the 24th it had fallen to its old level once more. Four miles below this camp we came to the log jam which marks the head of the fall at the mouth of the river. The portage passes over a high ridge, and the view from the summit is magnificent. The traveller here learns the true character of the White River country. He sees hundreds of square miles of undulating land, covered by a second growth of aspen and white birch. It is not a rugged country, but it is one that holds much game, which is even better.

Time was lacking for any further explorations, otherwise I should certainly have ascended the main river to Round Lake. As it was, we went a mile up stream to see Granite Falls—almost dry—and then turned the bow of the canoe toward the south-east, and Temiskaming. A mile below the north branch we came to a rapid, and a mile and a half further down stream to another one, each of which necessitated portages. A third rapid may be seen from the second, and here we met four canoe

loads of Indians returning to Grassy Lake. They were the sons, and daughters-in-law, and grand-children of Jean Baptiste No, returning, alas! with empty canoes, having been unable to coax the storekeepers at Temiskaming into advancing them any supplies. This means that all through the coming winter they will have to live upon game, and muskrats, and owls—in fact anything they can kill—without flour, or tea, or sugar to break the monotony of the diet. Just think of this, ye epicures, accustomed to a daily choice such as these poor wretches have never known. Verily, the lot of the Indian is a hard one, and if he is not all that our fancy paints let us in justice not expect too much. Once, at the end of a long and cruel winter, I came to the camp of some Ojibways in the Lake of the Woods country, Western Ontario. They were living upon rabbits straight. Happily it was a good year for the bunnies, and so they had not to face absolute starvation; but some persons would consider death as a welcome relief from a steady course of rabbit. These people had a beautifully simple, yet an effective, method of cooking the rabbits. Firstly, the skin was torn off, and, secondly, bunny was thrown into a big pot of boiling water standing on the fire. That is all there was to it; just these two motions. Not even those parts which the old game-keeper used to call the "innards" were removed. It does not require a very vivid imagination to picture the appetizing stew which resulted.

After saying good-bye to our Indian friends we went into camp, three and a half miles below the mouth of the north branch.

The morning of Sunday, August 25th, broke fine and warm, in fact it was the most sultry morning of the trip, and for a short time the flies were quite bad. Four miles below our camp the south branch joined the main stream, and two miles below that the old familiar mouth of the north-east branch welcomed us back, after having made a round trip of perhaps a couple of hundred miles. At the first rapid we were passed by Messrs. Miller and Leheup on their way out. From this point all was plain sailing, but we only reached a point seven miles below the rapid when we were driven into camp by heavy rain. Next morning we were off betimes, and had paddled eight and a half miles when we halted a little below the mouth of Otter Brook. Here we met the charming Mrs. Johnny McBride and the even more charming Miss McBride. The men folk were away road making. On the way down we saw two muskrats and a mink. The remainder of our trip to the mouth of the river was very uninteresting, as both banks have been burnt over this summer as far as Otter Brook. At 3 p.m. we reached the mouth of the river, having covered the eight miles from below Otter Brook in two hours. We now had twelve miles more to paddle to reach Haileybury, and as the lake was as a millpond everything was in our favor. It took us an hour and a half to paddle the six miles to Windy Point. Here we landed and prepared our camp; and of all the things to which I look back with memory's eye it seems to me that this view from Windy Point, the whole landscape bathed in the golden haze of a fine August evening, is one of the most satisfying. We landed at Haileybury at 7.30, having paddled twenty-eight miles, in nine and a half hours' actual work.

This ended my partial exploration of the White River, and summing up my impressions I should say: There are few districts within easy reach of civilization where there is so much game. Notwithstanding the ravages of the No family, moose in general are increasing, and I doubt not will continue to afford excellent sport for many a long year to come.

TO MY AGED TENT.

By F. Edmond Lemieux.

You are now old and weak, unable to withstand the hardships of camp life. When you came into my possession, twenty years ago, then fresh from the manufacturer's hands, you looked strong and durable, pretty and attractive. For a more satisfactory inspection you stood up on the lawn adjoining my home, and your general appearance pleased me in the highest degree. In fact, I felt you were constituted to last a long time, I was not deceived in my expectations. How jubilant I was when we started on our initial outing. I shall never forget the first night you sheltered me and my friends. It was in the latter part of August, on the shores of the Ottawa River,

well you protected us from wind and cold, rain or snow; how impartially you distributed the invigorating heat of the iron-sheet stove, from whose long arm, extending outward, frantic sparks crossed one another's path, soon to die away. What a comfort you then afforded to your visitors, cold and shivering. Your guests are numbered by hundreds, but never was a complaint heard, no matter from what direction the wind raged you held firmly to your post. With extended arms, like the octopus, you obstinately held your ground. The light movements you made to and fro were no indication of doubt as to your strength to withstand attack, but a mere ironical, side-shaking laugh at the invisible elements whistling about.

During my ownership I have looked to your welfare



AN ANTIMM OUTFIT.

Jean Baptist No, with a few of his belongings, including a 15-lb. pike, which he has just caught in Grassy Lake.

beneath a small tree through which murmured the evening breeze. The sky above was brilliant with a myriad of stars shining on the camp ground, and seemingly out to view your splendid form.

In the years that followed many were the excursions during which we shared your hospitality. What a delight it would be for me to recall the pleasant hours spent under your roof, by the glow of the camp-fire, or with the moon's peaceful gleam peeping through the trees. There were indeed hours of rest and ease, when stories were narrated, and experiences made known--with short intermissions to use sudden attacks of thirst. Late in the season, on hunting expeditions bound, how

steadfastly; never stored you away in a hurry, or in damp condition, with the possible result of your firm, white skin becoming mossy and decayed. No, on my return from an excursion I hastened to spread you out to bask in the sun's ardent rays, or at least gave you the benefit of all the fresh air obtainable, and then only did I pack you away for good. Thus, your life has been prolonged and you were fit to accompany me, for the past twenty years, on trips after fish and game. I must candidly say that when, occasionally, I retired to some elaborate and expensive club-house, or even to a modest and roughly-made log cabin, I never felt so much at home as under your cover. True enough, I often carried you on my back, at

times for long distances, too, but I did not grumble at that, for I knew I would be more than repaid for my fatigue when the time arrived to spread your mantle over my paraphernalia and self. Your broad wings were a perfect safety against the chills of the night; our sleep was pleasant and undisturbed, with an assurance that no rain or snow could penetrate your canvas back.

How often we have brought to your door the result of a morning or an evening's work with rod or gun. How often a string of beautiful fish hung up nearby. How often you stood before the camera, and thus our sporting pictures were rendered all the more interesting, for they conveyed a truer idea of enjoyable tent life in our Canadian forest. These pictures occupy foremost pages in my album, and help to bring back to my mind some of the happiest days spent in Nature's grand wilderness.

Alas! we have both grown older, have suffered somewhat noticeably by wear and tear, the effects of exposure and unexpected hardships on some of our outings. Unfortunately, you now succumb to such experiences, but I am yet able to stand them as well as during my earlier trips. I expect to be favored soon with another mate like unto you, which I hope to use for two score more years. If it prove to possess the qualities which made you such a favorite and serve us as satisfactorily as you have done, I can afford then to take a rest myself at the expiration of that period. You have roughed it out long enough, old friend. Your arms now lack firmness, your back is discolored, and full of holes; no doubt you are constitutionally broken down. Possibly you did not receive from those to whom I occasionally loaned you the same scrupulous treatment I always accorded you, but I am more than satisfied with your long years of service. I am very sorry indeed that we must part, for I loved you dearly. However, I shall never forget the good times we have had together.

*

A MONTH IN A MANITOBA SHANTY.

By N. S. M. V'.

It was mid-July, with the bright hot days of the brief summer of the Northwest. Threatened with nervous exhaustion, I resolved to cast pills and potions to the dogs, and try what a few weeks of open-air life would do as a restorative. Two thousand miles lay between this inter-ocean province and the cool beaches of the Atlantic and Pacific, but thoughts of the long, green rollers surging up their wet sands and the surf dripping over the rocks reminded me of the great fresh-water lakes of Manitoba.

Toward one of these we turned our faces on a lovely morning in August, as we boarded a Canadian Pacific train. A run of two hours and a-half brought us to a little wayside station where a farmer's wagon, drawn by a pair of stout horses, awaited our arrival. Driving over eight miles of level road we came upon a small oak wood, which we decided was an ideal spot for the building of our shanty; the ground for which was immediately measured out by the gentlemen of our party. After lunch under a big oak tree, with a breeze from the lake, about a mile distant, stirring the delicious prairie air, we concluded our plans for the construction of our "Walden," and returned to town.

In less than a month our little hut was completed, consisting of two rooms and a small cooking-shed away from the house. As a day or two later our party of eight drew thither, we did not allow the pouring rain to dampen our spirits, if it

did our wraps, for we reasoned that the weather could not always be unkind, and the ducks were coming, for we intended to combine shooting with our quest for health. After the simple articles of furniture had been put in their places and our primitive cuisine arranged, our little home looked more than comfortable. The tiny cooking-stove, with its few feet of pipe, suggested whole vistas of enchanting repasts; for how could the satiated appetites and elaborate menu of Delmonico's compare with our feasts to be, when a lordly mallard that yesterday cut the blue sky with its golden bronze wing, or a plump grouse that in the morning whirred its quick flight over yellow stubble-fields, should grace our simple board, together with fresh milk, cream, butter, and home-made bread, the latter baked from the flour of the world-renowned "No. 1 Hard" wheat.

From a farm-house, whose red roof peeped from a group of russet stacks and ricks, we procured our small cook, a swarthy-faced little half-breed, blessed with an exceedingly cheerful and optimistic disposition, being perfectly willing to prepare meals at any hour of the day. Breakfast for the shooters was ready at five o'clock or earlier, as the men usually left at that hour, followed by the faithful black retriever, which would work all day in the water if required to. They were frequently accompanied by the daughter of the house, who in short skirt and heavy shoe would tramp along as keen for sport as any of the party.

The long days in the cabin were spent in reading, writing, day dreaming, or with some kind of light work, such as painting, wood carving and embroidery, varied by delightful rambles in the oak glades of the wood, that were like those of an English park, or in photographing, driving, and, as it darkened into dusk, placing a lighted bicycle lamp in the four-paned window to guide the sportsmen home. Tired, hungry, and happy, their bag was each night hung up upon a stout nail on the wall, as with many a joke they laughingly recounted the adventures or mishaps of the day.

Although far from the chime of church bells, the Sundays were Edenic in their calm and quiet. The event of this day was the drive to the lake shore, in a rude cart, for supper. With cushions and rugs laid out, and the little kettle on the improvised crane singing as it boiled the water for tea, we lay gazing out over the water, which was as sapphire blue as the sea.

Though the shores were perfectly flat, in many places the outline was softened by fringing willow-bushes and tangles of weeds and water plants. The only sound that broke the stillness was the distant cry of the wild geese, "Honk, honk," as a thin waving line overhead marked their flight to their favorite feeding grounds and gravel-beds, where in the grey dawn our hunters know where to seek them. Sandpipers, with their slender beaks and limbs, tripped daintily along the beach, while grey gulls and kingfishers swooped down upon their prey beneath the waves. Almost any day might be seen waxies, brant or blue-winged teal, while over the fields and "marcus," chicken rose from the long grasses, where they came to find the saskatoon and other berries upon which they feed. As the quiet air sometimes brought the faint cry of the rail or the plover, it was hard to realise that not more than twenty years ago these sands echoed to the tread of immense herds of the great American bison, as they bent their shaggy heads to drink from these waters, or tossed their manes as the arrow of the hunter laid them low, leaving their bones to bleach over the plains where once they browsed, and over which we sometimes stumble in our walks.

On one of these evenings, to our intense surprise, where we were accustomed to an unbroken sheet of water, we suddenly discovered, about three miles out, what appeared to be a large, thickly-wooded island. Unable to understand the occurrence, we inquired among the settlers for a solution of the mystery, and found it was a mirage, the island being really about seventy miles distant.

Another surprise happened one afternoon as we were driving to the station to meet some friends. Stealing along by the fence was a large prairie wolf, which, after taking a look at us, made off through the grain fields and was lost sight of behind a haystack.

One very cold and dark morning towards the close of October, we were aroused by the clicking of an engine, and realized that the most exciting event at that time of the year had occurred, in that a threshing outfit had arrived at a neighbouring farm. Feeling we could not miss this long-wished-for visit, we tripped off as fast as we could and seated ourselves in a huge straw stack to watch the novel scene, which, with the great hungry machine, the flow of the grain like a golden fountain, the swelling sacks and rapidly growing hills of chaff, presented a picture of color and motion, set in a frame of autumn scenery, which for picturesqueness none in the whole round of agricultural life can surpass. And thus the days had lengthened into weeks, and the green leaves of the willow, oak and alder changed into yellow, red, or ruddy brown, and a breath of frost in the nights touching the brilliant sunflowers and purple and white Michaelmas daisies, made us unwillingly acknowledge that winter was soon coming to turn us out of our paradise. He roused us rather suddenly and roughly, for one night, lying down with a roaring fire in our little stove and feeling fairly comfortable, the wind suddenly changed in the night to the north, bringing frost and a heavy snowstorm, and the creeks which had run clear the day before were frozen solid. This mild hint suggested that the time had come when we must leave our egg-shell castle, where so many hours of pure delight had been passed, to carry back to the routine of town-life perfect health, excellent spirits, and a longing for the time to return when we could go back again to where our month's tarrying had transformed us into enthusiastic disciples of Nature-loving Thoreau.

“WHEN THE MOOSE IS RIPE.”

The Autumn morn is clear and still
The stars grow cold and pale;
White rime lies on the treeless hill,
Grey mist hangs o'er the vale.

The hunters rise and break their camp
Beneath the pallid skies,
And off they tramp where bleak and damp,
The Big Moose barren lies.

* * * * *

Wind, Indian, wind your birch-bark horn,
Give, give the mating call;
And mournful on the stilly morn
The lorn notes rise and fall.

Then presently an answering call
Comes from the neighboring wood;
A bull moose in his forest hall
Wearies of solitude.

A bull moose on his stamping ground
Has heard the call of love,
And, like an avalanche of sound
Comes rushing through the grove.

To keep the tryst the monarch comes
Smiting the beech and fir;
The plump spruce partridge, startled, drums,
And takes wings with a whirr.

Athwart his path the forest falls
Far crashing down, until,
The rattling clangour half appals
The hunters on the hill.

Ho, like a rushing mighty wind,
Or thunderbolt let loose,
In frenzy dire, with passion blind,
On comes the love-lorn moose.

Then, while a loon laughs aloud
Along the far-off lake,
With antlers reared, erect and proud,
The bull bursts from the brake.

Montreal.

—COLIN MCKAY.

CORRESPONDENCE.

TO THE EDITOR OF ROD AND GUN :

In England and on the continent of Europe the black-powder rifle is passing into disuse; in this matter the western hemisphere has certainly not led, and we have yet to listen to men who try to make out a case in favor of their old weapons, but it does not require the gift of prophecy to foresee that the time is not far distant when rifles not firing high-velocity charges will be as out of date in the hands of a hunter as they already are in the hands of a soldier.

One of the best-known rifle makers of London is advertising all the black-powder burning rifles left in stock at cost price, and even on these terms they do not find buyers. The new rifles are superior to the old in point of weight, power, trajectory and accuracy, at least at the longer ranges. One of .400 bore, the charge of which is 60 grains of smokeless powder and a metal-cased bullet of 400 grains, gives a muzzle velocity of 2016 feet sec., and a striking force (energy) of 3597 feet lbs., which last is greater than the old fashioned .577 burning 6 drams of the strongest black powder.

Rigby, one of the most scientific rifle makers in England, turns out a .350 smokeless powder rifle which is more than the equal of the .500 Express, and a .450 which will stop the heaviest pachyderms, being fully as deadly as an 8-bore, black-powder rifle, such as have been used for elephant, bison, and rhinoceros in India and Africa.

For our Canadian shooting such powerful weapons are unnecessary—a .30 is good enough—but, seeing the enormous advantage of the modern rifle in lightness and trajectory, we can certainly not afford to ignore it in favor of a weapon which is far inferior to it, merely from sentimental reasons. Some of the old guard cannot disabuse themselves of the belief that smoke, noise and recoil mean power, but while their loyalty to the chosen arm of their youth may excite our admiration, our common sense must warn us not to pay serious attention to their garrulous chatter.

GUMTION.

Toronto, Ont.

TO THE EDITOR OF ROD AND GUN :

Noticing a short article in ROD AND GUN for January on the new .32 Winchester, a few words from me may bring out some ideas from other readers which will have value, perhaps in getting at what experienced hunters look for in a rifle for sporting. I have carried a .30 W.C.F. for two seasons now, and like it very much. Nothing that I hit got away, and only once did I miss, and that a snap-shot at a deer in thick brush, which was no fault of the rifle. One fault, however, the .30 has, and the same is to be said of all the Winchester rifles except the old '73 model, and that is they were too straight in the stock, excepting for men with short necks. In order to use one quick, I have learned the best way is to place the lower point of the rifle butt-plate against the shoulder, which places the barrel at once in the line of sight without having to bend the neck to one side to lower the head. I am not alone in my notion of this fault as I call it. Now, regarding the bullet of the .30, it is too round on the point for a good killer, or, I might rather say, to take the full advantage of its killing power. I formerly used a .45-70-350 which was a great killer, but heavy to carry, made a big smoke and a great noise, three bad points in a sporting rifle. It had the straight stock too, another so-called fault for me. While I always have got my game with my .30, yet I have never seen it kill a deer in its tracks, like the .45, unless it was hit in the head or neck or through the shoulder. Now, I believe the cause is to be found in the shape of the point, which I believe should be as flat as possible, without being large enough to come in contact with the barrel. I have tried the ordinary bullet and one which I had beaten flat on the point with the heavy blade of my hunting knife, and I have found that it increases the tearing effect by about 25%, animals such as the porcupine having been torn almost in pieces by it. Of course such a bullet will not penetrate as far as the other, but it is the smasher we are after, since the shock is greater the more laceration of the flesh you can secure. My opinion is that the .30 made with all the flat on the lead point it can stand without touching the rifling as before said, will drop game in its track as well as .45-70. For accuracy there is nothing to be desired further, as I have shot the heads from partridge regularly, not having missed one out of a dozen shot this past season. Give us the flat point and stock with more drop, and the .30 W.C.F. I believe is without a superior as a hunting rifle. The new .32 smokeless may prove a superior rifle, but the trajectory is greater than the .30 and penetration only 1 1/2 inches superior to it, and the cost quite a consideration to many men. It is a pity in "changing the styles" that the Winchester people do not give us the .30-40 U.S. army cartridge in a style of the '86 model Winchester, which I consider the best model of a rifle they have put on the market. They adapted it to the .38-40, .44-40, etc., in their 1892 model, and it would, I think, have been better to have used it again for the cartridges of the 1895 model and even the 1894 model. The 1895 model seems to me the poorest arm they make. The balance is bad, and I dislike it to carry, owing to the situation of the magazine and the light muzzle. All of the hunters around here who have owned them have got rid of them, without exception.

Yours, W. J. Scott, M.D.

Lanark, Ont., Canada.

*

Jinks—I'm going bear hunting; what would you advise me to take with me?

Binks—An accident policy.

FISH AND FISHING

FIRST DAY ON THE HOUSEBOAT.

MY DEAR JEAN :—

Since I wrote you the other day we have had such a lot of fun that I hardly know what to tell you about first, but to-day's sport has been so exciting that I really must leave the story of our trip until another time, and tell you about our first morning on the houseboat, so here goes.

Give him line! Let him ram! Oh, he is a monster, forty pounds at least and such a fighter! There he goes, six feet out of the water, turning three somersaults before my astonished eyes, winking at me every revolution with his big red eye, and finally making a dart at the boat, striking it viciously once, twice, three times, while I gather strength to scream for help. Just as I open my mouth to shout to our guide to rush in and help me fight him off, I suddenly feel that distance is slipping away at the rate of thousands of miles a second, and awake to the fact that some one is calling me. "For the land's sake, Madge, what are you groaning about?" is the first remark I hear from the other side of the door, and it suddenly dawns on me that I am not on the Restigouche, wrestling with a forty pound salmon, but in a comfortable bed in a houseboat on Kootenay Lake, with a delicious sense of having the best air in the world to breathe.

"Look here, Sis, if you want to see a glorious sunrise tumble out this minute," is Jim's next remark, but after sleepily saying, "all right," I roll over for another snooze. A moment later I hear Jim calling to the guide that he saw a big trout jump just a few yards away. At this, without waiting for even a stretch, I imitate the trout, and in ten minutes I am dressed, ready for my first day's fishing in the far-famed Kootenays. When I join Jim on the deck of the houseboat he laughs heartily, and I find that the horrid thing has not seen any trout jump, but knew that if I heard the word "trout" it would act on me like a cry of fire.

Well, I chase Jim and finally get a chance to box his ears, but by this time I am glad that he did call me, so he gets off without punishment.

We are combining business with pleasure on this trip, as, while I fish, Jim intends to tramp around the mountains gathering specimens of the various rocks and examining the many mines in the district. How any one can find any fun in doing this, when fishing is so good, I cannot see! But then, Jim is a man, and that makes a difference.

We fished during the early summer on the Restigouche River in New Brunswick, for the King of all game fish, the Salmon, and have now crossed the continent to try our luck with the rainbow and brook trout of the lakes and streams of the great Rockies. We reached Kootenay Landing, the terminus of the Crow's Nest branch of the great C.P.R. system, last night, after a day's ride through the wonderful mountain scenery, which seemed doubly attractive after the long ride over the level prairies. We stepped from the train into a fine steamer which took us over to the houseboat, anchored at the mouth of Canyon Creek, a place which had been recommended to us as a good spot to get fish.

We were tired enough to turn right in when we reached the houseboat, and instead of the hard bunk I had expected, found a couch that a princess could not object to, and fell asleep to the music of the rippling water of the creek.

Three o'clock in the morning and day is dawning! While Jim is already gazing at the mountains and making guesses as to their "formation," whatever that may be, I am looking intently at the water, and soon see what thrills me as nothing else can do, a fine trout rise to take a fly, not far from the anchorage. I immediately insist on unpacking my tackle and getting to work, so Jim reluctantly leaves his guessing for a few minutes and I am soon ready to try my luck. The morning is

into numberless eddies and ripples, where the lusty trout love to feed. After a few preliminary casts to get my line out, during which operation I notice that Grant's head seems to sink into his body, I begin to cast, and my second attempt brings a rise. I gently let him hook himself before striking and then begin to reel in, as we had been doing with the salmon, but the trout had gone. Grant told me to give them a "twist of the wrist" the minute they struck, and explained how to do it. After that I had better luck, and in the next hour had fought and landed sixteen fine trout, averaging about a pound each.

After I had made a few casts I noticed that Grant took off his peculiar head gear and shoved it under a seat.



MOUTH OF THE NORTH BRANCH.

"Boiling the Kettle" at the mouth of the North Branch, White River, Ontario.

now brightening and the trout are beginning to feed, as we see them jumping all around.

Grant, the cook, offers to row me around while I whip the stream, and I notice that he puts on a most peculiar straw hat with a very wide brim, which droops so much that you only see Grant's chin when he sits up straight. When I remarked that as the sun was not shining, so much hat was hardly necessary, he sighed and said he always wore that hat on certain occasions, so I only laughed and put it down as a whim of his. Well, we pull off and Grant rows into the stream and holds the boat in a pool of still water while I make ready to cast in the eddies and swift water. The mountain stream rushes swiftly into the lake, and the force churns the waters

He said that we ought to get at least one big fish before breakfast and rowed out into deeper water where the large trout and charr lie. On the way out I asked Grant why he had taken off his hat. "Well, Miss," said he, "you see that lump just below my ear and this scar on my cheek? Two years ago this summer, a party of tourists were at Nelson and wanted to do some fishing. They hired me to cook and row one of their boats around at the fishing grounds, and two of the women folks of the party kind of liked my looks and said I was always to row them when they went out fishing. The first day I dodged their flies pretty well, only getting two into my coat and having my hat jerked off three times. The next day their arms were a little tired, and their casting as erratic

as the mischief. Before we had been out ten minutes the old girl in the bow made a vicious cast and the tail fly landed against my cheek and hooked me as pretty as you please. When she turned around to see what had caught her flies and found out where they had lit, she let out a scream which so scared the other one, that, as she was drawing in for another cast, she fainted, and her flies slapped again my neck, and the top hook went in pretty deep. Say, I didn't do a thing, but make for shore, and after cutting the gut just above each hook, and not waiting even to say good-bye, I lit out for town and a doctor. It seemed that the hook in my cheek was rusty and poisoned the wound, so I had to lay up for five weeks nursing it. When the party returned to town they give me \$20.00 besides my doctor's bill, but what was that after spoiling a fellow's looks! Before I went out again with any women folks I bought this hat and now feel pretty safe with any of them, and say, Miss, after I seen you throw them flies once or twice I knowed I was safe as a church." Wasn't that a nice compliment, Jean?

By this time we had reached the deeper water, and Grant pointed to a beautiful eddy. The very first time my flies touched the water there was a big swirl, a rush, and a spinning reel. I let him have about sixty feet of line and then prepared to snub him, but failed. After 120 feet of line had gone out, I thought it time to stop his rush, so I gradually put on the drag and finally succeeded in stopping him. Then commenced a fight that lasted twenty minutes and gave me the best sport of my life.

Grant couldn't account for such a big fish as this one apparently was, and kept asking how he pulled. After many rushes and reels in, I finally got him to within 20 feet, when he suddenly made a dart for the boat while I tried to reel in the slack line. Just as he was going under, I quickly gave him the butt, the force pulled his head up a little, and he struck the keel of the boat a sharp crack and came to the surface stunned, where Grant gaffed him, at the same time saying "Well I'll be jiggered if you haven't hooked a salmon!" It proved to be a fine fake salmon, weighing 32 pounds 8 ounces, and the largest one caught in the lake for several years. So you see, Jean, our first day on the houseboat was a memorable one, and my dream of the morning not so very far out after all.

Sincerely yours,

MARGE.

Afloat on Kootenay Lake.

THE OJIBWAY CALENDAR.

By C. A. B.

An Indian friend of mine, one in whom I have considerable confidence, told me recently that the Indian calendar I printed in the April issue of *Rod and Gun* was not correct. I gather from him that the young Indian who gave me this calendar was more remarkable for imagination than accurate knowledge, and that it should have been as follows:

January—Long month.
February—Ground hog month.
March—Goose month.
April—Glare-ice month.
May—Flower month.
June—Strawberry month.
July—Raspberry month.
August—Cranberry month.
September—Harvest month.

October—Trout month.

November—Whitefish month.

December—Winter begins month.

This is not quite so poetical a calendar as the other one, but displays a great deal of sound common sense. The substitution of goose for ghost is a decided improvement, as the former are much more abundant than the latter, and serve a useful purpose. I am so in love with this calendar that I have drawn up one on similar lines, adapted to the wants of the white man in moderate circumstances. It reads:—

January—Good resolves month.

February—Crip and mustard-plaster month.

March—Put-away-furs month.

April—Easter-bonnet-bill month.

May—Big-fish-story month.

June—Straw hat month.

July—Gin-rickey month.

August—Sea-bathing month.

September—Children-go-to-school month.

October—Hunting month.

November—Light-the-furnace month.

December—Indigestion and swelled head month.

[While the foregoing list of names given by the Ojibway of the Temiskaming region may be correct, it is worth pointing out that Bishop Baraga in his invaluable dictionary of the language, gives one which differs considerably from it. His study of the Ojibway tongue was, however, made in the Lake of the Woods region, which may account for the discrepancies. For instance, September cannot be the "moon of the gathering of wild rice" to the Temiskaming Indian, because he knows of no such plant. The following is the bishop's version:—

January—Manito-gisiss. "The moon of the spirit."

February—Nanébini-gisiss. "The moon of suckers."

March—Onábani-gisiss—"The moon of the crust on the snow."

April—Behobwélagiming-gisiss. "The moon of the breaking of the snowshoes."

May—Wábigon-gisiss—"The moon of flowers."

June—Odéimini-gisiss. "The moon of strawberries."

July—Miskwimini-gisiss. "The moon of raspberries."

August—Mín-gisiss. "The moon of blueberries."

September—Manomunike-gisiss. "The moon of the gathering of wild rice."

October—Binákwi-gisiss. "The moon of the falling leaves."

November—Gashkalino-gisiss. "The moon of freezing."

December—Manito-gisissons. "The little moon of the spirit."—Eo.]

*

The mule deer of Montana have been afflicted with some contagious disease this year. The stockmen believe that it is anthrax. This, if true, substantiates, in a measure, the theory that the murrain which occasionally thins out the deer and moose in certain portions of the Dominion is most probably anthrax. This disease did a vast amount of damage in Scandinavia five years ago.

*

Hunters in England have little use for the automobile. In proof of which read the following from *The Field*:—

"The Master, Committee, and Farmers of the Warwickshire Hunt beg that ladies and gentlemen will kindly refrain from travelling to the meets in motor cars, or using them for any purpose connected with fox hunting within the limits of the hunt. (Signed), Hon. R. G. Verney, Lord North."

KENNEL DEPARTMENT

Conducted by D. Taylor

Owing to the prevalence of distemper and other diseases incidental to dogs in the early stage of their existence during the past three or four months, there is at present a marked scarcity of really good canines for sporting purposes and also for household pets. From all over the country the cry is that never before has there been such a mortality among puppies, some kennels being almost entirely decimated of young stock. It may be that a portion of this mortality was preventable, still, when we look at the names of those who have suffered and know the care and caution they generally exercise in the supervision of their kennels, the cause for such an excessive death rate must be looked for in another direction than carelessness or inattention. The best veterinary surgeons have been puzzling themselves over the matter, and many have come to the conclusion that the same causes which have made zymotic diseases so prevalent among the human race during the same period have conduced to the extraordinary fatality among dogs. There is a good deal of reason in this theory, because the symptoms in many of the cases brought under our notice have been entirely at variance with the well-known and established indications occurring in distemper, worms, etc., and have led many breeders to express the opinion that a new disease not yet diagnosed has appeared amongst our dogs. It is true that in many cases where distemper was supposed to exist, a post-mortem has revealed the fact that death was entirely due to the presence of "pin" worms in enormous quantities, or to abnormal fatty conditions induced by overfeeding of too rich food.

The scarcity of young stock from the above and other causes has had a tendency to raise the price of really good dogs, so that it is now almost impossible for others than those with means to become the owners of blooded stock. Especially is this the case with hunting dogs, as wealthy sportsmen, in a general way, have a total disregard for the price they have to pay for a well-broken dog, provided it hits their fancy at the time, and it is safe to say that never before last season has the average price run so high for dogs fit to be shot over.

Messrs. James Lindsay, of this city, and W. P. Fraser, of Toronto, recently imported the well-known English champion fox terrier, Matchmaker, the winner besides of many first prizes and the sire of more prize-winners than any other dog we know of. Matchmaker has been placed at stud, and the demand for his services is in keeping with his reputation.

A new Kennel Club has been formed in Ottawa, under the style of the Ottawa Kennel Club. The following are the officials:—President, J. C. Cox; vice-president, R. H. Elliott; secretary-treasurer, A. P. Mutchmor. W. G. Young, F. E. Montgomery, A. Armstrong, J. Graham, F. McLean, Dr. Kirby, Dr. Webster and W. J. Newton, executive committee.

Mrs. Bradley-Dyne, of British Columbia, has purchased the successful Scottish terrier, Dopper, winner of prizes at the Crystal Palace, London; Birmingham and elsewhere. This lady has probably the leading kennel of this breed in Canada.

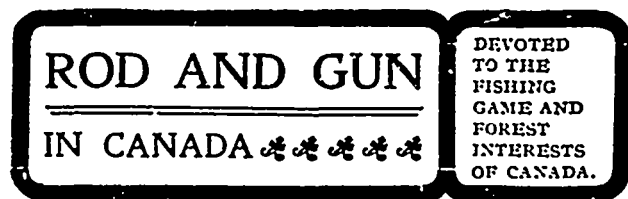
The Westminster Kennel Club's bench show takes place in Madison Square Garden, New York, from the 19th to the 22nd inclusive. This is the premier show of the United States, and as the prizes and specials are even more numerous and liberal than usual the inference is that there will be a corresponding increase in the number of entries and of dogs benched. The committee have appointed eighteen canine specialists to do the guessing. Among them we notice that Canada has been honored in the person of Mr. W. P. Fraser, of Toronto, who will undertake the decisions in Scottish terriers, and we have no doubt, from the increasing popularity of the "Diehard" and the well-known ability and impartiality of the judge that he will be greeted in the ring by a large entry.

Newmarket Kennels report having sold their bull terrier dog Newmarket Bendigo (recently illustrated in *ROD AND GUN*) to Frank F. Dole, at a long figure. At Philadelphia he won for his new owner: 1st puppy, 1st limit over 30 lbs., and 3rd open in hot company. Edgewood Penn, formerly Newmarket Baron II., a litter brother of this dog, also sold from the Newmarket Kennels, won 2nd puppy and 1st open under 30 lbs.; and another brother, Rising Star, won 3rd novice. Newmarket Kennels have had their slice of hard luck lately, having lost through distemper, four very promising young dogs by Edgewood Dick, and a good son of Champion Little Flyer.

Mr. Joseph Reid's fine collie, Heather Blossom, for which he had been offered and refused \$350, lately gave birth to a litter of eleven, eight of them being dogs. The sire is Ellwyn Astrologer, one of the best dogs in the United States, and Mr. Reid is sanguine that most of them will prove winners. He has already booked several of the pups for \$30 at six weeks old, and is negotiating with a gentleman in Chicago for the balance of his brood bitches, a deal which he expects will be closed shortly.

Secretary-Treasurer Jacobi of the Canadian Fox Terrier Club is able to show the substantial balance of \$138.58 on the right side, a position which shows careful management. The new officers are:—Patrons, Wm. Hendrie, Esq., Hamilton; Geo. Beardmore, Esq., M.F.H., Toronto; honorary president, Richard Gibson, Esq., Delaware, Ont.; president, Geo. H. Gooderham, Esq., Toronto; vice-president, Jas. Lindsay, Esq., Montreal; secretary-treasurer, Fred. W. Jacobi, Esq., Toronto; executive committee, G. M. Carnochan, Esq., New York, N.Y.; H. B. Donovan, Esq., Toronto, C. Y. Ford, Esq., Kingston, W. P. Fraser, Esq., Toronto, J. G. Kent, Esq., Toronto, C. W. Keyes, Esq., East Pepperall, Mass., A. A. Macdonald, Esq., Toronto, D. W. Ogilvie, Esq., Montreal, H. P. Thomas, Esq., Belleville, Ont.

A correspondent sends us the following anecdote, which goes to show that this dog was equal to the occasion:—A man was once given a large dog to take care of by a friend, who was going abroad. But the dog annoyed him by always sitting in his best armchair. One day a splendid idea struck him. He came into the room and found the dog in his usual seat, so he walked to the window and called: "Cats! cats!" Up jumped the dog and rushed to the window, while the man went and sat in the chair. A few days later the dog walked into the room while his master was sitting in his armchair. Going up to the window he barked loudly. The man got up to see what was the matter and the dog rushed and secured the chair.



ROD AND GUN

IN CANADA

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By the exercise of an immense amount of mis-directed energy we white men have almost succeeded in making the great toe perfectly useless to us. We laugh at the Chinese women and call them foolish for having deformed their feet, and all the while we do the same thing ourselves. Watch the noble Caucasian as he crosses yonder slippery slab rock; doth he not dig his heels manfully into it, so that the sharp-headed nails-studding its under surface may gouge out little holes and so prevent him from falling? Yea, verily, and one of these days, when the nails shall have become rounded peradventure they will fail to penetrate the rock, and then the noble Caucasian will make the acquaintance of his mother earth in abrupt and painful fashion.

And now let us watch brother Lo cross the same slab rock. Instead of digging his heel into it the balls of his flexible toes seek, almost instinctively, as it were, the slightest inequalities of surface; and so it comes to pass that he can carry a couple of hundredweight where his white "superior" may only pass by pounding like a stamp mill. The fact is that Lo instead of having two hands has four, and the two extra ones are invaluable on a slippery surface. Now Nature, as a rule, starts the white baby and the Indian papoose with a precisely similar outfit—yet ten or fifteen years later the "intelligent" paleface has rendered useless half his equipment.

*

There are certain people—generally editors—who think they are doing yeoman's service by wailing ceaselessly on the subject of game extermination. If they knew how weary they make their readers they would surely change the tune occasionally. So far as Canada is concerned, game, on the whole, is not being exterminated. We have any amount of it yet, and it does not follow that because thousands of deer, moose, caribou and bear are shot each year that they are being exterminated. A good many steers and sheep are also sacrificed, yet we do not hear that there is any danger of those breeds becoming extinct. Provided that not more than twenty-five per cent of the head of game be killed annually, there is not the slightest risk of extermination; and we believe that of the wilder species of Canadian big game the slaughter by white men and Indians does not amount to five per cent. of the total. Over large areas, we have excellent reasons for believing that tog game is more abundant than it was fifty years ago, the

reason being that there are fewer Indian hunters now and, consequently a smaller toll is taken. If some of our friends across the border, who, as they confess, are chained to business, would tear themselves from their sanctum: for a sufficient length of time, we could direct them to regions which would be a revelation to them. Many generations will pass away ere the broad, deep track of the moose, the square-toed trail of the caribou, and the dainty imprint of the Virginia deer's hoof will cease to be found in our northern forests.

*

In the present issue a correspondent dwells upon the paging of the black-powder rifle, and it seems to us that his contention, that it will have to yield to a weapon using nitro powder, is well taken. Quite recently we received the catalogue of a well-known London maker, in which he gives the following particulars of his latest patterns. Speaking of a new .400, to carry a charge of 60 grains of cordite and a .370 grain bullet, he says: These rifles will answer for any animal from a roe deer to a bison or elephant, and will make a clean kill if the proper description of bullet is used. Bullets are made in six different patterns. For accuracy of shooting the .400 will tie with the Mannlicher; they did so at Bisley in the Martin Smith sporting rifle competitions in 1898. These rifles have a muzzle velocity of 2200 ft. per second, and a striking force of 4000 lbs., according to the "Field" trials. They hit with the same force as the 8 bore, and the recoil is not more than one-half of that of a .500 Express.

The same maker builds a .600 rifle of extraordinary power. We think that even the worst grizzly, even a silver tip, would go away back and lie down if he were tickled in the ribs with a bullet from this persuasive weapon. Of it the maker says: These cordite smokeless rifles of .600 bore are the most powerful weapons ever constructed for big game shooting; velocity, 1750 ft. to 1800 ft.; striking force, 6200 lbs. They handle better and easier than any .577 Express, and the striking force is greater than that of a 4 bore using 12 or 14 drams of powder. The .900 grain bullet is heavier than the ordinary 8 bore bullets, and with 100 grains of cordite (three times the .303 charge) it has a very high velocity. The recoil is less than that of a .577, so very accurate shooting is obtainable even at long ranges. Any sportsman who has once fired, and witnessed the effect of, the .600 bullet would never again use an old black powder 8 or 4 bore.

Nor are the victories of the smokeless powder rifles confined to the larger calibres, for the .255 rook and rabbit rifle is now being manufactured in England to shoot, either 4 grains of cordite and a cannalured bullet, or else a nickel-covered bullet propelled by 7 grains of the same explosive.

*

In the October and November numbers of The Commonwealth are two very interesting articles on forestry. The writer discusses the problem of the settler and the forest, and coming to the conclusion that large areas in Canada are better suited to tree growing than to agriculture, suggests that somewhat similar lines should be followed with our forest lands as are now adapted for settling the fertile districts, but that, in view of the slow maturing of the crop and other conditions which do not exist in ordinary agriculture, the area allowed to each settler should be increased sufficiently to provide for the maintenance of himself and his family, which might be estimated for the present at two square miles, or 1280 acres. The settler should be required to manage the tract properly to bring about the greatest possible

productiveness, to take all precautions against fire, assist in the fire prevention service, etc.

It is very gratifying to know that attention is being directed to this subject, particularly as we may surmise from the quotation of the report of the Canadian Forestry Association that some of the inspiration for the articles mentioned came from it, but we must confess that our view of the forest policy of the future is that it must become more frankly socialistic, and that where lumber production is the object the sphere of the state must be made wider, and the operations carried on on a much larger scale than would be possible for the individual, unless his resources were of the amplest description.

*

If we may believe the accounts that reach us from England the days of the revolver are by no means over. It is said that those British officers who have returned from the front infinitely prefer the revolver in a hand to hand fight to the small bore, automatic, magazine pistol, while at longer ranges they believe only in the service rifle.

*

Already preparations are in progress for the many horse shows, which during the present year are to be held in Canada and the United States. The Boston event takes place in April, and the catalogues being already in the hands of the printer, they will be ready for distribution before the close of the month. The amount to be competed for in prize money will exceed that of last year, and it is expected that the best horse show that has ever been held in the Bay State will form a part of the Easter festivities.

*

Although the year is but a few days old, arrangements are already under consideration touching our own Montreal exhibit, which will, as in previous years, occur in May. The enthusiastic patronage which has been accorded to the two previous shows warrants those interested in sparing neither time, thought nor expense in providing a programme which will keep up the high standard already attained.

*

A short time ago we had an enquiry from a foreign nobleman as to the range of Fannin's sheep, and in order to go to the fountain head for our facts we wrote to Mr. John Fannin, the veteran naturalist, after whom the sheep was named, about the matter. He replied:—"The only locality at present known in which the sheep can be found is on the Yukon River, north of Dawson City. This is the only range at present known of the *Ovis fannini*."

*

The Peterboro canoe, either of cedar or of basswood, is slowly displacing the birchbark. The fact is there is no comparison between the crafts. If you doubt it, give each a fair trial and you will soon be convinced that this claim is true.

*

The other day a British Columbia sportsman—a man who has had unrivalled opportunities, in the way of big game hunting—paid Ron and Gex a visit. Amongst other interesting information he said that Dall's sheep is abundant in the mountains of the Coast Range at least as far south as the mouth of the Skeena River. This same gentleman states that he has secured a good many specimens of a very little known deer—Richardson's deer. This is quite distinct from the ordinary mule deer, and adds one more to British Columbia's noble list of game fit for the rifle.

The good ship *Minnehaha*, which sailed for English shores on December 20th, carried the chestnut colt *Nasturtium*, by imp. Watereress, and owned by Mr. W. C. Whitney, of New York. *Nasturtium* goes from the United States to England for competition in the Derby, the greatest of British turf events, which will be looked forward to with a great deal of interest in consequence.

*

Our frontispiece this month shows a houseboat on the famous Kootenay Lake. Nowhere on the continent is there better fishing than in this beautiful British Columbian water, and there is very good shooting to be had in its immediate neighborhood, the game being caribou, bear, duck and grouse. A small tug tows the houseboat from one part of the lake to another, just as the whim dictates, and thus all of this great, lonely, lovely lake may be visited without the loss of comforts and conveniences usually unattainable, excepting in the centres of civilization.

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Owing, doubtless, to the Christmas festivities a considerable number of typographical errors found their way into the January issue of *Rod and Gun*. But we congratulate ourselves upon the fact that our readers are all sportsmen, or sportswomen or sportschildren, and, therefore, we feel that it is not absolutely necessary to explain that when the hilarious compositor makes us "poddle," what we really meant to say was piddle; and when he speaks of 200,000 visitors going to the State of Maine for the hunting we intended to have said 20,000, and when he gives the striking energy of the new .32 Winchester at 1150 ft. lbs., what we actually wrote was 1550 ft. lbs. Then canoes are not generally "lunched"; in our younger days they were always launched, but one of our most brilliant and promising young compositors doesn't believe in sticking to the old rut, but has found some new method of putting canoes in the water, which by the bye, we shall try to get him to explain in print some day.

All of which goes to show how easy it is to slip up—especially about Christmas time.

Only 33 per cent of the Province of Ontario has yet been surveyed.

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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.

FOREST FIRE PROTECTION IN ONTARIO.

By W. A. H. Findlay.

Secretary, Crown Lands Department, Toronto, Ont.

For some seasons previous to the year 1884 the heavy losses sustained in Ontario through bush fires, both on licensed and unlicensed lands, made it apparent to everyone interested in the timber resources of the province that a necessity existed for some means of preventing the origin and checking the spread of fire in the forest during the hot months of summer. The pioneer farmer and miner were steadily pushing their way further and further into the virgin parts of the province, including the pine regions of the Ottawa and Mississippi valleys, and the north shore of Lake Huron. In the Muskoka and Parry Sound districts the advance of settlement was heralded by the immense fires which swept over a large part of that country during the summers of 1881 and 1882. The construction of projected railways, also, was bound to entail almost incalculable destruction to one of the most valuable of the natural resources of the province. The time had come, therefore, when the question of devising some scheme whereby these annual devastations would be entirely avoided, or at least to some appreciable extent lessened, should engage the attention of the Department of Crown Lands and the timber licensees as well.

Investigation and inquiry were instituted by the Department, and, as an experiment, a number of men were placed on duty during the summer of 1884, to patrol the limits of two well-known lumber firms in the eastern part of the province. The work accomplished by these rangers was highly satisfactory to both the lumbermen and the Department, and in the spring of 1885 the present Assistant Commissioner of Crown Lands prepared a memorandum in which he set forth the results of the Department's investigations, and outlined a system of "fire ranging," which was laid before the Commissioner of that day, approved by him, and communicated to the licensees.

To understand the principle and working of this proposed system it is necessary to know something of the tenure of timber lands in the Province of Ontario. Limits are held by yearly license only, and no title to the land passes from the Crown, but merely the right to cut the timber. Part of the purchase money is paid in the form of "bonus" before the issue of the license, and part in the form of "dues" when the timber is cut. Ground rent is paid annually.

It will thus be seen that even after a limit is placed under license, the Government retains a substantial interest in it, because it expects to realize on the timber when cut, along with the lumberman. It therefore seemed proper that the Crown should bear some part of the expense of protecting licensed lands, and it was proposed that half should be borne by the Department and half by the licensees. "Fire Ranges" were to be selected by the licensees themselves from among their

foremen, or other old employees who were practical men, experienced in the bush, and who knew their limits thoroughly. They were to be instructed from the Department and given authority to enforce the Fire Act as officers of the Crown. They were to be put on duty between the 1st and 15th May and to remain in the field till the 15th September or 1st October, according to the season. If the summer were particularly dry, or any special danger from fire existed, extra men would be procured. The rangers would travel over the limits, visiting localities where clearing might be going on and impressing the settlers with the necessity for caution in burning their fallows and brush heaps, and keeping an eye on miners, prospectors, explorers and tourists, ever watchful to see that all fire had been carefully extinguished before camp was moved. They would be furnished with copies of the Fire Act in pamphlet form, to be distributed amongst settlers and others with whom they came into contact, and with copies of the Act, on lines, to be posted in conspicuous places on travelled roads and at clearings, camp grounds and landings. If fire should unfortunately break out it would be their duty to hasten to the spot, and, if necessary, call in outside assistance to prevent it gaining headway, and eventually to stamp it out.

It was to be a purely voluntary matter with the licensees whether they employed rangers or not. Their interests were even greater than those of the Department, so there was no compulsion. The Department merely intimated its willingness to bear one-half the cost of their staff should they see fit to nominate the men, and one-half the cost of extra help to fight any fire getting beyond the rangers' control.

The proposed system found favor to an extent scarcely anticipated, and during the first summer of its operation (1885) 37 men were on duty. The effect of the presence of the rangers was excellent. Not only were the numerous fires promptly stamped out and thousands of dollars damage thereby averted, but settlers and others frequenting the woods were impressed with the necessity for care in their use of fire, and a general feeling of interest in the preservation of the forests was aroused. At the close of the season the limit holders who had employed rangers expressed the greatest satisfaction with the results, and urged the continuance of the system. Since then lumbermen have become better acquainted with the advantages of employing rangers, and now there is scarcely a limit holder in the province who does not nominate men for his territory every summer. Legislation was passed a few years ago which empowers the Department of Crown Lands to place men on licensed lands where the appointment of rangers has not been asked for, and where there may appear to be any special danger from fire, and charge half the cost of maintaining them to the licensee, but so appreciative have the lumbermen generally been of the benefits derived from the operation of the system, that action in this direction has not been called for in a single case.

On the unlicensed lands of the Crown the danger from fire is not so great, owing to the absence of settlers, but wherever railways have been built, or miners, prospectors or tourists have commenced to frequent localities timbered with pine, the Department has placed rangers on duty, the expense of which is, of course, borne wholly by the province.

In the year 1896 it was noted by the Director of Forestry that during the previous summer on 49 limits from which reports had been received, only 93 fires had occurred, by which upwards of 59 millions of feet of timber had been destroyed or damaged, representing over \$40,000 in value. The province

was then congratulated on the efficient work done by the rangers, in the absence of which greater damage would undoubtedly have resulted. But let me point out that during the summer of 1901 on the limits of 50 representative lumbermen, covering a vast area of country in all parts of the province, the fires that caused any damage worth mentioning could be counted on the fingers of one hand, and the value of the merchantable timber destroyed would be covered by a thousand-dollar cheque.

Perhaps the most serious fire of this year was one which started in the Temiskaming district early in July. There is but little pine in this section, and the land is not under license. The timber consists of spruce and other soft woods, and settlers were at that time going into the country in large numbers and commencing to make their clearings. As far as the destruction of timber is concerned, the loss was relatively small; it is even maintained by some that the fire, by consuming the underbrush and debris on a section which is rapidly being cleared up, will ultimately prove to be a blessing rather than a public loss.

On licensed lands throughout the province many fires started, but in almost every case the rangers were on the ground and checked them before they passed the incipient stage. A most regrettable fire took place on the limits of the Collins Inlet Lumber Co., on the north shore of Lake Huron. This company, of which Mr. John Bertram is president, has been operating its territory with some regard to future crops of timber, and has been preserving on its limits a large area of young pine not yet ready for the axe. The limit was well guarded by rangers, but in some way fire got in, and, before it could be checked, ran through a tract 5 or 6 miles in extent, and timbered with a thrifty growth of white pine from 10 to 20 years of age.

No pine timber of any great value was destroyed on the Crown domain. In addition to rangers in other unlicensed pine territory, seven rangers and three assistants were employed in the Temiskaming Forest Reserve, headed by Mr. Lawrence Loughrin, of Pembroke, who is known throughout the whole of the north country as an experienced bushman. Notwithstanding the fact that in the eastern part of the province the rainfall this summer was particularly light, and that a greater number of tourists than ever before went through the Temiskaming country, only four or five fires started on the Reserve,

which were all extinguished before any damage was done. Besides carefully guarding the 2,200 miles of territory placed under their care, the rangers found time to erect a lodge on Bear Island, where the headquarters of the Reserve have been established, which will add to the comfort and convenience of the rangers there in future years.

Across the Height of Land, in the great spruce belt on the Hudson's Bay slope, a couple of rather extensive fires have been reported. It is said that explorers have been working in that country during the past summer. Possibly, therefore, the cause of the fires is not far to seek. Fire is not very likely to start up in a vast uninhabited and untravelled country without the agency of man, but with the advent of the explorer, prospector or railway engineer, a large element of danger is introduced, against which precautions must be taken within the next few years if we are to have conserved for the people the huge forests of spruce, and other pulp timbers which are known to exist there.

The almost entire absence of fire south of the Height of Land during the past summer is abundant evidence of the efficacy of a fire-ranging system which has stood without any important modifications for sixteen years, and has been copied and adopted in neighbouring provinces and states. The aggregate damage caused by forest fires cannot be placed at anything like the value of the merchantable timber destroyed or damaged. Untold damage may also result from the destruction of the younger trees, and the consumption of the forest litter, and even of the soil itself. The first principle of practical forestry applicable in this province, or indeed in any other country where the timber areas



HELLO! WHO ARE YOU?

Crossing a Divide in the Rockies, 8,700 feet above sea level.

cover many thousands of square miles, is undoubtedly to protect from fire what we already have, and the Department of Crown Lands, and limit holders alike, believe that this can best be done by the system which is now in force. Costly the service may appear, yet it must be remembered that the expense is distributed over a large area of country, and among many different individuals and firms; and, considering the immense money value of the forest wealth which is thus guarded, in which both private persons and the public generally are interested, it must be conceded that the protection afforded by the employment of rangers has proved to be an insurance of the most economical and practical kind.

The Red Pine.

Anyone who has travelled along the waterways of the northern part of Ontario must have noticed a coniferous tree standing here and there in groups on the bold shores of the rocky islands, or mainland, and apparently growing up from the bare granite where there seems to be hardly a foothold for the smallest vegetation. The red trunks stand out clear and straight against the background of rock, and, with the tufts of coarse needles forming the foliage which crowns the clear-springing columns, they make a contribution peculiarly their own to the unexcelled beauties of the scenery of the Canadian forests. This tree is the Red or Norway Pine (*Pinus resinosa*), so named from the red bark and the darker color of the wood which distinguish it clearly from the White Pine. The foliage is also much coarser than that of the White Pine, and a closer examination shows that the needles are longer and thicker and are grouped in pairs. The cones are short and thick, preserving the coarse character of the red pine. The contrast between the red bark and green foliage makes this a very ornamental tree, and it is frequently used for this purpose.

As a timber tree the red pine is not nearly so valuable as the white pine, but it grows to a good size, reaching a height of fifty to ninety feet, and as it flourishes better than the latter on bare rocks and poor soil it will always have its place in the economy of the forest. When the trees are of fit size they are taken out by the pine operators, and it needs no further demonstration to show that the handling of red pine is profitable even at the present time. The wood is resinous and dark in color, from which the tree gets its specific name (*resinosa*). It is stated to bear a close resemblance to the most resinous examples of the Scotch fir, and it is from this fact that it has been called Norway pine. In the early days of the lumber industry this resemblance gave the tree a temporary prominence and value which it was not able to maintain against the now much more highly appreciated white pine. The timber is strong and has a clean and fine grain. It is used for piles, bridges and works where heavy timber is required.

In the Royal Dockyards in Great Britain it is employed for dock work, masts, spars, cabin fittings, etc. It is shipped in logs sixteen feet to fifty feet in length and ten to eighteen inches, and in deals of mixed length, mostly sawn to three by four inches.

In Canada the range of this tree is practically that of the white pine, being from Nova Scotia to the western boundary of Ontario, but occupying usually the poorer soil.

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Forestry in Nova Scotia.

The subject of forestry is being agitated at present in Nova Scotia, and there is no question that is more worthy of attention. The provincial governments have already received so much revenue from their timber lands that it should surely be a matter of the greatest importance to them to make these lands as productive as possible, instead of allowing them to be bared again and again by fire or cut without regard to any future return. Nova Scotia is justly proud of her mineral wealth and her great coal and steel industries, but the lumber industry is a wealth producer which, if properly dealt with, is continually renewing its youth and will be an asset of the greatest value for all time. While there are considerable areas of forest still in existence in that province, the axe and fire have done their work so widely that thinking men are beginning to ask them-

selves the question whether there is not some way of making better use of the forest and preserving its beneficial effects.

This matter has been brought before some of the Boards of Trade. In May last the Annapolis Bay Board of Trade passed the following resolution:—

“Whereas, the subject of forestry is a most important one and there is no question but that it has been too long neglected in Canada, and, whereas, the manufacture of lumber has been one of the most important industries in the Province of Nova Scotia, and it is now anticipated that pulp mills will consume a very large quantity of standing timber, and, whereas, it is apparent to everyone that the depletion of standing timber of all kinds by forest fires and the axe is fast denuding our forest lands and rendering them of no value, and, whereas, it is believed that, with the prevention of fires, protection to the rapidly growing young timber, and the systematic cutting of trees for lumber, our forests will be of value for many years to come, therefore this Board of Trade suggests that the Boards of Trade co-operate throughout the province to induce the Government to take immediate steps to awaken public interest in forestry, and make such appointments that suitable overseers or inspectors will be put in charge of the timber districts in Nova Scotia, and, as an incentive to owners of private timber lands, guard and protect all Government timber lands, and reforest any suitable areas that may be found fit for the purpose. A copy of this resolution to be sent to the other Boards of Trade in this province.”

The Boards of Trade at Kentville, Chatham and Halifax have taken action in the line of this resolution, and it is hoped that the legislature will give the matter consideration at its next session. Hasty legislation is not advisable, but all who have given study to the question of the world's lumber supply are agreed that the outlook is for increased demands with a diminishing supply, and therefore an enhanced value. As expressed in a recent work by Mr. Nisbet, one of the leading students of the economic questions concerned with forestry in England:—

“The economic conditions now already obtaining, and practically certain soon to become greatly accentuated, are such that the present sources of supply throughout the world are just able to meet the existing demand, and such enhancement can only be met by working out timber from backwoods and remote tracts which are at present unremunerative. Hence a general rise in prices throughout Scandinavia, Russia and Canada must be the direct result of competition between Britain, America and Germany.”

In forestry it is inevitable that there must be a very long foresight, and it will be but a poor policy for any province to shut its eyes to the future when a comparatively small expenditure for preserving the means of reproduction will ensure an increasingly valuable supply of forest products and a stable source of revenue to the State. The more light that can be thrown on the subject from a practical point of view the better, and it is to be hoped that the discussion will not die out with the passing of resolutions, but that it may be kept steadily before the minds of the public and the legislators until some basis for a definite line of action can be worked out. No ready-made policy can be advocated. It must be framed from a knowledge of local conditions: the land; the forest products; the conditions of growth; the objects to be served. The advice of scientific experts is of the greatest value, but the data of local conditions must be made available if their knowledge is to be fitted for practical application. Taking stock is a necessary

operation at times in all business establishments, and Nova Scotia, as much as any of the provinces, will be in a much better position to adopt a wise policy if definite information is available in regard to the resources of the country and the conditions under which they must be developed.

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The Birch Bucculatrix.

During the past summer the seared and browned appearance of birches of all kinds throughout the Province of Ontario has attracted general attention, and many conjectures have been made as to the cause of this injury. Upon a search being made beneath the leaves, several small, pale, greenish caterpillars, about a quarter of an inch in length, might have been found. These had slender bodies, tapering to each end, and were covered with fine bristles. These caterpillars soon made the leaves like lace, by eating out portions of the upper or lower sides and destroying the cellular tissue, leaving only the fibrous skeleton. The injuries became noticeable in August, when the trees assumed a rusty appearance, and many of the leaves fell prematurely. Among the caterpillars might be seen several small white circular and flat webs. These are peculiar to this insect and are really temporary shelters made by the caterpillars at the time they moult their skins, and which they only use for a day or two. The real cocoon, in which the insect passes the winter, is a beautiful little boat-shaped object, dark brown in color, and conspicuously ribbed. As soon as the caterpillar is full grown it lets itself down by a silken thread, and having found some suitable place spins its beautiful cocoon, frequently crawling very long distances before it decides on an acceptable site. The minute moth, which expands only three-eighths of an inch, is bright brown in color, and has the wings crossed with silvery white bars. The head is white, as well as the margins of the thorax and the bases of the fore wings. This insect only occasionally appears in the vast numbers which were seen in Ontario during the past season. The last occasion was in 1892. This was equally bad with the outbreak of 1901. In reply to several questions which have been asked on the subject, as to whether the birch trees are likely to be killed by having their leaves destroyed, I can merely say that in 1893 there were none of the caterpillars to be found on the birches, and the trees showed no trace of having been stripped the previous year. The small moths appear during June and July, and the caterpillars may be found if looked for towards the end of the latter month. The injury to the leaves, however, does not become apparent till August, and by the time it attracts general attention it is, as a rule, too late to use any practical remedy. This insect, like all others which feed exposed on the foliage, can be destroyed by spraying infested trees with a weak mixture of Paris green or some other active poison and water. In the case of the arsenites most commonly used, one pound of the poison to 200 gallons of water is sufficient.

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A meeting of the Board of Directors of the Canadian Forestry Association was held in the office of Mr. E. Stewart, Dominion Superintendent of Forestry, on the 3rd instant. Those present were Mr. Wm. Little, Dr. Wm. Saunders, Mr. C. E. E. Usher, Professor John Macoun, E. Stewart, Norman M. Ross, and R. H. Campbell. Arrangements for the annual meeting were discussed, and it was decided to have a two days' session on the 6th and 7th March. So far as at present arranged papers will be submitted by Dr. Wm. Saunders, on the results of

the experiments with shelter belts as carried out at the Experimental Farms; by Mr. Norman M. Ross, Assistant Superintendent of Forestry, on the work accomplished by the Dominion Bureau in the West; by Mr. W. N. Hutt, on the management of woodlots in Ontario. A report on the forest fires which have occurred throughout Canada during the past year is to be prepared by the Secretary. Arrangements are being made for other papers on the management of spruce pulp forests, and other subjects of special interest at the present time. The report of the proceedings of the next annual meeting promises to be fully as interesting, and useful, as the previous ones already issued by the Association. The Forestry Association is steadily growing in numbers, having now a membership of 330. Full announcement in regard to the annual meeting will be made by circular to the members of the Association at a later date.

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Mr. D. B. Dowling, of the Geological Survey, who has recently returned from an exploration of the district to the west of James Bay, reports that on the return journey he passed through a district on the Moose River, one hundred miles in width, which had been burned over during the present summer. The timber was not dense, nor of great value, but the sweeping of such an area shows that the forests in the, at present, inaccessible districts cannot be depended upon with any certainty as a source of future supply. The results of such a fire cannot be repaired within the present century.

FISHING IN TE-GOU-SIE-WABIE.

TO THE EDITOR OF ROD AND GUN :

I have been captivated by the narrative of your clever correspondent "St. Croix," always noting with a feeling of pleasure the concluding sentence, "To be continued," whose echo we hope may yet continue to resound before finally breaking against the rugged cliffs of "The End." The easy rhythm and unaffected simplicity of the tale seasons conviction with the savour of charm, and, with the credulity and interest of a child, one participates in the exhilarating pleasures and romantic sensations which can only be experienced in a trip through the northern wilds.

But, to the marrow of my mission, which is emphatically dissent from the heresy that there is any less degree than first-class fishing in Lake Te-gou-sie-wabie. Only last fall I, personally, caught within a short distance of the portage before leaving the lake, while trolling to and around an island, ten large and beautiful salmon trout, each weighing about four pounds, the time occupied in the catch being about twenty minutes. I have also caught numbers of large and luscious perch; and need not mention doré, as its presence has been admitted. These fish are all of superior flavour, like most north-water inhabitants. In every one of the several times I have visited the lake, I have seen many evidences of the presence of large numbers of fish; so that your readers, Mr. Editor, will, I trust, forgive "St. Croix" for his error in view of the genuineness of his story in all other particulars.

W. C. LELAND.

Mattawa, Ont.

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Sir Charles Ross has secured a charter for a factory to manufacture the Ross rifle in Canada. The plant is to cost \$3,000,000.

AMATEUR PHOTOGRAPHY

Conducted by Hubert McBean Johnstone

DEVELOPING AND DEVELOPERS.

Development is a science. That is the right word; it is a genuine science, though the average amateur does not appear to realize it. Yet it is easily proved to him. All that is necessary is to take one of his own badly developed negatives and let him compare it with the production of some competent worker. As a rule, he imagines that all that is necessary to do is to drop his plates in a bath composed of certain ingredients (and he most likely does not know what they are), and when the image comes out on it strong enough to print, take it out and fix it. Such a simple little process! Really, there can be no excuse for all this talk about mixing "Bromide of Brains" with the solutions. Why, even a child could do it, and that's no jest—the way he does it.

Surely the amateur who uses one brand of plates and then develops with the formula that is supplied with the production of another maker, cannot be aware of the fact that, notwithstanding all the different formulae published, even the sample pyro and soda, there is no single developer that will develop all plates at their best, nor, in fact, any two makes. The proportions in which one solution is mixed will fully answer the requirements of the plate for which it is intended, and yet, perchance, may mean utter ruin to another plate of equal sensitiveness. Of course it will produce a negative, almost any developer will do that. But it won't give you just what you are looking for—the best that is to be had. In order that you may be assisted in realizing how true this is by having a conception of the various formulae on the market, the following list compiled from the formulae issued by the various plate manufacturers, is given. The figures given therein indicate the number of grains in one ounce of diluted developer:

	Sulphite of Soda.	Sal Soda.	Pyrogallie Acid.
Monroe	19	9½	2½
Stanley.....	18	18	3
Cramer.....	18	9	2½
Eastman	15	10	2½
Seed	18	12	3
Hammer	12	6	1½
Climax.....	18	18	3
American.....	24	12	2½

Observe, there are not two alike. In one, for instance, we find there is used 24 grains of Sulphite to the ounce, while in another there is but twelve, only half that amount. One uses eighteen grains of sal soda and another only one-third of that. The pyro ranges from one and a half to three grains to the ounce. Now, what is the cause of all this difference? There must be some reason. Well, the reason is to be found in the fact that there are no two manufacturers using the same emulsion. Some of them employ potassium bromide, others use ammonium bromide, together with iodides of both kinds. In those instances where the same ingredients are used, they are most likely mixed in widely varying proportions, and, as a consequence of this, the different brands of plates each have a distinctive color and quality, which will only yield the best results to the developer that is compounded in proportions carefully mixed to suit it. While all are aiming at the same

result, i.e., a perfect negative, each sets about producing it in different ways.

The most important agent bearing on the development is the exposure. Successful workers always expose to suit the developer and steer clear of that error of developing to suit the exposure. By this it is meant that they use a normal developer, and, in order that it may be successfully manipulated, expose correctly. All directions give methods of rectifying incorrect exposures by varying the proportions in which the developer is mixed, but it is well to bear in mind that old adage about an ounce of prevention being worth a pound of cure.

Mistakes, however, will occur, and then it is necessary to find some way of remedying the evil. Perhaps in out of doors work, most common cause of complaint is over-exposure. Here, if the trouble is only very slight, it is possible to get along by simply using an old pyro developer. Pyro, you know, once it has been used, takes up a certain amount of bromide from the plate, which acts as a restrainer. The adding of a ten per cent. solution of bromide of potassium to the developer as a restrainer is unnecessary to comment upon. But in cases where the trouble is excessive it may be necessary to adopt more emphatic means to make anything out of the plate. Personally, I would advise that you go back and take it over again if you are able. But there are often cases where it is impossible to do this. Your directions will tell you in what quantities to mix your solutions to serve here and you may try it. If that is not sufficient, the following solution is excellent for all purposes where great density of the high lights and clear glass in the shadows are required. Though intended for the copying of pen drawings and engravings, my personal experience is that it is *par excellence* for the developing of badly over-exposed plates. Here it is:

I	
Distilled, or ice water.....	25 oz.
Sulphite of soda crystals	5 oz.
Hydrochinone.....	¼ oz.
Bromide of potassium.....	¼ oz.
II	
Water	25 oz.
Carbonate of soda crystals.....	6 oz.

Mix parts one and two in equal parts for use. The negative should then be put through an alum bath to prevent heating from frilling it and afterwards dried near a stove. It is surprising how a negative dried near the heat will gain in intensity.

It is not necessary to give an intensifying or reducing formula here. Every maker does that, and besides so many other good ones are published that it would only be a waste of space.

Also, it ought to be unnecessary to say that an undertimed plate should be treated with a fresher developer. Every one knows that. If this does not make the image appear satisfactorily, take the plate out, and, without rinsing, place it in a tray containing water, to which has been added a little alkaline solution (sulphite and carbonate of soda), and leave it there as long as it increases in detail. If it is not then strong enough the development may be continued in fresh developer, and if that does not bring out what you want, you may as well throw the plate away and go and take it over again.

It would seem that amateurs do not sufficiently understand the effect of different chemicals or the duties which they are intended to perform. Without a clear knowledge of this point, they are in the dark as to what they are doing. It is not the right way to do a thing to simply set about it by rule with-

out knowing the why or the wherefore of it. Suppose I give the uses of a few of the commonest chemicals and what effects they produce. First, of course, comes the pyro or metol or whatever agent is employed. Without them the developer would not act; yet too much or too little is just as bad as none at all. Too much will produce a clogging of the whites and make an altogether excessive contrast, while on the other hand, too little will result in prolonged development and a lack of vigor and brilliancy. There are many developing substances such as pyro, eikonogen, metol, hydrochinone, glycine and others, which hasten development, and so quickly intensify the high lights that the shadows remain behind and do not get

On the other hand, of course, too little will retard the action of the solution. You must bear in mind that granulated sodas are twice as strong as crystals, and also that old and dry crystals are considerably stronger than fresh, as the water of crystallization gradually evaporates. The most convenient way to work is to make up saturated solutions, and then, when you want to use them, all that is necessary is to add water to a portion thereof until the hydrometer reads at the desired degree. This makes no difference if dried chemicals are used instead of crystals. When they are prepared by weight, however, proper attention must be paid to the relative strengths of the chemicals. Bear well in mind that twelve parts of



ABOVE GRASSY LAKE.

The North Branch, White River at extreme low water.—the lowest known, it is said, for fifty years.

their proper amount of detail brought out. A little over exposure, dull lighting or soft working plate is of good service here. Or it is possible that the developer may be diluted with water, and development so held back that the shadows will have a chance to work through before the high lights have gained too much strength.

Passing on to the alkalis, we find that their mission is to soften the film and open the pores so that the pyro, or whatever agent be employed, will get a chance to act. This will show you the object of soaking an under-exposed plate in sulphite and carbonate of soda. In ordinary use, however, care must be taken not to use too much of it, else the agent, acting too fast, will make the negative too dense and cause granulation.

carbonate of sodium crystals (sal. soda), are equal to five parts of carbonate of sodium dried, or to six parts of carbonate of potassium, and two parts of sulphite of sodium crystals are equal to one part of the dried or granular sulphite. Roughly speaking, one ounce of dried or anhydrous soda is equivalent to about two ounces crystals. When dissolving dried sulphate or carbonate of sodium, the water ought to be vigorously stirred with a glass rod while adding the powdered chemicals to cause a speedy solution and prevent the formation of a solid lump. The carbonates of soda are added to give the agent employed the alkalinity necessary for action, while the use of the sulphite is to prevent discoloration and decomposition. It is very important, therefore, that these chemicals be perfectly pure. Also,

contact with the air decomposes them, and they ought to be kept in well stopped bottles.

Again, in the case of the soda as with the agent, one has to be careful and not use too much. An excessive amount will kill the high lights, and particularly if one be photographing white drapery, effects are very apt to be inclined to be chalky. The tone of the negative is also affected by the amount of sulphite of soda used. A smaller quantity than is called for in the directions will produce a warmer tone and a larger amount of a greyish or blueish black tone.

It is not, however, my intention to run on and describe at length the action of every chemical used in photography. To do that would demand several times as much space as I have here, and even then would be only going over what every manufacturer prints on the slips of paper that he puts out with his plates. My idea is rather to draw your attention to the fact that it is necessary for you to see more than the mere surface, for you to understand the effects of the different chemicals you are using, and to know them as something more than mere words printed on slips of red and yellow paper, if you ever expect to get from your dry plates the very best that lies in them. You may succeed sometimes with your eyes shut, but you can't expect to do it all the time, you know.

*

Subject, Negative and Print.

In a photogram, it seems to me that the aim of every photographer should be to depict the subject of his picture as nearly like itself as possible. To do this, once the question of posing and lighting is disposed of, he must attempt to render the total values truthfully and to catch in the whole things as nearly as possible, the exact tint that will best convey the impression he wants. Unlike the painter, unfortunately, he cannot run the scale of a dozen different shades and colors; he is obliged to confine himself to one, and it must remain with himself whether he picks on the one that is best adapted to his purpose or not. The photographer has, however, a much greater control over his print in the way of color than most workers appear to imagine. Composition will help to accentuate the principal points of interest; good lighting will help the composition. But the finishing touch, *i.e.*, the atmosphere and feeling that existed in the scene when the picture was taken are added, by a skillful manipulation of tonal values and the tint of the print.

In order that the meaning may be clearly grasped, supposing we look at a case or two in point. Let us consider how this may apply to a landscape photogram, for that is perhaps the commonest class of work attempted by amateurs. Place before you a typical summer landscape, with its still pool, its quiet creek, or its tall coarse grass in the foreground; its bushes and trees and gentle undulations of ground; its distance filled with hills that effectively break up the horizon; and overhead an occasional fleecy cloud. The careless amateur drops the plate into the developer and washes it up and down until the image comes out on it. The operation is finished. But see how the skilled worker does it. He starts it in a diluted solution and works up his detail; washes over the hills in the distance with a solution of bromide of potassium on a brush so that in the print they will appear to be shaded by that blue veil of atmosphere that we refer to as aerial perspective; then finishes up with a bath strong in whatever agent he is using, and so gets plenty of contrast without sacrificing a single thing. You may think that all this is backing down

on my statement that we want to be as truthful as possible. It's not. With the power possessed by the modern lens to see more than the eye can and the ability of the dry plate to depict all that this lens reflects to it, a photogram is actually untrue and positively requires some manipulation to bring it back to reality. And then the print. The one chap slaps a sheet of Aristo plat in behind his negative and takes just whatever old Sol gives him; the other carefully selects from his stock that which he thinks will be most suitable. It may be a brown, to show up the glory of a sun-bathed meadow, or it may be a sheet of blush tint to catch the effect of the haze in the air, but whichever it is, it is chosen for a reason and not in any haphazard manner. And think how much better the result is and how much more it inspires us with the impression that we are looking, not at the photogram of a place, but through a window at the spot itself.

Compare two pictures of a sunset, the one printed on some tame black and white paper, and the other staring strongly forth in an angry, red carbon. Which is the more effective? Or think of the vivid reality of a moonlight picture that has been printed in a weird green, particularly should the view happen to have been made across a sheet of water with a boat or two on it.

Or it may be that we are photographing a piece of marsh-land, with its gloomy foreground of soft, treacherous-looking mud that runs away into unfathomable mist. Mud and mist of themselves do not make a picture. Mud and mist printed from a negative with just the least tendency to thinness and perhaps slightly inclined to be the least bit impressionistic, may be made into a very striking thing indeed. These, it seems to me, like those pictures of sailing ships lying at anchor in the fog, with the shore showing vaguely in the distance, would not only be spoiled by printing on red or green carbons, but absolutely cry out for a plain black and white effect, on a fairly soft paper of course. Here, to stick to our text, the subject is practically in monochrome, and to be as nearly like it as possible the print must be in monochrome too. Then, if it is intended to hang such a print, the frame ought to be of plain black also.

Turning to the landscape under slightly different conditions, let us look at snow scenes and see what they require. In the first place we want a different class of negative, more or less. Where before we needed a certain amount of gradation we now require *all* gradation and half-tone. We do not want any of those pictures where a patch of harsh white is sharply contrasted with a heavy dark shadow by its side and varieties of depths of drift show not at all. Long dark shadows, stretching from the base of a tree out to the edge of the picture, may relieve the monotony and look all right occasionally, but, as a rule, it is safer to let them alone. If it is necessary to have any do not look for them, but let them take care of themselves. You will find that they are quite capable of doing it all right. Instead, take the picture on a day when the sky is overcast, and then, before developing, give the plate a few minutes preliminary soak in an alkali bath to obtain all the softness possible and lessen the hard intensity of the lights. And make the print on either a bluish or a black and white paper. Snow scenes in blue are excellent and, in the majority of cases, better than in black and white. Of course, not a decided blue, but rather on that tinge. On no account, if the finest detail is wanted in the surface of the snow, must the negative be made heavy and dense. If the picture is of a large size, however, it is best to use a black and white paper—some-

thing rough—and then relieve it by surrounding it with a carbon black matt. There is something odd about it, but it always seems to me that a small snow scene looks best in blue, while a large one displays its finest effects in monochrome.

For such subjects as seashore pictures, where the waves are in a turmoil and lashing furiously upon the beach, making the foreground one mass of foam-flecked billows,—heavy masses of dark green, capped by spots of milky white,—a dense negative is almost sure to kill the effect, for, if the exposure has been fast enough, it is often possible for one to trace fine lines in the water following the curl of the wave, which, if you are working with a dense negative will not print out sufficiently to tone, and half of the beauty of the effect of movement and action is lost. The average worker does this up all the time in a dark green tone. This is not right, for only look a little closer and you will find that instead of the water being green, it is more than half the time inclined to be muddy and assumes a dirty brown tone. Why, then, not make the print to match. Speaking of seashore work brings up the question of pictures where the landscape is very much inclined to be all sand, as in the case of the arid plains of California and Texas. Reproductions of such spots are best made in a very faint tone of yellow.

Passing on to figure studies, it ought to be quite unnecessary to go at any length into the best kind of negative for the purpose. Just one little thing on toning. You will find that platinum prints put through a mercury bath will result in yellow tints of practically the same tone as flesh under certain conditions. This process, however, except in the hands of an expert, is inclined to result in some awful looking things. Better practice with it a while before you show any of your work.

Nor is it necessary to say a great deal in relation to this sort of thing to still life work. Perhaps here, as in no other branch of work, are its possibilities to be fully realized. In the imparting of the proper tone to fruit, earthenware, china, glassware, birds or stuffed animals, it opens up a tremendous and practically untouched field. For such pictures as are shown in this class of work are almost always in straight black and white. Experiments, however, will show many other ways in which the various tones of paper may be utilized to advantage.

*

The Scrap Bag.

A wise man changes his mind often: his brand of dry-plates never

A BLUE FOCUSING SCREEN.—Very frequently in the photographic press are amateurs recommended to carry with them a pair of blue spectacles for the purpose of viewing their subjects on the ground glass in monochrome. A still better plan is to have a blue focussing screen. One may be made in the following simple manner. Take an ordinary dry plate into the dark room and strike a wax match, which you will hold for about a minute a foot away from it. Then with some slow acting developer, such as hydroquinone, develop the fogged plate, carrying the process of development on until the plate is of a greenish color. Wash and fix as usual. Now bleach it with

Mercuric chloride	..	..	..	10 gr.
Ammonium chloride	..	..	..	10 gr.
Water	..	..	..	1 oz.

Wash again thoroughly and soak the plate in a solution of powdered blue, taking care not to carry this operation too far or the screen will be too dark in color. Then fasten this in position in place of the ground glass and you have what you require.

FOR COPYING BLACK AND WHITE.—Where the utmost contrast is desired in making a copy of a black and white subject, use potassium iodide as a restrainer instead of bromide, or rather in addition to the developer. Double the normal exposure and develop in a solution containing a dram of potassium iodide and a dram of potassium bromide to every three ounces of solution.

AN EXPOSURE SCALE FOR THE TYRO.—Frequently I receive letters from amateurs asking me to tell them how to correctly judge their exposures. Now, in every photographic exposure, in order that it be correctly made, there are six factors which ought to be taken into consideration. They are the month, the hour, the condition of the weather, the subject, the size of stop employed and the speed of plate used. It is true this may be all summed up in one word—light; but, until one possesses a thorough understanding of the exact degree in which each factor bears upon the duration of exposure, it is well nigh impossible to lump them in together and arrive at a decision from a study of the ground-glass. There have been placed on the market from time to time to assist the tyro, various types of exposure meters which doubtless are a great help to the beginner, but which, every one of them, possess one fault. They depend upon sensitized paper printing to a certain depth in a fixed time as a basis of calculation. Any one who knows anything at all about sensitized paper, knows how unreliable it is. Besides this method takes time. Then for the convenience of several of those readers who have been corresponding with me on the matter, I want to tell you about the little vest-pocket instrument that I myself am using, made by the Wager Exposure Scale Co., of Philadelphia, Pa. In construction it is similar to an engineer's slide rule, and once it is set for the month and hour, which is done in one movement, it is only necessary to look a line lower down, and below the number of the stop used will be found the exposure. It is the most simple automatic calculator for the purpose with which I am familiar. The last "query" I had on exposures was from an amateur who wanted to take his camera into the bush with him. I should imagine that to those who desire to carry their instruments on fishing trips, hunting trips, &c., where they are constantly obliged to work among unfamiliar surroundings and under varying conditions, the instrument would prove invaluable.

TO CLEAN A PYRO STAINED NEGATIVE.—The following is a simple formula for cleaning a pyro stained negative after it has been fixed and dried.

Alum	..	..	..	1 oz.
Citric acid	..	..	..	1 oz.
Sulphate of iron	..	..	..	1 oz.
Water to	..	..	..	20 oz.

Should this fail to work satisfactorily, try thiocarbamide as in the following:—

Thiocarbamide	..	..	..	30 gr.
Citric acid	..	..	..	60 gr.
Chrome alum	..	..	..	30 gr.
Water to	..	..	..	6 oz.

It is well to bear in mind that it is not the pyro alone that stains the fingers. It is dipping them into the pyro and then into the fixer without rinsing them. If care is taken to dip them under the tap between times there is but little danger of discoloration on the finger-nails.

A CLEAN HYPO BATH.—An ounce of sodium bisulphite to every pound of hypo in the fixer will keep it free from discoloration by the developer, and give clear, crisp negatives.

A NOTE PAPER DECORATION.—Everyone knows what pride most people take in their note paper and of the many devices that are resorted to to make it pleasing. Now it strikes me that if a corner of one's note paper were to be sensitized with a blue print solution (it can be bought in bottles of any dealer, and a photogram printed there, that it would prove very attractive. How many pleasing little scenes do we run across that would be suitable for such a use if they were reduced to the right size? Pictures of camp scenes, hunting scenes, winter views of snow-shoeing, skating, tobogganing and a dozen other things that I do not recall just at present, would work up into tasty designs for such a purpose, and to the recipient, almost double the value of the letter.

THE DANGERS OF FLASH LIGHT.—The average photographer who is unfamiliar with the handling of chemicals is just as likely as not, unless he be extremely careful, to blow himself up. The adage, "Fools rush in where angels fear to tread," hangs good here. For instance, here following is a flash mixture by the unforeseen explosion of which two lives were lost recently, and which amateurs would do well to avoid. It consists of magnesium powder, chlorate of potash, picric acid and red phosphorus. Picric acid of itself is simply inflammable but picrates of metals are all explosive. Do not use them.

DEVELOPING FILMS.—Those camerists who are in the habit of carrying their cameras into the bush on hunting and fishing trips as a general rule are in the habit of using film on account of its extreme lightness as compared with dry plates. Films are the finest things in the world to handle, except in the developer. The average man cuts his apart and then proceeds to develop each separately. He argues that he can't get the very best that there is in each unless he does each separately. He is in error. All may be developed together up to a certain stage without any fear of harm being done. To do it, take an ordinary developing tray of at least a couple of inches in depth. Across the centre of it rig up a little roller so that when the tray is filled with the solution the roller will be half in it all the time. Now, when you are ready to proceed with operations, all that is necessary to do is to run the film under the roller so that its back is against it and the coated side toward the bottom of the tray. Pull it slowly back and forth to develop. Being in the air so much will assist in the development. Then as soon as one part of it commences to show signs of being overdone, cut it apart and drop the farthest advanced part in a tray near at hand containing a much diluted solution where it will finish at leisure, or whence you may pick it to complete at your convenience. Not only will this method prove a convenience to you, but it will also result in the production of vastly improved negatives.

THE INTERNATIONAL ANNUAL.—The International Annual of Anthony's Photographic Bulletin for 1902, vol. xiv., is out. Out on the market, I mean—not sold out; though, judging from the excellence of its make-up, it will probably soon be that, too. I know of some people who tear the advertisements out of their annuals and bind the reading matter; then I know of others who bind the ads. and throw the rest away. From whatever point of view, this is well worth the price of admission. The editor, Mr. W. I. Scandlin, is to be congratulated on the wealth of interesting, instructive and practical information he has managed to accumulate between its covers, as well as upon the excellence of its varied illustrations.

COMPARATIVE STRENGTHS OF LIGHTS.—In connection with the paragraph "An Exposure Scale for the Tyro," I am giving

the following table showing the comparative strengths of various lights in order that those who want to make photograms by artificial illumination may have a basis of calculation.

Gas flame	1
Oxy-hydrogen	11
Magnesium ribbon	58
Diffused daylight	268
Electric light	5079
Sunlight	10079

QUICK PROOFS ON BROMIDE PAPER.—It is very easy to make an excellent proof from a wet negative right after fixing. The only condition essential to success is that there be no bubbles between negative and paper. The easiest way to effect this result is to immerse both negative and paper in a dish of water and withdraw them from it in contact. If carefully done, there is little possibility of bubbles forming. Now put them in the printing frame in the ordinary way, and after putting the back in place dry off the front. Expose for almost twice as long as ordinary, and, of course, develop the print at once. The negative should then be returned to the wash water for full elimination of the hypo. The print is as good as one made in the usual way.

MOISTURE ON THE LENS.—Holding the warm hand near the lens for too long a time when setting the shutter or diaphragm will often result in dim and perhaps spoiled negatives, caused by the moisture that condenses on the lens. This trouble is particularly to be met with in the making of winter photographs.

*

Correspondence.

Correspondence should be addressed to H. McBean Johnstone, P.O. Box 651, Sarnia, Canada.

C. G. Fowler, Cobourg, Ontario.—In reply to your query as to what method should be employed for sensitizing silk, I might say it depends entirely upon the class of prints you want. You can buy silk sensitized with platinum for development, and with silver for printing out. Or you can easily prepare it yourself by the following method:—First soak it in common salt and water, about 60 gr. salt to 1 ounce of water. After a thorough immersion, blot off the superfluous moisture and dry thoroughly. To sensitize, dip or float it in a bath of silver nitrate, 60 gr.; water, 1 oz. Dry thoroughly and print deeply. Of course white silk is the best color to use.

T. L. M., Montreal, P.Q.—To keep your films from curling when dry, after washing, soak them in the following bath:—

Glycerine	1/2 oz.
Water	8 oz.

Then, without subsequent washing, pin them on a board to dry.

Berkley A., Port Hope, Ont.—It is possible to get green tones on bromide of silver paper by treating with Eder's lead-intensifier and cobalt solution, which will result in the production of a very bright green tone. Smooth paper is most suitable. As the resulting tone is very bright it is essential that the print have plenty of contrast and clear whites. The operation ought to be started and finished with a good washing. The prints to be toned are first bleached in the following solution:

Nitrate of lead	4 grams.
Red prussiate of potassium ...	4 "
Water	300 "

After a short washing in water put the prints in a 5 per cent. solution of cobalt chloride until the picture is thoroughly green. Then wash again.

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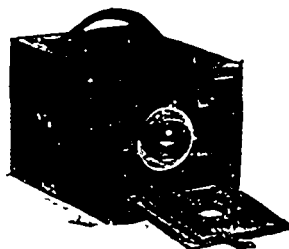
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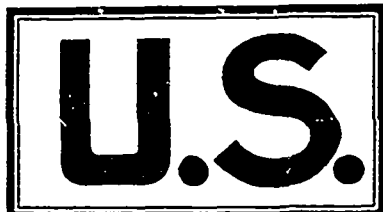
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