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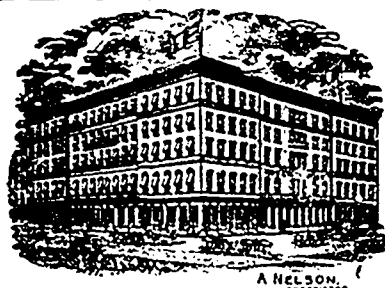
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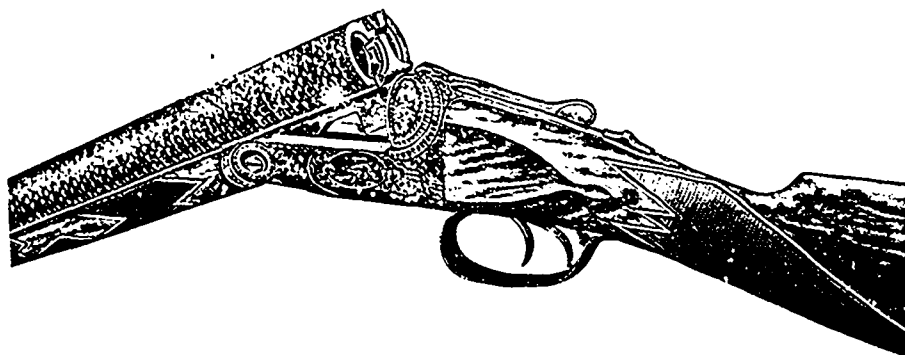
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EXPLORATION IN NORTHWESTERN CANADA.

By H. G. Tyrrell, C.E.

(Continued from our October Issue)

Six miles further down the river is Todd's Crossing, a small half-breed settlement of some half-dozen families, all of whom depend for a livelihood on fishing. The method these people have of catching fish seemed to me very cruel and

inhuman. Two lines of closely set stakes are driven into the river bottom, forming two sides of the letter V, vertex down stream. One of these sides is made longer than the other, so that the point can be more easily reached from shore. At the apex is a gap of three or four feet in width, and about two feet deep, around which, on the down stream side, is worked a basket of willow boughs. To guide the fish

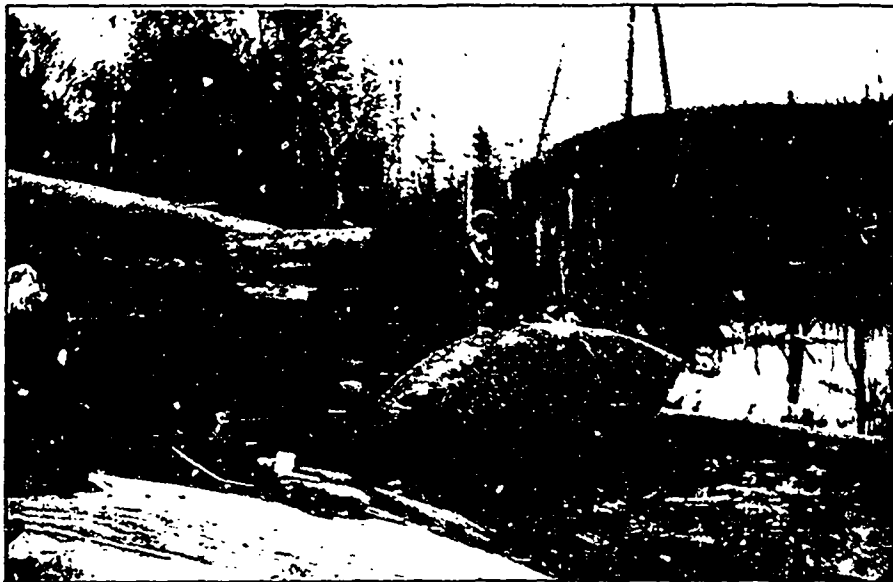
into the trap an inclined plane of poles is placed, with its high end toward the gap and leading up to it. The various poles and stakes are all set with sufficient opening that the water may freely pass, but all large fish are excluded. The night of our stay at Todd's Crossing the trap caught about two hundred fish, principally gold eyes, suckers, and jackfish, with an average length of twelve to fifteen inches. Too often, however, the improvi-

dent owners of these deadly traps will go off on a two or three weeks' hunting expedition, leaving the basket still catching its victims, and on one occasion the writer found as many fish in one of these willow cages as would half fill an Indian cart, all decomposing in the sun. "Take no thought for the morrow," is certainly a principle of the uncivilized Indian. It is strange how quickly these poor creatures learn the vices of the white man. When in fits of anger they will give vent to a mixture of oaths in French, English, and Cree. At other times their

conversation is wholly in their own language.

The Indian, like St. Patrick with the snakes, has forever sworn vengeance on the hornet and all his kind. In all my dealings with the dusky red men, I can not recall a single time when they would pass a nest of hornets without destroying it.

Just below Todd's Crossing we had a thrilling experience. Being anxious to learn something of the condition of the



PATCHING THE OLD CANOE

A birch-bark canoe is fragile, and part of the regular routine of a Laurentian wilderness trip is "fixing" the canoe. The photograph reproduced above was taken by the shore of Osterboining Lake (Kippewa), Quebec, in October, 1900.

river, we inquired of a half-breed at the settlement, who assured us, in the most friendly manner, that we would meet with no difficulty, that the river was free from rapids and waterfalls, and that there was nothing at all to impede our progress. This was indeed good news, and feeling greatly relieved, we proceeded at once, with light hearts, to make the best of our time, and travel, if possible, another ten miles before nightfall. We had gone between two and three miles on our way, when we

reached a place where the river widened out, and swept in towards the left bank, which was void of timber, and thirty feet or so above the river. On the right was a pebble beach, and beyond that a cluster of trees. So quiet and apparently forsaken was the place that we did not suspect danger. But there was danger enough, for the canoe, that was gliding rapidly along, suddenly ran its bow high on the concealed poles of a fish trap, and the lowered stern began to fill with water. As quick as thought I sprang into the water and supported the sinking end, while my brother hauled the canoe on shore. Attracted by the sound of voices, we looked up, to see a party of six mounted Indians, who, to our surprise, were headed by the honest looking half-breed that so earnestly declared the river to be clear. They were clad mostly in their own skin, their only clothing being a pair of native trousers each. One, however, wore a shirt of doeskin, beautifully ornamented with colored woods and beads. In their long hair, reaching to their shoulders, were a few bright feathers, and the gaudy painting on the upper part of their bodies gave them a hideous appearance. As we stood for a few minutes watching their movements, we conferred as to what had better be done. It took a while for us to explain that we were a party of explorers, making a peaceable survey and examination of the country, and were not in any way connected with the troops that were still encamped about the settlements. To prove our sincerity and friendship, we took from the canoe a pound of tea and a cake of tobacco for each of the warriors, and invited them to come over and receive them. Yet they were suspicious of the white men, and consulted for some time before the young chief came riding down the hillside, and fording the river, crossed to where we stood. On receiving our present the chief was still dissatisfied, and asked for more. He said that his party being larger than ours he should have more than half our supply. This arrangement seemed a little one-sided, to be sure, but to satisfy the chief we cut off another half cake of tobacco for each of his men, at which he was greatly pleased, and grasped my hand with both of his, shaking it heartily. His trouble now was how to carry his burden back to the village. Looking about for something in which to wrap his presents, and seeing nothing, the native startled us by pulling off his beautifully embroidered shirt and taking from beneath it an under garment, replaced the outer one to his person, and carefully wrapped his treasures in the other. This incident can best be appreciated by those who know the flavor of an Indian's clothing. He was not long in recrossing the river and mounting the hill to where his companions were. After examining the presents they brandished their rifles in the air, galloped away over the hill and were seen no more.

The river which up to this place had been flowing in a general direction eastward, now turns to the north for about twenty miles. The dip of the new valley becomes swifter and the water deeper. Throughout the entire course the valley of the Battle varies in width from a half to two miles, and this flat is for the most part overgrown with poplar, spruce and willow. In this wide valley the river meanders backward and forward in tortuous windings, so that often we found ourselves only a few rods from where we had been an hour or more before. Whenever the turns in its course are sharp, the current side of the bank is worn away, and trees and bushes, having their foundations swept from under them, are precipitated into the river. In this condition, with the roots still clinging to the shore, a jam is formed, under which the water rushes.

When nearing such a place as this on the evening of July 22nd, we saw, when too late, our danger, and notwithstanding our utmost exertions with the paddles, were swept down with the current and dashed against the bushes. The writer, who occupied the front position in the canoe, seized the fore-line and sprang to a broken limb. I threw the other end to my brother, who was struggling in the water, and pulled him ashore.

Below the rapids, where the river widened and became shallow enough for fording, we waded in. Two bags of blankets, the paddles, a small sack of oatmeal, and some other things came floating down and were passed ashore; the rest, including arms and ammunition, instruments, and notes of the expedition, and even our coats, the pockets of which were filled with cartridges, had sunk in the rapids and were lying somewhere on the bottom of the river. It was already becoming dark, and to see into the water that day in search of sunken treasures was impossible, so a consultation was held as to what should be done. Any heavy baggage, such as guns and ammunition, had gone directly to the bottom and might be recovered, but the provisions were hopelessly lost. And even should the cartridges be found, who could say if the powder would be dry. It was useless to think of continuing the journey on what we had or could recover. It was resolved, therefore, that one of us should cross the valley and reach the prairie, where perchance a camp of Indians, or some wandering hunters might be seen, from whom we could get relief. My brother selected this errand for himself, and as there was scarcely time to cross the wooded valley and reach the plain before nightfall, he started off at once. As is usually the case in that northern latitude, the night was cold, and it is little wonder that I had fears for the safety of my comrade, who had so bravely set out on foot, wet, cold, and hungry though he was, and without a weapon for protection. On going to the canoe, which was still swinging in the rapids, to my surprise and great delight I found the little camp-kettle caught beneath the stern seat. With this and the sack of meal I thought to have some supper, and make things as comfortable as circumstances would allow. But a new difficulty arose, for the matches in my pocket-case were wet. Burying them in my warm hair, I paced up and down the beach till they were dry, and then with my hunting-knife cut into the side of an old dead tree till I came to dry wood, and on this scratched the matches into flame. Supper of oatmeal, eaten from the little kettle with the aid of flattened sticks, tasted very fine. To add to my discomfort a pack of prairie wolves made their way through the woods towards me, and at times came so near that I could see the light of my fire gleaming on their eyeballs, but when they felt the heat they would not venture nearer. I was too exhausted to think of staying awake to watch the fire, so piling on enough logs to make a good blaze till morning, I wrapped myself in wet blankets, and having entrusted all to Providence, threw myself down on the river bank and was soon fast asleep.

The morning dawned bright and promising and with the first streak of light the forlorn traveller, who had been dreaming of his cheerful home, proceeded to spread his blankets in the sun, and prepare another repast from the remaining meal. I had not been busy long when I caught a sound from up the valley. I listened intently again, but the only sound that broke the awful stillness of the valley was the noise of the running water and the cry of a lonely eagle in search of prey. Yet I listened as only those can whose lives depend on catching a sound. Again the call was repeated, and this time I recognized

it as the voice of my brother. Scanning the edge of the bordering prairie I saw the forms of two mounted men, and immediately my exultant breast sent forth a cheer which caught the riders' ears. Half an hour later the two horsemen, who had been guided to me by the smoke of my fire curling above the trees, appeared on the opposite bank of the river. Never till his dying day will the writer forget the grasp of my brother's hand as he sprang from his saddle that summer morning in the far off valley of the Battle, saying, "Well, Grattan, I guess that's the roughest night you ever spent"; and, indeed, I think it was. They had searched for me between one and two that night, but could not attract my attention.

On reaching high ground on the previous evening my brother saw in the distance a party encamped down by the side of a little lake, about five miles away. It was a long and cheerless walk through the darkness. He reached the camp

the water, and the ends are securely fastened on either shore. On the cable run two trolleys from each end of which ropes lead to the two ends of the ferry. To operate it, the ferryman goes on board his barge, or ferry, and by hauling in one of the ropes leading from the trolleys, sets the ferry at an angle to the stream, and the force of the current carries it across. They are often quite large, so that horses and carts with heavy loads can be driven on and carried across with safety.

Up in the settlement we bought some spruce gum with which to tighten the seams of our canoe, the bottom of which was all gone over and put in water-tight condition. As we were having dinner at the ferry a half breed came along telling us that a party of white men were encamped about three miles up the river. This we knew must be the men with our wagons. Accordingly, my brother walked over to their camp, and soon returned on horseback bringing the outfit with him to the ferry.



KANANASKIS FALLS

These remarkable falls are on the Bow River, Alberta, near its junction with the Kananaskis River. Their roar is heard for miles

as they were concluding supper, and to his surprise and great delight he found himself among the other members of his own party. On leaving us a few days before, instead of taking the trail to the north, they had fortunately gone on a wrong one, which led down to the river, and in place of being fifty miles away, were near at hand, ready to give relief.

The greater part of two days was spent in searching the river, and many valuables were found. After repairing the canoe and replenishing it with provisions, we again bid our friends adieu and started the second time on our journey.

On reaching the Indian village at Salvays Crossing we found most of them away, and among others the owner of the ferry. On inquiring we were told that he was visiting at Edmonton; visiting, however, rather from necessity than from choice, at the Edmonton jail, to account for his action in the late rebellion. The ferry is the kind commonly used on the western rivers. A cable is stretched about twenty feet above

In attempting to bring the outfit across the river on the ferry the load proved too great for its capacity and it filled with water and sank, which caused us to camp for the night part on one side of the river and part on the other, and as rain came on tents were put up. The next morning, July 28, the wagons and cart were floated over and the outfit again started on its prairie journey.

On July 29 we reached a place called Dried Meat Lake, which is nothing more than the wide valley of the Battle filled from side to side with water, the bottom of which is somewhat lower at this place than elsewhere in this vicinity. This lake is about ten miles long, and as a stiff breeze sprang up a tarpaulin was hoisted as a sail, which carried us along at a good speed. The river bank here is not less than three hundred feet in height behind our camp. A seam of coal four feet in thickness was observed standing abruptly out of the north bank at the lower end of the lake, for a description of which see the

report of the Geological Survey of Canada for the year 1887. All through the following night the prairie wolves kept up their dreary howling outside our tents, sometimes not more than a few yards away. Whether they would attack a camp or not, their dismal noise in such a lonesome place makes it difficult for a traveller to sleep.

Five miles below Dried Meat Lake, by the edge of a little grove of maples, there was a signboard posted in a conspicuous place. Going ashore to examine it I found on it the following inscription: "I Moisekenipi kweyn, took possession of these maple trees thirty years ago and claim them as mine."

At the lower end of this lake, where it gradually narrowed down to the width of the river again, it contained a large quantity of reeds and rushes, and here ducks were observed in great numbers. We succeeded in shooting twenty-seven of these, as also some geese, which kept the pot boiling for a day or two. I very well remember how delicious the meat of these ducks tasted, after living as we had for the most part on salt pork. But an old goose that has been for several years on the wing is hardly fit for eating. One of them we boiled several times, day after day, but the meat was still too tough for use and it was thrown away. On July 30 ducks appeared in great numbers, flocks flying overhead and frequently alighting on the river. Sometimes it seemed as though the sky was filled with birds. There must have been at the least estimate many thousand of them.

Our latitude was now fifty-three degrees, and in July at this place ordinary print can be easily read by natural light at ten o'clock in the evening.

A little above the village of Salvays the Pipestone River enters the Battle as a tributary from the northwest. While the Battle is much the larger river of the two, the Pipestone has a wider valley, and from the high north bank, two hundred and fifty feet above the water, the Battle River could be seen to flow a mile or two in the wider valley before joining the Pipestone.

(TO BE CONTINUED.)

AN EXPLORATION TO THE HEIGHT OF LAND.

By St. Croix.

(Continued from our October issue)

In the olden days the Algonquin had no fixed dwelling. He moved his belongings here and there as the whim seized him, earning his existence by hunting and fishing, and having no thought for the morrow. But at North Temiskaming there are some forty families who have cast off their primitive habits, and settled down to farming. As farmers they are not particularly successful, the men breaking away now and again and taking to the bush for indefinite periods, during which times the farms have to care for themselves; but these people are living out their simple lives in a way which is entirely satisfactory to themselves, and one of the most contented communities I have ever been in is that of North Temiskaming.

I had been told to make my way, in the first instance, to the store of one Angus Wabie, a particularly intelligent Indian who speaks three languages, English, French and Ojibway, and keeps a store. Captain Redmond, however, warned me not to go very far away, as owing to the lateness of the hour his stay would be a short one; so I hired a young Indian, fleet of foot and long-winded as a race horse, to go in search of Angus, and while he was gone the fates were kind enough to send me an

old friend to keep me company. Years ago, during my first expedition to the Canadian wilderness, I had as hunter—we did not speak of guides in those days—a well-known backwoodsman whose nickname was Jimmy the Duck. His right name is James B. MacDonald, and, although he is now over sixty years of age, there are few better men either in the bush or on the water. Jimmy has married into one of the leading families of North Temiskaming. His wife is one of the McBrides; her brother, John James McBride, the village constable. We talked over old times, and the changes that had taken place since we first saw Temiskaming, until my messenger returned, bringing with him the breathless but radiant Angus. Captain Redmond wanted to be off, but, like an obliging fellow, hung on for a few minutes longer while I made my arrangements, and the upshot of it all was that I carried off one Frank Lemire, together with his canoe, the idea being that he was to bring me back next day to North Temiskaming. Lemire had not been on board ten minutes before he sidled up to me, and told me confidentially that he was very, very hungry; so I had to arrange with the stewardess to give him something to eat. He proved to be a rattling good man at the table, and occupied the better part of an hour in storing away grub where he thought it would do the most good, and when we arrived at Haileybury he followed me into the dining room of the hotel in the most natural way in the world, and proceeded to polish off a second meal without turning a hair.

But if Frank could eat he could also sail a canoe, as he proved next morning, and if I wanted to go down a bad river I would willingly try my best to satisfy his enormous appetite, provided I could have his cunning paddle steering the canoe. And now I am going to make a confession: for years I have advocated travelling light, omitting superfluities; and yet I backslided, and added a lot of canned stuff to my outfit, for which I paid dearly in aching muscle before I got through with the trip. Oh, how easy it is to backslide! After practising what I preached for years, in one weak moment I yielded to the seductions of those cans of Bartlett pears and California peaches, and green peas, things which no man should take into the woods if he wants to be really free of the wilderness—and I promise never to do it again. Next time it will be pork and beans, and beans and pork, and mighty little else besides, excepting the fish and game I can secure by the way.

An epidemic of matrimony was about to strike Haileybury, and preparations for the ceremonies were already under way. In fact, the talk was almost entirely of marriage and giving in marriage, as on the following week two of Haileybury's most charming spinsters were to swear love, honor and obedience to the youths of their choice. So it came to pass that I was asked out into society that evening, to meet some of the high contracting parties, together with several beautiful bridesmaids, and did not get back to my cubicle until after midnight. Consequently, I was inclined to expostulate with Frank when he tried to kick down the door at 5 a.m. next morning. We argued the matter at some length, and eventually, as he seemed to have somewhat the best of it, I yielded myself to my fate, and donned the shirt of flannel and the overalls and moccasins which signified that I would that day bid adieu to civilization. By seven o'clock we were ready to start. The wind was favorable, though showing a suspicious increase every minute, and there was little doubt we should have enough of it ere we reached the sheltered mouth of the White River. Frank rigged up a wonderful sail out of the tent, and immediately we drew from under the lea of the land and began to feel the weight of

the breeze, the birch bark simply flew. We covered the six miles intervening between Haileybury and Windy Point in three quarters of an hour, by the watch; but really we were entitled to no credit for so doing, because after we got fairly started the only chance was to crack on sail, and keep ahead of those whitecaps that always seemed to hang close to the quarter of the little canoe. As it was, two of them caught us, and lapping over the low gunwale converted the bottom of the canoe into a hip bath, in which I sat more or less unhappily. Windy Point served as a breakwater, and after that the voyage was not remarkable for excitement. We reached North Temiskaming during the morning, and there Angus Wabie introduced me to his brother John, who he said was a good man and anxious to enter my service. John and I lived together in the bush for three weeks, and I am willing to certify that Angus did not overstate the case; for John is a good man, and you will go a long way before you find a better. He can hunt like an Indian, cook like a woman, and never gets cross or sulky. More to oblige John than anything else, I consented to take his fifteen year old boy to assist in keeping camp, paddling, portaging and the other things which have to be done when you are travelling in the bush. Bernabie was a bright lad enough and proved useful; where he especially shone was on the portage. This Indian boy, whose weight did not exceed 100 lbs., could carry a load of 75 lbs. over a portage of half a mile, and it was evidently his ambition to inure himself to the hard work of portaging as early as possible. His father told me, on more than one occasion, that the boy begged to have something added to his load, as he wished to become good at carrying.

(TO BE CONTINUED)

HUNT STEEPLECHASES.

By C. J. Alloway.

The two great events of the sporting year, the fall steeplechases of the Canadian and Montreal Hunt Clubs, took place on September 28th and October 5th respectively. In no year of their previous history have the conditions been more favorable and satisfactory. Both places of meeting were within easy access of the city, which made it possible for greater numbers than usual to patronize the events. Not only were there large numbers of the members' friends and general public present, but all the morning the roads were dotted with vehicles from the farming district adjacent, heading for the scene of the races.

Passing along with them, in the utmost good-fellowship, rumbled the stately four-in-hands, without which would be lacking one of the most attractive features of the day. Jaunty little carts drawn by shining cobs, victorias, stanhopes, pony carriages and every vehicle, from the correctly-appointed equipage of the private citizen, to the well-polished harness and hack of the cabman, delighted that for him profit and pleasure could be so happily combined,

Pedestrians, who thought the miles to be traversed on foot well covered with such a goal in view, were prominent for their numbers. There was also in evidence the usual complement of the ubiquitous and enterprising small boy, whose knowledge of loose spots in the fences and gaps in the walls was exceedingly useful on the occasion.

The exceptionally beautiful weather allowed of one feature which is always expected, that is the handsome costumes of the ladies, whose dark furs and rich attire they well know appear nowhere to better advantage than on a stylish drag with a background of the blue skies and crimsoning woods of our Canadian autumn.

Although a commodious grand stand is usually a convenience, it cannot be denied that it has a certain business-like and circus appearance that offends the artist eye. There being no such accommodation on these occasions, the whole environment was suggestive of a rural holiday, and gave to those not familiar with a hunting scene a pleasing sense of its atmosphere, only the absence of the hounds among the riders in "Pink" giving evidence that it was not a "meet" that was in progress.

The Canadian Hunt held their meeting at St. Lambert, over a level, farming country, containing jumps of a varied character, which included stone walls, post-and-rail fences, sod banks and ditches to the number of eight in the circuit, which was a trifle over a mile in length. The day was a perfect one, and the lovers of this kind of sport were there to the number of at least five thousand. Not for many years has so large and appreciative a gathering been seen at a Hunt meeting. There were six events on the card, every one of which was hotly contested.

The first race on the programme was the Polo race for ponies, which was won by Dr. Mignault's "55," Pinto second, and Dewey third.

The second race was the Green Steeplechase, won by Due, owned by Dr. Gauthier, M. F. H. The rest of the field went the wrong course and were disqualified.

The Open race was won by King Top, Wild Arab second, and King Bolt third.

The Farmer's race, which was the most interesting event of the day and which caused great amusement, was won by Emile Brosseau, Louis Gravelle second, and W. St. Marie third.

The Hunt Cup, for qualified hunters, was won by Mr. Decarie on Wexford, Mr. Sector's Squire second, and Mr. Tancred Trudel's Sir W. third.

The Consolation race was won by Sleepy Belle.

A week later, October 5th, under equally auspicious conditions of weather and patronage, occurred the Montreal Hunt Steeplechases, held at Petite Cote, which began at the unusually early hour of half-past twelve. Luncheon was served between the first and second races, which was somewhat of an innovation to the customary procedure.

The first race on the list was the Hunter's Handicap Steeplechase, and was won by Jim Lisle, ridden by Mr. Murray Hendrie.

The second was the Farmer's race, won by King Top, also ridden by Mr. Murray Hendrie.

Race number three was the Jorrocks' Steeplechase, for members up in "Pink."

This race was won by Mr. A. E. Ogilvie on his mare Maggie May.

The fourth event was the Open Handicap Steeplechase, won by Mr. Penniston's Burnap.

The one following was the Hunt Cup, to be ridden by members, and was won by Mr. Watson's Round View, ridden by Mr. Murray Hendrie, Dr. Charles McEachran's Pal second.

The sixth and last race was the Qualified Hunter's Steeplechase, which was won by Sleepy Belle.

The enthusiasm and interest evinced in the entire programme on both these occasions were a proof of the popularity of the methods employed in the conduct of the Hunt races this year, and their continuance on similar lines will probably characterize meetings in the future, as there are a large number in the city and its environs who enjoy this kind of sport. The popular taste is generally an excellent guide as to the wisdom of such measures.

KENNEL DEPARTMENT

Conducted by D. Taylor

MONTREAL CANINE ASSOCIATION.

The regular monthly meeting of the Montreal Canine Association, preliminary to the annual general meeting, was held in the Natural History Hall, on Thursday evening, October 3rd. The Executive held a meeting previous, and endeavored to straighten out some matters for some time in abeyance, but were only partially successful; and, to say the least, the reports submitted were somewhat of a disappointment to a number of those present. At the general meeting Mr. Joseph Reid occupied the chair, and promptly announced the principal business of the evening, namely, that of nominating officers for the ensuing year, at the same time declining emphatically to stand for re-election for another year. The following are the nominations:—Hon. patron, Lord Strathcona, hon. president, Geo.

H. Gooderham, Dr. Chas. McEachran, Dr. Wesley Mills, George Caverhill; hon. vice-president, C. W. Rodman, H. P. Hungerford, G. M. Carnochan, Jos. Reid, Dr. Wesley Mills, Dr. Drummond, A. A. Macdonald, John G. Kent (Toronto); president, D. W. Ogilvie, James Lindsay; first vice-president, Mr. Lindsay, A. F. Gault, jr., A. H. Hersey, Mr. Pitt; second vice-president, F. Stuart, A. F. Gault, Mr. Hersey, Mr. Pitt, Mr. Laurin, S. Britcher; treasurer, F. Stuart, A. H. Hersey, Jos. A. Laurin declining re-election; secretary, E. C. Short. For a position on the Executive, which

is composed of eleven members, there were a large number of names submitted, and it is altogether likely that some new blood will be on the Board for the ensuing year. The following are the nominations in order:—Alexander Smith, D. Taylor, W. O. Roy, A. F. Gault, John Cumming, Jos. Reid, S. Britcher, W. C. Finley, A. E. Coleman, W. S. Elliott, Jos. A. Laurin, Josh. Stanford, Jr., Quinn, D. Crawford, A. H. Hersey, F. Stuart, Wm. Henry, John A. Pitt, D. W. Ogilvie, Jas. Lindsay, S. P. Howard, W. Rattray, W. Kenenhan, A. H. Sims, W. Stuart, D. Robertson, A. Bousseau, H. H. F. Hughes, H. M. Walters, Geo. Caverhill, Scott Ives, A. G. Robertson, C. P. Simpson, Dr. Drummond, Dr. Mills, W. Buckingham, Chas. Thomson, G. Goulsen, J. H. Smith, W. Kearney. After the meeting got through with this business, it was found so enervating that those present decided to adjourn.

The Bloodhound.

For stateliness of appearance hardly any breed of dog is comparable to the bloodhound, while the marvellous tales attending its unerring pursuit of its quarry have furnished the novelist and dramatist with material of the most exciting character. But it is a pure fiction to associate the bloodhound with ferocity. He never worries or mangles what he tracks down. His vocation is to find, and to find only, whether in pursuit of man or wounded animal.

The bloodhound has figured in history from time immemorial, and no breed of dog has preserved its characteristic points so persistently. The high, pointed cranium, the long, pendulous ears, the ample dewlap, the wrinkled forehead, the overhanging flews, and even the red jaw or third eyelid (commonly called by dog fanciers the sealing-wax) may be traced more or less in the modern foxhound, the otterhound, the basset, the dachshund and in the beagle of Sweden, which last is in fact a miniature bloodhound, though of lighter build. In the border history of Scotland and England bloodhounds were compulsorily maintained by almost every hamlet for tracking the moss-troopers after their raids, and until comparatively recent years the rural constabulary of England employed bloodhounds to trace sheep and poultry stealers. In this connection it has been asserted that the bloodhound, even as a pup, will pick up and follow the trail of a stranger quite readily, and perhaps more eagerly than that of his master. Another interesting fact is that the bloodhound, when alone, hunts mute, but when hunting in a pack he makes music of a most delightful melody. His tracking instinct is so keen that he hunts the "clean shoe" as well, if not better, than when the foot of the fugitive has been purposely fouled, and it is a pretty sight to watch



A Bloodhound Puppy.

a trained hound following his quarry over a fence, or under the rails, whichever course was taken. The training of bloodhounds has not been so persistently followed of late years, but time was when "man hunts" were common in several parts of England, and it is noteworthy that some of the trials took place when snow lay thick on the ground, and that while snow was actually falling the hounds laid on were equally persistent in tracking the quarry. A well-trained bloodhound will follow for miles, even after the lapse of several hours since the fugitive started, and although many other trails may have crossed the track. But he is frequently at fault over stone flags, and it was for this reason that the pursuit of the notorious "Jack the Ripper" in London by bloodhounds, at one time mooted, was after a trial discarded. Several one-time prominent bloodhounds on the show bench will go down into history. It was

the late Countess which served as a model to Landseer for his bloodhound in "Dignity and Impudence," and also for his "Sleeping Bloodhound," whilst the late Sir John Millais' Cromwell figured in more than one of that artist's pictures.

The bloodhound's aristocratic appearance, his invariable good temper and his watchfulness commend him to social notice, while the vulgar idea regarding his ferocity renders him an invaluable companion for ladies and children against the annoyances incidental to the genus tramp.

*

The Gore Kennel Club, of Hamilton, Ont., will hold a bench show on Friday and Saturday, November 8th and 9th. Mr. Joseph Kennedy will judge spaniels, wolfhounds, bull, black and tan and Yorkshire terriers, and Mr. Lacy the rest of the show. The Rev. Thos. Geoghegan is the honorary president of the Club. The classification provides for nearly every breed, as leash prizes are restricted to specials, of which there are a great number and variety. Entries close on October 25th, with Mr. George H. Carley, secretary, 139 Duke Street, Hamilton, Ont.

*

From Mr. George Raper's letter to *Field and Fancy* we take the following: Matchmaker has been sold from the Richmond Grange Kennel, and sails for his new home in Canada a day or two after the Kennel Club show. He has not been the show success anticipated when purchased at the sale of Mr. C. McNeill's stock a couple of years ago, but on account of his blood he will be a decided acquisition to Canada, where he goes on leaving Gomersal. It is not by any means a pleasing reflection that so many good dogs of all varieties are continually being picked up for export. Some we can very well do without; others, and Matchmaker is most certainly one of them, we shall miss.

*

For the Philadelphia show in the latter part of November there are 216 open classes and 96 local. The prizes are \$15, \$10 and \$5. Entries close November 11th.

*

Our Dogs (Eng.) says:—A somewhat unusual incident cropped up at Ilkeston show, in the fox terrier ring, where Mr. Tom Ashton was picking out the winners. It appears that this well-known judge some time ago had the misfortune to lose a good smooth puppy, for which he had refused a tempting offer, and whilst officiating at this show he recognized the truant being shown under him in the nomination of Messrs. Beck and Bottomley. Inquiries naturally followed, with the result that Messrs. Beck and Bottomley placed the puppy in the hands of the show committee, and all parties being satisfied that it is the "long lost one," the truant has been returned to its rightful owner.

The Duchess of Newcastle, in withdrawing from our stud list her well-known smooth fox terrier, Claude of Notts, imparts the intelligence that the dog has been sold to Mr. W. Douglas, to go to America, and adds that, in all likelihood, Americans will declare him to be Claude Duval over again, only with more substance, which is, of course, to the emigrant's advantage. Claude of Notts is in grand form, we understand. Her Grace has also sold to Mr. Douglas a very promising wire-haired youngster by Cackler of Notts, ex a Christopher bitch, but adds that it is a moral impossibility to divine the best pup of a litter at two months old, which we emphatically indorse.

English Sporting Dogs.

Of the number of men who attend dog shows and criticise the retriever class, how many are there who realize what an invention of modern times the retriever is? No field sport has altered in details as shooting has in the last hundred years. Such a breed as the retriever was unknown until well into the nineteenth century. All the old works upon shooting dilate on the best "cross" out of which to evolve a dog that would retrieve. A certain number—decreasing every year—of sportsmen will take the field next Monday who can recollect a preference for shooting partridges over dogs. Some forty years ago the fashion was much in vogue, though beginning to die out, chiefly on account of alterations in agriculture. In those days the sportsman took the field with a brace of pointers or setters, but without a retriever. Most setters, and many pointers, would retrieve; their talent was only exercised in the case of a towered bird or a runner, the latter being usually gathered in the nearest hedge. A clever dog would point a dead bird with an action which spoke for itself. A runner was more of a difficulty, as it might be ground game, in turnips especially. In Scotland, to this day, where setters are used, in many cases the retrievers stay at home. Of course, a running grouse in heather cannot travel like a partridge up a turnip drill. The retriever came in with modern covert shooting, and he was at first a cross of setter and Labrador, or setter and water spaniel. Now, for driven birds, the spaniel is coming into vogue as a retriever, while the "tracker," the retriever of the deer forest, is generally a collie. As for the deerhound, like Othello, his "occupation's gone."—*London Field*.

*

By an unfortunate clerical error we were led to say in last month's issue that Mr. E. C. Short's wolfhound, Sir Roswald, was awarded third prize, instead of first, which was the case.

*

This case of extraordinary fecundity in an Irish terrier bitch, reported in *Our Dogs*, will interest Canadian fanciers. Mr. Charles Browne, of Strabane, Ireland, owns a very noted brood bitch, Saraband, dam of Mourne Princess, Mourne Star, Mourne Wonder and many other winners, and in the five litters she has given birth to there have been 66 puppies, an average of over 13 per litter. Thirteen in a litter is not an unusual number for a bitch to give birth to once in a way, but to keep up that average for five consecutive litters is very exceptional.

*

A bench show was held in connection with the Simcoe County Agricultural Society Fair at Barrie, Ont., September 26-27. The entries numbered about 75, purely local dogs, with the exception of a couple of nice quality young dachshunds from Sid. Saunders' noted kennels. In bloodhounds Dr. Wallwin's Longworth, by reason of his better head, beat a good-bodied son, plainer in head, both nice hounds. In foxhounds Dr. Morren showed two couple by a hound owned by the Toronto Hunt some years ago, called Jimcrack, from the Grafton Hunt. The winner in dogs was the novice winner at Toronto. In collies, the judge found a sweet-headed one by a son of Laurel Laddie. The best of the cockers was a nice-headed daughter of Red Kaiser, but light in bone and on the leg. Our Bobs, a winner of first at Toronto, was the best beagle, sour in expression and open in feet, nice body and good coat. In fox terriers, a nice pup by Endcliffe Banker, out of a daughter of Meersbrook Bristles, won easily in his class. This pup will make history with luck. He is owned by Mr. Bowley, a very

keen fancier from across the pond. Mr. Jos. Smith, of Guelph, Ont., handed out the ribbons in all classes and gave splendid satisfaction.

Mr. James Walters, proprietor of the Primrose Kennels, Ottawa, has recently imported several fine bull terriers, which are attracting considerable attention in the Dominion capital.

Mr. Tawse, the secretary of the Guelph Club, has quite a large kennel of fox terriers, a number by Champions Go Bang, Endcliffe Banker, Norfolk Victorious, etc.

Mr. Sid. Saunders, another member of the Guelph Club has a few dachshunds that he expects to surprise the talem, with in Canada. Satisfaction won three firsts at St. Thomas, and in addition Mr. Saunders has three by Importation, dam the Shrew of Venlo, that he thinks are comers. He has taken a fancy to bulldogs, and is after a good bitch. There is room for some good ones in the breed, and Mr. Saunders hopes to help by supplying a few.

Mr. S. Britcher, Newmarket Kennels, reports the following sales: Newmarket Baron II., to Frank F. Dole, New Haven, Conn., and the bitch Newmarket Baby, to E. E. Thomas, jr., Providence, R. I. At the same time he refused a handsome offer for Newmarket Bendigo from the former gentleman.

Miss Markham, of Ottawa, has lost her prize-winning fox terrier Stein by poison, the work of some malicious person. Several valuable dogs have recently been done to death in the city by the same means.

Mr. Joseph Reid has sold his brood collie bitch Apple Blossom for \$100, with a "luck penny," to Mr. Adams, London, Ont.

There is every indication that a dog show will be held at Guelph, Ont., during the progress of the Provincial Winter Show (cattle and poultry) the second week in December. If the show is absolutely decided on, it will be a ribbon event with a list of cash specials, and the entry fee will be 50 cents.

Newmarket Bendigo.

The accompanying photo is a fine specimen of the bull terrier, Newmarket Bendigo, owned by Sydney Britcher, of the Newmarket Kennels, Montreal. He is a puppy, 10 months old, 40 lbs. weight, and was sired by Edgewood Dick ex Newmarket Midget. He was exhibited at Buffalo for the first time, and won 2nd novice, 2nd limit, 2nd open, and was placed reserve to the winner. At Toronto he was still more successful, being awarded 1st puppy, 1st novice, 2nd limit, 2nd open, and special for the best Canadian-bred in show. At Danbury he won 1st open in a hot class.

Whippet Racing in America.

Richard Croker, jr., of New York, whose kennel of English bulldogs, with its champion, Rodney Stone, made even Britishers admit its superiority, has gone in for another dog fancy, and has purchased a large number of those little streaks of canine greased lightning known as whippets, a sort of small greyhound that can run faster than any other animal, and he will try to introduce dog racing in America.

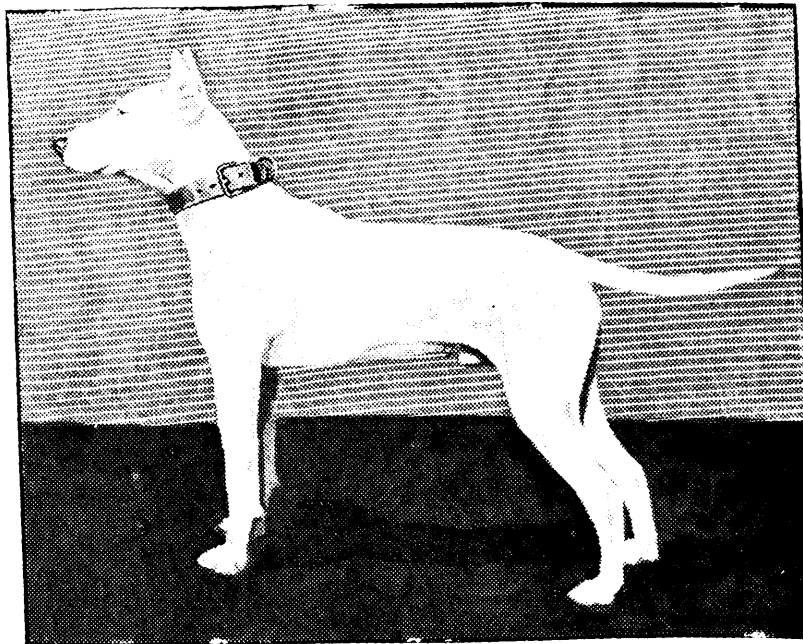
Young Croker has become quite a favorite among English dog fanciers, who generally speak of him as "Young Dick Croker."

One of the leading dog experts informs a correspondent that a rich New Yorker commissioned a London fancier to obtain at any cost a bulldog to be at Rodney Stone at the next Madison Square Dog Show, but no purchase has been made yet. Croker himself is in the market, but has not picked up anything equal to Rodney.

He has desired to breed a bulldog in America which will beat his own English bred.

"It's a laudable desire," said Will Sprague, England's best expert, "but I fear he is taking a big task, for bulldogs are queer cattle to breed, even by those who have made them a lifelong study and gone crazy over them. Like does not always produce like in bulldog breeding. When Mr. Croker sailed for America recently he took with him two females, Little Witch and Bit O'Bluff, whose wants and toilets he personally attended to *en voyage*. This shows the spirit of a true fancier. His love of bulldogs has won him golden opinions in England."

Croker's racing whippets were recently shipped to New York. After they get in training they will probably be set to racing, which ought to become popular. At present in England



Newmarket Bendigo.

whippet racing is principally carried on by the working classes in the Midlands and Northern counties. The dogs are hand-capped down to inches at the start, sometimes according to weights, at other times height or sex.

These immature greyhounds run 200 yard courses as straight as arrows and seem to know what to do. They can be seen letting out pace at the right time, and their speed is tremendous, 200 yards inside of 12 seconds, faster than any horse or sprinter. The dogs require the finest care and training. They run on a cinder track and enjoy the sport.

By the kindness of Dr. C. A. Schenck we have been furnished with the following interesting notes from the Cologne Gazette:—

"The revenue obtained from the sale of wood and timber in the Prussian State forests has been as follows:

In 1887	52.7 millions	In 1888	54.4 millions.
1889	60.7	1890	63.2
1891	60.5	1892	62.4
1893	58.7	1894	58.4
1895	64.5	1896	68.5
1897	75.2	1898	79.4

The sudden rise of revenue in 1890 was due to an increased output necessitated by the ravages of insects.

The temporary increase in 1892 is explained by extraordinary wind-falls and snow-breaks, again causing an increased yield.

On the whole it appears that since 1897 the annual revenue obtained from sales of firewood and timber has grown by 50%. As these returns are considered to be safer than any other revenue obtainable from any other source imaginable, it is easy to see that the value of the source of the revenue, namely, of the forest, has increased at the same ratio, to say the least. Consequently, the government, aside from enjoying increased revenue, is now 50% richer than it was twelve years ago."

*

BOOK REVIEW.

Mr. C. E. M. Russell, an officer of the Indian forest service, has brought out a second edition of a work he published a year or two ago upon Indian shooting.

"Bullet and Shot" is the title of this capital little book of sporting adventures. His aim, as he states himself in his preface, is to help the rough road of the tyro, and we think he has succeeded. He says: "It was frequently brought home to the author in the case of numerous beginners whom he personally assisted to obtain sport, how unfavorably situated such are in a strange country unless aided, and he has endeavored in the present volume to supply what he believes to be a want." In addition to chapters describing the habits and haunts of the various species of Indian game, this book contains others upon camp equipment, arms and ammunition, and hints on skinning and the preservation of trophies. As the author was assisted in the preparation of these latter chapters by such well known authorities as Mr. Henry W. Holland and Mr. Butt, there can be no question as to the trustworthy information they contain. The book is published by Thacker & Co., of London and Calcutta.

*

Mr. George H. Ham, of Montreal, has been staying at Siamonig, B.C. In the course of a letter, recently received, he says the fishing in Slushwap Lake is the best he has ever enjoyed.

THE GUN

To what extent the enthusiasm as to rifle shooting which was aroused by the initial reverses of the South African campaign will permanently improve rifle shooting in Canada is a question the future must answer. In Great Britain it is said that the formation of civilian rifle clubs, with their leavening of volunteers, have increased exceedingly rapidly in numbers and in membership. According to the London Field, a thoroughly trustworthy authority, British rifle clubs have developed steadily from small beginnings.

The National Rifle Association, notwithstanding its onerous duties, eagerly welcomed this new trend in rifle shooting, and encouraged it in every manner possible. Competitions have been set aside for the exclusive benefit of members of clubs affiliated with the parent association. These, as a rule, are competed for with miniature rifles and under conditions differing widely from those governing ordinary target shooting. In one class of competition there is a miniature range, a miniature rifle and its miniature ammunition; in others there is shooting with miniature rifles at distances often fired over with a service rifle, thus serving a useful purpose, since they permit the use of ranges which would be condemned as dangerous for the service rifle and ammunition. The third class of shooting which is indulged in by the affiliated clubs, includes the use of service rifles and ammunition at the shorter ranges. The object aimed at, and seemingly attained, by these classes is the bringing of target shooting attractively before a larger class than is represented by mere membership in the volunteers.

This, it would appear, is precisely what is needed in Canada. In the scheme outlined by the Militia Department, and published a few weeks ago, there seems a disposition to force every man who uses the range to become, at least nominally, a member of the militia. This has undoubtedly had a deterrent effect upon many who would otherwise have wished to join, and is probably responsible for the lukewarm interest exhibited so far by the great mass of Canadian men.

With the lessons of the Boer war before us, we must be blind indeed if we do not see the vital need in a country where conscription does not exist of every able-bodied man being somewhat of a marksman. The drill of the barrack square, the tinsel and blare, we can, perhaps, do without. What Canada needs most is 500,000 men of Anglo-Saxon and Celtic descent who could at short notice use their rifles to good effect.

The time to train the hand and eye in shooting is in youth. Instances are, it is true, on record showing that men of mature years have now and again learned to use the rifle and shot-gun, but in the vast majority of cases the only time to master any field sport is during those years when the receptive faculties are most on the alert. Every Canadian lad should have it in his power to become a marksman, if his bent lie in that direction.

*

We are often asked for the names and addresses of men fit to guide hunting parties in the mountains. A correspondent whom we have heretofore found trustworthy writes that T. Martin, of Field, B.C., and E. McDougall, of Penticton, B.C., are hunters who have given satisfaction to numerous employers.

<h1 style="margin: 0;">ROD AND GUN</h1> <hr/> <h2 style="margin: 0;">IN CANADA</h2>	<p style="margin: 0;">DEVOTED TO THE FISHING GAME AND FOREST INTERESTS OF CANADA.</p>
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Excellent accounts continue to reach us from the sporting grounds of the Northwest. Northwestern Manitoba is yielding some fine trophies this year. Three distinguished foreign sportsmen, the Marquis de la Gandara, a Spanish nobleman attached to the embassy in Rome; Baron Wulff von Plessen, a captain in the Imperial German navy; and Count Hadelin d'Oultremont, of Brussels, had extraordinary sport in the region surrounding Lake Winnipegosis. They accounted for five big bull moose and one black bear, in a fortnight's shooting, and they picked their heads. This is almost a record shoot, and shows what can be done by good sportsmen who make their preparations in an intelligent manner.

Another big game hunter who was successful—Mr. Hough, K. C., of the firm of Hough and Campbell, of Winnipeg—also made a most successful trip into the Manitoban bush. He bagged two fine moose and found game extremely abundant. These are but two instances out of several. For many a long year Manitoba and the Northwest Territories have been famous for the sport they yielded to the wing shot, but it is only lately that outsiders have begun to realize that on the edge of the prairie there is a debatable land, part forest and part open country, wherein many species of big game are to be found. In a few years a great many sportsmen will set their faces annually toward the setting sun, about the time the leaves of the mossy-cup oak begin to turn brown, and they will have their reward.

Experiments in acclimatization have shown very positively that no one should introduce a foreign species of beast, bird, or fish without first ascertaining beyond a shadow of a doubt that the new species will be wholly beneficial. One genius introduced the rabbit of Australasia: as a result the colonies have lost millions of pounds; for some of the finest grazing tracts in Australia and New Zealand were rendered sterile and unprofitable by the inordinate increase of the few couples of rabbits imported from Europe.

Another well-intentioned individual, seeing that a plague of rats was on the island, brought to Jamaica some mongoose from the East Indies; and these mongoose found Jamaica so much to their taste that they increased and multiplied most prodigiously. It is true that the rats were soon almost annihilated, but, as the mongoose had to live, he next turned his

attention to the quail, and they went the way of the rat, and after that it was the turn of all the feathered songsters of the island, together with the henwife's poultry. Now the islanders shudder at the very mention of the mongoose.

A third experimentalist brought over from Europe a few couple of the house sparrow, which was endeared to him by sentimental recollections of his boyhood: and a few years later the legislatures of half the states in the Union were voting considerable sums annually, as head money, for the destruction of the descendants of those same sparrows which made the Japanese ivy of a certain church in New York so homelike to the exiled Britisher.

And now the Dominion government is incurring a very grave risk of adding yet another to these classic examples of energy misdirected. According to the daily press: "A car of spawn and young fish went west to be distributed in the different lakes in the mountains. These are being sent out by the Dominion Government. Bass constitutes the largest portion of the shipment." Now, it is by no means a certainty that the bass will thrive: this fish spawns in the spring as soon as the water attains a certain temperature, and it is quite possible that the parent bass may have to wait a weary time before the waters of the Rocky Mountain lakes reach a temperature which will permit the egg to hatch out in a reasonable time, if at all. These are matters which may only be decided by experiment. But this much is sure: if the bass ever do increase, and find the waters to their liking, it will be all up with the game, black, spotted and rainbow trout now inhabiting those waters. The bass is almost as destructive as the pike, and it is very much to be regretted that the Dominion Government should have been so ill advised as to attempt the introduction of a comparatively coarse fish—although a game one—into waters which hold the peerless salmonidae.

Our frontispiece shows a young white Rocky Mountain goat (*Mazama montana*), together with his two captors, Christian Häslér and Christian Böhrn, C.P.R. Swiss guides, who were stationed in the Rockies last summer. The animal is quite tame and very intelligent and affectionate. It was sold to Mr. George Vaux, of Philadelphia, who, we understand, has given it to the zoölogical collection of his native city.

The annual meeting of the Province of Quebec Association for the Protection of Fish and Game was held in Montreal last month. A new constitution was adopted, and the following officers elected:

F. L. Wanklyn, president.
Colin Campbell, vice-president.
Thos. C. Brainerd, treasurer.
G. W. MacDonnell, hon. counsel.
Wm. J. Cleghorn, secretary.
Committee—H. W. Atwater, Geo. Boulter, L. A. Boyer, E. T. D. Chambers, T. M. Craig, James Cochrane, M. L. A.; W. H. Drummond, M. D.; T. A. Emmaus, D. Hutton, J. T. Finnie, M. D.; H. R. Ives, R. Kiernan, W. L. Maltby, Chas. Meredith, Peter McKenzie, W. H. Parker, J. B. Payne, Jos. Riendeau, J. P. Roche, T. Roy, jr., W. P. Scott, A. N. Shewan, J. B. Sparrow, J. H. Stearns, C. W. Wilson, M. D.

His Royal Highness the Duke of Cornwall and York enjoyed some excellent shooting while in Manitoba last month. At Poplar Point, as the guest of Senator Kirchoffer, he brought to

bag 52 duck during the morning flight on October 7. Next day he did even better, and the total bag was more than 600 ducks. The guns were, in addition to His Royal Highness, the Governor-General, Sir Charles Cust, Prince Alexander of Teck, Major Maude, Commander Fawcett, R. N., and Lord Crichton.

*

An unusually fine head was among the earliest arrivals from the famous Kippewa district last month. Mr. F. N. Southam, of Montreal, shot a bull moose on October 1st, northwest of Lake Kippewa, whose antlers have a span of sixty-two inches. Moreover, one of the spikes from which the measurement has to be taken is broken, and had this accident not happened the measurement would have been at least an inch and a half more than is now the case. This bull with average luck should have carried a sixty three and a half inch head, which we believe to be the record so far for the Kippewa district.



A party, consisting of Mr. E. L. Russell, general counsel of the Mobile & Ohio Railway, Mrs. and Miss Russell, Mr. E. M. Robinson, of Mobile, and Mr. Hatcher, spent a couple of weeks this autumn in Manitoba. Travelling in Mr. Russell's private coach, the party visited in succession Lake Winnipegosis, Plumas, Dauphin and other places, where excellent sport among the ducks and chicken was had. After a fill of shooting, the party spent a few days at Banff and Glacier before returning southward.

*

Mr. L. H. Smith, of Strathroy, a sportsman whose frequent contributions to *ROD AND GUN* are most welcome, is shooting "chicken" at Cypress River, Manitoba.

*

For several years the bluebird (*Sialia sialis*) has been a rare visitor to its old breeding grounds in Ontario and Quebec. It suffered severely from a March blizzard which swept the Southern States, and seemed on the verge of practical extinction; but last year, and more particularly this summer, the species is becoming much more abundantly distributed. Ere long this little beauty of the field and orchard will be as familiar as it was ten years ago.

*

It is very generally believed that there are few good guides to be had in Manitoba. We are informed, however, by Mr. Chas. A. E. Harris, of Ottawa, that the demand is creating the supply, and that he was able to obtain the services of several good half-breed or Metis guides in Manitoba during a hunting trip he made there in the fall of 1900. This will be welcome news to many men, who would have turned their faces westward long ago had they been assured of finding good guides awaiting them in Manitoba.

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AMATEUR PHOTOGRAPHY

Conducted by Hubert McBean Johnstone

LANTERN-SLIDE MAKING BY CONTACT.

H. McBean Johnstone.

I rather fancy that it is more or less of a problem with every amateur photographer to find the most satisfactory method of keeping his picture, so that they are easiest shown to his friends when he may so desire. The scheme of putting them in an album is all right, only it is sort of hiding one's light under a bushel. Another objection to the album is that when a photograph is wanted it is never to be found: and I never heard of an indexed album. The really good way, the ideal way, of showing the picture, is to make a lantern-slide of it and throw it up on the screen where every one can see it at once, and you may depend upon it, the criticisms that will be pronounced upon it when it is under the gaze of all together, will be far more enlightening to you than you would ever be able to get by showing to one at a time in an album.

Apart from the really nominal cost of buying your lantern, you are going to be under no great expense to take up lantern-slide work. As far as the question of labor and cost are concerned, I figure that they are about the same, on the average, as making a good print. There are prints that can be made for far less than a slide, but the fellows that make them are not usually the kind who take enough interest to bother about a lantern, so we may safely say, I think, that the cost is about the same. The time employed is usually a secondary consideration, and after one once masters the art it is no longer a question of rush, but of going steadily, and you will get through very quickly. There is just one thing that it is necessary to say to the tyro: Never try to do the next thing in making a slide until you have finished the last. Then your slides stand a chance of being almost uniformly good.

Then it is necessary that the worker realize what a good slide looks like, in order that he be not working in the dark. The absolutely best slide, of course, is the one which when thrown up on the screen, most closely resembles nature, though that is hardly placing before the slide-maker any precise directions as to what he is expected to look for. The great majority of people want a bright, snappy thing with an abundance of clear glass and strong, hard shadows. Now, don't you make that kind. Aim rather to impress upon your audiences the beauty of delicate tonal values and the charm of the bewitching transparency which possesses its counterpart only in nature, and you will soon be able to make them feel that, instead of looking at a mere picture, they are in the great meadows in the valley where they can smell the great, fresh, air of the open. But still this does not tell you what a good slide is like. Here is what "The Lantern-Slide Manual," by J. A. Hodges, says on the matter: "A technically perfect slide should possess deep shadows and clear high lights and every possible range of gradation between the two extremes. At the same time, the shadows must not be so opaque as to lose translucency, nor the high lights so clear as to be devoid of detail. The thinnest slide when laid upon a sheet of clean, white paper, should show not the slightest discoloration or veil." In short, what we want to get in a slide that we can call good is the extreme amount of tonality, — half tones and

full tones,—and then combine that with the most perfect and delicate transparency. Such a slide would be perfect. Just as in a photogram, are a strong fore-ground and a distance displaying atmospheric perspective desirable; in fact, even more necessary than in a photogram, for we have to bear in mind that the slide, though in the original smaller than the original of the print, is to be enlarged many, many times, and every defect will of course be correspondingly magnified. Slides in which sky, water, grass, in fact, anything but a white sheet, show absolutely clear glass, are fit only for the ash barrel. In fact, I have seen slides where even a white shirt showed its own shadow and gradation.

It will readily be seen that upon the quality of the negative is the quality of the slide dependent, just as is the print. A plucky negative possessing a lot of detail is inclined to be better than one of the heavy, dense sparkling order so much affected by many workers. We must bear in mind that it is an impossibility to get from a negative what it does not possess, in relation to which the advice given in one of the books on lantern-slide making is really worth noting: "At first, we advise the beginner to pick out his very best negatives and stick to them until he has learned to make a technically good slide."

Now, regarding the actual working details of the contact process, the most simple one, there is really little to say. First back your plates with ordinary lamp black backing, in order that you may secure the finest detail that is to be had. It is also a good scheme to mark your plates with a number on the corner in lead pencil. The number will stay there and will serve to identify the negative afterward for cataloguing purposes as well as to remember the time of exposure and development. If you keep notes on your work it is going to be of inestimable benefit to you, far more than any amount of reading on the subject could ever be. The developer recommended by the plate-maker is always good. Personally I have been employing the one recommended by Osborne I. Yellott, in his "Lantern-Slides and Sliding Making." It is as follows:

A. — Water, (cold)	10 oz.
Metabisulphite or potash, (crys.)	35 gr.
Ortol.....	70 gr.
B. — Water,	10 oz.
Carb. potash,	$\frac{1}{2}$ oz.
Sulphite soda,	$1\frac{3}{4}$ oz.
Bromide potash	10 gr.

For use take one part of A., one part of B. and four parts of water.

Referring to this developer, Yellott says it is very important that the temperature be kept high in the winter, about 70 degrees Fahr., and that it should not be allowed to drop below 65. Having tested it, I can vouch for the importance of that statement; and as it is in winter principally that slides are made, you will do well to bear it in mind. He also advises that in order that uniform results may be had, fresh developer be used for every three or four plates, and that either a fresh hypo. or an acid fixing-bath be employed.

You will be able to work by a pale yellow light or a faint ruby, as the lantern plates are slower than ordinary plates. Now take the negative and place it in the printing frame with the mat you intend using on the top of it, and then put in your lantern-slide plate in the same manner as you would a piece of paper for making a print, film to film. It is well to

dust off both plates first, as a certain amount of dust is almost sure to creep in. If you don't, you must remember that each piece will show on the screen through the lantern as almost a boulder. Then place a foot rule down with one end-reaching to your light, and after deciding what distance you are going to hold the frame at from the light, measure the distance on the rule and holding it there open the door of the ruby light. You will not want to hold it less than six inches from the lamp, for if you do you cannot secure an even illumination. With a negative of fair printing qualities about a foot is the proper thing. This, with the exception of the developing (which is practically the same as in the case of a negative), is about the whole of the extremely simple process. Of course, a slide should never be developed as far as a negative, for it has to show all its gradation on the sheet, and must show it at once; whereas the negative, if it happens to be a bit thick, can be allowed to print a while longer. Let it go just a little farther than you want it to be when fixed. Just the same as when you are making a Solio print. But this is, after all, really the whole secret of slide making, this knowing how far to develop, and it is the man who, by dint of careful experimenting in this direction, finds just what he wants and gets it, who will be known as the best slide-maker. The average slide ought to develop satisfactorily in about five minutes, though of course this will vary with the exposure and development that you give.

You will want to bear in mind that it is almost altogether upon the exposure and development that the making of a good lantern-slide is dependent, and if you do not get the result that you are looking for in the first shot, you want to vary the distance of exposure and keep on trying till you find out which part of the foot rule produces the best results with the light you employ. Perseverance in this direction will get you the very best that is to be had.

*

The Scrap Bag.

AN ADVANTAGE OF PYRO.—In spite of all that may be said against pyro as a developer, it will always have its defenders. Perhaps the strongest claim that can be made in its favor (as well as against it) is that it gives to the negative a slight yellowish tinge, which in nine cases out of ten, by making it print slower, secures prints with vastly finer detail and gradation. This is particularly the case in the instances where the negative is at all inclined to be thin.

A MEMORIAL TO ROBINSON.—It is with no small amount of pleasure that we see a large and influential society, the Liverpool Amateur Photographic Association, to wit, moving in the matter of a permanent memorial to the late H. P. Robinson. While his published works are likely to keep his name in the minds of photographers for many years to come, it must be the wish of all who have come under his influence, directly or indirectly, that so remarkable a man and so great a pioneer in pictorial photography should receive some such recognition. We hope that the movement started by the Liverpool society will be taken up by others all over the empire, and that the Royal Photographic Society will extend to it its influential support. Mr. Robinson was one of the greatest benefactors which that institution ever had, both in the ungrudging support he gave it while a prominent office-bearer, and in the vigorous criticism which he did not spare when separated from it. Both profited the society as nothing else has ever done, and the largest contributor to any fund in recognition of the

services of the "Grand Old Man of Photography" should be the organization which owes no small amount of its influence to his labours. We commend the proposition of the Liverpool Society to clubs and associations all over the empire, and shall be happy to do anything that lies in our power to assist in promoting so worthy an object.

THE USE OF FLASH POWDER.—In the photographing of interiors by the use of flash powder, the most common mistake made is that of placing the powder in a little pile above and to one side of the instrument, and firing it from that position. This is not the best way to do it, though it is true that the majority of professional photographers will tell you that it is. Instead, try spreading the powder out on a piece of gun cotton about six inches long and place it not more than a foot to either side of the lens, keeping it slightly above, and slightly behind. This will insure your having no harsh shadows in your photograph. If the powder is placed in a pile and then fired, those particles which ignite first will, in burning, blow some of the other away, so that a part of the charge is lost. Flash-light photographs (paradoxical as it may seem) are better when made in day time than at night, and if made at night are best made with a light in the room, though, of course, not in front of the lens.

ANOTHER BOOK BY W. S. LINCOLN ADAMS.—The Baker & Taylor Company, New York, published this fall another book by W. S. Lincoln Adams, of the firm of Scovill & Adams, the author of "Amateur Photography," "Sunlight and Shadow," and "In Nature's Image." "Woodland and Meadow" is a series of charming country sketches on a New Hampshire farm, dealing with the phases of life in various seasons. These papers are grouped about and illustrated by a rare lot of photographs taken by Mr. Adams and others.

A SNOWSTORM EFFECT.—"To produce a snowstorm effect in any picture, take some Indian ink on an old toothbrush, and with a stick, spray the film side of the negative. A test should first be made on an odd piece of paper. When the negative is sufficiently covered with the small spots, it may be printed from in the usual way." The foregoing appeared in "Photography" some time ago. You will find that if you spray the glass-side of the negative, it will answer almost as well and you run no risk of making a botch of the job.

SHE WOULD WAIT.—An old story that once went the rounds of the photographic press is again on its feet and is being told on a well-known Toronto photographer. Whether or no it has any real connection with the photographer in question would be a trifle difficult to say. But here is the story: A lady comes into the studio and asks the price of photographs. "Five dollars a dozen," answered the artist of the lens. "Well," replied the lady to the astonished picture man, "I was going to have my children photographed, but I only have eleven. I'm afraid I'll have to wait awhile." At latest bulletin she was still waiting.

THE PHOTOGRAPHIC CONVENTION.—The Photographers' Association of America held their annual convention during the month of August, in Detroit, Mich., and a highly successful one it was in every respect. One notable thing about it was that it was the first convention that had ever been held where there were no prizes or medals to be given to the leading exhibitors, and, on this account, there was considerable doubt expressed as to the quality of the work that would be displayed.

It was proven at the exhibition, however, that those who doubted had little cause for their fears, and, on the whole, the photograms shown ranked away above those put up any previous year. Indeed, the feeling throughout the whole thing seems to have been that the association as a whole has risen above so paltry a thing as a medal or prize, and that the aim is now purely the art and its advancement. That is the right spirit. President Core and the other officers of the association are deserving of a great deal of credit for the masterly way in which they handled the whole affair and the highly successful manner in which they manipulated every feature of it.

THE LADIES' HOME JOURNAL.—The September issue of the Ladies' Home Journal contained the last of the prize-winning pictures of its recent competition, and devotes the whole middle page to their reproduction. They are undoubtedly very fine, though somehow or other not exactly of the class we are used to seeing reproduced in the photographic journals' prize competitions as winners. Another curious fact in connection with the pictures is that not a single one of them is by anyone who is well known in the field of landscape photography. They are every one by someone who was never heard of before. A number of the other leading magazines of the month devote more or less space to the subject of photography.

WHAT DOES IT MEAN?—One of the leading photographic journals is responsible for the following advertisement in its last issue, and though the meaning of it is somewhat obscure, it is possible that some of the readers of ROD AND GUN IN CANADA will be able to decipher it. Any such who wish to apply for the position (and are eligible) can send their letters to me and I will see that they reach their destination. Here is the ad:—

"WANTED: A lady retoucher, having an established business and a widower. I want an AI retoucher: view, matrimony: one of middle age. Send photo of self in first letter. References exchanged. Address Business, this office."

ON BEING PLEASANT.—Following is one of the good things that were said at the convention held in Detroit recently. It is worth remembering by the amateur as well as the professional:

"What we get out of people depends a great deal upon what we put into them. When they come into the presence of a pleasant fellow they will feel they are pleasant too, and they will at once think better of themselves. We need to know a little of everything to be able to put ourselves in touch with the people we come in contact with. We must hold ourselves free to enter into the thoughts and the lives of the people we meet, so that we can draw them out; make them enjoy being in the room with you, and they will go away feeling better. Make a pleasing impression upon every man or woman. Don't talk to them about their corns, but help them to bear them by paying no attention to them."

BIOGRAPHING A DUEL.—The Buffet-Déroulède attempted duel was full of those theatrical elements that go to show how lacking are the French in any sense of the ludicrous. Amongst the other incidents of this burlesque, we learn from the *Pall Mall Gazette* that the Nationalists, or supporters of M. Déroulède, engaged a photographer to secure a cinematographic record of the duel that never came off.

BY ELECTRIC LIGHT "WHILE YOU WAIT."—Photography by electric light has become so common at Coney Island, the notorious New York beach, that at night, the barkers calling attention to the fact that if you will only step inside, you can get your likeness made by means of artificial illumination for the small sum of ten cents, are very numerous. A common arc light is employed.

HE "KINDER SUSPICIONED" IT.—While in the Catskills, last summer, Falk, the well-known photographer who occupies the studio in the top of the Waldorf-Astoria, New York City, and his wife stepped into a rural "studio" to have their pictures taken. The artist posed them as awkwardly and stiffly as such "artists" usually do, and stepped aside to get a plate. As he turned to make the picture he was discomfited to find the pose of the sitters changed completely, Mr. Falk explaining that he thought the new pose more effective. Then he told who he was, and the gawky "artist" drawled out:

"When you shifted I kinder suspicioned you was runnin' a photograph gallery som'eres."

Correspondence.

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

Weak Negatives.—Extra pyro will give you more contrast in your negatives. You will find, however, that the very best negative for making enlargements from is one which is inclined to be thin and possesses plenty of detail. In fact, I often reduce negatives that I want to be extra careful with.

C. H. I.—"Stopping down" is a term used in photography referring to the use of the smaller openings of the diaphragm in order to increase the sharpness of the image on the ground glass. If you experiment with your camera and find that a certain stop,—say F 16, covers your plate to the edges, use that stop as the largest to make an exposure with. Focus with the lens wide open and get the objects in the middle of the plate as desired, and then stop down to F 16. Expose accordingly and your resulting picture will be, everything else carried out correctly, as good a picture as your camera will produce.

Alex. Owen.—The picture is not worth copyrighting in my opinion, but if you really want to have it copyrighted, would advise to write to Minister of Agriculture for instructions. Correspondence with the Department is carried on free.

Fog.—With films there is no visible halation except in those cases where the over-exposure in a certain part of the negative is so great that the light is refracted by the molecules in the emulsion to a sufficient extent to cause the diffusion of a light which is strong enough to affect the sensitive salts. Even in such cases, however, the halation is vastly less than it would be with glass plates, because the film negative is affected by refraction only, whereas the negative on glass is affected by both refraction and reflection. Film needs no backing or double-coating as a preventive of halation.

J. H. Hanna, Vermont.—Glad to learn that we have so many American readers. You are right: Canada is God's country as far as the camerist is concerned. It is possible to give a glossy surface to blue prints by enamelling. Take an ounce of white wax and the same quantity of spirits of turpentine, and after melting the former, and while it is still hot, add the latter. Rub over the surface of the print with a piece of flannel and then burnish with a clean, dry piece of the same. Let me hear from you again.

NEW HUNTING GROUNDS IN ONTARIO.

The following detailed information regarding the game resources of the Province of Ontario has been compiled from the reports of the surveyors who conducted explorations and surveys for the Provincial Crown Lands Department during 1900.

DISTRICT	AUTHORITY	REMARKS
Township of Sifton, District of Rainy Riv	James S. Dobie, O. L. S.	Game is plentiful including moose, partridge, prairie chicken and rabbits. Beaver are numerous in the northwestern portion of the township, along the branch of the Pine River.
Township of Harty, District of Algoma.	D. Bowman, O. L. S.	The township abounds in large and small game, such as moose, red deer, bear, mink and a few beaver, and the lakes in pike.
Township of Mutrie, District of Rainy Riv	Jos. M. Tierlan, O. L. S.	Game is very scarce in the township but the rivers and lakes abound with beautiful fish, such as pike, pickerel and black bass; and I was told by a fisherman that the whitefish were very plentiful in Eagle Lake.
Township of Hoskin, District of Nipigon	Dumorest and Silvester, O. L. S.	Bass, trout, muskionge and pickerel are abundant in the lakes. Deer, moose and bear are also quite numerous. A few indications of mink, marten, fisher and otter were found, but none of beaver.
Township of Miscampbell, District of Rainy River.	D. J. Gillon, O. L. S.	The northern part of the township is simply a deer park, moose, caribou, and red deer being very plentiful.
Survey of Base Line, District of Nipissing.	T. B. Speight, O. L. S.	The fur-bearing animals of this territory include moose, caribou, red deer, bear, wolf, lynx, fox, beaver, otter, marten, fisher, rabbit, mink and muskrat. Of these, wolf, mink and muskrat are scarce. The feathered tribe includes duck, chiefly black duck and redhead, loon, crane, partridge, hawk, owl and many small birds. Fish were found in abundance, among the varieties being pike, pickerel, whitefish, tularic, white and red sucker, and (below the falls) sturgeon.
Survey of Base Lines, District of Algoma.	A. Niven, O. L. S.	Signs of moose and caribou and bear were often seen, and beaver, otter, marten, rabbit, mink and muskrat are the principal fur-bearing animals of the country. Partridges were very plentiful, and the rivers contain fish of the usual kind, viz.: pike, pickerel, whitefish and sturgeon (below the falls).

According to a press despatch from Vancouver, B. C., Dan Rice, of Nelson, was killed by a grizzly during a hunting trip in the Selkirks.

We are always glad to hear from our friends who live in good hunting and fishing districts. Style and composition are mere secondary matters, and, provided the "meat" is there, we are only too glad to correct any angularities of diction, and make the orthography agree with Webster. But there is one kind of story we don't want,—and that is the kind that finds its way into the columns of the "yellow" journals about once a week. We don't believe in moose that weigh 2,000 lbs., and charge a man at sight, etc., nor do our readers, for they are sportsmen. Just plain, unvarnished facts will do nicely,—and the more of them our friends send us the better. We will make room for such stories, even if we have to use a rubber "chase."

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.

TREE PLANTING AT CALGARY.

The following notes are from a letter written by a gentleman living near Calgary who has had considerable experience and success in the growing of trees:—

"In planting out trees for ornamentation or shade, I think a good deal of attention should be paid to the non-deciduous varieties. In winter, when the ground is white with snow or russet from the brown grass, the eye requires some relief, and nothing is so satisfying as the beautiful green of our native non-deciduous trees, and for this our spruce cannot be excelled. They make nearly, if not fully, as handsome a tree as the Norway spruce of the East, and a much more handsome one than the spruce of the Eastern Provinces. For the first year or two after planting out its growth is so small that it is rather discouraging, but after that the growth is very rapid. Altitude has a great deal to do with tree growth. Elms, oaks and many kinds which grow readily at moderate elevations will not grow with us. Mountain ash, Scotch pine and native birch will grow well. Probably the Douglas fir obtained between Calgary and the mountains would do well. There is said to be a balsam in the Rockies which would also probably do well. The Eastern Canada balsam has not been a success with me, though I am not positive it would not if properly transplanted prove such. It is probable the Bull pine obtained from high

elevations in British Columbia would be a success. The ash obtained from the Indian Head Experimental Farm has been a decided success. White pine, white cedars, tamaracks and many of the non-deciduous trees cannot be successfully grown at Calgary.

To be successful in transplanting trees, it is advisable that they should be removed as short a distance as possible, and that the conditions should be as nearly similar as possible. Never remove trees from a lower to a higher elevation if it can be avoided; the reverse may be adopted without incurring much loss. You can obtain any number of varieties of trees of the poplar family and also of the spruce where the conditions are very nearly similar, and whatever change would be in favour of Calgary. These could be obtained just for the cost of taking them up and transporting and planting them. Avoid, until you have shelter belts, experimenting in eastern trees; and when you have plenty of shelter there is no doubt many of the more delicate trees can be successfully grown. If anyone

will take the trouble to go down to my place he will see thousands of trees growing, varying in height from one to five feet, which have been propagated by this means within the past two years. Spruces from four inches to four or five feet in height to be planted out close in even rows far enough apart to be cultivated with a horse hoe, at least four feet apart; and by mixing thoroughly the large with the small every year, the larger ones will furnish a supply for transplanting, thus leaving room for the smaller ones to grow rapidly and of good shape. Also top-dress liberally with good manure."

The suggestion is made, and it is one worthy of consideration by other towns as well as Calgary, that, as no doubt the corporation and the citizens of Calgary and vicinity will in the future be planting trees in more or less considerable numbers



THE "HARD" MAPLE (*Acer saccharinum*).

This is the symbolic Canadian tree, and is found from Nova Scotia to the prairie, and from the southern border of the Dominion northward to the height of land.

for some years, and it is desirable that trees should be available for all at a minimum of cost, the corporation should start a small nursery for supplying such trees, a plan which has been very successful in other places. The plan outlined is that a

lease of four or five acres of land tributary to an irrigation ditch in the vicinity of Calgary should be procured, and a plentiful supply of the different branches of the poplar family propagated from slips, seed, or by burying the green live poles in the spring of the year. It will be necessary to give such poles a liberal supply of water, which causes them to sprout in profusion, each sprout forming a tree. After two or three years they are sufficiently large to be available for transplanting.

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Tree Planting on Sable Island.

Sable Island is a name well known to every navigator on the Atlantic Coast of North America, and its reputation is not an enviable one, for, although small in extent, it has been the cause of disaster to so many vessels, as far back as there is any record of its history, that it has well earned the epithet sometimes applied to it of "the graveyard of the ocean." Lying in a south-easterly direction from the Nova Scotia shore, from the nearest point of which, Whitehead, it is distant about eighty-five miles, it rises in two parallel ridges of loose, gray sand, about twenty miles in length by one in breadth, from the level of Sable Island bank, one of the great banks in which, from Newfoundland, round the south of Nova Scotia almost to the coast of the United States, the ocean bed is elevated to a depth of from fifty to seventy fathoms, and which form the great fishing grounds of the North Atlantic. The eastern end of the island is in latitude 43° 59' north and in longitude 59° 45' west. In the irregular valley between the two ridges is a lake, now not more than eight miles in length, although it was formerly much longer. The early charts issued in 1775 represented the island as forty-two miles in length and two and one-quarter in breadth, and a special survey made by the Admiralty in 1799 showed a length of thirty-one miles and a breadth of two miles. These records show that the island is steadily diminishing in size, and this is confirmed by the records kept by the superintendents since the establishment of the life-saving stations in 1801. The main station was at that time located five miles from the west end, and was well sheltered by sand hills; but in 1814 this building had to be moved to prevent its falling into the sea, and this work of destruction has been going on steadily at the west end, making it necessary from time to time to remove the station farther east, often at great expense. The island is now equipped with two lighthouses, one at each end, life boats and other necessities for saving life, together with a superintendent and staff of men.

The island is rendered specially dangerous by the winds and uncertain currents, as well as by the fogs which often envelop it, while the sand bars reach out on every side as if to grasp the unwary navigator. Even in fine weather vessels may be carried so near it before they are aware, that it will be a difficult matter to escape, for the island lies low and is not easily distinguishable against the ocean.

Besides the destruction caused by the waves, the wind, which often blows a gale, reaching at times a velocity of forty to sixty miles an hour, keeps sifting the sand away, mostly toward the east, or sometimes in its fury it hollows out great cavities in the sand.

Wild ducks, gulls, divers, plover and curlew are found on the island, and specimens of land birds common on the mainland are sometimes seen. The walrus was formerly found, and seals still resort thither in large numbers. The common or harbor seal is a permanent dweller. There are also on the island the domestic animals belonging to the stations, includ-

ing a number of herds of half-wild horses. In the interior, round the lake, are seen wild roses, asters, lilies, and an abundance of strawberries, blueberries and cranberries.

With the object of trying to bind the sands of the island and also to make it a more conspicuous object on the surface of the ocean, the Department of Marine commissioned Dr. Wm. Saunders, Director of the Dominion Experimental Farms, to look into the question of tree planting on shifting sands, and see what steps could be taken to forest this disastrously important part of Canadian territory.

With this purpose in view Dr. Saunders took the opportunity, when visiting the Paris Exposition last year, to make some enquiry into the methods adopted in France, and particularly in Brittany, in dealing with conditions of a similar nature. The method generally employed was to erect a barrier in the way of the moving sand until a drift was formed, and on the leeward side to set out such trees and plants as were suitable for growing in sandy soil and for binding such soil together. The tree which has been most largely used for this purpose in France is *Pinus pinaster* or *maritima*. As the trees could not be cut away in any large quantities, the chief source of revenue in such forests has been from the turpentine in which this pine is very rich.

In selecting the trees to be set out on Sable Island, Dr. Saunders considered it advisable not only to try those which had been found satisfactory in France, but to experiment with a considerable number of species, so that the results might be as generally useful as possible, and also in order to avoid the possibility of failure which might occur from a too close following of the French example, owing to the climatic differences. About \$2,000 trees were taken to the island, 68,000 of which were coniferous trees, including 10,000 each of maritime pine (*Pinus pinaster*), Scotch pine (*P. sylvestris* and *sylvestris*, var. *Rigauensis*), black pine (*P. Austriaca*), and smaller quantities of mountain pine (*P. montana*), dwarf mountain pine (*P. montana mughus*), and white pine (*P. strobus*); 16,000 spruces, including Norway spruce (*Abies balsamica*), balsam fir (*A. balsamica*), white spruce (*A. alba*), black spruce (*A. nigra*); 1,000 each of red cedar (*Juniperus Virginiana*) and common juniper (*J. communis*), and 500 of white cedar (*Thuja occidentalis*). The deciduous trees, about 21,000, are mainly represented by the following species: White birch, (*Betula alba*), honey locust (*Gleditsia triacanthos*), ash-leaved maple (*Acer negundo*), Norway maple (*Acer platanoides*), white elm (*Ulmus Americana*), European ash (*Fraxinus excelsior*), black walnut (*Juglans nigra*), sea buckthorn (*Hippophae rhamnoides*), spindle tree (*Euonymus viridis Japonica*), matrimony vine (*Lycium Europaeum*), Amur privet (*Ligustrum amurense*), common broom (*Genista scoparium*—*Cytisus scoparius*); of the willows: *Salix argenta*, *S. Japonica*, *S. laurifolia*; and of the poplars: *Populus alba*, *P. balsamifera*, *P. Canadensis*, *P. monilifera*, *P. pyramidalis*. In addition, fifty pounds of the seed of *Pinus pinaster* were sown. Seventy-three other varieties of deciduous and evergreen shrubs and trees, comprising almost all those more commonly grown as ornamental trees in parks and gardens, such as Syringas, Loniceras (honeysuckles), Rhamnus (buckthorn), Berberis (barberry), Spiraeas, Viburnums, Thuja (white cedar), etc., were also set out. The main object in this latter part of the planting has been to ascertain how far such shrubs and trees will succeed under the conditions of soil, temperature, etc., which prevail on Sable Island.

The location chosen for the main plantation was a depression now called Lake Park, toward the western end of the

island, which is not only sheltered from the wind, but which, from the growth of grasses and small plants, has a more or less irregular deposit of from two to four inches of humus. Commencing from the centre, the land was ploughed in a circle, and the trees were planted in th's for n, some of the deciduous trees being planted first, commencing with the willows, and the coniferous trees mixed with the remainder of the deciduous sorts being placed towards the outside. This plantation will have the advantage of shelter from the wind and also of the small proportion of mould, but other plantations have been made in more exposed situations and in pure sandy soil, so that the test will be as varied as possible. To a large proportion of the trees in the several plantations a mixture of artificial fertilizers has been applied, leaving a portion of each plantation untreated, so as to ascertain how the growth will be affected by such application. An analysis is also being made of the mould which was found already in existence. The last word received by Dr. Saunders from the Superintendent was that the trees were so far getting on quite satisfactorily.

This experiment is one that will be watched with interest for its own sake and also for the sake of the bearing it will have on efforts to deal with tree planting on shifting sands generally in Can-

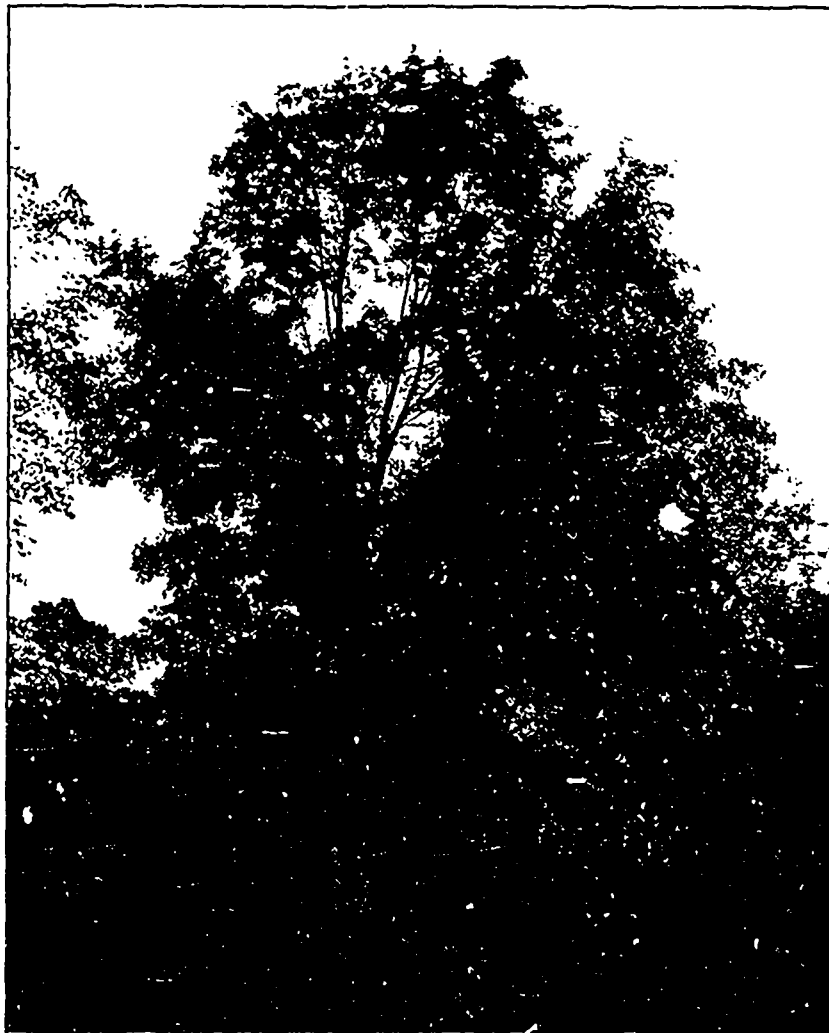
ada. The field chosen for this experiment presents greater difficulties than perhaps any other, and if they can be overcome in this instance, then assuredly they can easily be conquered elsewhere. It is gratifying to know that Dr. Saunders is making this test so wide, and the Department of Marine may be congratulated on having placed the management of it in the hands of a gentleman who has had the foresight and experience to grasp the broad significance of the solution of the problem in this particular case.

The Soft Maple.

What is called generally the Soft Maple includes two distinct species: the Red or Swamp Maple (*Acer rubrum*) and the White or Silver Maple (*Acer dasycarpum*).

The wood of these trees is white and, compared with the hard maple, is soft and brittle, but is employed where a light and not very strong wood is required. No distinction is made between them commercially. These, with the Hard Maple, are the species which reach such a size in Eastern Canada as to be properly described as trees.

Acer rubrum (rubrum-red) derives its specific name from the red flower buds which appear before the leaves in April or early May. The twigs are also of a reddish tint. The popular name of swamp maple is given it on account of its preference for wet locations. It is found in Canada from the Atlantic to the western boundary of Ontario. The leaves of this tree are distinguished from those of the hard maple by acute sinuses and serrated edges. They vary in shape, the three-lobed shape being the distinctive one, although five lobes are quite common. This and the Silver Maple are the trees which put on the most gorgeous tints in autumn in our lowlands and along our river banks. Flaming into brilliant scarlet or crimson, glowing with a beautiful



THE "SOFT" MAPLE (*Acer dasycarpum*).

While not so valuable as the hard or sugar Maple, this species is nevertheless a most useful tree, and one which flourishes further north than the other.

golden light, and displaying all the varied tints between, with the background of more sombre colors and under the hazy light of the dying summer, they form such a picture of brilliantly harmonized coloring as Nature alone can paint, and give to the Canadian woods a beauty which can hardly be surpassed, even by the lavish color displays of tropical scenery, and which lends a charm to the passing of the summer whose influence none but the most insensible mind can fail to feel. *Acer dasycarpum* is the earliest flowering species, the

blossoms appearing in March or April. They are greenish-yellow, and when the fruit appears it is covered with a woolly coating. This latter characteristic gives the specific name, derived from the Greek words *dasus*, woolly, and *carpus*, fruit. This is an example of an appropriate name. An example of an inappropriate name is the adoption by some botanists of *Acer saccharinum* for this tree, changing that of the Sugar Maple to *Acer saccharum*. The name Silver or Silver-Leaved Maple calls attention to the fact that the under side of the leaf is covered with silvery-white down. The leaf is always distinctly five cleft, with deep sinuses, and the margin is not so closely serrate as that of the Red Maple. This tree is usually found growing on the margins of rivers and reaches sometimes a height of 120 feet. It occurs most frequently in Ontario, but is found sparingly farther east.

*

Methods of Estimating Timber.

By Abraham Knechtel, Forester with the N.Y. State F., F. & G. Commission

GENERAL METHOD.

The oldest and crudest method of estimating a forest consists in going through the timber and forming a general opinion of its quantity. On account of the many factors to be considered—density of the timber, average volume of the individual trees, defective material, area, etc.—the method is very unsafe, and is rarely used by trained foresters. It is still frequently used by woodsmen and timber merchants, and the forester also occasionally resorts to it to ascertain the volume upon an area unit—the acre, for example—while from estimates thus obtained he draws a conclusion with regard to the timber in the whole forest as to species, age, quality, etc.

To be sure, with a great deal of practice, one may in this way reach quite good results, although with even good estimators errors of fifty per cent. are by no means exceptional.

In woods where the results of felling have been accurately recorded, the products from an area unit, the acre, *e. g.*, offer a good basis for the estimation of timber on other areas in the same district. One must consider, however, the relative age, and the other factors forming the volume of the timber, such as the height and the form of the trees, the density of the timber, etc. The method can therefore be used with good results only by such persons as can recognize accurately the conditions of the forests estimated.

The products from the fellings of roads and trails may also be used as a basis for comparison.

THE CIRCLE METHOD.

This improvement in procedure consists in estimating the timber on numerous one-quarter acre areas in the forest. A one-quarter acre circle has a radius of 58.86 feet. To ascertain, therefore, the quantity of timber on a quarter of an acre it is necessary only for the estimator to stand in the woods and count the trees within a radius of 20 yards, a distance which he can, with a little practice, easily estimate.

These sample areas may be chosen in straight lines through the forest, and be placed at equal distance by pacing; or they may be chosen irregularly, in which case the estimators should guard against the temptation to follow the best timber. The areas should be chosen so as to give a good general average as to quantity, quality, species, etc.

From these sample areas is figured then the average quantity of timber per acre, which, when multiplied by the number of acres, gives the estimate for the whole forest.

The method is very useful when a large tract of timber is to be estimated in a short time, as is frequently necessary in time option. It is applicable also where the timber is not very valuable, or where for any other reason wide limits of inaccuracy are allowable. For valuable timber a better method—in fact, measurement, should be employed.

THE STRIP METHOD.

This method was first employed by Zanthier, a German forester, about the year 1760. It consists in going through the forest at regular intervals, taking a narrow strip, for instance, two rods wide, a rod on each side of the estimator. The sound trees of each species are counted and a tally is kept.

The area of these strips is then calculated. For example, a strip two rods wide and a mile long contains four acres; or a strip two rods wide across a square forty-acre lot contains one acre. Knowing then *a*, the total area of the strips, *A*, the area of the whole forest, *n*, the number of trees on the strips, the number of trees for the whole forest can be obtained by the proportion

$$a : A :: n : N.$$

An estimate is then made of the average number of logs per tree of each species, the number of logs for 1,000 feet of lumber, the number of trees per cord for pulp or firewood, or the number of ties, telegraph poles, etc. From these estimates the total product of the forest is ascertained.

The following notes obtained from woodsmen in the Adirondack Mountains of New York will give an idea of the nature of such estimates. These estimates would probably be applicable to Northern Ontario, the Algonquin Park or the Muskoka region, for instance, or wherever the conditions are similar to those of the Adirondacks.

WHITE PINE.

3 medium trees = 10 logs = 1,000 feet B. M.

2 trees, if excellent = 1,000 feet B. M.

4 trees, if very poor = 1,000 feet B. M.

Very large scattered trees should be estimated separately.

SPRUCE.

If good, 5 trees = 15 logs = 1,000 feet B. M.

If poor, 6 trees = 18 logs = 1,000 feet B. M.

Spruce logs are now cut down to 8 inches at the upper end, and the remainder of the tree is used down to 4 inches for pulp.

Pulpwood.

By Doyle's rule, 1,000 feet B. M. = 1½ cords of pulpwood.

By Dimmick's rule, 1,000 feet B. M. = 2 cords of pulpwood.

Pulp.

1 cord pulpwood = 1,800 lbs. pulp.

BALSAM.

Balsam is used chiefly for pulp, being generally despised as saw timber on account of its defects and its small size.

Cutting to 4 inches at the upper end, 8 trees = 1 cord of pulpwood.

HEMLOCK.

Hemlock is cut mostly into lumber. A small amount is cut into ties, and a very small amount, as yet, into pulpwood. It is difficult to estimate the lumber on account of the shake to which the tree is subject. Hemlock trees are very variable.

In New York, 5 trees = 1,000 feet B. M.

In Pennsylvania, 2½ to 3 trees = 1,000 feet B. M.

In Wisconsin, 3 to 4 trees = 1,000 feet B. M.

Pulpwood.

4 to 8 trees = 1 cord.
1 tall tree, 18 inches inside the bark = 1 cord.

CEDAR.

The thickest cedars are used for shingle bolts, the longest for telegraph poles. The smallest stuff is used as fence posts. For railroad ties, cedar is objectionable, as it does not hold the spikes well.

Shingle Bolts.

6 trees = 1 cord.

Telegraph Poles.

Diameter at top, 4 to 8 inches, and sound.
length = 25 to 43 feet.

Fence Posts.

Length = 6 feet.

BIRCH.

In a general way birch, above 14 inches on the stump will run about as follows:—

6 trees, if cut down to 12 inches at base = 1,000 feet B. M.

8 trees, if cut down to 10 inches at base = 1,000 feet B. M.

1 tree = 1½ logs 16 feet long.

MAPLE.

10 to 12 logs = 1,000 feet B. M.

1 tree = 1½ logs 16 feet long.

For All Species.

1 log, 13 feet long and 19 inches under bark = 1 standard.

5 standard logs = 1,000 feet B. M.

Weights.

1 cord hardwood = 3,500 to 4,000 lbs.

1 carload = 20,000 lbs.

Carloads.

Green and Half Dry

Heavy hardwoods and hard pine, 5,000 feet B. M.

White pine and other light woods, 6,000 to 7,000 feet B. M.

Dry.

Heavy hardwoods and hard pine, 6,000 to 7,000 feet B. M.

White pine and other light woods, 8,000 feet B. M.

In Logs.

Heavy hardwoods and hard pine, 2,000 to 2,500 feet B. M.

White pine and other light woods, 3,000 feet B. M.

The degree of accuracy reached with the strip method will depend upon the distance between the parallel strips, the less the distance the greater the degree of accuracy. Where only a small degree of inaccuracy is allowable, the strips may be run adjacent to each other, in which case all the trees of the stand would be counted. Each strip may then be from 10 to 20 rods wide.

Many estimators, instead of counting the trees and then estimating the number of logs and finally the volume, estimate the volumes of the individual trees at once.

According to trials which Ihrig has made in Germany in estimating volumes in adjacent strips, the maximum errors of

individual estimators were +11.5 and -3.8 per cent., the arithmetical mean of which being 3.8 per cent. Ihrig believes that under favourable circumstances (much practice, uniformity of stock, familiarity with the respective species and local growth conditions) very satisfactory results may be reached.

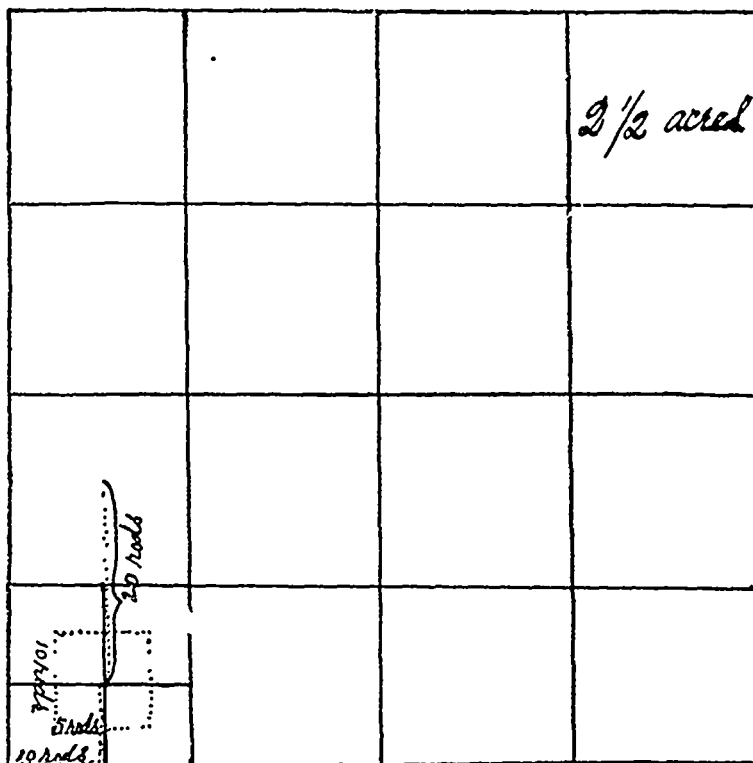
These requirements, however, can seldom be satisfied, and since it takes nearly as much time to make a thorough estimate as it does to actually measure the trees, measurement will be preferred, as it is much more accurate.

THE SQUARE METHOD.

By this method the estimating is done in squares, containing generally 2½ acres. Thus, a 40-acre lot would be divided into 16 squares.

40-Acre Lot

The estimator begins, for example, at the south-west corner of the 40-acre lot. He paces 10 rods east, then 10 rods north, which brings him to the centre of the square. He stands here



and locates, as well as he can, by means of trees, logs, etc., the boundary lines of the square, and estimates the timber upon it, either by a general estimate, or by counting the trees, or by estimating the volumes of the individual trees.

In dense stands, where the trees cannot readily be counted, a flag may be placed at the centre. The estimator then paces south 5 rods and west 5 rods, which brings him to the centre of the south-west quarter of the square. He estimates this part, then paces 10 rods north, where he estimates the north-west quarter, then 10 rods east for the north-east quarter, and finally 10 rods south, where he completes the estimate of the 2½-acre square. He then goes to the flag and carries it 20 rods north, to the centre of the second square, which he estimates as he did the first. Thus he goes through the stand, estimating 2½ acres at each station.

In stands that are not dense, where the timber is all to be estimated, this method will be found quite satisfactory. In dense timber the estimator feels the difficulty of estimating different distances for the corners of the square and the centres of the sides. When there is necessity of pacing a square within the 2½-acre square, as described, the method has no advantage over the strip method and is more cumbersome.

If numerous small separated areas are to be estimated, the circle method has the advantage in that the distance of the boundary line from the centre is constant, and hence less perplexing.

THE MICHIGAN METHOD.

In this method it is customary to estimate strips 40 rods wide. The estimator is assisted by a line man, who runs a compass line along one side of the strip and measures the length of it by pacing. The estimator passes back and forth across the strip and counts the trees. The distance from one side to the other he measures by pacing whenever his direction is away from the compass man. By means of a police whistle he signals to the line man to move forward, or halt, as necessity requires. Whenever the strip reaches the length of half a mile a record is made of the fact that 40 acres have been estimated. As the method is intended to be somewhat thorough, the strips are run adjacent to each other, the compass man running his lines 40 rods apart.

There are two or three other methods in common use in Germany, but as they are not at present applicable to our forests, a description of them is scarcely necessary. Those who wish to read a description are referred to Adam Schwappach's excellent little book entitled "Leitfaden der Holzmeskunde."

It should be remembered that the methods described in this article are methods of estimating. To ascertain the quantity of timber in a forest, foresters use methods of measurement, which, of course, do not come within the scope of my paper.

✱

Mr. A. Knechtel, to whom we are indebted for the article in our present number on "Methods of Estimating Timber," is a native of Canada who has been making a special study of Forestry in the United States. He had the opportunity before doing so of becoming practically acquainted with the manufacture of lumber in Canada, having learned the wood-turner's trade and worked at carpentering for some time, besides being engaged for nine years in the sawmill business in Muskoka, Ontario. Wishing, however, to gain a larger knowledge of the subject, he took a four years' course at the Michigan Agricultural College for the degree of Bachelor of Science, and a further course of the same length at Cornell University for the degree of Bachelor of the Science of Forestry, both of which degrees he now holds. He taught botany and mathematics for eight years in the High Schools of Chesaning and Leslie, Michigan, and was instructor in mathematics for one year in the Michigan Agricultural College. At present he holds the position of Forester with the New York State Forest, Fish and Game Commission, and is engaged in making a survey of the forest conditions in the Adirondack Preserve. Previous to this he was in the employ of the Bureau of Forestry for the United States, for which he made a study of the regeneration of the commercial trees of the Adirondacks. Mr. Knechtel has kindly undertaken to furnish some additional articles in the future.

✱

Any member of the Forestry Association who has not received a copy of the Second Annual Report may obtain one by applying to the Secretary, Mr. E. Stewart, Dept. of the Interior.

THE MAPLE.

All hail to the broad-leaved maple,
With its fair and changeful dress,—
A type of our youthful country,
In its pride and loveliness.
Whether in spring or summer,
Or in the dreary fall,—
'Mid Nature's forest children,
She's fairest of them all.

Down sunny slopes and valleys
Her graceful form is seen,
Her wide, umbrageous branches
The sun-burnt reaper screen;
'Mid the dark-browed firs and cedars
Her livelier colors shine,
Like the dawn of a brighter future
On the settler's hut of pine.

She crowns the pleasant hill-top,
Whispers on breezy downs,
And casts refreshing shadows
O'er the streets of our busy towns;
She gladdens the aching eyeball,
Shelters the weary head,
And scatters her crimson glories
On the graves of the silent dead.

When winter's frosts are yielding
To the sun's returning sway,
And merry groups are spreading
To sugar woods away;
The sweet and welling juices
Which form their welcome spoil,
Tell of the teeming plenty
Which here waits honest toil.

When sweet-toned Spring, soft breathing,
Breaks Nature's icy sleep,
And the forest boughs are swaying
Like the green waves of the deep;
In her fair and budding beauty,
A fitting emblem she
Of this our land of promise,
Of hope, of liberty.

And when her leaves, all crimson,
Droop silently and fall,
Like drops of life-blood welling
From a warrior brave and tall,—
They tell how fast and freely
Would her children's blood be shed,
Ere the soil of our faith and freedom
Should echo a foeman's tread.

Then hail to the broad-leaved maple,
With her fair and changeful dress,—
A type of our youthful country,
In its pride and loveliness;
Whether in spring or summer,
Or in the dreary fall,
'Mid Nature's forest children
She's fairest of them all.

—REV. H. F. DARNELL.

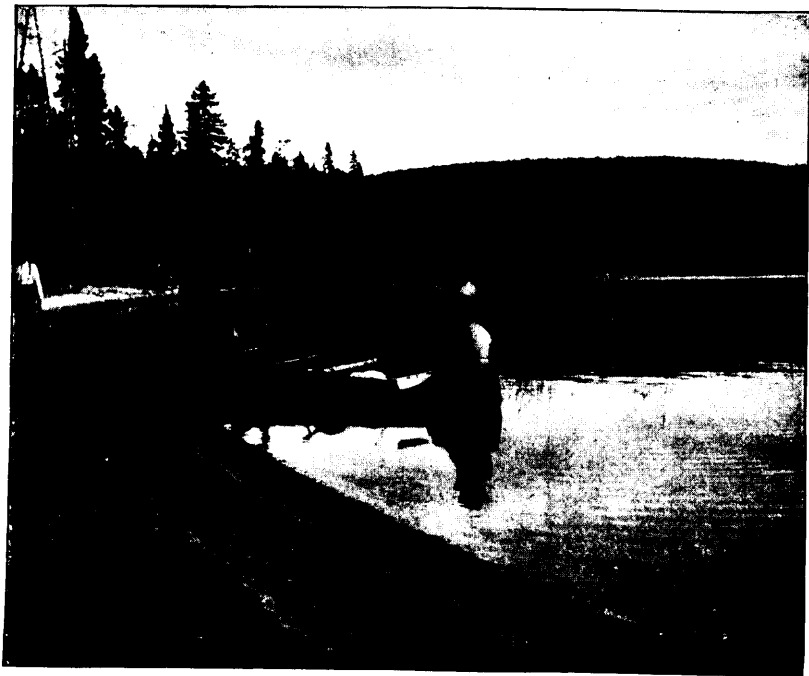
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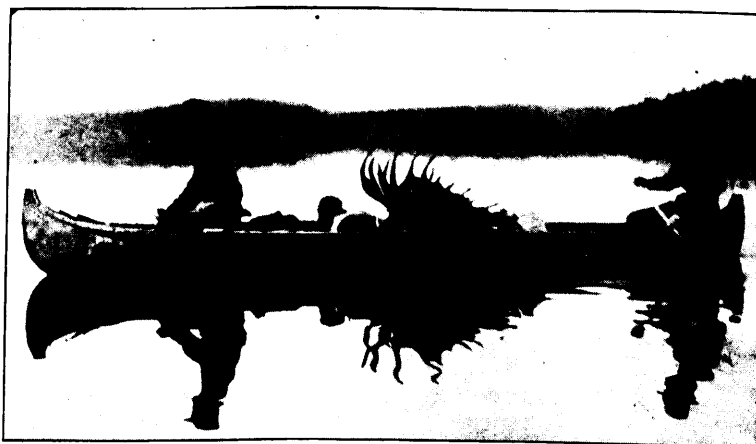
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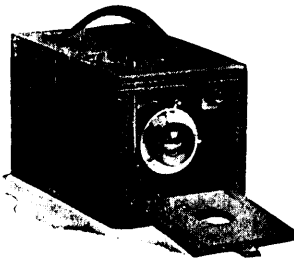
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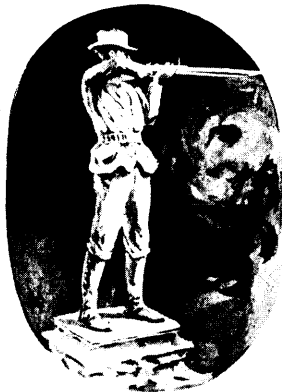
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