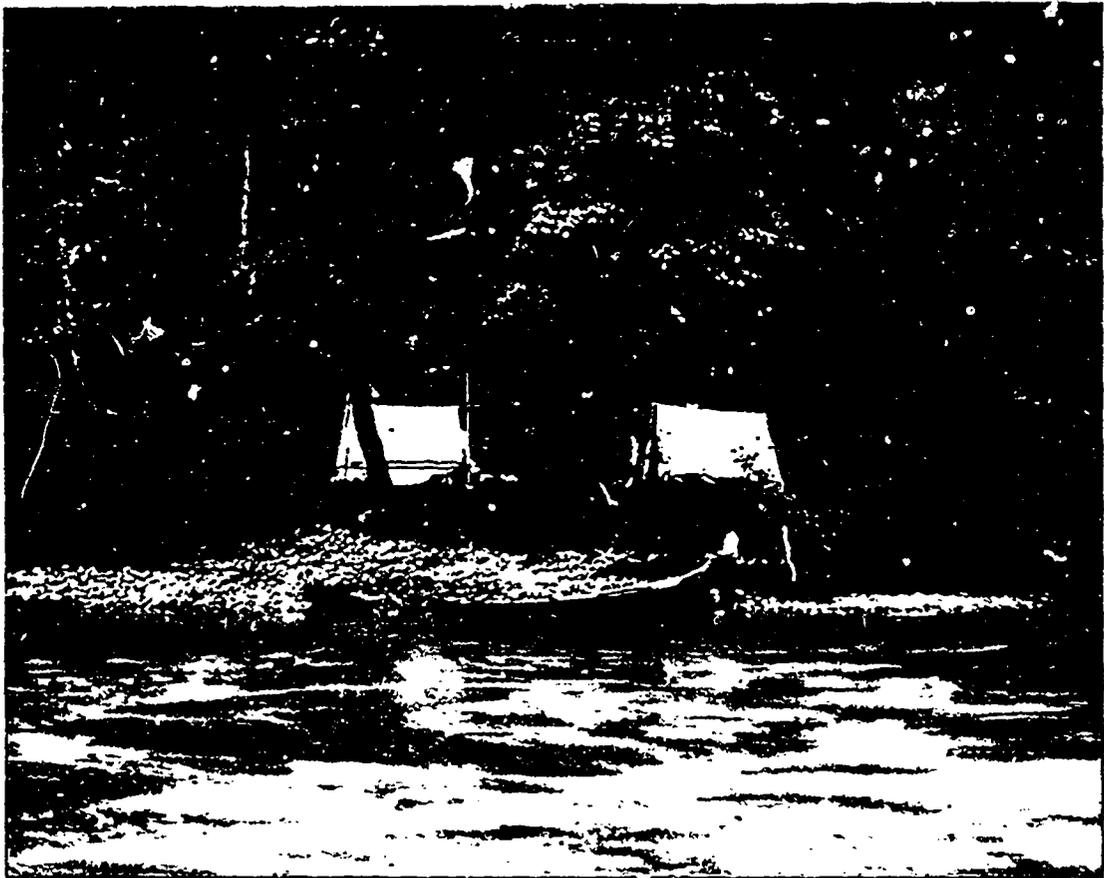


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ROD AND GUN IN CANADA



By the Cowichan

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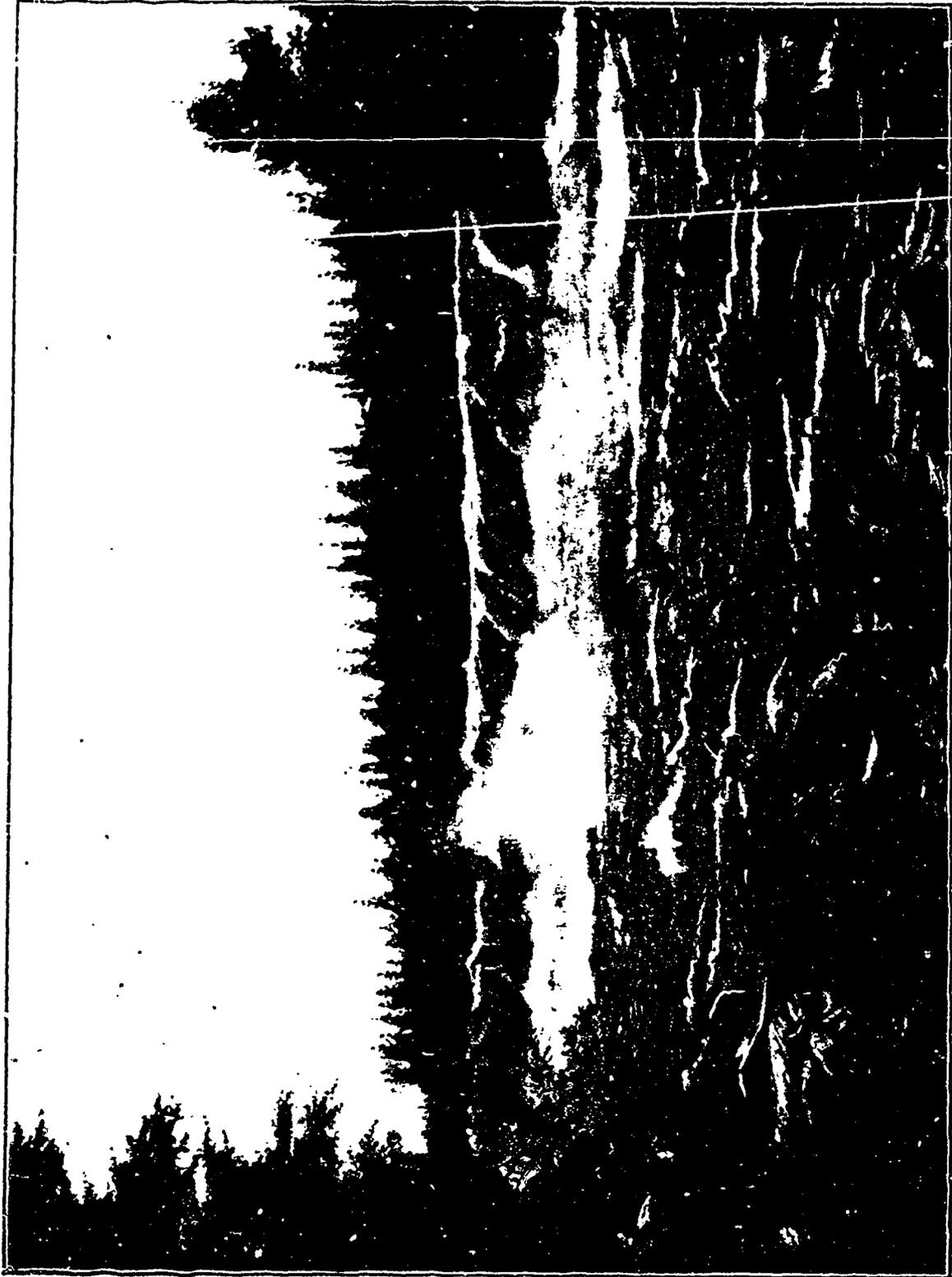
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ROD AND GUN IN CANADA

VOL. IV.

MONTREAL, AUGUST, 1902

No. 3

Nepigon Fishing.

BY H. J. METCALFE.

"The average weight of the trout in the Nepigon is two pounds," said my informant,—and I set him down in my own mind as a man of brilliant imagination. Although I had fished in many different lands, or rather in many different waters, and had caught so-called sea trout which weighed four pounds and over, I had never seen any stream where the average weight of the trout was two pounds, and, like the philosophic chicken, I could not believe in anything I had not seen. But I determined, at the first opportunity, I would wet a fly in the mighty Nepigon and prove to my own satisfaction that my friend was not above telling a whopper when he talked about fish.

So one fine day I got off at Nepigon and went up to see Mr. McKirdy, who is not only fishery guardian, but also the outfitter, counsellor and friend of everybody who visits the river, to find out what I could about its capabilities. After we had partaken of some liquid refreshments and my pipe was drawing smoothly, I asked about the two pound average.

"Quite true," replied McKirdy.

"What, then, must be the weight of your heaviest fish?"

"Oh, six or seven pounds."

Six or seven pounds! and here had I been wasting years of precious time fishing in streams where the poor, benighted folk thought a four pound trout a monster!

As a matter of fact, now that I know better, I have not the slightest doubt that fish in the Nepigon occasionally reach a weight of over ten pounds, and it is even possible that the legendary fish of seventeen pounds which old Hudson's Bay men yarn about, was actually taken by a prehistoric angler before the days of the iron horse.

Senator Kirchhoffer once published a transcript he had made from the Hudson's Bay Company's books of the record of the biggest trout taken between 1880 and 1891. This is what he found:—

"In 1881 Mr. Maitland, of Edinburgh, and his wife in seven weeks took 295 trout, average $2\frac{1}{2}$ pounds, largest $6\frac{1}{2}$ pounds. From July 6 to 17 Messrs. Heath and Delunge, of Toronto, with three Arntons, of Montreal, took 134 trout averaging $2\frac{1}{2}$ pounds, largest $5\frac{1}{2}$ pounds. From July 18 to August 7, four Cincinnati rods took 300 trout, average 3 pounds, largest 6 pounds. Eight Ohio men, from August 7 to 19, took 100 trout, average $2\frac{3}{4}$ pounds, largest $6\frac{1}{4}$ pounds. From August 9 to 15, four Rock Island rods took 76 trout, average $1\frac{3}{4}$ pounds, largest 6-16th pounds, which seems particularly trustworthy owing to the accuracy with which the 1-16th pound is recorded. From August 27 to September 2, L. R. O'Brien and George A. Mackenzie, of Toronto, took 76 fish weighing 171 pounds, largest 5 pounds.

"In 1882 forty-eight rods were on the river. The largest trout taken weighed

6 10-16th pounds, the next 6 pounds, the third 5½ pounds—all these by American parties.

"In 1883 the Bishop of Georgia took a 6½ pounder; fifty-seven rods were on the river, and the tally of "largest" showed, besides the big fish of the Apostolic Successor, one fish of 6½ pounds, one of 6 pounds, one of 5¾ pounds, four of 5½ pounds, three of 5¼ pounds, six of 5 pounds, and three of 4½ pounds.

"In 1884 the Church again beat the record—Rev. Canon Mackay having taken on August 17 forty trout in eleven hours including one of 6 pounds, and two of 4 pounds. Mr. J. G. A. Creighton and wife, of Ottawa, in fourteen days took 364 trout, including one of 6½ pounds, two over 6 pounds, one of 5½ pounds, and two of 5 pounds.

"In 1885 sixty-four rods fished the stream. This year 7-pounders were first recorded by a perfectly trustworthy Pennsylvania party of two rods. Between August 12 and 21 they took one of 7½ pounds and one of 7¼ pounds. Two trout of over 6 pounds were caught by other parties, and a large number over 5 pounds.

"In 1886 a party of four rods, including Mr. W. D. Matthews, President of the Toronto Board of Trade, are reported as having taken in thirteen days 243 trout, including one of 7½ pounds, two of 7 pounds, one of 6 pounds, sixteen of 5 pounds, twenty-six of 4 pounds and sixty-four of 3 pounds. This dwarfs into insignificance almost all the other catches of the year, though several of over 6 pounds are recorded. Since that date there is rarely a season that trout over 7 pounds are not reported."

To resume my story: McKirdy soon fitted me out with a canoe and a couple of Indian guides, one of whom was, perhaps, the best guide on the Nepigon. I paid him two dollars a day, and the young Indian who took the bow half a dollar less. The canoe was a birch bark, three fathoms long, and my camp outfit was hired from McKirdy at a very reasonable price, and he also supplied the eatables and drinkables.

Our route passed first through Lake Helen, a very picturesque patch of water, but one which had no charms for us just then, as I was too anxious to wet a line

in the famous pools above, and the Indian is at no time impressed by the beauty of the landscape, having an essentially practical mind. After a few hours paddling against a swift current, the white, creamy waters of the rapid in front of Camp Alexander caught my eye, and we went ashore to boil the kettle, as this is a famous fishing cast. I took some trout here before we left, and they would have been good ones in any other river, as they weighed more than two pounds, but it was not until we reached Cameron's Pool that I got my first heavy fish.

Here the water tumbles over a succession of reef-like ledges, and as my little Jock Scott hovered by the edge of a snowball of spun drift, a great trout rose at it, and as I saw his broad, silvery side flash in the foam, my heart rose in my mouth, as something told me that I was about to hook the heaviest trout of my life. He took the fly with a rush, and we fought it out for ten minutes before I had any advantage. Then his strength began to wane, and a minute or two later one of the men slipped the landing net under him and lifted a magnificent fish of 5¼ pounds into the canoe.

For a couple of days I had wonderful sport, then reluctantly gave the order to run down stream, as my time was limited. In that time, however, I had ascertained that my informant was truthful. The average weight of the Nepigon trout is over two pounds, provided the fisherman is also a sportsman and returns the little fellows which he takes by accident to the water—and when I say the little fellows, I mean all trout weighing less than sixteen ounces.

The Nepigon trout are so heavy because the river has its birth in the great Lake Nepigon, a body of icy water, ninety miles long and swarming with fish, and these do not migrate from the lake until they have reached a certain size. In Lake Nepigon, trout of all sizes are taken, from mere minnows to ten or even twelve pounders, but the very small fish do not leave the lake, hence the angler fishing the Nepigon catches few fish under a pound.

Supplementing the information contained in the foregoing story, the following

• *ROD AND GUN IN CANADA*

extract from Mr. S. T. Bastedo's latest report is appended:—

"The River Nepigon, which connects Lakes Nepigon and Superior some sixty miles east of Port Arthur, and which is said to be the head waters of the St. Lawrence, is our most noted fishing river, and is admitted by those who have whipped its waters to be the finest trout "stream" in America, if not in the world. "Stream," however, conveys a very erroneous and vague idea of the magnitude of the river, unless one were in the habit of speaking of the great Niagara, for the Nepigon possesses in but a slightly lesser degree the "whirling and tumbling water, and the eddies and currents leaping and charging from side to side in eternal confusion" of that river. Here is the virgin home of the speckled trout, specimens having been taken weighing five, seven, and even ten pounds; and here is the angler's paradise. When they are rising well, the fun is fast and furious, for the trout of this region are unequalled for vigor and activity. No more delightful outing could be imagined, desired or experienced than is afforded by a fortnight spent on the glorious Nepigon. The scenery alone would well repay a visit, not to speak of the angling. In its sinuous windings it recalls the famous Saguenay, and it is a matter of constant wonder what splendor the next turn will reveal. In some places the shores are banked with foliage to the water's edge, while in others bold bluffs rear themselves majestically to dizzy heights, and many islands add charm to the view. Immediately one begins the ascent, he feels that he has been transported to another world. Dull care is left behind, the anxieties of life cease to oppress, the very atmosphere seems to be intoxicating, and he gladly yields to the fascination of his surroundings. After leaving Lake Helen and passing the little Indian village at the mouth of the river, the prospect is unbroken by settlement or habitation, and is one delightful expanse of nature's most exquisite handiwork. Six miles more, and the first camping place—Camp Alexander—is reached, and the initial portage has to be made. Here tents are pitched, and preparations begun for

spending the night. Some of the guides repair to the forest, and in a few moments return heavily laden with large bundles of fragrant spruce boughs, which they adeptly convert into restful couches.

Others have meantime been preparing the evening meal; the call to "wee-sin" is a welcome sound, and soon the camp is lulled to rest by the never ceasing song of the river. No reliable fishing is to be obtained below Camp Alexander, though the impatient angler has occasionally been rewarded with a rise where a fly has been cast in the eddies along the way. The river falls in its course of twenty miles between Lake Nepigon and Camp Alexander some three hundred feet, so that for this distance falls and rapids follow in quick succession, and good fishing is to be had almost anywhere between these points. The guides are either Indians or half-breeds, and, as a rule, are most attentive and trustworthy. To be properly equipped, two guides are required for each canoe, unless one is himself an adept canoe man, and has a fondness for hard work, for it requires a strong arm, a skilful hand, an unerring eye, and an active brain to safely pilot a craft through these turbulent waters into the coveted haunts. Indeed, as the struggle against the rushing waters becomes fiercer, the muscles and veins of the swarthy guides stand out like cables. The guides are anxious that the tourist should have good fishing, and the rivalry is keen as to which boat shall bring in the largest trout; and when a fish is struck their exclamations of delight are second only to the uproar created by the swift running waters. In places where the current is too strong for paddling, and not angry enough to necessitate a portage, the guides pole the canoe along; and, as inch by inch headway is made, it seems a battle of the weak against the strong, wonder prevails as to which will ultimately triumph, and speculation arises as to what consequence would follow the snapping of the trusted spruce or the capsizing of the canoe. Occasionally such a contingency arises as the snapping of a pole, but the skilful bowman has never yet proved unequal to the emergency.

Near the head of the river is Virgin Falls—a miniature Niagara. At the foot of the falls may at any time be seen, disporting in the foam, hundreds of whitefish and speckled trout; and the former takes the fly as to the "manor born." A few miles above the falls is Lake Nepigon itself, a most beautiful sheet of water, measuring some seventy miles long by fifty wide, with a coast line of about six hundred miles. The

lake is thickly studded with islands—it is estimated some one thousand in all.

The descent of the river is not the least enjoyable part of the trip, and is of course accomplished in a much shorter time, as most of the rapids are "run" in the downward journey. Frequently the canoes of several parties may be seen descending a rapid in quick succession—a most thrilling sight.



Game of British Columbia.

BY CLIVE PHILLIPS-WOLLEY.

(Concluded from the July issue)

In Cassiar the moose is so plentiful that a party of surveyors for the Cassiar Central Railway Company when on duty, *i.e.*, making plenty of noise and not hunting, saw eleven moose between 8 a.m., and noon, as well as two bands of caribou. Over forty moose were reported to have been killed for food by the Indians and others round Dease Lake the winter before last, and although the largest heads ever secured came from some distance north of British Columbia, Mr. A. S. Reed, who obtained the six extraordinary heads now in the Union and Badminton Clubs, has killed one moose in Cassiar, which would not disgrace that phenomenal group. No sportsman should leave Victoria without a visit to those heads, for such a bag has never been made before to the knowledge of living man, and it is extremely doubtful if there is in existence an "honest" head as large as the largest of these giants from Cook's Inlet.

As to caribou, Mr. A. S. Reed's head at the Union Club is the finest I have ever seen, and it has been my business to make a note of big heads. That was killed, I believe, in Cassiar, in which district I have myself killed my two bulls, as many, that is, as I could handle, between breakfast and lunch of my first day in, and spent the rest of my time wishing that I had not been in such a hurry. I could have killed a dozen that day.

I have done with the deer, and yet I have the pick of the basket left. If you want to enjoy nature, to sleep in cup-like hollows of sun-dried yellow grass, away up at the top of the world, where the air is sweet as a young girl's kiss, and as maddening as that of champagne, be off sheepshooting to Similkameen, Empire Valley, or, if you want the new sheep (*ovis stonei*) to Telegraph Creek. Don't go where most men tell you to, unless they have a really warm friendship for you and are practical hunters who have been out lately. Don't follow the trail of even the best of our sportsmen too closely, because if you do you will find good camping grounds worn bare and the sheep will be at the back of the next divide. But they are not killed out, they have only moved on, and if you are man enough to cut your way through a bit of timber to the next range whose bald tops you can see above the timber line you will find as good sport as I found in Ashnola in the eighties, and the world does not hold any better. Perhaps the biggest sheep of British Columbia come from East Kootenay, but they are less plentiful there than they are in Chilcotin. A 16-inch ram is about as good as you are likely to get in British Columbia. The new sheep (*ovis stonei*) is plentiful in Cassiar. His horns are lighter and stand out more widely from his head than those of *ovis Montana*, and this is all the difference that an ordinary hunter will

notice between him and *ovis Montana*. The snow-white sheep of Alaska must be sought for further north, at Cock's Inlet or on the Kuskoquim, and Fannin's saddle-backed sheep further north still, in the mountains at the back of Dawson.

There is a poor relation, awfully out at elbows and as common as poor relations always are, to be found hanging round the sheep's hills, on the steep and barren rock faces which are on one side of every sheep range. This is the Rocky Mountain goat. He is a survival from the ark; his appearance suggests it, and his mental development confirms the theory. No self-respecting beast would go about to-day in the long frilled drawers which he wears in public; his shape suggests the 'prentice hand of Nature; he is content with the worst food and the most inconvenient residence, and if you want to shoot him he is either so stupid or so sick of life that he will not take much trouble to get out of your way. Be merciful. He is at least a quaint ornament to the rough steeps on which he dwells.

And now I know I am going to get into disgrace. If someone would give me half a dozen drinks I could tell you all about grizzlies as it ought to be told, but in the Duncans district we are not as well supplied with whiskey as are the people in town, and seen through the sober medium of tea or milk, the grizzly does not weigh 2,000 lbs., and does not feed exclusively on his hunters.

As a matter of fact, the ordinary grizzly of the Kootenays, of Kettle River, of the Clearwater country and of the various Fraser River districts weighs well under, very well under, 1,000 lbs. I should call a 600 pound bear a big one, and so would anyone else who weighed him, but there are individuals who attain far greater weight, and on the Stikine River, on your way into Cassiar, where *ursus Richardsonii* (a variety of grizzly) is very plentiful, the average bear is larger. Its diet is very largely salmon, and the supply is unstinted. Further north still there is a giant, and our local giant killer, Mr. A. S. Reid, is even now on his trail, and unless I am utterly mistaken we shall see that gentleman back here in the winter with more than one skin which will measure ten

feet from nose to the place where the tail ought to be. The secret of that giant's habitat is not included in the price of this article, but others of his kind are brought back occasionally by our sealers from the Kamschatkan coast.

I apologise humbly for knowing nothing of the grizzly's ferocity. The first time you hunt him, when the shadows are beginning to move in the foothills, and there is no sound but your own footsteps, you will know all about it that I know, and when you see him, grim, rugged, and in no great hurry to be going, you will no doubt feel the pleasantly creepy thrill up your backbone which I ought to communicate to you by printed words, but as a matter of fact he never did any harm to me, and I am not going to libel him, or he might treat me worse the next time I meet him.

In dealing with the black bear and the panther, our two other "ferocious" quadrupeds, I have no scruples. I have known a small and much wounded black bear charge home. The man he charged could almost have licked him with his fists, and there is now in this district a fine old Welsh farmer who kicked a black bear off his dog with his boots, but still the little brute I first mentioned did charge home. I should think he was the only black bear who ever did such a thing, and the panther is a worse coward than the black bear.

Both are extraordinarily common on Vancouver Island. I have known in recent years a black bear killed in the limits of Victoria; another was killed within the limits of Vancouver; I have known them shot in men's orchards; one was round this farm this spring; four were seen in one round on the coach road between Nanaimo and Alberni, and when the salmon are running they are plentiful on every river up the coast.

Panthers are so plentiful that in 1892 the British Columbia Government paid bounties on the scalps of 72 of these great cats, all but two killed on Vancouver Island. I have known two instances of panthers killed within three miles of Victoria post office in the last five or six years, but unless you keep sheep you are extremely unlikely to see one in half a dozen hunting trips. Though the panther weighs about 150

lbs., and has measured as much as 8 feet 2 inches from nose to tip of tail, he has no more fight in him than a Chinaman. Like the latter, he is mostly tail.

There is still left the wolf, of which we have a very handsome variety upon the Island, and a quantity of feathered game and fish.

Of these a bare and imperfect list must almost suffice. The pheasant, which was imported less than twenty years ago, has done marvellously well upon Vancouver Island and at the mouth of the Fraser on the Mainland. It is no unusual thing to see as many as fifty birds feeding in one field in the Saanich or Duncans districts. Quail almost drove one of our governors to break the law or give up the governorship in Victoria, but they are an uncertain quantity. One year they swarm, and the next they are very scarce. A hard winter is almost too much for them, though it does not seem to affect the much rarer mountain quail as it does the Californian snipe, which, not quite like our Irish bird, and slower on the wing, are sometimes plentiful on the delta lands, and brant, geese, mallard, pintail teal and half a dozen other varieties of duck are plentiful along the coast in the winter.

Grouse (willow and blue) are indigenous and plentiful, and the man who can kill willow grouse as they dash through the timber may shoot without shame in any company, neither are there many birds which are better on the table than the willow grouse, but no man must expect to kill the big bags here which may be killed in other countries. The dense timber is against it, and so is public sentiment.

For an accurate account of our fish you must catch an ichthyologist, but from a sportsman's standpoint there are the giant salmon of the Campbell River, which run from 50 to 75 lbs., and take a spoon freely. This is the tyee salmon. There are three other varieties, of which one, the coho, gives good sport with the spoon. Some men say that the salmon of San Juan river and elsewhere will take

a fly, and there is a well-founded report that a number were taken in the sea near a certain river's mouth with a fly last year. I do not know this. There is a big trout, the steelhead (Gardner's trout), which looks so like a salmon and runs so large that he may have caused some of the mistakes, if they were mistakes. The common trout of our rivers is, I think, *porporatus*, but I know that both the dolly varden and the cut-throat trout are taken in British Columbia.

In our tidal waters, as the tide comes in, fine baskets may be taken frequently; on Cowichan River, near the lake, there is excellent fly fishing about Easter, and again at the end of the season, whilst between those seasons you can kill all the trout you want with a spoon on Cowichan Lake, and if you go to less frequented streams you can kill until you are tired of killing. A certain admiral, his secretary, flag captain and myself, once killed 509 trout, averaging $1\frac{1}{2}$ lbs., in three days. That was on the Nimpkish. But if at the tail end of the season you are still hankering for a fish, and can really cast a dainty fly, I will reward you for reading this long article. There is a lake called Quamichan, two miles from Duncans, on which you can hire a boat. Get there by 6.30 p.m. It is useless to go earlier at this time of the year, and not much good in any case unless it is a calm evening. Men will tell you that the fish there don't take a fly. Never mind. Buy some of the finely-tied black gnats, or stone flies tied by Mrs. Leather, of Duncans, get a fine cast, and when the sun is down, watch. There will not be many rises, but row to the first rise you see and follow it. That is the strange part of it. These fish seem to run feeding right across the lake, and when caught they are all big fellows from $1\frac{1}{2}$ to $4\frac{1}{4}$ lbs. It is the most sporting fishing I have ever had in British Columbia, being a combination of fox hunting and dry fly casting. The best basket I have heard of was in two consecutive evenings, when 21 fish, weighing 57 lbs. were caught.



Fish Culture in Canada.*

It was not until 1853, so far as I can ascertain, that any attempt was made upon this continent to artificially breed fishes. Dr. Theodatus Garlick, of Cleveland, Ohio, was the pioneer. He obtained parent brook-trout in Canada, taking them across from Port Stanley in Ontario, to his establishment in Ohio. He was an enthusiast, and his exhibits of young fish, hatched from Canadian trout-eggs, were a feature for many years at Agricultural Exhibitions in the various States bordering on the great lakes. Canada soon followed suit. The initial attempts were, of course, largely experimental. The late Mr. Samuel Wilmot claimed to have originated fish-culture in Canada; but I find the claim to be disputed, and with justification, by a venerable and respected citizen of Ottawa, Mr. Richard Nettle. Stimulated, no doubt, by recollections of famous streams in his native Devonshire, Mr. Nettle, as early as 1856 or 1857, began the incubation of salmon and trout eggs for purposes of artificial stocking, in hatching tanks in the City of Quebec. He disputed the accuracy of the claim frequently put forward on behalf of Mr. Wilmot. The Bishop of Ottawa (Dr. Hamilton) incidentally confirmed the claim of Mr. Nettle in a recent conversation, his lordship informing me that he himself saw the young fish and the hatching arrangements about the time referred to. Mr. Nettle was then Superintendent of Fisheries for Lower Canada. From a report by the late Mr. Wilmot, dated Dec. 31st, 1878, it appears that he commenced experiments in fish-hatching in 1865, eight or nine years later than Mr. Nettle's experiments, and he carried it on as a private enterprise until the Dominion Government took the work over and gave Mr. Wilmot an appointment as a Government official. In 1866 Mr. Wilmot acted as a fishery officer, with authority from the Government of Upper Canada, and on May 30th, 1868, he became an officer under the Department of Marine and

fisheries; but it was not until eight years later (1876) that he became Superintendent of Fish Breeding. For his initial experiments he was paid, in 1869, the sum of \$2,000 by Order in Council.

Thus fish-culture in Canada, at first a private enterprise on a small scale, received a kind of semi-official sanction; but in 1868 it became distinctively a branch of the Dominion Government service, the Newcastle Hatchery, possessed by Mr. Wilmot, being transferred to the Department of Marine and Fisheries. This hatchery, Mr. Wilmot affirmed, in his report dated Feb. 3rd, 1875, "has been the nucleus from which all of the National and State fish-breeding establishments in Canada and the United States of America have taken their rise." Additional hatcheries were soon built, the famous Restigouche Salmon institution in 1872 (twice rebuilt), and the Miramichi Hatchery in 1873. In 1874 the Gaspé Hatchery was commenced, and in 1875 a large mill was purchased at Tadousac and converted into a fish-breeding establishment, supplanted by a new building later. The work expanded, so that Mr. Wilmot, in Feb., 1875, was able to speak of five hatcheries in Canada, four of them in full operation.

Much interest naturally centres in the Newcastle Hatchery on Lake Ontario, where thirty-five years ago the work commenced. The building, enlarged and improved, is situated on a small stream at the head of a small creek or marsh opening into the lake near Bowmanville, and about thirty-five miles east of Toronto. A sheltered and secluded valley of great sylvan beauty encloses the site, but the work has always been handicapped by its distance, both from good spawning grounds, and from suitable areas for planting the fry. Mr. Wilmot erected the hatchery, as was natural, near to his own residence, and at a time when salmon frequented Lake Ontario, and resorted to the creek in question for purposes of spawning. For

* These extracts are taken from a paper read by Professor E. E. Prince, Dominion Commissioner of Fisheries, before the Ottawa Literary and Scientific Society.

many years salmon have been practically extinct in these waters, and the hatchery failed in its original purpose of keeping up the supply of Lake Ontario salmon, which Mr. Wilmot claimed to be indistinguishable from the sea-going Atlantic salmon. From 1868 to 1873 over a million fry were sent out from this parent hatchery (an average of 200,000 per annum.) A small private hatchery was also carried on during these earlier years of Canadian fish-culture, by the well-known salmon fisherman and merchant, the late John Holliday. Mr. Holliday was born on the banks of the famous salmon river, the Scottish Tay, and was stimulated, no doubt, by the salmon-culture work at Stormouthfield, in Perthshire, commenced in 1853 by the proprietors of the salmon fisheries on the Tay. He built a hatching establishment on the Moisie River (north shore of the Gulf of St. Lawrence), which has continued its operations to the present time. Messrs. Brown & Co. also erected a trout hatchery at Galt, Ont., and in 1868 had no less than 10,000 parent trout impounded in one of their ponds for the purpose of taking spawn for hatching purposes. Other hatcheries privately conducted with zeal and success might be named, such as the Credit Forks Hatchery carried on by Mr. Chas. Wilmot, the silver Creek establishment near Toronto, and others.

In the United States, it was not until 1871 that fish-culture became a recognized department of work under the auspices of the Federal government. Previous to that year individual States had made attempts in this direction, indeed, New Hampshire in 1865 had commenced fish-hatching operations, and agents were sent to the rivers of Canada, where they were permitted (as Mr. Charles G. Atkins tells us) to take salmon from the spawning beds, and were thus enabled to secure some hundreds of thousands of eggs, which were "hatched with a measure of success." Pennsylvania and the State of Connecticut followed in 1866. In 1867, 1868, 1869 and 1870 the States of Maine, New York, California, New Jersey and Rhode Island, severally began fish-culture in their respective territories.

In Canada the salmon and brook-trout naturally claimed first attention; but in 1867 and again in 1868, whitefish were successfully impregnated and hatched by Mr. Wilmot as he tells us in one of his reports. A pioneer fish-culturist in the United States, Mr. N. W. Clark, of the State of Michigan, has been credited with first successfully handling the eggs of the whitefish (*Coregonus clupeiformis*) on this continent, but the statement published by Mr. Wilmot gives four or five years priority to the Canadian, if, as Mr. Clark said, the first whitefish eggs in the United States were artificially hatched in 1872 (see U. S. Fish Comm. Report, p. xxvi., 1872-73). In 1875 a whitefish hatchery of large capacity was completed at Sandwich, Ontario, and has carried on, with marvellous success, the incubation of the eggs of that species on the Detroit River.

Under the zealous and indefatigable Samuel Wilmot, fish-culture in Canada made rapid strides, and the Dominion has generally been acknowledged to be in the front rank in this work. France and Germany were in advance, it is true, as far as exact scientific methods and knowledge were concerned, and the United States has taken the lead in making most munificent provision from the public funds for pisciculture, and Great Britain has set a worthy example in private enterprises and in costly experiments under skilled superintendence, witness the Stormouthfield*, Howietown, Cray's Foot, and Guildford establishments.

Canadian fish-culture was, no doubt, conducted in a rough and ready manner, the Superintendent and his staff being practically self-taught, so that many blunders were committed, and many erroneous methods for some years adopted. But the conditions were so favorable, the purity of the water and the abundance and coldness of the supply, the robust and healthy nature of the parent fish, and similar circumstances compensated for much that was lacking in manipulation and technical knowledge, during the early years of Canadian fish-culture. "The most important requisite . . . is pure water; it is indeed to a hatchery what coal is to a steam-engine,"

* Now supplanted by Dupplin.



A NEPIGON TROUT.

This young Toronto fisherman is admiring a fish just caught - weight 6 lbs. 12 ozs. - Mr. G. L. Wetmore, Division-1 Engineer, C.P.R., was the captor.



NEPIGON LANDING.

This picture shows a very large gathering—for a region where trout are abundant but men are few and far between.

said the late Sir James Gibson Maitland (Int. Fisheries Exhib. London 1883), to whom Scottish fish-culture owed so much. It may be doubted whether any other country can offer conditions so favorable as Canada, and it is certainly remarkable that in the vast number of fry of various species, hatched year after year in the Dominion hatcheries, abnormal or deformed fishes hardly ever occur. Monsters, as a rule, are familiar enough in the tanks of European hatcheries, but nothing is so rare in Canadian establishments.

The total quantity of fry of all kinds distributed by the Dominion Government, that is, from 1868 to 1899, both years inclusive, is no less than 2,650,468,200. The average annual quantity during the last 20 years has been 128,000,000. In 1895 the output was extraordinarily large, amounting indeed to nearly 300 millions. For the last nine years vast quantities of lobsters have been hatched, the annual average being no less than 100,000,000. Deducting these from the total output, we find that the average output each year, during the last twenty years, has been 85 millions, mainly of the three kinds, salmon, Great Lake trout and lake whitefish (*Coregonus*), which are all fishes of great economic value.

Whatever may be said for or against the artificial hatching of fish, no fair-minded critic can doubt, that the distribution year after year, of this enormous quantity of young fish must have benefited our waters to an incalculable extent. Artificially hatched fry, unlike those hatched naturally on the spawning beds, must in the eyes of some critics, be more at the mercy of enemies when newly planted. Nothing, however, could be more helpless and unprotected than naturally hatched fry, and those turned out from hatcheries are really less at the mercy of enemies, inasmuch as they are always some days old, frequently several weeks old, before being planted, and should be more sturdy and robust than the fry exposed immediately after hatching, on the natural spawning beds. Nor is the objection better founded that the fry are suddenly transferred from the warmer water of the hatchery to the colder water of the lake or river outside.

Records, which have been kept, show that the water flowing rapidly and plentifully through the tanks is more equable and cold than the shallow waters outside. The fry, it is further contended, are untaught to seek shelter, and must be gobbled up by watchful enemies. This cannot be so. The eggs are all taken from wild fish, and the young inherit the instincts of their parents. Hence when the fry have been carefully watched at the time of planting, they have been noticed to act with alertness and intelligence, and at once dart off to shelter. All the stock objections are made in ignorance of the real facts, for the facts all prove the very opposite of the theories set forth by critics, usually arm-chair critics.

To most people fish-culture is thought to consist in taking some ripe mature fish, just before spawning, squeezing eggs from them, fertilizing them, and placing them in jars or on trays, in a current of water until the young fish hatch out. Fish culture is, however, much more than that; it includes at least half-a-dozen different methods. Of course, one method, and that most familiar, consists in obtaining ripe living fish of both sexes, and after subjecting them to the same process of careful and gentle pressure, mingling the two products in a spawning vessel or dish, where the eggs are rapidly fecundated, and then transferring the vivified eggs to the trays or hatching jars. The parent fish, being handled with care are returned to the water, with rare exceptions, alive and unharmed, and in the case of salmon usually continue the ascent up-stream, which had been interrupted by the hatchery officials. In B.C., it is said, the spawned fish frequently descend, but this may depend upon the sex, for Frank Buckland noticed that male salmon invariably bolt up-stream if disturbed, whereas the "hens" or female salmon bolt down stream. The fish do not die, as the signs of ripeness are readily visible to the expert officer's eye, and ripe fish are spawned painlessly and with the utmost readiness and ease. It is a curious fact that eggs from dead fish may be successfully used if death is recent. Thus the distinguished Russian naturalist, Owsiannikoff, in a paper read

in 1869, before the Imperial Academy of St. Petersburg, stated that he had fertilized the eggs taken from dead fishes, and in most cases with success. Different species also may be crossed and hybrids readily produced, but there are limits to the process due, no doubt, to certain microscopic peculiarities in the structure of the egg capsule.

Two methods of fertilization have been adopted, the wet and the dry, and the latter has almost universally superseded the former. In the dry method no water is added until some moments after the ova and milt have been mingled and gently stirred with a feather or the fingers. In the early days of Canadian fish-culture the wet method was followed, and the eggs were placed in water before the milt was added, and a proportion of eggs always failed to be fecundated, hence the universal adoption of the so-called dry method.

Some of the different methods followed in obtaining eggs or fry may be here instanced.

(1) The parent fish are secured some time (days or even months) before spawning, and impounded until they become ripe and swollen. Whitefish are often kept in this way, and the plan has been adopted in Canada of confining salmon in tidal ponds for many months, and apparently without harm. Indeed the salt water prevents fungus, and as salmon take no food after leaving the sea, there is no difficulty in retaining them until the spawning season, and then taking the eggs and milt. After being kept from June or July until October or November the parent fish are liberated on being artificially spawned.

(2) The parent fish are netted at the spawning time near the breeding beds. Salmon, in British Columbia, are treated in this way, also Great Lake trout and whitefish. The parent fish are rarely injured, and are thus liberated in their native waters.

(3) Parent fish are captured and the eggs taken and fertilized, but the fish are killed and sent to market. This is the plan adopted in some cases by U. S. fish-culturists, especially with the Great

Lake trout. It is unavoidable as a rule, with black bass and sturgeon, even when very ripe, as they refuse to yield their spawn. It is not adopted in Canada.

(4) Parent fish are impounded in ponds or enclosures, where they deposit and fertilize their spawn naturally. The spawn is then transferred to the hatchery and incubated artificially. Bass, maskinonge, perch, carp, sturgeon, etc., have been treated in this way.

(5) A similar plan to the last is followed excepting that the eggs are allowed to hatch out in the ponds where deposited.

(6) Instead of securing the parent fish, or obtaining the eggs after being deposited, the small fry, incubated and hatched naturally, are netted and used for purposes of stocking waters. Trout and black bass have been mainly introduced into new waters by this method. Black bass, when very young, devour each other, even when only a little over an inch in length, and the Caledonia (N. Y.) Hatchery officers have reported that their young black bass grow so rapidly that they must be shipped immediately after being collected in the adjacent marsh ponds. Nearly 400,000 of these fry are annually distributed from the American hatchery named.

It is plain that if we can secure the eggs from the ripe parent fish, fertilize them by the dry method, and hatch them under the care of experts, the results must infinitely surpass those possible under natural conditions, where a small proportion only can be expected to surmount all the dangers and difficulties of their environment. Let me give an illustration of this waste of eggs on the natural spawning beds—a waste not contrary to natural law, but obedient to the principle of compensation and adjustment, universal in the world of nature. In 1895 I spent some time closely observing certain spawning beds of the Fraser River salmon, commonly called sockeye or blueback. I noticed, not once, but scores of times, pairs of fish busy nesting, the male fish lingering near his partner until she shed a shower of eggs.

(To be continued)

Taxidermy.

(Continued from the July issue)

7. Examine inside of skin and remove scraps of flesh and loose tissue. Ordinarily no further treatment will be necessary. The skins of many animals, however, are lined with a thick coat of fat. All fat must be removed. This can be done only by thoroughly scraping the inside of the skin with knife and scraper, a tiresome but necessary operation. The free use of an absorbent, such as corn meal or sawdust, will facilitate the process, and the whole skin may afterwards be thoroughly cleansed with washing soda or any similar alkaline preparation. Great care must be taken not to stretch the skin. After the inside of the skin is properly cleaned it is to be poisoned. For this purpose dry arsenic is ordinarily sufficient, but a mixture of arsenic and powdered alum in equal parts should always be used in damp climates, and especially in the humid tropics. Dip the skin in the box or paper containing the preservative and turn it about so that all parts are covered with the poison. Dampen the surface of the skin if it is so dry that the powder does not adhere freely.

When the skin is poisoned, turn it right side out. The simplest way to do this is to reach in from behind with forceps, seize the nose, and draw it out. Draw the feet and tail out to their natural length and see that the ears are in place. If any blood has soiled the fur it may be removed by washing, after which the hair is readily dried by the use of a stiff brush and an absorbent (preferably corn meal or sawdust). Small spots of blood can often be removed, when thoroughly dry, by brushing with a stiff brush (a toothbrush is best), without previous washing. Very bloody specimens, or those extensively soaked with fat, should be thoroughly washed both inside and out with soap and water before poisoning. They are then best dried by the use of an absorbent or by exposure to a strong current of air.

8. Cut and straighten five pieces of galvanized-iron wire,¹ one long enough to reach from tip of tail to middle of body and slender enough to fit into extreme tip of tail (file the point a little, if necessary), two long enough to reach from palm to middle of body, and two long enough to reach from back of hind foot to middle of body. The four leg wires should be just sufficiently heavy to give stiffness to the legs and protect the feet from injury when the skin is dry. A single wire for both legs of each side should be used in rabbits or other thin-skinned animals in which unusual support for the legs is required. The size of the wires needed can best be learned by practice, though the following notes will serve as a guide :

Mouse : Legs, No. 23 ; tail. No. 23 or No. 20.

Rat or small squirrel : Legs, No. 20 or No. 17 ; tail, No. 17.

Large squirrel, rabbit, woodchuck, skunk : Legs, No. 17 or No. 15 ; tail, No. 15.

For very small mice and shrews, No. 23 wire may be used for the tail and No. 24 wire (or Carlsbader insect pins No. 4) for the legs.

No wires that will rust should ever be used ; galvanized iron wire is preferable to all others. Splinters of wood or bamboo are often a convenient substitute for wire.

9. Cut off the skull and remove any loose flesh, but under ordinary conditions do not attempt to remove the eyes, tongue, large muscles, or brain of any animal smaller than a rat, as these parts can be readily dried by artificial heat or direct sunlight. With larger specimens some of the flesh must be cut away to prevent decay, and the brain should be removed through the natural orifice at

1. When many skins are to be prepared it will be found a great convenience to keep on hand a supply of ready-cut wires of various lengths, which may be selected as required.

back of skull. The brain can be readily washed out with no injury to the skull, particularly if a jet of water as from a syringe or faucet is available. A piece of wood whittled flat and used as a spoon will materially assist the process. In tropical countries or very damp climates persons having sufficient skill to do so without danger of injuring the specimen should remove the eyes, tongue, brain, and all the large muscles, as the skulls will otherwise become very offensive. Inexperienced collectors should preserve the skulls in formalin, alcohol, strong cane rum, or a solution of arsenic in water,¹ taking care to label them with pencil or waterproof ink on stiff paper (not pasteboard). Skulls placed in formalin should be removed after a few days and dried. Fasten the skull label securely and place the skull where it will dry as quickly as possible. Unless they are drying very rapidly it will be necessary to protect small skulls from flies. Never put salt or alum on a skull. The skull label may be fastened by seizing one end of its thread between the tips of a pair of fine-pointed forceps, with which the thread is pushed through the flesh at the fork of the jaws and out at the mouth. Or it may be tied to a short piece of the neck left in place for the purpose. The former method, however, is generally preferable. In either case the label should be tied close to the bone leaving the least possible slack, and the thread should always be cut off neatly.

When many skulls are to be cared for at once they may be very conveniently treated by "stringing" on a cord or wire passed through the loops by which the labels are attached (never through the fork of the lower jaw). The "strings" can be hung before a fire or in the sunlight—wherever the skulls will dry most rapidly and thoroughly. Care must be taken that they are not stolen by cats, rats, or dogs.

10. Tear off a piece of cotton slightly larger than the body of the animal. The exact size required can only be learned by practice. Roll it roughly into shape

1. This is not, strictly speaking, a solution. When powdered white arsenic is stirred in water (about a teaspoonful to a quart) enough is held in suspension to make a strong preservative fluid.

and grasp its whole length with the forceps. If the forceps are too short for this seize it by the end which is to go into the head. Holding the cotton body by the forceps in the right hand, slip the skin on with the left until the points of the forceps have reached the mouth. Then grasp the head with the fingers of the left hand firmly enough to hold the cotton filling in place. Remove the forceps and with the right hand work the skin back over the artificial body. This method of putting the skin on to the body obviates the risk of stretching incurred in an attempt to push the body into the skin. For animals larger than a squirrel, stuffing of excelsior or tow is preferable to that made of cotton, as it permits more rapid and thorough drying of the skin.

11. When the artificial body is in place the wires are to be inserted in the legs and tail. Tear off a bit of cotton large enough to fill the skin of the leg, and project well into the body cavity. Then lay a wire on it, letting one end project a short distance beyond the edge of the cotton. Now twirl the wire with the fingers of the right hand, at the same time pressing lightly with those of the left over the edge of the cotton nearest the free end of the wire. The fibres will soon become wrapped about the wire at this point so that the whole mass of cotton will revolve with the wire, though fastened to it in a narrow region only and elsewhere standing out in a light, elastic mass.

Insert the wire into the position formerly occupied by the leg bone (or alongside the bone if this has been left in) and drive the point securely into foot, taking care not to distort heel. If the cotton has been securely fastened, it will be carried with the wire so that it will now shape itself to the inside of the skin and fill out the leg to its original size. With animals the size of a skunk, woodchuck, or rabbit (in which the leg bones are invariably to be left in place) it will be found more convenient to insert the wire first and then wrap wire and bone together to the required size and form.

The wire must invariably be wrapped with cotton before insertion into closely furred or naked tails. To wrap a tail

wire requires considerable practice. The process is exactly like that of wrapping a leg wire, except that a long shred of cotton of very good quality must be selected, and this twisted about the wire, tightly at the end that is to go to the tip of the tail, more loosely toward the base, so as to produce a tapering form like that of the tail bones. The tail wire must project slightly beyond the cotton wrapping. Before inserting the wrapped tail wire it should be powdered with arsenic. Great care is necessary in inserting a wrapped tail wire. If the wrapping is too dense and thick it may stretch or break the tail. If it is not sufficiently firm it may tear and leave the tail collapsed and unfilled at the base or near the middle.

12. Tie skin label securely to the right¹ hind leg close above the heel. Allow it enough play so that both back and front may be readily examined, but not enough to tangle with the labels of other specimens.

13. Arrange the leg wires neatly so that the legs will be held parallel with the body. The front feet are to be brought close to the sides of the neck, and the hind feet stretched out backward alongside the tail. If necessary fill in with bits of cotton to shape the thighs and rump to their natural form. Lay the end of the tail wire along the middle of the artificial body, and over it (the skin lying on its back) place a sheet of cotton thick enough to fill out the belly without stretching it. Tuck the edges of this layer of cotton under the edges of the cut in the skin, so that all lies smooth. Arrange the cotton in the head, and straighten the skin about the eyes. Sew up the cut in the belly and take a stitch in the lips to hold the mouth shut. (This may be done before the skin is turned right side out, but it is often convenient to have the mouth open during the final shaping of the head.)

Do not force in all the stuffing that a skin will hold.

Do not leave a skin half filled and covered with wrinkles.

A properly made skin should give essentially the same measurements as those taken from the fresh specimen.

Small skins should be filled out to the natural form of the animal, but those as large as a skunk or woodchuck should be flattened so that their greatest depth is not more than 50 mm. (2 inches). For this purpose a flat weight may be placed upon them while drying.

14. Lay the skin on a flat surface, preferably of soft wood, to dry. Pin the feet with soles down, so that the toes are held perfectly straight. If the tail does not lie as it should it may be held in place by pins driven into the board beside it, crossing one another just over the back of the tail.

The final shaping is to be given as the skin is pinned down. See that the feet do not project at the sides beyond the line of the body. Also make the sides of the body parallel, so that the thighs are not broader than the shoulders.

15. When the skin is pinned down lay it away to dry. Never dry a skin in direct sunlight or by artificial heat. An exception to this rule must be made in very damp climates. Here, however, the artificial heat employed should be as slight as possible. A swinging shelf hung near the ceiling of the room in which cooking is done will be found a convenient place for drying skins in damp, tropical countries. In hot climates skins must always be dried where there is a free circulation of air, otherwise they will probably spoil.

As soon as the skin is thoroughly dry remove it from the drying board, and the preparation of the specimen is completed. Specimens may be shipped in any strong, light box, but in tropical countries this should, if possible, be lined with zinc or tin. Wrap each specimen separately in paper and pack closely and smoothly. In tropical countries, to lessen the danger from attacks of insects, skins should not be boxed until ready to ship, and frequent examination for ants should be made. Naphthalin and bisulphid of carbon are valuable for killing or driving out insects.

Slight variations in the details of the foregoing directions will naturally suggest themselves. They need no special remark here. Some difficulty, however, may be found in preparing the skins of

1. Not on left leg.

bats. These animals are to be skinned as already directed, except that all of the bones of the legs and wings must, when unbroken, be left in place. Fold the wings close to sides of body and lay skin in position. The tail wire and bones of the legs and wings are not to be wrapped with cotton.

But skins from all localities are much needed. At least one-half of every series should when possible be preserved in this way ; the remainder may be kept in alcohol or formalin.

Temporary preservation of skins.—For various reasons it is often impracticable to prepare a specimen completely. In such cases skins may be temporarily preserved. Measure the animal carefully and label the specimen so that there can never be any doubt as to its history. If measuring implements are not at hand the dimensions may be indicated by lines on a strip of paper or by knots in a piece of stiff cord. Remove skin as already directed, poison it, and turn it right side out to dry. If arsenic can not be had use salt or alum, or even no preservative at all, but never let any alum touch the skull. Small skins should be thoroughly dried ; but larger ones, if covered inside and out with salt, may with safety be shipped to considerable distances, if sent without delay. The same care should be taken in measuring and labelling specimens that are temporarily preserved, and in preparing the skulls, as in the case of those made up in complete form.

SKELETONS.

To prepare skeletons of small mammals in the field, remove the skin as already directed, but cut through the skin itself at ankles and wrists, leaving the feet attached to the legs. Then remove the viscera and larger muscle masses, but

not enough to disjoint any part of the body. Make up the skin roughly and preserve it as an aid to identification. Dry the skeleton quickly and thoroughly. Never use formalin to preserve skeletons or specimens intended to be used for skeletons. If such material can not be kept dry it should be placed in alcohol or arsenic water.

SPECIMENS IN ALCOHOL OR FORMALIN.

Alcohol and formalin are not used at their full strength. Add to commercial alcohol (95 per cent) one-fifth its volume of water. Add to commercial formalin¹ twenty times (or in tropical climates twelve or fifteen times) its volume of water. Label specimens with pencil or waterproof ink on stiff paper (not paste-board). Open the abdominal cavity so that the preservative fluid may penetrate freely, but do not remove any of the viscera. Wet the fur thoroughly to base with water or alcohol before specimens are placed in formalin. At first keep specimens covered by at least double their volume of fluid. Less is required after they are thoroughly preserved. Specimens that have been preserved for several weeks may be safely shipped in air-tight jars, tanks, or bladders, if wrapped (to prevent abrasion) in cloth, tow, or cotton batting, dampened with the preservative fluid.

In tropical countries, where formalin may not be obtainable, and alcohol, if to be had at all, is very expensive, cane rum may be used as a substitute, though specimens preserved in it should be transferred to alcohol or formalin for permanent storage. Only the strongest grades of rum should be used.

1. This is a 40 per cent. (saturated) aqueous solution of formaldehyde gas. It is often sold under the name formaldehyde.

(To be continued)



Wild Birds That He Knew.

BY "POMAR."

In the early 80's of the last century Manitoba was to a large extent a virgin prairie,—a land of boundless possibilities on the eve of development. It was likewise a land which, if not as yet overflowing with milk and honey, was certainly overflowing with all kinds of feathered game.

It was at this time that my father, who had laid up the sickle and the hoe and retired to the *otium cum dignitate* of private life, was induced, through a series of domestic bereavements, to seek solace and possible accretion of worldly goods in the new and untried West. In 1881, or thereabouts, he with other kindred spirits formed a colonization company and undertook to place a certain number of settlers in what is now the prosperous municipality of Glenwood. The magnificent railway service of the C.P.R. was then only in embryo, and the prospective settlers had to tramp the distance of some 120 miles from Portage la Prairie through sloughs and over the wet prairie on foot, knee deep most of the time in water, to get to their destinations.

Arrived at the junction of the Pipestone and Souris Rivers, the little band picked out their future homes, and were soon enjoying life in sod houses. Game was particularly abundant, especially prairie chicken and wild ducks. It was indeed a sportsman's paradise. Every pond, hole or slough on the prairie, and there were many of them, was fairly alive with ducks, and the opportunity for the pot-hunter and game hog was unlimited. My father was an old hunter in his younger days in Ontario, and a good shot, and he had no difficulty in keeping the larder well filled. He had a farming partner, and it was mutually agreed that my father would attend to the domestic branch of the concern. At times he found time hanging heavily on his hands, and he would then wander down to the little woods by the side of the Souris River or out on the prairie in search of game. On one of his trips to

the woods he came upon a ruffed grouse (partridge) sitting upon her nest. Madame resented the intrusion of the uninvited paleface to the bosom of her family, or prospective family, ruffling up her feathers and looking very angry. It struck my father that he would experiment with this most timid of game birds, and see if she could not be tamed. He found she was still laying her eggs preparatory to incubation, and he commenced operations by making it a point to be within view of the nest when she was laying. He always had some pieces of bread with him. He would then stand where the bird could see him plainly, and would keep swinging his arm towards her, holding a crumb of bread in his hand, and kept talking to her and calling her by the pet name "Jennie." Every little while he dropped a piece of bread close to the nest. After in that way dropping several pieces he would go away out of sight, and in about ten or fifteen minutes go back to see if she had picked up any of the bread. The second time he went back to the bird he could see that she had taken all the pieces and was looking for more. He could also get a little closer to the nest and leave some more bread. He had been with her half an hour, and not thinking it good policy to stay any longer for fear of wearying her, he brought his first lesson to a close. He repeated the lesson twice a day, getting a little closer each time, and on the third day the bird was so tame he could lift her off the nest. She would sit on one hand and take her food from the other. She laid eight eggs and brought out seven chicks. Before she was done hatching she got so tame that she would leave her nest and follow him, and several times he had to replace her on the nest and get out of her sight as soon as he could, to prevent her doing this.

When the little ones were all hatched he put mother and chicks in a basket and took them to the house, where they

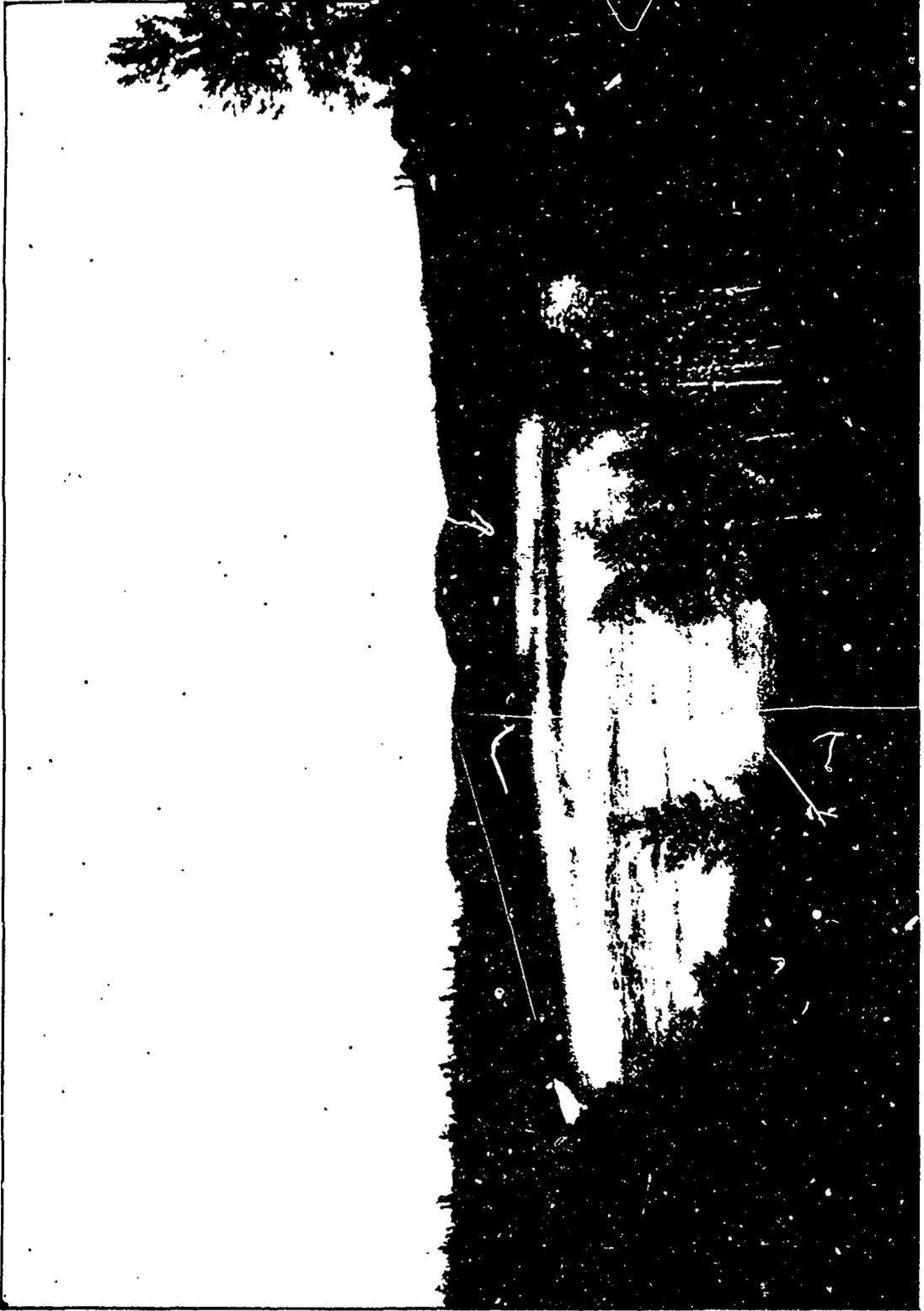
made themselves completely at home. There they remained as members of the family for about three weeks, when my father commenced to tire of his company. The old lady, in fact, got too familiar, and did not know enough to keep her place. She was continually flying into pots and pans and getting mixed up with articles of diet, which was rather unromantic from the standpoint of domestic cleanliness. So my father decided to say good-bye to his feathered friends, and gathering up mother and chicks, took them to the woods and, bidding them a fond farewell, left them there. Madame was more constant in her affection, however, than her human companion, and was determined not to take the mitten so readily. The same evening she and her interesting family landed back at the house without even waiting for a formal invitation to come in. After dark my father took the party back again to the woods, made a nice nest for them under a bush and left them there, and has never seen them since. Whether she considered herself capable of taking a hint and resented the invitation to stay away, especially when repeated, or whether her too trusting nature was taken advantage of by a predatory fox, whose sentimental nature had been developed along other lines, will never be known; but the ready response of this poor wild thing to the first display of human kindness might profitably be considered by us who call ourselves Christians and arrogate to ourselves most of the "here" and all the "hereafter."

My father also turned his hand to the job of taming a wild duck that was nesting on the prairie. He adopted the same tactics with it as with the partridge. It hatched out eight young ones, and got very tame. He kept them around the house for several weeks, and then gave them to the little daughter of a neigh-

boring settler who had settled on Plum Creek, about a mile away. Her father built a sod house for them, and they lived on the Creek during the day, feeding and disporting themselves, and went into their house every night. This continued until fall when a pot-hunting biped came along and wiped out the whole family at one fell swoop, no doubt, thereafter congratulating himself on the magnificence of his sportsmanship.

A few years after this first year of my father on the Manitoba prairie, I visited him for the purpose of regaining health that I had squandered in over study in a stuffy Ontario office. The very first breath of the pure air of that magnificent country seemed to put new life into me, and after a few months there I came back with renewed strength. Game was still very plentiful, although signs of decrease on account of the unmerciful on-slaught made upon it was even then apparent, indicating the necessity of those wise laws since enacted for its protection. I found great pleasure in foraging for ducks and chickens. Among other amusements, I spent some time trying to trap a wary gopher that had made his home in our sod house and was perforating it with too many holes, I thought, for the comfort of the inmates. My efforts were successful, and I at last had the satisfaction of strangling him at the end of a running noose. On the return home of my father I exhibited my victim's cold body, and was pained to learn that another of my father's pets had fallen a victim to man's inhumanity. This little animal he had also tamed, and made quite a pet of it. He used to put rings in its ears and a ribbon around its neck, and it would sit on his knee and eat out of his hand, and was very tame. She would come at the call of her name, "Jennie." But, like her unfortunate predecessors, Jennie's life ended in a tragedy.





NEPIGON RIVER.

This view was taken near Cameron's Pool—a spot almost sacred in the eyes of the "regulars" who visit it each season.



A TIGHT LINE.
This fisherman was "taken" in the net of playing a salmon, but owing to the unfortunate limitations of photography the rod does not show.

Second Sight and The Indian.

BY ST. CROIX.

The more one sees of the thoroughly wild and unspoiled Indian, the more one realizes what a strange being he is,—in many respects wonderfully gifted, and in others perfectly idiotic, from our point of view. He is, in fact, a mass of contradictions. Consider, for instance, his physical development. An Indian, even a picked one, in the prime of manhood, rarely shows the muscular development we see in the white man who has been engaged from his youth up in heavy labor. The Indian's limbs usually appear slight, the biceps, thighs and calves being, apparently, poorly developed; yet he can carry weights and travel distances that a white man could hardly accomplish. Some of the Indians of the Carrier tribe, inhabiting the northern central plateau of British Columbia, think nothing of carrying 200 pounds ten miles at a stretch, and there are Indians here in eastern Canada who can do even better than this. One youngster who was in my employ a couple of years ago, a slight, lathy youth with a thirty-inch waist and a thirty-six inch chest, could carry three hundred pounds over a fairly long portage without distress, and is said to have toted, in order to make good a boast, four hundred pounds for a short distance. I doubt not that there are exceptional men scattered throughout the Hudson's Bay Territories capable of surpassing these feats. And in the matter of endurance the Indian is even more remarkable; in fact, he seems, at his best, hardly to know what it is to be tired. Some of the natives employed as carriers by the Cassiar Central Railway used to pack heavy loads over a tremendously stiff mountainous country, where the trails were steep enough to try the wind of a racehorse, twenty miles, and then return laughing and joking at a jog trot, so as to be able to go out again on the following day with another equally heavy load. After dark they would gather round the camp fire, as lively as school boys at play, and

their laughter would resound far into the twilight, which is the nearest approach to darkness known to those regions in summer.

But if the Indian's physical being is an enigma to us, what shall be said about his mental equipment? Capture one of these wild men of the woods, bring him to our civilization, and his intelligence seems far below that of a child; but in his own wilderness he is a different creature, and, pitted against him, we are forced to acknowledge his infinite superiority. Among those who have had much to do with the Indian, a conviction that he possesses a sort of sixth sense, lacking in us, is very general. Some uncanny tales are told illustrative of this alleged extra sense, and I have no doubt many of the readers of this article have come across instances even more astonishing than those I am about to relate; indeed, it is partly with a view to inducing others to write upon this subject that I have undertaken this contribution.

When the Riel rebellion broke out in the Northwest, in the spring of 1886, there was a spirit of unrest and discontent among the Indians of the territories, which caused the Dominion Government great uneasiness. For weeks a general rising seemed imminent, and as such an outbreak would have meant destruction to the scattered settlements, and might have caused the miscarriage of General Middleton's campaign through the severing of his connection with his base, the Government resolved to leave no stone unturned to keep the tribes on their reservations. The Indians at Qu'Appelle were particularly discontented, and this was the point on the Canadian Pacific Railway from which the transport waggons took their loads to the front, so it was most important that the peace should be kept. The one man in the whole Northwest who could allay the angry feelings of the tribesmen was Archbishop Taché, of

St. Boniface; his knowledge of the Indian was most profound, and his influence over them great. So to him the Government turned in the hour of danger, and with that devotion to duty and disregard of safety which characterized him, he started at once for Qu'Appelle to keep the turbulent young men from putting on the war paint and taking a hand in the fighting. This he was successful in doing; and although the Indians showed great excitement, they did not leave their reservation.

One afternoon an Indian came to the Archbishop and said: "There has been heavy fighting this morning on the Saskatchewan." This statement was so remarkable, as there was no possible means of communication with that region, that the Archbishop telegraphed the Indian rumor to the Winnipeg papers, and next morning it appeared in cold print. On that day the battle of Batoche had been fought and the Indian rumor was not confirmed for a couple of days. Now, how did the Indian know what had been done so far away? The Archbishop firmly believed in this sixth sense to the day of his death, having often had evidence of it during his long residence among the wilder tribes. I recently came across a review of a work published by a traveller who had returned from Abyssinia, who had remarked this strange power amongst the Abyssinians, and gave some remarkable instances of it.

A few months ago I wrote to an old friend of mine, who has passed a good many years in the north in charge of various Hudson's Bay forts, asking him if he had ever observed any evidence of this mysterious power. This is what he said in reply:

"Now, about these same Indians, and their gift of second sight, or whatever it

is called. I have not very much to say about it, nor can I give any particulars or interesting illustrations, except in a general way.

"In the first place, when we were living at the fort, and Indians and half-breeds constituted pretty well the whole of the inhabitants, Mrs.—and myself used to say that the blessed creatures seemed to know intuitively what was happening. We used to think that it was probably the result of their mode of living; I mean that they are a race that do not live in a cut-and-dried conventional manner, not by routine as we whites do, but rather by observation and induction, and that this faculty has been developed in them to such an extent that they can reason out almost unconsciously to themselves probabilities which are accepted by them as facts.

"In this connection I have known them to be all wrong sometimes; just often enough to make it the exception.

"In the matter of straight clairvoyance, I only know one case, at least only remember one at this moment worthy of mention, though I have heard much of conjuring, and have been told some wonderful things. The case I allude to is that of 'old Blacknose'; just when he was at the point of death and had been speechless for some time, he suddenly muttered—'Look! Look! at the poor women there in the ice. They can't get out. They are drowning (sinking).' By a strange coincidence, or otherwise, at the same time, as nearly as could be adjudged, the two young wives of Pears and Cat were caught between two cakes of ice, while crossing a bay to look at a net; their canoe was crushed and they were drowned."

Now if any readers of ROD AND GUN IN CANADA can throw more light on this obscure but interesting subject, I trust most sincerely that they will do so.



Control of Forests.*

Mr. A. C. Campbell writes in connection with an editorial comment made some time ago on a suggestion offered by him in "The Commonwealth" that timber lands might be managed on the same basis as agricultural lands, that is, by small individual holdings, though of a greater area than in the case of agricultural homesteads, and urges, in opposition to the opinion in favor of an extension of government control, that society is at present founded on an individualistic basis, that in every line of wealth production, with so few exceptions as to be hardly worth considering, we have proceeded on the theory that self-seeking devoted to wealth production was the strongest force that could be used for the industrial advancement of society. Possibly the use editorially of the word socialistic may have conveyed a larger meaning than was intended, for the extinguishment of individual effort is not necessarily involved in the extension of state control in forest management to a greater degree than that in which it at present exists. On the extension of state control, without at present attempting to define where the evolution of the future shall fix its limits, will depend largely whether or not Canadian forests are to be managed so as to be a permanent and steady revenue producing factor for the state.

The assumption that state control is a new idea in connection with the management of forests in Canada must, however, have been formed without due consideration of the facts of the case. Practically the whole system of forest administration is based on the principle that the ownership of the land must remain in the state, that the holder of such land shall have only the timber under yearly license, and that under restrictions as to the diameter of the trees to be cut, and certain dues to be paid to the state, which require that all the operations and records should be open to the scrutiny of state officers, with severe penalties for wrongful

returns. Surely such a system applied to any other industry would be considered socialism of a somewhat advanced nature.

To make the question clear it may be premised that forests controlling water-sheds or which for any other reason are not to be managed purely for revenue purposes do not enter into the question, though much of our forest land is in just such situations, and that lands fit for agricultural purposes are to be excluded. There remain, therefore, the great stretches of Laurentian or other rock suitable only for timber production now partly covered by forest and partly swept bare by fire. It is plain that no one without the amplest resources and great interest in succeeding generations would hold such fire-swept land, for it might take 100 to 150 years to grow a timber crop on it, and individuals will probably be unanimous in deciding that such lands will certainly not be handled by them, whether or not the state chooses to take action in connection with them.

The non-agricultural lands already covered by forest alone remain then to enter into the problem. The first, and a very serious difficulty in the way of the holding of small areas of such lands by persons of little or no resources, is the danger from fire. Fires are occurring continually. Every year single holders of timber lands are losing more than sufficient to wipe out dozens of such forest homesteaders. Suppose the tracts that were utterly destroyed, both timber and soil, by fire in the Timiskaming district last year had been so held, what would have been the result? The people would have lost everything they possessed and would have been compelled to seek new locations, as they could hardly wait 100 or 150 years for the growth of a new crop. The necessity for fighting fire has involved an extension of state control, for an effective system requires that the whole forest area should be guarded whether it contains valuable timber or not, and the

* Contributed by the Officers of the Canadian Forestry Association.

individual owners are agreed that the state should undertake this duty, which they feel will not be done by individual effort.

The argument that the very reason why we have so little attention paid by the majority of individuals to this vital question of forestry is that those who are sufficiently well informed on this subject to speak with authority, give people to understand that it is a question for the state and not for the individuals to deal with, hardly places the responsibility for the apathy of the general public on the right shoulders. It is not the advocates of forestry who are to blame for the lack of public interest. Unfortunately the public do not yet listen to us. Our voices are but as of those crying in the wilderness with but little sign that the wilderness will soon be other than it is, except perhaps in its increasing extent. Long before the voice of the forester was heard the logic of hard facts had shown the impossibility under existing conditions of conducting forest management by the individualistic methods employed in agricultural operations, and though the necessary consequence follows that what people are not directly and individually concerned in they do not consider of vital interest, the blame does not rest with the forester. Nor is he to blame if oratorical rhapsodies about our boundless resources, our inexhaustible timber supplies, have led the public to the conclusion that the forests will grind out forever their toll to the public exchequer and that there is no occasion for looking ahead to find out how far and how long we can depend on them to contribute to the public revenue and see whether it is necessary to take any measures to assure that this contribution should be a permanent and increasing factor. To lead the public from such wanderings in the wilderness is to be accomplished by creating a realization of the direct interest of the individual in the maintaining of the public revenue, rather than by encouraging individual effort to undertake what, under present conditions, has many possibilities of failure, while success would be entirely problematical.

When the lumber districts are reached the distance from the market is sufficient

to make only the most valuable trees, such as pine and spruce, profitable to handle. While the original crop is still on the ground the problem would perhaps be simple. But it is not so simple as that of an apple orchard, as the crop in that case is an annual one and nothing would be gained by removing the trees. In the case of forest trees, however, it is hardly likely, in face of financial stringency or any other impelling cause, that a small holder would be able or willing to refuse to make use of the resources lying at his hand without regard to the future. Like the gentleman who, though living north of the Tweed, had imbibed some of the recklessness that is supposed only to exhibit itself south of that line; and regularly made up his losses on the Derby by sacrificing a few acres of his forests.

Whether the sustained yearly products of forest land, provided it escaped every danger, would be sufficient to provide for a homesteader and his family is a factor that requires consideration. There are hardly sufficient data based on accurate observation and calculation to settle definitely what the sustained annual yield would be. Mr. J. C. Langelier computes it at 2,500 feet per acre for spruce, which at \$3.50 per cord would make \$14.58 per acre. The tables prepared from investigations of the Adirondack spruce show that cutting to 12 inches in diameter, breast high, taking the largest yield shown, the first cut would be 8,700 feet, board measure, per acre; the second cut would be in 10 years 1,827 feet; in 20 years 2,958 feet, or in 30 years 5,638 feet, and it would be necessary to delay the second cutting for 38 years to get a return equal to that obtained from the first cutting. This very careful estimate certainly would not give much encouragement to expect that a small holder would be able to live on the proceeds of his holding.

While the adoption of such a general policy as that suggested does not appear advisable, yet there is no reason why individual effort should be altogether discouraged, and a few instances that point in the direction of profitable private management of forests even on a small scale may be cited.

It is stated that in the French settlement near Weymouth, in Annapolis County, in the Province of Nova Scotia, an annual cut of twenty to twenty-five thousand feet of lumber is made on lots of 100 acres, and that the owners of these lots find that this annual cutting can be kept up indefinitely as long as there are no forest fires. The quality and size of the lumber shows improvement, and many tracts which have been cut over for the past ten years have better timber on them now than in the past. The owners of this timber regard their holdings as income property and will not sell their timber, but cut out the suitable logs every year, take them to the nearest mill and haul the lumber, when cut, to Weymouth, where there is a ready market.

An example of profitable private forest management in the West is given in the recent work on "Practical Forestry" by Professor John Gifford. The plantation

was on a piece of land, eighty acres in extent, near Hutchinson, Kansas. The owner cut 2,500 trees at the end of the sixth year of growth, and 13,000 trees at the end of the seventh. Each tree made two fence posts, and the posts were sold at ten cents each on the ground where they grew. He obtained \$2,600 cash for the fence posts in the second thinning on an eighty-acre patch of land. At the end of ten years from the planting his woodland was measured by experts from the Department of Agriculture at Washington, and the stand of timber was found to be worth \$267.17 per acre. After counting every expense, including all labor, the price for which the land would have rented and the interest at six per cent. on all money invested, a net profit of \$197.55 per acre remained for the ten years, or \$19.75 per year. In addition to this profit was the money received for the trees cut in the two thinnings.



It has always been an enigma, even to scientific ichthyologists, why salmon show such marked partiality for certain streams, and even for particular tributaries of those streams. Hence, it is gratifying to have light thrown upon this obscure subject, as is done in the following communication from the Nanaimo correspondent of the Victoria Daily Colonist. Writing to his newspaper, under date of April 24th, he says:

"The Indians living about here have little faith in the success of the attempt which has been made by the Fishery department to turn the Nanaimo lakes into a spawning ground for sockeyes.

"Old Dick, an Indian lawyer, has given Indian Agent Robertson what appears to him and his brother Indians sufficient reasons for believing that this cannot be accomplished. The legend given by Old Dick is a very pretty one and has strong local color.

"Ten generations ago, he says, the first Indians came to this part of the island. They came from Great Thunder and were five in number, coming through

from a great cloud between Mount Benson and the sea. Shortly after this two others followed, who were of those who wore the great mask, and were therefore of higher intelligence. These displaced the original five. These first Indians found among the salmon tribes a firm agreement existing. According to the terms of the agreement the sockeyes were confined to the Fraser River. The eastern rivers of Vancouver Island were to be passed by them. The humpbacks had an agreement by which they were during alternate years to enter the Fraser and the eastern rivers of Vancouver Island. This agreement has been observed by the salmon very faithfully, he says. The white men when they came tried to induce the salmon to break their treaty, but without success.

"This, the Indians claim, augurs ill for the success of the attempt made to make the Nanaimo lakes a spawning ground for the sockeyes. They cite the failure of the attempt made some years ago to make Cowichan Lake a spawning ground as an evidence that the treaty among the salmon still holds good."

The White Elm.*

The elms have robed their slender spray
 With full-blown flower and embryo leaf;
 Wide o'er the clasping arch of day
 Soars like a cloud their hoary chief.

So the genial Autocrat of the Breakfast Table sings of the coming of spring, and, although he disclaims all idea of considering trees from a scientific standpoint as being too formal a way of treating friends, he evidently loved them well enough to have made close and accurate observation of their times and seasons and manifestations. And in a New England landscape there is no more characteristically beautiful tree than the White or Swamp Elm, particularly when it assumes its most usual form, a few great limbs spreading from a short stout trunk curving outward and upward into a great fan shape, from which the drooping ends hang in graceful pendants of green. No tree with more beautiful or graceful lines can be seen anywhere, and to many it is in this respect the greatest among the trees of the field. Seen in outline against the sky, it impresses with its simple and majestic beauty, and withal it is a tree that has many associations that make it a homelike and familiar feature to most Canadians.

The White, or Swamp Elm, (*Ulmus Americana*) belongs to the order Urticaceae or nettle family, being in the same order of plants as our common nettle. The scientific name for the genus is the old classical name for the European species, which are, however, quite distinct from the American Elm. The leaves are oblong or oval, with the veins pinnate or spreading from a central midrib like the pinnae of a feather, and the edges sharply and usually doubly serrate. The base of the leaf is oblique, one side being lower than the other. The twigs are grey and smooth, not having any corky ridges. The small green flowers appear in April in close bunches, and though individually inconspicuous anyone who observes at all will readily notice the full blown flowers robing the

slender spray. The seeds following immediately after, in May or June, are orbicular in shape, with a narrow wing entirely surrounding them but notched at the top. They are smooth, except the edge of the wing, which is ciliate or bordered with fine hair. If the seeds are required for planting they should be collected in May or June and planted immediately. Elm seeds usually show a large percentage good. According to the experience of the Experimental Farm at Indian Head, seeds from trees grown in the West succeed, whereas imported seeds fail to germinate, thus confirming a common experience with tree seeds. The distribution of the White Elm is very wide, extending from the Atlantic Coast westward to the valley of the Saskatchewan. It prefers low moist soil, its favorite location being along the flats of old river bottoms.

The White Elm was, with the exception of the pine, the largest forest tree in Eastern Canada. Trees six feet in diameter and over one hundred feet in height were common, and even a diameter of eight feet has been known to be attained. Trees which grow in the forest have clear straight trunks on which the crown is upraised high in the air. In the open a rounded form is assumed, in some cases, and in others the fan shape or "sheaf" top. When a tree has grown in the forest for some time and the other trees are cleared from around it, it will often send out short bushy branchlets from long dormant buds along the trunk, making the "fringed" or "bearded" elm. The spread of root necessary for the stability and maintenance of such large heads is very great. It has been known to reach one hundred yards from the trunk of the elm. There are many famous elms. One of the most celebrated was the Boston Elm, which was supposed to have been in existence before the city was founded, and which, when it was blown down in 1876, had a circumference of twenty-two feet.

* Contributed by the Officers of the Canadian Forestry Association.

The wood of the elm is hard and firm, although not very durable, and is very useful for many purposes where these qualities are required. Some of its uses in manufactures are for furniture, baskets, bicycle rims, &c. It is exported to England as square timber, and is there used for planking and wearing parts of vessels. It is also used for piling, etc., being found durable under water. The export of elm timber for the last fiscal year was 26,818,000 feet, and the value \$193,749.

The director of the Experimental Farm at Indian Head recommends that in planting elms they should be set out at four years of age, and the distance apart should be four feet. This tree has been found one of the most successful, and is

recommended for trial in the West. The fact of its being found growing there naturally is a sure indication that there should be no difficulty in the way that cannot be easily overcome. The preference of this tree for a rich moist soil should, however, be remembered.

The rough, corrugated bark of the elm had sheltered many of the embryo statesmen and captains of industry of Canada, for it formed the roof covering for most of the first log cabins that were built by the pioneers. It was cut in large pieces about four feet long and two or three feet wide, and these were laid overlapping one another on the transverse poles which formed the support of the roof.



Nearly all of our lakes and streams of any magnitude are well adapted to the black bass, which stands with few rivals as a game fish, and many prefer its flavor to that of the dainty brook trout, writes Mr. Bastedo. No native fish has a more extended range. Its fecundity, too, is so great that given half a chance, a few pair will in a short time populate the waters in which they are placed. The two principal varieties are the small mouthed and the large mouthed. The species is somewhat difficult to distinguish, and the generally accepted points of difference sometimes proves misleading. The colors and markings of each vary with age, and the size of the mouth with the size of the fish. The most reliable, and perhaps an infallible, means of identification is the number of scales on the cheeks, a larger number (usually 17 rows) being found on the cheeks of the small mouthed variety than on those of the large mouthed (usually 10). It is erroneously believed that the large mouthed variety is less gamey than his small mouthed cousin, but this perhaps is only experienced where the former is taken in ponds or sluggish waters, for a two

pound large mouthed in our cold or running waters will prove inch for inch every bit as good a fighter as the small mouthed, and is in every sense adapted for transplanting in any part of the Province. The black bass is also so radically different from all other fresh water fish in its spawning habits, and in the care which it exercises over its young, that the percentage of loss of fry when hatched is very small. Trout and whitefish have been known to devour their eggs as soon as deposited; and in the case of speckled trout, where these are propagated in ponds, it has frequently been found necessary to remove the parent fish from the spawning beds immediately upon the spawn having been deposited, or the eggs were in danger of being devoured and the season's labor lost. The parent bass, however, will hover about the spawning bed from the time the eggs are cast until the fry has been hatched (usually in from five to ten days, according to the temperature of the water) and are in a measure able to take care of themselves. Everything, therefore, points to the black bass as being at present the ideal fish with which to stock our (i.e. Ontario) waters.

Sporting Dogs—The Setter.

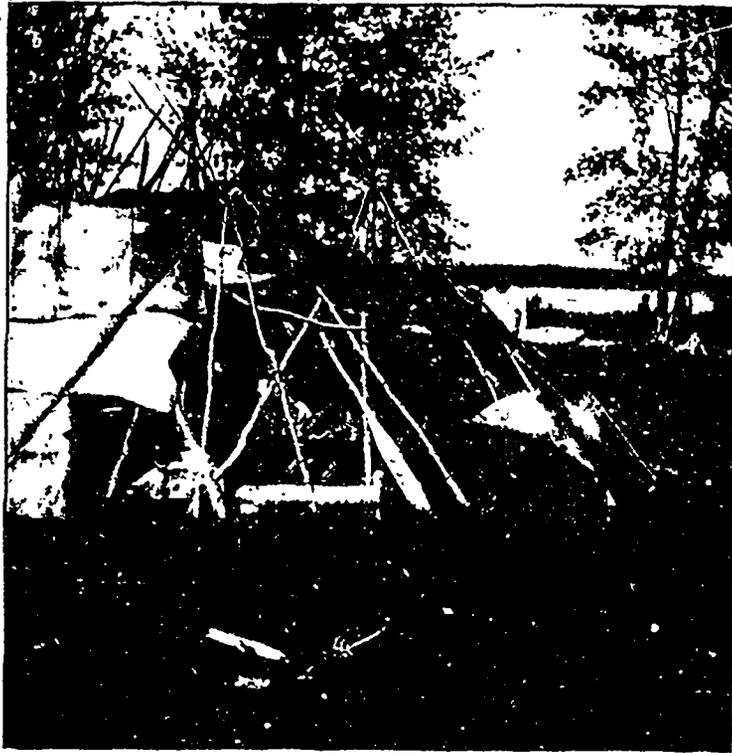
BY D. TAYLOR.

There are three great branches of the setter family—the English, Gordon and Irish—which, though sharing a somewhat general resemblance in conformation, have each well-defined characteristics, and are distinct altogether in color. The setter is an absolute necessity to the sportsman after winged game if he wishes to save himself fatigue and trouble, and is, when well broken, an invaluable assistant in procuring a good bag. In the long stubble of a wheat field, or in the purple heather, the dusky brown of the partridge or grouse can scarcely be distinguished from the color of mother earth or of the heath, and, therefore, the setter becomes the eyes of the sportsman, flushing the birds at the proper moment for a good shot. He seems to interpret the mind of his master with an accuracy and intelligence that is simply marvellous, and, when the day's shooting is done, the tales told "over the walnuts and the wine" of the feats of some favorite dog are among the most pleasant memories of a shooting season.

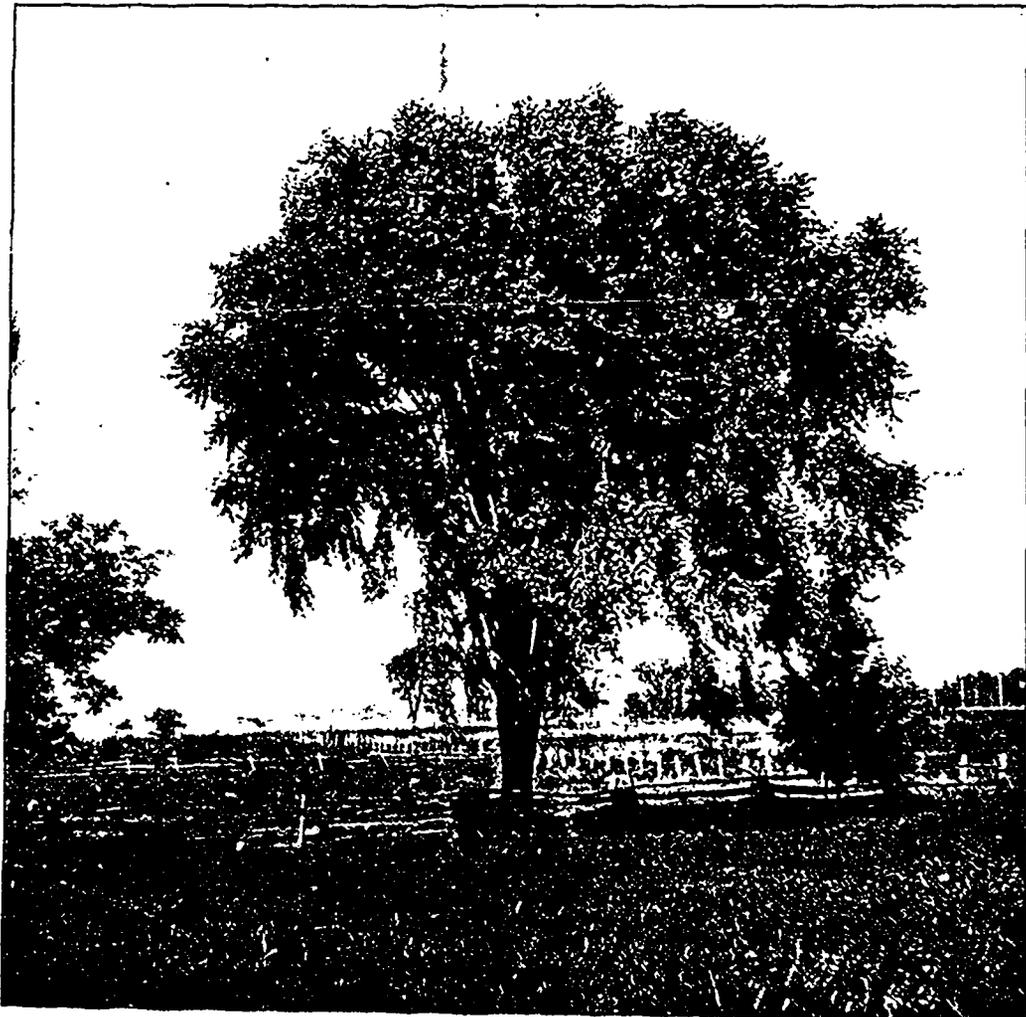
In the selection of a young setter to be trained for shooting over, it is well that the various characteristics of the breed should be closely studied, because, in proportion to the number of "points" in an animal a greater degree of intelligence may be looked for, and its consequent full development more easily accomplished. The best type of English setter should have considerable prominence on the back part of the head, or what is technically known as the occipital bone, somewhat narrow between the ears, and with a very decided brow over the eyes, which must be of medium size, rather animated and of a dark color. The ears are comparatively small, carried close to the cheeks, soft, of leather thinness, and partly clothed with silky hair. The man who breeds for show purposes only and the sportsman who looks toward the work the dog has to accomplish in the field, are somewhat at variance as to the build and contour of the frame, but by judicious breeding a happy combination

of strength and symmetry is obtained without any apparent depreciation of the qualities desired by either, and when this is accomplished the result is altogether pleasing to the eye of both sportsman and artist. The nose of the setter should be long and wide, with nostrils wide apart and large; the jaws strong and equal, not undershot; shoulders sloping; chest deep, rather than wide, and ribs well sprung. The front legs should be set straight, with knees broad and strong; hind legs muscular and plenty of bone. In regard to the feet there is a diversity of opinion among experts, some holding to the cat's foot while others prefer what is known as the hare, but the former is to be preferred. The color of the coat in the English setter is not strongly insisted on, a great variety being admitted. The most popular is the "Blue Belton"—black and white ticked with large splotches; then follows orange and white, ticked and marked as in the blacks; liver and white; black and white with tan markings, etc. Solid colors of black, liver, red or white are occasionally met with but are not desirable.

The Gordon setter is claimed by its admirers to be the handsomest of the species, and when he is of the proper color and true to standard type there are not many who will care to dispute the claim. The breed is popularly supposed to have originated with the Duke of Gordon about 1820, and the outcome of a cross between a breed of setters he then owned and one of his very keen nosed collies. The variety generally possesses a splendid intelligence, acute scenting powers and great endurance. In the best specimens are always to be found the leading features of the collie, bloodhound and setter. His head is much heavier than that of his half-brother, the English setter, broad at the top between the ears, skull slightly rounded, and the depth from the occiput to the bottom of the lower jaw much greater; his body is also heavier. The



A SUMMER RESIDENCE.
Indian birch-bark tepees by Long Lake, New Ontario.



THE WHITE ELM.
This fine elm (*Ulmus Americana*) shows to perfection the fan like form characteristic of the tree under certain conditions.



FUTURE CHIEFTAINS.

Squaws and papooses at the H.B.C. fort, Brunswick House.



THE WHITE ELM.

Here we have an entirely different shaped elm, owing to other influences during early growth.

great beauty of this dog is his color, and much prominence is usually given to it in judging. It should be a rich, glossy black, with deep sienna or dark mahogany, the tan markings clearly pronounced and without any admixture of black on the body, but black pencillings on the toes are admissible. The black should be intense, not brownish or rusty. The muzzle also should be tan and the spots over the eyes well defined.

The Irish setter in appearance is more akin to the English than the Gordon. He has an oval skull and the head is long and lean, brows somewhat raised, showing stop, and the eyes a rich hazel or brown. His ears are fine in texture, of a moderate size and set on low, well back, hanging close to the head. In color he is a rich chestnut or red mahogany; must not be any suspicion of black. In general style and appearance he is a very handsome dog, and when in good condition is ranked as second to none of the setter tribe either in beauty or for work in the field. He is

game to the end and never seems to tire out, even on the longest field day.

Whenever possible the sportsman himself should train the dog he is to shoot over, for the simple reason that he will have better opportunities of noting the dog's peculiarities and temper, encouraging his good and correcting his bad qualities. It is quite possible to obtain a well-broken dog, but the chances are he will not exhibit the same degree of efficiency with a stranger as he would with his trainer, and there is consequent disappointment and vexation. On the other hand, the owner's pleasure at seeing the fruits of his own skill and patience

is ample reward for any trouble he may have taken; indeed, in the matter of training a dog, the idea of its being in any sense a task soon disappears.

Mr. Douglas W. Ogilvie, president of Montreal Canine Association, is a gentleman with a born affection for the canine race and a ready sympathy for the pariahs that roam the streets. With a strong conviction that some systematic effort should be made to provide for strayed or homeless dogs, until such time as they are claimed or sold to someone who would assume the responsibility of their care, Mr. Ogilvie has, for some time, advocated the founding of a dogs' home. He has enlisted the

co-operation of a number of philanthropic gentlemen, who have promised generous subscriptions towards such a worthy object, and it is not at all unlikely that a small beginning may soon be made in providing for outcast dogs. We do not suppose that such an institution could ever be made self-sustain-

ing, yet a very considerable revenue would be derived towards its support from the boarding of dogs and from the sale of those gathered in which are considered worthy of being kept and conditioned. To build a suitable home, and provide the necessary grounds, would cost a considerable sum, but in this connection we would point out to those interesting themselves in the matter that there is a place ready to hand if it can be secured. The old kennels of the Montreal Hunt on Delorimier Avenue would, with some repairs, be a most suitable place, as there are fine grounds and accommodation for many dogs.



ST. LOUIS VIOLET.

This handsome collie, the property of Mr. Thos. S. McGee, has had a remarkable career this year. She won everything, including special for best in show, at the Montreal Collie Club's Show, under Dr. Wesley Mills; shortly after at Ottawa she repeated the same performance under Mr. James Watson, New York, and again at Montreal, under Mr. James Mortimer, she won four first prizes and nine specials.

Our Medicine Bag.

The Montreal Business Men's League has issued a neat little pamphlet describing Montreal. Many thousand copies have been mailed to Great Britain and the United States, the objects being, to induce people to take an interest in this city and to place in the hands of tourists a handy guide. From time to time the League will bring out other publications. Any of our readers who wish for this pamphlet should send us two cents for each copy they require, to cover cost of postage and wrapper.

The Province of Ontario has been unable to obtain a supply of landlocked salmon eggs from the waters of the sister Province of Quebec, but an effort is to be made to introduce the steelhead in waters where it is thought the landlocked salmon should succeed. The steelhead is a superb fish, but if the Ontario Fish Commissioners will bend their entire energy toward stocking their waters with the rainbow trout, we fancy they will have better success, and consequently better sport. We must confess to a partiality for the rainbow after a very varied experience of the salmonidae in two hemispheres. If there be a better fish for its inches, we have not had the pleasure of an introduction.

Mr. S. T. Bastedo, Deputy Commissioner of the Ontario Department of Fisheries, states in his latest report:—"There is no doubt a tremendous loss of the spawn of the lake trout and whitefish where this matures at a period which is not covered by the present close season, and steps should, in the opinion of the undersigned, be taken for the prevention of a portion at any rate of this serious waste. In Lake Superior the trout begin spawning about September 28th and finish by October 10th, and, therefore, the spawn of all ripe fish taken previous to November is a total loss. The method pursued in some of the neighboring States is, during the gravid period, to place men upon the fishing tugs to take the eggs of the female fish and impregnate them with the milt of the male. The eggs are then

carefully planted on the natural spawning beds, as the fishermen return their nets to the water. The results have proved most satisfactory. In fact, the Legislature of Wisconsin has enacted that the fishermen "shall," during certain specified periods—the spawning period—"take the eggs from the female trout while alive, and the milt from the male trout while alive, and after mixing them together in a pail or pan, immediately cast them into the water from whence such fish were taken," and very severe penalties are provided for the violation of this clause. The fishermen might well, in their own interests, readily adopt this means of assisting in maintaining the fish supply; but the expense to the Department of placing an experienced man on each tug for a fortnight or so would not be great, and it is believed the experiment should be tried."

A special summer meeting of the American Forestry Association will be held at Lansing, Michigan, on the 27th and 28th of August, followed by an excursion from Lansing to Mackinac from the 28th of August to the 1st of September. The Forestry Preserve will be visited, and in connection with it the problem of the Jack Pine plains of Michigan, the fire problem, and the shifting sand question will be discussed. The American Forestry Association have extended a cordial invitation to the members of the Canadian Association to attend this meeting. If any of the members of the Canadian Association find that it will be possible for them to attend, they should advise the Secretary of the Association at Ottawa in order that the American Association may be notified. Further particulars may be obtained on application to the Secretary.

At the last session of the Legislature of British Columbia the change suggested by the Canadian Forestry Association in the penalty clause of the Bush Fire Act was adopted. The clause now reads as follows:—"Whosoever neglects or refuses to comply with the requirements of this Act, in any manner whatsoever,

shall be liable, upon summary conviction before a Justice of the Peace, to a penalty not exceeding two hundred dollars and not less than fifty dollars, and in default of payment thereof, to imprisonment for a term not exceeding six months; and in addition to such penalty shall be liable to civil action for damages at the suit of any person whose property has been injured or destroyed by any such fire; and any railway company permitting a locomotive engine to run in violation to the provisions of section 7 of this Act shall be liable to a penalty of two hundred dollars for each offence, to be recovered with costs before any court of completed jurisdiction, and shall also be liable to civil action for any damages that may have resulted from negligence in this regard.

Canadian sportsmen who contemplate visiting Newfoundland this autumn for deer stalking will do well to note that the law has been considerably amended. The former graduated license, valid from four to eight weeks, permitted the killing of three to seven deer, and costing from \$40 to \$80, is abolished, and a new rule is enacted. It provides a uniform license, at a fee of \$100, good for two months,

and permitting the shooting of three caribou—all stags. This new regulation will, it is believed, prevent the shocking butchery of the deer which has been carried on during late years. A commission was appointed to inquire into the details of the newspaper reports of the extent of this slaughter, and the report of the commissioners showed a most shocking disregard of all the regular hunting methods which prevail in other countries. The practice was to shoot the deer by scores and hundreds at the crossing places near the railway which they traversed in their annual southward migration for the winter. The heads and antlers were taken, and the carcasses in most instances left to rot. The result was a serious depletion of the herds, and the danger of their speedy extermination unless restrictive enactments were speedily passed. The new measure has been very favorably received by American sportsmen of the best class.

According to the Quebec Chronicle of May 30, a sturgeon weighing three hundred pounds was brought to the Quebec market on the previous day by the steamer Champion.



THE "FAVORITE" RIFLE TELESCOPE No. 350
(SHOWING MOUNTINGS)

The J. Stevens Arms & Tool Company, Chicopee Falls, Mass., write:—Having purchased the Telescope department formerly conducted by the Cataract Tool and Optical Co., of Buffalo, New York, and installed their machinery in our plant, we are now prepared to furnish Riflemen with the finest line of Telescopes and Mountings manufactured. This department is conducted by the former superintendent of the above company, and as he is an expert in his line,

we can *guarantee* all of our Telescopes and Mountings as second to none.

The points of superiority in our Telescopes are: Their apparent universal focus; their perfect achromatic and spherical corrections; their exceptionally large and flat field of vision; their remarkable illumination; their non-breakable cross-hairs; their qualities as a night as well as a day glass; their very large lenses, and their proof against water and dirt.

A Calgary despatch says: A rocky mountain goat has been added to the native wild animals in the Banff National Park. Mark Douglas, the superintendent, offered the sum of \$50 for a kid, and a party of Stony Indians soon succeeded in capturing one near Kanaskas. The little fellow is quite tame, and is being fostered and mothered by one of the Angora goats. There is only one other animal of the species in captivity, and it is in the zoological gardens of Philadelphia.

We are in receipt of the following interesting letter from a well known sportsman:

Ottawa, June 11th, 1902.

EDITOR ROD AND GUN:

I read with much interest this morning Mr. Greaves' article in *ROD AND GUN IN CANADA*. I think it the most common-sense article in a sporting journal I have read for a long time, and coincides exactly with my ideas as regards rods and tackle, and especially flies.

His ideas on the split bamboo and lance-wood, I believe to be absolutely correct. I have had 25 years' experience with almost every kind of rod that is made, and I believe the split bamboo to be (under almost every circumstance) far and away better than any other rod that is made. I have had in my possession a Leonard rod split bamboo, which I have used almost continually for about 12 years. It weighs 6½ ozs. and is as good as the day I got it. I have used it in Maine, in the Lake St. John country, and in the Nepigon, and, needless to say, all about here. I have probably half a dozen other Leonard rods, and what applies to that one applies to them all.

I find that there are too many fishermen who give little attention to their tackle. They think any rod is good enough, and if they happen to have a good rod, you will find a cheap reel or poor line for the rest of it. We find also another class of fisherman who thinks that any kind of fly will do, so long as it is feathers on a hook. I find that the best is never any too good, and I buy the best reels and the best lines that I can find, also the best leaders. I find a good deal of trouble in getting proper leaders, and have to send away for them. I have not become skillful in the art of fly tying, so I send away for all my flies, except some small ones that I use around here for brook trout fishing.

Your correspondent's selection of flies is also particularly good. I expect I have up in the thousands of flies, but if I were going to do it again, I think I could pick out six flies which would be sufficient for any water or any lake I have ever fished in.

The only flies that he mentions that I know little about, are Governor, Zulu, and the Split Fly. I would add one fly to his list, which I think is one of the best killing flies that I have ever tied, for almost all kinds of fishing, except

bass, and that is the Jock Scott, and also the Dusty Miller. I could add many to the list, but I simply mention the ones that proved so taking in Lake Edward.

I found Parmachene Belle, Jock Scott, Dusty Miller, Queen of the Water, and Dark Montreal, the best killing flies in almost any water, and especially in the Nepigon. I think I got two trout on the Jock Scott, to one on any other fly. He also leaves out Brown Hackle, which I think one of the best.

I am glad to see a man write an article such as Mr. Greaves has written, who apparently knows something about it, for three-quarters of the articles written in the sporting papers are written by men who are writing for so much a line and who are not posted in the least.

I remain, yours very truly,
CHARLES E. TURNER,
U.S. Consul-General.

The forest fire which occurred near Whitney in the month of May burned over an area of some twenty-five square miles. The timber destroyed was not valuable but the very valuable limit owned by Mr. J. R. Booth, on the Madawaska, from which he obtains the timber for winter cutting in the mill at Ottawa, was seriously threatened. It was only by the most strenuous exertions on the part of the fire rangers and the employees of the Parry Sound Railway that the town of Madawaska was saved from destruction. Back firing with a favourable wind was used with good effect in addition to other means, and the fire was finally extinguished by rain. The season up to that time had been very dry and the fire was apparently started in a number of places, but by whom or by what means it has not up to the present been possible to ascertain.

The J. Stevens Arms and Tool Co., Chicopee Falls, Mass., write:—Many of your readers will be interested to learn of the change in location of our New York Office from 318 Broadway to 80 Chambers Street. We had but limited room at our former office and have for some time been looking for a more desirable location in the wholesale sporting dealers' district that would give us additional floor space as well as storage room. At 80 Chambers Street we will have more than five times the floor space than we formerly had. Our increased line and our increased business made this change necessary.

The annual bench show in connection with Toronto's Industrial Exposition takes place on September 8, 9, 10 and 11. The judging will be in the hands of competent experts, among whom is Mr. Geo. Raper, of England. We have not as yet received a copy of the premium list but we understand the classification is very liberal with good cash prizes and a goodly array of specials. Mr. Fred Jacobi is secretary.

The Ottawa Kennel Club will hold a bench show (their second venture this year) in connection with the Canada Central Fair, on August 27-29. Mr. C. H. Mason, New York, will judge all breeds. Mr. A. Percy Mutchmor is secretary, of whom premium lists and other information may be obtained. From the personnel of the committee, and the energetic and business-like manner in which they conducted the spring show, the same degree of success that characterized their initial effort may well

be looked for in this. We trust the fanciers in Montreal district will support the enterprise to the fullest extent, and in doing so will show that they admire the pluck and sportsman-like conduct of their Ottawa brethren. Good cash prizes and many valuable specials are offered. The show will be held under C. K. C. rules.

Fishers of bass are complaining to the Ontario Fishery Director, Mr. S. T. Bastedo, that the season opens too early. They hold that on the 18th of June, the date of opening, the fish they catch have not yet spawned. Mr. Bastedo has stated that the North American Game and Fish Protective Association investigated this very subject at its recent meeting and recommended that the close season for bass be extended to July 1st. This view of the case has been laid before the Dominion Government, and it is understood that the fish will be protected until the first of July in future years.

For over half a century hunters and sportsmen have used Buckhorn sights on their rifles, which do not permit of any side adjustment for drift or windage, while for elevation the steps are very coarse, impossible of being finely adjusted. Many rifles are condemned by shooters because they do not get satisfactory results, when in most cases it is the fault of the sights not being properly aligned.

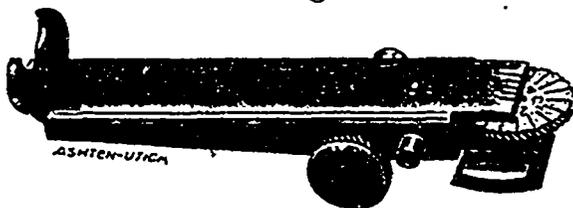
Owners of rifles continually write to the manufacturers, stating that their rifles are inaccurate, complaining that they shoot to the right, or to the left, or too low, etc. If such rifles make close groups of shots they are accurate rifles, and all that is necessary is to adjust the sights to bring the group of shots to any desired location.

Every user of a rifle should finally adjust the sights to suit his own eyesight and particular cartridge he intends to use. However carefully rifles may be sighted and adjusted in the factory, it is a well known fact that the eyes of no two persons are focused exactly alike, therefore to secure the most perfect re-

sults it is necessary for the user himself to finally adjust his sights.

This sight is constructed for Savage, Winchester, Marlin, Colt, Remington, and all rifles having a rear slot in the barrel. We furnish the sight with straight top, without the buckhorns, if so desired.

The new Savage Micrometer Sight is the invention of Arthur W. Savage, the inventor of the Savage Rifle. It is sci-



entifically designed, being the result of much practical shooting experience. Every part of the sight is well constructed of the finest materials; strong and simple. It can be adjusted in any direction to ONE THOUSANDTHS OF AN INCH, and has considerably more elevation than the regular Buckhorn sights. All adjustments are obtained by finely threaded screws, this being the only perfect method for adjusting sights.

Some people lose a lot of fun just through not knowing things. They hang around districts long ago shot and fished out, when a few hours travel would carry them to where their perseverance would meet with an adequate reward. Others, again, take long journeys when a comparatively short one would better meet the exigencies of the case. As an instance in point: A few weeks ago a party of sportsmen left Los Angeles, California, for Minnesota, whither they were bound on a fishing expedition. These unfortunate persons travelled by way of Seattle and the main line of the Canadian Pacific Railway through to their destination, and by so doing left behind, without exception, the best fishing region in the world. To attempt to compare the fishing to be found in Minnesota to the fishing to be enjoyed in British Columbia would be a waste of time. In British Columbia, you have the rainbow trout,

the black spotted trout, the great lake trout, the steelhead, and down at the mouths of the rivers the coloe and quinnat salmon, and alongside this list the fish found in the shallow lakes of Minnesota make but a poor showing.

Why is it that sportsmen, who, as a rule, are a most intelligent class, fail to learn where they can get the greatest amount of enjoyment at the least trouble and at a minimum of expense? We understand that these Los Angeles fishermen, who belonged to a club known as the "Mississippians," seem to have wandered about the west without any definite aim in the first instance, and by an unfortunate chance ran across a genial idiot in Victoria, who told them that British Columbia trout did not bite, and, then without testing the truth of this weird statement, these gentlemen travelled further and without doubt fared worse.

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

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The preservation of the forests for their influence on climate, fertility and water supply; the exploration of the public domain and the reservation for timber production of lands unsuited for agriculture; the promotion of judicious methods in dealing with forests and woodlands; re-forestation where advisable; tree planting on the plains and on streets and highways; the collection and dissemination of information bearing on the forestry problem in general.

ROD AND GUN is the official organ of the Association, which supplies the articles relating to Forestry published therein.

This Association is engaged in a work of national importance in which every citizen of the Dominion has a direct interest. If you are not a member of the Association your membership is earnestly solicited.

The annual fee is \$1.00, and the Life Membership fee \$10.00.

Applications for membership should be addressed to the Treasurer,

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CANADIAN BIG GAME

THE time for the turning of the leaf will soon have come: the velvet on the antler is peeling in long strips, leaving a clean horn the color of buckskin. Then the law will permit the shooting of the moose, caribou and deer—and wouldn't you care for a head or two yourself?

Well, why not try Quebec, Ontario, Manitoba, or some other of the sisterhood of the Canadian Provinces? By such a choice you would probably be successful beyond your expectations, as many others have been. Only the other day a well-known physician of Winchester, Ky., wrote: "I met you last summer at Hotel Bellevue, Timiskaming, and you kindly located a camping party for me on Ostaboining where they had fine sport, getting several moose, deer and fine fishing. I wish to get some information regarding, etc."

Equally trustworthy information is **AT YOUR DISPOSAL**. Ontario has thrown open her jealously guarded big game preserves, the shooting of moose, caribou and deer being now permitted from October 15th to November 15th north of the main line of the Canadian Pacific Railway, from Mattawa to Port Arthur, a region enormous in extent and carrying a heavy stock of game.

The great province of Quebec yet holds its own as the home of vast quantities of deer, and the giant bull moose bathes and feeds in the great Lake Kipawa as of yore. Last Autumn a head obtained in this region by a Montreal sportsman spanned 62 inches. The Gatineau, an important tributary of the Ottawa, flows through one of the best deer ranges of the continent, while the Lièvre, Rouge and Nord drain similar and almost equally well-stocked regions.

Further east the St. Maurice, a stream 400 miles from source to mouth, traverses a land of rock and barren which the moose, the caribou and the bear find very much to their tastes.

Manitoba is as noted for its moose as for its duck and chicken, and those who can spare the time may ensure a successful hunt by visiting the Prairie Province. Beyond lie the Territories and British Columbia, with their hundreds of thousands of square miles of plain, forest and mountain, offering unsurpassed hunting for moose, elk, blacktail, sheep, goat and grizzly.



For further information write to any officer or agent of the

Canadian Pacific Railway

Or to the GENERAL PASSENGER DEPARTMENT, MONTREAL, QUE.

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