

THE CANADIAN MAGAZINE

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DOWN THE YUKON. By Wm. Ogilby, F.R.S.

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DOWN THE YUKON AND UP THE MAGKENZIE.

3,200 Miles by Foot and Paddle.

BY WILLIAM OGHVIE, D.L.S., F.R.G.S.

..... The land where the clouds love to rest,
Like a shroud of the dead on the mountain's
cold breast,

To the cataract's roar, where the eagles reply,
And the lake its lone bosom expands to the
sky.

—Rob Roy.

PROBABLY no great international commercial transaction of modern times approaches more nearly to the perfect ideal of a "pig-in-a-poke" bargain than the sale and transfer of the great unknown country of Alaska by the Russian Government to the United States in the year 1867; not merely the purchaser, but the seller also, in this case, being in almost entire ignorance of the value of the treasure so unceremoniously exchanged for seven and a quarter million dollars' worth of old gunboats belonging to the people of the United States. The hydrographic chart made by the Russian Government in the early part of the century was known to represent the coast line with reasonable accuracy; but no exploratory survey of the interior was ever undertaken by the Russians; nor has any such survey been subsequently contemplated by the Government of the United States. All that is known of the interior of Alaska and the adjacent country—and this knowledge is meagre and scanty in the extreme—has been gathered from the lips and pens of the few Arctic travellers who, animated with the commendable ambition of the noble lord of high degree of the old ballad, have gone abroad determined "strange countries for to see," and who have returned, from time to time, to astonish civilization with an *experto crede* account of its trackless, frozen, solitary wastes.

The present article, however, deals only casually and incidentally with

Alaska, but mainly with the adjacent British territory, which, aside from certain lines of travel, may also be said to be a *terra incognita*. To within a few years ago a great unexplored solitude extended to the eastward between the valleys of the Upper Yukon, or Lewes, and the Mackenzie, and from the 60th parallel of latitude northward to the shores of the "frozen ocean." This extensive region is known as the Yukon country, a name rendered appropriate by the fact that it is drained by the Yukon river and its tributaries, which form one of the great river systems of the world. A general account of the exploration of a portion of this great area is the subject of the present article.

Walled in by high mountains, and in consequence unapproachable from every side, it is not strange that the Yukon district should so long have remained in almost undisturbed seclusion. Had it not been for the fact that the rich metalliferous belt of the Coast and Gold Ranges passes through the district from one end to the other, the probability is that it would still have remained unexplored for many years to come.

Only four gates of approach to the district exist, and, strangely enough, these are situated at the four corners. From the north-west, access is gained to the country by following the Yukon from its mouth in Behring Sea; from the north-east, by crossing from the Mackenzie to the Porcupine, and following down the latter stream to its confluence with the Yukon; from the south-east, by ascending the Liard from Fort Simpson and crossing the watershed to the head waters of the Pelly; and finally, from the south-west, by en-

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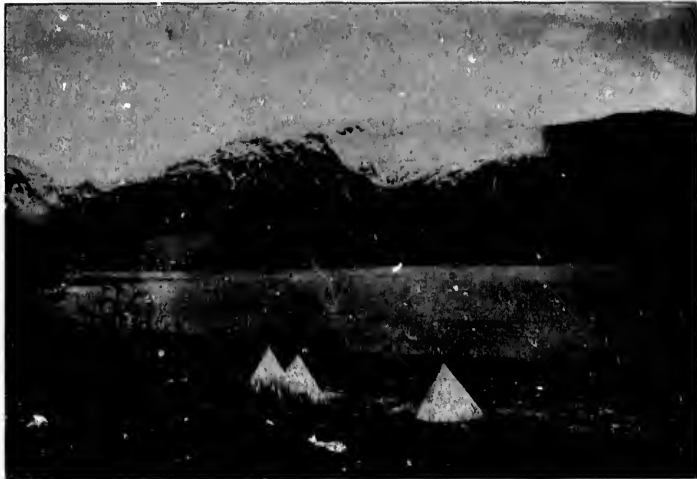
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tering where the Coast Range is pierced by the Chilkoot and Chilkat Passes.

As a matter of fact, all these routes are beset with difficulties, and when it

the source of the Lewes River to Nuklikahyet, continuing his journey from this point to the sea by boat.

The object of this expedition was to



CHILKOOT INLET.

is remembered that there are only four roads into a region three times greater in extent than the total area of the New England States, it is not to be wondered at that the total population of the region should consist of a few scattered Indian families and a hundred or so of hardy miners.

Occasional contributions to our knowledge of the district have been made from time to time for at least half a century, mainly by officers of the Hudson's Bay Company, miners and employes of the abandoned Telegraph Expedition; and skeleton maps of the interior have been constructed in accordance with the topographical data, so far as known.

Among recent expeditions that of Lieut. Swatka, of the United States Army, in the summer of 1883, may be mentioned. Entering the country by the Chilkoot Pass, Lieut. Swatka floated down the Yukon on a raft from

examine the country from a military point of view, and to collect all available information with regard to the Indian tribes. We are indebted to it also for a great deal of general information with regard to the country. Swatka, who seems to have gone through the country with his eyes open, used the explorer's baptismal privilege freely, and scattered monuments of Schwatkian nomenclature broadcast throughout the land, rechristening many places that had already been named, and doing so too in apparent indifference to the fact that many of the names thus set aside had an established priority of many years. Of Swatka's two subsequent expeditions to Alaska in the interests of a New York newspaper syndicate, very little need be said; little, indeed, seems to have been accomplished beyond taking a huge slice of a thousand feet or more off the top of Mount St. Elias,

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without any reason whatever being assigned for this stupendous act of vandalism. This, however, may be said to be aside from our subject, as no one seems to know whether the mountain thus obtruncated is in Canada or not, and until this point is settled no one need feel aggrieved.

In the year 1887, mainly in consequence of numerous applications for mining locations, the attention of the Canadian Government was directed to the gold areas along the Yukon River and its tributaries, which were said to be particularly rich and extensive in the vicinity of the international boundary, and an expedition was determined upon to explore this region. The expedition was entrusted to me.

On the evening of the 2nd of May I reached Victoria, B.C., and at once set about making preparations to start by the monthly mail steamer which was advertised to leave on the 9th. The vessel did not arrive, however, until the 12th. I then found that she was much overloaded, and it was with some difficulty that I persuaded Captain Hunter to consent to take my outfit, which weighed about six tons, and under the circumstances it was a real act of kindness for him to do so. Owing to the heavy load we made slow progress, and it was not until the 18th of May that we reached Fort Wrangell, at the mouth of the Stickeen River. Dr. Dawson, of the Geological Survey staff, landed here, his proposed route lying along the Stickeen, Dease, Upper Liard and Francis rivers, crossing the Arctic and Pacific watershed, descending the Pelly, and returning to the coast by the Lewes—a circuit of about thirteen hundred miles. Before parting with Dr. Dawson I arranged to meet him at the confluence of the Pelly and Lewes or Yukon about the 20th of July following.

The part of the journey between Victoria and Chilkoot Inlet has been so much written of, talked of and pictured during the last few years that I will repeat only one of the many state-

ments made concerning it—that, though it is in ocean waters and can be traversed by the largest ships, it is so sheltered by countless islands from the gales and waves of the vast Pacific, nearly the whole of the length, that its waters are always as smooth as those of a large river. In marked contrast to this is the west coast of the United States, where harbors are like angel's visits.

On the 24th of May I arrived at Chilkoot Inlet and here my work began. The first news I received on landing, and at the very outset of the expedition, was that there was serious trouble with the Indians in the interior on the Lewes River. A miner who had recently arrived from the scene of the alleged disturbance, stated that there had been a fight between the Indians and the miners, at the mouth of the Stewart River. A circumstantial account of the affair was given. The result, as alleged, was that four Indians and two white men had been killed, and that the Indians had come up the river as far as the Cañon to lie in wait for any white men who might be going into the country. I did not have an opportunity of questioning this man, as he had gone to Juneau City the day before I arrived. The rumor seemed to me improbable; but, true or false, it was an unpleasant one to hear, and it must be confessed that it had a somewhat discouraging and deterrent effect upon some members of the party. As there was no means either of verifying or disproving the rumor, I decided to go on. If the Indians in the interior were hostile, I had no doubt I would not long be in ignorance of the fact.

Chathan Strait and Lynn Channel lie in almost a straight line, and during the summer there is nearly always a strong wind blowing up them from the sea. At the head of Lynn Channel are Chilkat and Chilkoot Inlets. The distance down these channels to the open sea is about three hundred and eighty miles and along

the whole extent of this the mountains on each side of the water confine the incoming currents of air and deflect inclined currents in the direction of the axis of the channel. Coming from the sea, these air currents are heavily charged with moisture, which is precipitated when they strike the mountains, and the fall of rain and snow is consequently very heavy. I was unfortunate enough to have three days of the wettest kind of wet weather, so that I could do nothing in the way of commencing the survey. During the delay, myself and party were employed in making preparations for carrying the instruments, provisions and other baggage up to the head of Taiya Inlet, a distance of twenty and a half miles. This was accomplished by securing the services of two boats, belonging to a trader, which were towed to the head of the Taiya Inlet by the little United States gunboat "Pinta," to the commander of which (Captain Newell) I owe a debt of gratitude for his very obliging and attentive treatment of myself and party. The "Pinta" is not properly speaking a gunboat, but simply an iron tug overhauled and made to do duty as one. She carries two brass guns, one small gatling and a crew of thirty men, and although she is a slow sailer, not being able to make more than seven knots an hour, she manages to uphold the dignity of the stars and stripes and to make herself thoroughly respected along the coast. The Indians are especially afraid of her shells, which they call "the gun that shoots twice."

The latitude and longitude of Pyramid Island were fixed by a party sent out by the United States Coast Survey to observe an eclipse of the sun, August 7th, 1869. Beginning at this point I carried the survey over to Haines Mission; then along the west side of Chilkoot Inlet to Taiya Inlet and up to its head.

Under the Anglo-Russian Convention (1825) the inland boundary of the south-eastern coast strip of Alaska is

declared to be "the summit of the Coast Range," or "a line ten marine leagues from the sea." Much depends upon the meaning assigned to these phrases, and, as the location of the boundary is one of the questions of the near future, it is important for both governments to be in possession of all possible information. The attitude and locations of some of the highest peaks around the head of Taiya Inlet were therefore determined. The highest visible from Taiya Pass proved to be some six thousand two hundred and nineteen feet above the mean sea level.

Taiya Inlet has evidently been at one time the valley of a large glacier. Its sides are steep and smooth, and evidences of well-defined glacial action abound on every side. From a high ledge of polished rock on the west side, looking back and down, I caught my last glimpse for years of the broad bosom of the great Pacific shining like molten gold in the level rays of the setting sun. Light clouds drifted across the picture and before I turned away from its contemplation it was completely veiled from view.

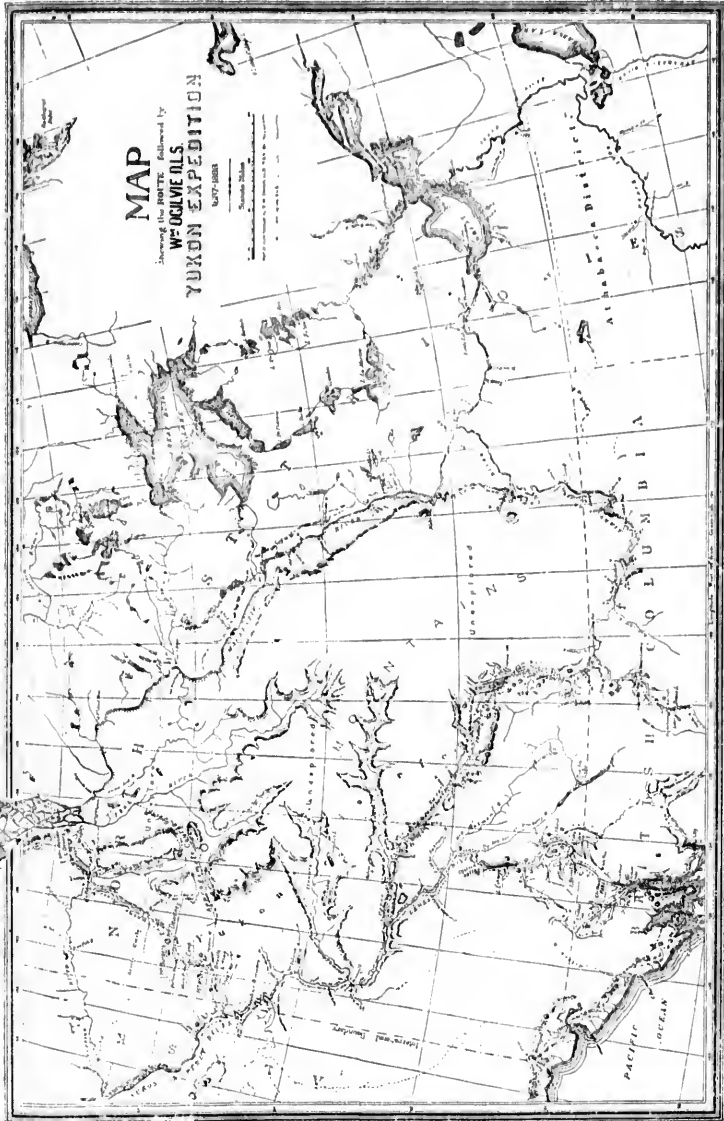
At the head of the inlet preparations were commenced for taking the the impedimenta over the Coast Range to the head of Lake Lyndeman on the Lewes River. Commander Newell kindly aided me in making arrangements with the Chilkoot Indians, and did all he could to induce them to be reasonable in their demands. This, however, neither he nor anyone else could accomplish. They refused to carry to the lake for less than twenty dollars per hundred pounds, and as they had learned that the expedition was an English one, the second chief of the tribe recalled some memories of an old quarrel which they had had with the English many years ago, in which an uncle of his had been killed, his idea being to obtain indemnity for the loss of his uncle by charging an exorbitant price for our packing, of which he had the control. Commander



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Newell told him I had a permit from the Great Father at Washington to pass thro' his country in safety, and that he would see that I did so. After much talk they consented to carry our stuff to the summit of the range for ten dollars per hundred pounds. This is about two-thirds of the whole distance, includes all the climbing and all the woods, and is by far the most difficult part of the way.

My outfit consisted of two canoes, scientific instruments weighing about seven hundred pounds, camping requisites, tents, clothing, provisions for eight men for two years, carpenters' tools, nails and spikes suitable for building a boat or a house, and, last but not least, might be included about six thousand dollars in gold and silver coin for current expenses, as none of the Indians in the interior will take paper money. I had, in all, exclusive of what was taken over by myself and party, one hundred and twenty packs, ranging in weight from forty to one hundred and fifty-six pounds; and on the morning of the 6th June one hundred and twenty Indians—men, woman and children—started for the summit with them. I sent two of my party on to see the goods delivered at the place agreed upon. Each carrier, when given a pack, received also a ticket, on which was inscribed the contents of the pack, its weight, and the amount the individual was to get for carrying it. They were made to understand that they had to produce these tickets on delivering their packs, but were not told for what reason. As each pack was delivered, one of my men receipted the ticket and returned it. The Indians did not seem to understand the import of this; a few of them pretended to have lost their tickets, and, as they could not get paid without them, my assistant, who had duplicates of every ticket, furnished them with receipted copies after examining their packs.

While they were packing to the summit, I was producing the survey, and

I met them on their return about eight miles from the coast, where I paid them. They came to the camp in the early morning before I was up, and for about two hours there was quite a hubbub. When paying them I tried to get their names, but very few of them would give any Indian name, nearly all, after a little reflection, giving some common English name. My list contained little else than Jack, Tom, Joe, Charley and so on, some of which were duplicated there and four times. I then found why some of them had pretended to lose their tickets at the summit. Several who had thus acted presented themselves twice for payment, producing first the receipted ticket and afterwards the one they claimed to have lost, demanding pay for both. They were much surprised when they found that their duplicity had been discovered. While paying them I was a little apprehensive of trouble, for they insisted on crowding into my tent, and for myself and the four men who were with me to have attempted to eject them would have been the height of folly. I am strictly of the opinion that these Indians would have been much more difficult to deal with if they had not known that Commander Newell remained in the inlet to see that I got through without accident.

These Indians are perfectly heartless. They will not render even the smallest aid to each other without payment; and if not to each other, much less to a white man. I called one of them (whom I had previously assisted with his pack) to take me and two of my party over a small creek in his canoe. After putting us across he asked for money, and I gave him a half a dollar. Another man stepped up and demanded pay, stating that the canoe belonged to him. To see what the result would be, I gave him the same amount. Immediately there were three or four more claimants for the canoe. I dismissed them with my blessing and made up my

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Down Taiya Pass flows a small river, the Dayay of Schwatka, navigable for canoes to about six miles above the mouth: above this the current is too swift and rough for boats, and everything intended for the interior has to be carried over the mountains on men's backs, a distance of about seventeen and a half miles. The Pass is heavily wooded to within about two miles of the summit; and getting through these woods, especially with the canoes, was a matter of patience and Christian forbearance.

There is only one really dangerous spot, however,—where the little river runs between perpendicular, or rather overhanging, rock banks. The path for a little distance runs close to the brink, and a misstep here would precipitate one some three hundred feet to the bed of the stream below.

The river has to be crossed three or

four times in the Pass, and as the water, flowing from the glaciers above, is ice cold, it will never be resorted to as a bathing place. The lowest crossing is about thirty yards wide, and the current is so strong that unless one has a load on his back he can hardly stand on his feet. The Indians when crossing carry a stout stick which they use as a prop while making a step. The women, while fording the stream, tie their skirts up very high and use their sticks as dexterously as the men. Before my canoes came up to this point I had to cross twice; the second time while I was very warm from clambering down the steep side of a hill thirteen hundred and sixty feet high. To people living in ordinary conditions, this would seem dangerous, but no ill effects resulted to me from my cold bath.

From the timber line to the summit, the slope is easy and uniform, with the exception of one steep bit, in which there is a rise of five hundred feet in about as many yards. When packing over the Pass, the Indians, if



HAINES MISSION—THE INDIAN SCHOOL.

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From the timber line to the summit, the slope is easy and uniform, with the exception of one steep bit, in which there is a rise of five hundred feet in about as many yards. When packing over the Pass, the Indians, if

with comparative ease. On the very steep places they cut holes in the crust with a small hand axe, and help themselves up with their hands; otherwise, with heavy loads on their backs, they could not get up. When the snow is soft they use a stick which they push vertically into the snow and pull themselves up by it.

I have read somewhere of red snow being seen in this region; so it is, but it is only snow covered with a vegetable juice. When I first saw it I was surprised at the confirmation of the statement I have alluded to; but soon noticed that it was confined entirely to the line of travel. This led me to examine it more closely, when I found that it was caused by the juice of a berry which grows on a ground vine at the head of the timber limit. When pressed, this berry gives out a purple juice, which by dilution shades down into a pale pink. This juice is absorbed by the leather of the Indian's moccasins as he tramps on the berries, and afterwards stains the snow as he travels over it. This, by the heat of the sun and the action of gravity on the hill side, is distributed over a wide space, compared with the track, and is visible after all sign of the track is gone. The red snow of the arctic regions is in part due to vegetable coloring matter. Might not some at least of the instances recorded in which the phenomenon has been observed be traceable to a similar source?

Before proceeding any further, a word with regard to the party may not be out of place. Morrison and Gladman were my lieutenants, and I deem myself peculiarly fortunate to have been so ably seconded. Parker and Sparks the basemen, were both expert canoeists and the expedition owes much to their skill with the paddle. These, with myself, made up a permanent party of five. Two men were picked up at Victoria for the summer of 1887, and Captain Moore, who was going into the country on his own account, was attached to the party for a short time.

The captain is an old-timer. Everybody on the coast from Frisco to Unalaska knows Bill Moore. He is a Hanoverian by birth, but has knocked about the Pacific Coast ever since he can remember. He excels as a storyteller, and many queer stories are also told about him. The captain is one of those easy-going, good-natured but unfortunate individuals, who have a standing grievance against the law of the land, and on whom its heavy arm seems to be continually beating, in a small way it is true, but with monotonous regularity, and apparently with but indifferent beneficial results. Not bold enough to go entirely beyond the charmed circle, and not clever enough to keep just within it, the captain's relations with the executive authorities of the Dominion and of the republic were so strained at all times as to threaten rupture at any moment. An account of the adventures of the little "Western Slope," on board of which, as he says, he had to keep a "tam staff of lawyers" to keep her afloat, and for whom there was "some volverine of a sheriff or customs officer" waiting at every port, would fill a volume in itself. The captain, notwithstanding his little failings, has many excellent qualities and a genuine hearty humor about him that freshened the tired spirits of the party like a spray from a salt sea-breeze blowing inland. His dialect and his peculiar opinions of men and things—always expressed with the emphatic dogmatism of matured consideration—chased dull melancholy from many a wet day's camp.

The captain had a couple of boy-mining in the interior at Cassiar Bar, whom he had believed to have "struck it rich," and his object in going down the river was to visit them and help to take care of their good fortune. His paternal solicitude for those boys was highly commendable, and bright visions of prospective wealth made the old man doubly anxious to hurry on and impatient of the least delay.

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But to return to our mutton. After completing the survey down to the lake, I set about getting my baggage down. This proved no easy task. Of all the Indians who came to the summit with packs, only four or five could be induced to remain and pack down the lake, although I was paying them at the rate of four dollars per hundred pounds. After one trip down, only two men remained, and they only in the hope of stealing something. One of them appropriated a pair of

on snow blindness, the intolerable pain of which only those who have suffered from this complaint can realize. I had two sleds with me which were made at Juneau city specially for the work of getting over the mountains and down the lakes on the ice. With these I succeeded in bringing about a ton and a half to the lakes, but I found that the time it would take to get all down this way would seriously interfere with the programme arranged with Dr. Dawson, to



LOOKING DOWN TAIYA INLET.

boots and was much surprised to find that he had to pay for them on being settled with. I could not blame the Indians much for not caring to work, as the weather was stormy and disagreeable—raining or snowing almost continuously. After they had left, I tried to portage the stuff with the aid of my own men, but found it slavish labor, and after the first trip one of them was laid up with what appeared to be inflammatory rheumatism. The first time the party crossed, the sun was shining brightly, and this brought

say nothing of the suffering of the men and myself from snow-blindness, and the liability to sickness to which we were exposed by protracted physical exertion under such unfavorable conditions. I had with me a white man who lived at the head of the inlet with a Tagish Indian woman. This man had considerable influence with the Tagish tribe, the greater number of whom were then in the neighborhood where he resided, trying to get some odd jobs of work, and I sent him to the head of the inlet to endeavor to

induce the Tagish Indians to undertake the transportation, offering them five dollars per hundred pounds. In the meantime, Captain Moore and the Indian "Jim," who had been, by my direction, exploring a low-level pass to the south, which I have named White Pass, had rejoined me. I had their assistance for a day or two, and "Jim's" presence aided indirectly in inducing the Indians to come to my relief.

The Tagish are little more than slaves to the more powerful coast tribes, and are in constant dread of offending them in any way. One of the privileges which the coast tribes claim is the exclusive right to all work on the coast or in its vicinity, and the Tagish are afraid to dispute this claim. When my white man asked the Tagish to come over and pack, they objected on the grounds mentioned. After considerable ridicule of their cowardice, and explanation of the fact that they had the exclusive right to all work in their own country—the country on the north side of the coast range being admitted by the coast Indians to belong to the Tagish tribe—just as the coast tribes had the privilege of doing all the work on the coast side of the mountains, and that one of their number was already working with me unmolested, and likely to continue so, nine of them came over, and in fear and trembling began to pack down to the lake. A few days later some of the Chilkoots came out and also started to work.

I was now getting my stuff down quite fast; but this good fortune was not to continue. Owing to the prevailing wet, cold weather on the mountains, and the difficulty of getting through the soft snow and slush, the Indians soon began to quit work for a day or two at a time, and to gamble with one another for the wages already earned. Many of them wanted to be paid in full, but this I positively refused, knowing that to do so was to have them all apply for their earnings

and leave me until necessity compelled them to go to work again. I once for all made them distinctly understand that I would not pay any of them until the whole of the stuff was down. As many of them had already earned from twelve to fifteen dollars each, to lose which was a serious matter to them, they reluctantly resumed work and kept at it until all was delivered: this done, I paid them off and set about getting my outfit across the lake, which I did with my own party and the two Peterborough canoes.

After getting all my outfit over to the foot of Lake Lyndeman, I set some of the party to pack it to the head of Lake Bennett. The stream between these two lakes is too shallow and rough to permit of canoe navigation, and everything had to be portaged the greater part of the way. I employed the rest of the party in looking for timber to build a boat to carry the outfit down the river to the vicinity of the International Boundary, a distance of about seven hundred miles. It took several days to find a tree large enough to make planks for the boat I wanted, as the timber around the upper end of the lake is small and scrubby. To give an idea of its scarceness I may state that a thorough search was made around the head of the lake and over ten miles down it, and only one tree was found suitable for my purpose. This tree made four planks, fifteen inches wide at the butt, seven at the top, and thirty-one feet long. Such other planks as we wanted had to be cut out of short logs, of which some, ten to fourteen inches in diameter and ten to sixteen feet long, could be found at long intervals. The boat required only four hundred and fifty feet of plank for its construction, yet some of the logs had to be carried a long distance, and two saw-pits had to be made before that quantity was procured; and this on ground that was all thickly wooded with spruce, pine and some balsam, the latter generally the largest and cleanest-trunked.

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A gravelly spot on the shore was selected and the boat built bottom up. As she approached completion a good deal of speculation was indulged in as to how she was to be turned. The united strength of the party was insufficient for the purpose, and even if it had been sufficient the shock she

captain walked around her admiringly, and was good enough to admit that that was one way to turn a boat, but at the same time he was convinced that it was not the right way.

The boat, as completed, measured thirty-two feet in length by eleven feet beam, and was thirty-two inches



CHILKOOT INDIANS, TAIYA INLET.

would have received in going over deep. A new difficulty now presented itself. The entire party were of the opinion that she was not big enough to carry her load, and to satisfy them, before she was launched I calculated her weight and found that loaded she would float with fourteen inches free-board. The captain laughed derisively when I marked her *load-line* on her side, and he insisted that in spite of all calculations, that loaded she would sink. When put into the water she floated well up, however, and as the men began to load her for her venturesome trip, the captain watched that line sink lower and lower until it just touched the water—and there it remained. He then gave vent to his astonishment in language more vigor-

The captain watched these mysterious preparations with considerable interest. When all was ready a lift and a shove from the united party was all that was necessary, and she turned without strain, coming up on the sloping gravel bank on her side. The cap-

tain walked around her admiringly, and was good enough to admit that that was one way to turn a boat, but at the same time he was convinced that it was not the right way.

ous than choice, declaring that he had been "for near forty year on de coast and never saw noding like dat before!"

The captain was so proud of the boat and of his share in building her that he insisted she should be named; and, as the story-writers say, "thereby hangs a tale."

The Tes-lin-too, or Newberry, River marks the point on the main stream where gold in placer deposits begins to be found. Dr. Dawson called this stream the Tes-lin-too, that being, according to information obtained by him, the correct Indian name. Schwatka, who appears to have bestowed no other attention upon it, dubbed it the Newberry; but whatever its name on the maps of the future may be, it will never be known by any other name among the miners in there than the Hootalinkwa.

A number of miners, the captain's boys among them, had prospected the Hootalinkwa and reported it rich in placer gold. Such reports, of course, grow rapidly from mouth to mouth—the error being cumulative, so to speak—and by th time the report had reached the captain the Hootalinkwa was a perfect El Dorado. The old man was never tired of conjuring up bright visions of the happy days ahead when we should "get down to de Hoodalinka and scoop up de gold by de bucketful."

"I tell you what it is, boys," he would say, "de Hoodalinka is de place for us. De gold is dere, sure, and every bar on dat river is a reg'lar jewel'ry shop. Now, I tell you dat." And so on from morning until night the captain built his air-castle, until "de Hoodalinka" became a by-word among us. When, therefore, the subject of naming the boat came up it was suggested that out of respect for the captain she should be named "de Hoodalinka," and by common consent and amid much merriment (we had not the traditional bottle of wine, unfortunately) the "Hoodalinka" was accordingly named. The two Peterborough canoes,

also, came in for a christening at the same time, while we were in the humor, the longer one being known as the "Mackenzie" and the other as the "Yukon."

While on Lake Bennett, building our boat, I found an extensive ledge of auriferous quartz, the assay of which, however, shewed that it contained only traces of gold. The ledge is sixty to eighty feet wide, and can be easily traced on the surface for three or four miles. A small creek cuts through it about a mile from the lake, and in this creek are found colors of gold.

My boat was finished on the evening of the 11th of July, and on the 12th I sent four of the party ahead with it and the outfit to the Canon. They had instructions to examine the Canon and, if necessary, to carry a part of the outfit past it; in any case enough to support the party back to the coast, should accident necessitate such procedure. With the rest of the party I continued the survey on the lakes; this proved tedious work, on account of stormy weather. In the summer months there is nearly always a wind blowing in from the coast; it blows down the lakes and produces quite a heavy swell. This would not prevent the canoes going with the decks on, but, as we had to land every mile or so, the rollers breaking on the generally flat beach proved very troublesome. On this account I could not average more than ten miles per day on the lakes—little more than half of what could be done on the river.

Navigation on the Lewes River begins at the head of Lake Bennett. Above that point and between it and Lake Lyndeman there is only about three-quarters of a mile of river, and that is narrow, shallow, swift and rough. Many small streams issuing directly from the numerous glaciers at the heads of the tributaries of Lake Lyndeman feed this lake and make it the head fountain of the Lewes. It is a pretty little strip of water, about five miles in length, nestling

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among grey-green granite hills, which are here and there clothed, down to the gravelly beach, with dwarf spruce and pine.

Lake Bennett is about five times as long and, like all the lakes of the district, narrow in proportion to its length. About midway comes in from the east an arm which Schwatka appears to have mistaken for a river and named Wheaton River. This arm, down to that point, is wider than the other; it is also reported by the Indians to be longer and to head in a glacier which lies in the Chilkoot Pass. As far as seen, it is surrounded by high mountains, apparently much higher than those on the arm we travelled down. Below the junction of the two arms

the flat, shelving beach at the lower end of the lake, apparently reaching the Canon, or to a short distance above it. The bottom of this valley, which looks like an ancient river course, is wide and sandy, and covered with scrubby poplar and pitch-pine timber. The waters of the lake empty through a channel not more than one hundred yards wide, which soon expands into what Schwatka called Lake Nares. Through this channel there is quite a current, and more than seven feet of water, as a six foot paddle and a foot of arm added to its length did not reach the bottom.

Lake Nares, the smallest and most picturesque of this chain of northern lakes, is separated from Lake Bennett



SUMMIT OF TAIYA PASS.

the lake is about a mile and a half wide, with deep water. At the south-west corner there flows into the lake a muddy glacier-fed stream, which at its mouth has shoaled a large portion of the lake. A deep, wide valley lying between regularly terraced hills, extends northward from

by a sandy shallow point of not more than two hundred yards in width, and from Tagish Lake by a low, swampy, willow-covered flat, through which the narrow, curved channel flows. The hills on the south-west slope up easily, and are not high; on the north the deep valley, already referred to,

borders it; and on the east the mountains rise abruptly from the lake shore,

About two miles from its head, Tagish Lake is joined by what the miners have called the Windy Arm (one of the Tagish Indians informed me they called it Takone Lake); and eight miles farther on the Tako Arm enters from the south. This arm, which is about a mile wide at its mouth or junction, must be of considerable length, as it can be seen for a long distance, and its valley can be traced through the mountains much farther than the lake itself can be seen. Except from reports from Indians, it is, so far, unknown, but it is improbable that any river of importance enters it, as it is so near the source of the waters flowing northward; however, this is a question that can only be decided by a proper exploration. Dr. Dawson seems to include the Bone Lake of Schwatka and these two arms under the common name of Tagish Lake. This is much more simple and comprehensive than the various names by which they have been heretofore designated. These waters collectively are the fishing and hunting grounds of the Tagish Indians, and, as they are really one body of water, there is no reason why they should not be included under one name. From the junction with the Tako Arm to the north end of the lake, the distance is about six miles; the greater part is over two miles wide. The west side is so flat and shallow that it was impossible in many places to get our canoes ashore, and quite a distance out in the lake there was not more than five feet of water. The members of my party who were in charge of the large boat and outfit went down the east side of the lake and reported the depth about the same as I had found on the west side, with many large rocks. They passed through it in the night in a rain storm, and were greatly alarmed for the safety of the boat and provisions.

The river, where it debouches from

the lake, is about one hundred and fifty yards wide, and for a short distance not more than five or six feet deep; this depth, however, soon increases to ten feet or more, and so continues down to Marsh Lake, a distance of about five miles.

On the east side of the river are situated the only Indian houses to be found in the interior with any pretension to skill in construction. They shew much more labor and imitateness than one knowing anything about the Indian in his native state would expect. The plan is evidently taken from the Indian houses on the coast, which appear to me to be a poor copy of the houses which the Hudson's Bay Company's servants build around their trading posts. These houses do not appear to have been used for some time past, and are almost in ruins. The Tagish Indians are now generally on the coast, as they find it much easier to live there than in their own country. As a matter of fact, what they make in their own country is taken from them by the coast Indians, so that there is little inducement for them to remain.

Marsh Lake is a little over nineteen miles long, and would average about two miles in width. The miners call it "Mud Lake," but on this name they do not appear to be agreed, many of them calling the lower part of Tagish or Bone Lake by this name on account of its shallowness and flat muddy shores, as seen along the west side, which, being more sheltered from the prevailing southerly winds, is the one generally travelled. The name, "Mud Lake," however, is not applicable to Tagish Lake, as only a comparatively small part of it is shallow or muddy; and it is nearly as inapplicable to Marsh Lake.

At the lower end of Marsh Lake, on a jutting point of land, are situated several Indian graves, each with its small enclosure (in which, with the dead man's bones, are deposited the few trinkets he may have possessed),

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and its long pole surmounted by fluttering many colored rags which appear to serve the double purpose of monument and scarecrow, attracting the reverent attention of human passersby, and at the same time frightening stray birds and prowling animals from the locality.

The Lewes River, where it leaves Marsh Lake, is about two hundred yards wide and averages this width as far as the Cañon.

From the head of Bennett Lake to the Cañon the corrected distance is

No streams of importance enter any of these lakes. A river, called by Schwatka McClintock River, enters Marsh Lake at the lower end from the east; it occupies a large valley, as seen from the westerly side of the lake, but the stream is apparently unimportant. It is not probable that any stream coming from the east side of the lake is of importance, as the strip of country between the Lewes and the Tes-lin-too is not more than thirty or forty miles in width at this point.



LAKE LYNDEMAN.

ninety-five miles, all of which is navigable for boats drawing five feet or more. Add to this the westerly arm of Bennett Lake and the Takone or Windy arm of Tagish Lake, each about fifteen miles in length, and the Tako arm of the latter lake, of unknown length, but probably not less than thirty miles, and we have a stretch of water of upwards of one hundred and fifty miles in length, all easily navigable, and connected with Taiya Inlet and the sea through the Chilkoot and White passes.

On the 20th of July we reached the Cañon and camped at its yawning mouth. I found that the party with the "*Hoodalinka*" had arrived there two days before, and, having carried a part of the supplies past it, were awaiting my arrival to run through with the rest in the boat. Before doing so, however, I made an examination of the Cañon and the rapids below it, incidentally keeping a sharp lookout for hostile Indians, as that was the place where they were said to be lying in wait. I was greatly relieved to find

that there were no Indians about, and no indication of a war party having recently camped in the vicinity.

While we were examining the Cañon, an enormous brown bear put in an appearance upon a rocky ledge above us about a quarter of a mile distant. His inspection of the party, though an exceedingly brief one, must have been entirely satisfactory to himself, for I never saw an animal turn and disappear more quickly than this particular bear did. The singing of a couple of bullets in close proximity to his awkward person no doubt helped him to a prompt realization of the decidedly bad character of the intruders.

Parker and Sparks were anxious to run the Cañon in their canoe. They both thought they had been through as rough water on the Saskatchewan, so, directing them to take a hundred



ON LAKE LYNDEMAN.

pounds of bacon for ballast, I sent them down with the *Mackenzie* to await the arrival of the boat and to be ready in case of an accident to pick us up. The

Mackenzie went through all right, but her occupants would not have liked to repeat the trip. They say the canoe jumped about a great deal more than they anticipated, and I had the same experience in going through in the boat.

The Cañon and rapids have been described in several articles by several parties, all agreeing in giving a more or less thrilling and dangerous character to them. That they are dangerous for small boats no one would deny, but that there is such terrible risk and such narrow escapes as have been reported is a delusion. I do not wish to deny any man any credit he may be entitled to for running through them on a raft or in a boat, but what I wish to decry is that any individual should consider and report himself a hero for having done something never before attempted, and in comparison with which a descent of Niagara would pale, if we were to estimate the daring of the feat by the amount of bosh used in describing it.

The only danger in the Cañon is in striking the sides; if one will keep in the channel he is safe, unless his boat is very small. I admit that the run through is exciting, and a person who had had his fears aroused by reading some of the highly-colored descriptions of it, more especially if he had no previous experience of the kind, might lose his head and run into danger, instead of out of it. The walls are perpendicular and high, and they seem to fly past, in the narrow channel, with a frightful roar, involuntarily recalling the sinister "Facilis est descensus Averni" of the Roman poet. Seated on a pile of stuff in the bow of the boat, I directed the helmsman with my arms, as speech was out of the question. The passage through was made in about three minutes, or at the rate of twelve and a half miles an hour. The only exciting episode in our trip was in the final plunge, where there are three heavy swells, each about five feet in height. The last of these broke

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over us in a blinding, drenching shower, from which the white, scared face of the cook looked up in an agony of sudden fear which I shall never forget.

ing thought it best to pray, and to their surprise found themselves safely through before they had finished either.



A TYPICAL SCENE BETWEEN LAKES LYNDEMAN AND BENNET.

The rapids, extending for a couple of miles below the Cañon, are not at all bad. What constitutes the real danger is a piece of calm water forming a short, sharp bend in the river, which hides the last or "White Horse" rapids from sight until they are reached. These rapids are about three-eighths of a mile long. They are the most dangerous on the river, and are never run through in boats except by accident. Parties always examine the Cañon and rapids below before going through, and on coming to the calm water suppose they have seen them all, as all noise from the lower rapid is drowned in that of the ones above. On this account several parties have run through the "White Horse," being ignorant of its existence until they were in it. It is related of two young French Canadians who ran into it in this way, that they hastily started to strip for a swim, but before finish-

These rapids are confined by low basaltic banks, which, at the foot, suddenly close in and make the channel about thirty yards wide. It is here the danger lies, as there is a sudden drop, and the water rushes through at a tremendous rate, leaping and seething like a cataract. The miners have constructed a portage road on the west side, and put down rollways in some places on which to shove their boats over. They have also made some windlasses with which to haul their boats uphill, notably one at the foot of the Cañon. This roadway and the windlasses must have cost them many hours of hard labor.

The only practicable way of getting the "Hoodalinka" through the "White Horse" was to let her down with a line; and as a precautionary measure I determined to make a couple of anchors for use in case she should become unmanageable in the rapid current. For

this purpose I selected two large pieces of conglomerate rock, weighing from two hundred to three hundred pounds each, which were lying near my camp on the shore, and began cutting grooves in them. While thus engaged the captain approached and inquired:

"What you doing here, Mr. Ogilvie?"

"Making a couple of anchors to help hold the boat back in letting her down the rapid to-morrow," I replied.

"Vell, dem anchors 'll hold de boat, sure. She won't get away—no mistake about dat."

I continued chipping away, but I could see that the captain was not satisfied with this expression of opinion, and, moreover, so favorable an opportunity for the display of his superior knowledge of river craft was not to be lost. He returned to the attack with—"What's de use making *tu* anchors, anyway, Mr. Ogilvie? I been on some pretty rough

does not we will have the other to heave after it."

Seeing that I was not to be persuaded, the captain walked off in supreme disgust.

The men were rather dubious about getting the "Hoodalinka" through the rapid without accident, and I was not surprised the next morning on looking round for volunteers to find only two within sight. The others had strolled off in various directions.

"Well, Charlie, are you coming with me?" I said.

Gladman, who had never flinched in the hour of danger, now hung back.

"I will go if you want me, Mr. Ogilvie," he said quietly, "but I consider that it is risking my life."

"Oh, well, if you think so you had better not come," I replied. "What do you say, Morrison?"

"I am ready to do what you say," he answered, but with evident reluctance.



ACROSS TAGISH LAKE—4.15 A. M.

waters, and I tell you dat one of dem rocks 'll hold de 'Hoodalinka' in mid-stream."

"Well, perhaps it will, but if one

"All right, then, get a pole and jump aboard."

Two more were added to the "Hoodalinka's" crew—Captain Moore and

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an Indian to help keep her clear;— and the other five men took the line on shore.

When all was in readiness, the little craft was poled out into the current, where she hesitated a moment, then gently slid towards the smooth brink of the rapid, dipped and shot downward like an arrow. The five men on shore were jerked forward, desperately clinging to the rope and yelling to me that they could not hold her. The first anchor went over with a big splash. The boat still gained headway. The second anchor was promptly heaved, but with no more effect than the first. The men by this time were up to their waists in water; the boat was fast becoming unmanageable, and, fearing a casualty either from the line breaking or from the men being dragged off their feet, I determined to run her into a little bay just ahead. By snubbing round a convenient tree on a little rocky point, and easing out the line, which was fortunately a long one,

the descent was arrested, but the tension was so great when the full strain came that the line twanged like a fiddle-string. For an anxious moment the "Hoodalinka" hung in mid-stream, the seething water breaking over her; then slowly she swung round into the bay. Here the line was cut and doubled, and by snubbing at every convenient point the boat was let down to the foot of the rapid.

When clear water was reached, *the two anchor-lines could be seen sweeping ahead, the masses of rock attached to them, by their momentum, actually dragging us forward.*

"What do you think of the anchors now, captain?" I said, pointing to the lines.

"Vell, Mr. Ogilvie," said the captain, pausing deliberately to give the utterance added weight, "I've seen strong currents—many a time—but I never before—saw a current—dat would roll along a two hundred pound lump of rock like a pebble."

(TO BE CONTINUED.)

TO E. PAULIN^T JOHNSON.

Down the river! down the river!
Hear her laughter ring and quiver,
'Mid the rocky walls and mountains
Of Thayen'inaga's home.
Hear the Indian maiden singing,
While the waters break and shiver
In a thousand silver arrows,
Into bubbles, into foam,
From her paddles and canoe.

Down the rapid—the wild water!
Hear the laughter
Brooks have taught her
Ring and mock the rushing water!
Moons have hid the silver traces
Of their fires in the river,
But the restless rapid's daughter
Scorns their brightness 'neath the surface,
Stealing all their hidden graces
For herself and her canoe.

PORT HURON, MICH.

—CHARLES EDWARD DEDRICK

THE FINANCIAL DEPRESSION IN AUSTRALASIA.

BY VORTIGERN.

THE unparalleled and unprecedented wave of financial depression sweeping over Australia and wrecking its banks is not without its lesson. One can form no idea of the dire disasters this merciless storm is causing. It is pitiful to behold the abject poverty existing everywhere, especially in Melbourne. Families that could write out cheques for \$1,000,000 four years ago are now without a cent to their names, and in the majority of cases liable to be called upon to give up to satisfy angry creditors any money they might possibly earn. There are at least 50,000 empty houses in Melbourne. Thousands of desperate and disappointed people would gladly leave Australia were it not for the great distance that separates them from the rest of the world, and for their inability to obtain the necessary money.

The continent of Australia is divided into five colonies :

	<i>Capital.</i>
Western Australia.....	Perth.
South Australia.....	Adelaide.
Queensland.....	Brisbane.
New South Wales.....	Sydney.
Victoria.....	Melbourne.

Adding the island colonies of New Zealand and Tasmania, we have also in Australasia :

	<i>Capital.</i>
New Zealand.....	Wellington.
Tasmania.....	Hobart.

Each has its own responsible government, consisting of an upper and a lower house, elected by the people ; and a governor appointed by the British Government. New Zealand, some few years ago, raised large loans in England, and plunged headlong into excessive expenses by building docks, railroads, bridges, large public buildings and other great enterprises that proved unremunerative. Reverses fol-

lowed, and the Bank of New Zealand suffered severely. Ten years ago the colony was at its worst ; but with the policy of retrenchment inaugurated, and an absolute stoppage of borrowing, combined with continued good harvests and a largely increased trade in frozen mutton with England, it is to-day in the most satisfactory financial condition of any of the colonies, its last budget showing a surplus of £200,000.

Western Australia is largely unexplored, and is quite a new colony ; so has had little or no chance to experiment much yet. South Australia is comparatively new, too, and although suffering in sympathy with the others, has not reached the sensational state they have. Queensland has been very heavily knocked by reckless plunging and the late gigantic floods that swept away over \$10,000,000 worth of property and left 20,000 people homeless.

Sydney, the capital of New South Wales, is over a hundred years old, and is in every respect a lovely city. The public buildings are very beautiful, but have been erected on capital borrowed in the "Old Country" in a most extravagant manner. Ugly rumours as to the colony's ability to repay these loans led to its inability to borrow freely. This brought about the lack of confidence and the comparative stagnation that has led to the failure in that city of a large number of small, though large-dividend-paying, financial concerns, founded on the most unsound principles.

Even in sleepy little Tasmania, which, to the visitor, would seem forever bathed in evening's twilight and tranquillity, failures followed each other quickly. The Bank of Van Diemen's Land, founded over fifty years ago, closed its doors in August, 1891, after

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which I have ever looked! A brief description may present to those who have not seen it, at least a faint idea of the work; the following note made at the time, will suffice:—"Upon the centre and to the left of the canvas stand a group of workmen, close to the furnaces in a large smelting shop—the upraised sinowy arm of the honest smithy guiding the molten metal from the fiery furnace—the anxious faces of the helpmates crowding about, and waiting as it were with breathless anxiety, the triumphs of the many days of preparation. It is masterly!" In the painter of that picture I see the future leader of the school of latter day art. But whatever change art may take in its course of national growth, whatever developments it may undergo, one thing is certain,—that future art must be true to the highest ideals of honest worth, of simple nature, and untainted beauty, if it is to receive the guerdon of a more than evanescent success.

A TEMPORARY MATTER.

Good-bye,—the word shall be, since you have spoken;
 Nor will I crown your verdict with a sigh,
 Nor ask for a reprieve; but, for a token,
 I'll take this last good-bye.

I'll take and treasure it, when it is given,
 The truest thing that ever you and I
 Exchanged or gave. Not all the vows 'neath Heaven
 Shall match this last good-bye.

Your kiss, your clasp, your vows, the hours that fleetly
 Fled by, shall be forgot—are now; but I
 Must have this little word. You shall not cheat me
 Out of this last good-bye.

Come, come—this last good-bye, since you did cry it!
 The stars lean half-impatient from the sky;
 And breathless all the air has grown, and quiet,
 To hear this last good-bye!

Tears? And a little hand stretched to detain me?
 Hold up your head and let me kiss your eyes;
 And set a seal upon your lips, not vainly
 Annulling such good-byes.

—CHARLES GORDON ROGERS.

DOWN THE YUKON AND UP THE MAGKENZIE.

3200 Miles by Foot and Paddle.

BY WILLIAM OGILVIE, D.L.S., F.R.G.S.

II.

A DETAILED account of our travels, extending over nearly two years and covering a distance outside of civilization of over three thousand miles, is impossible within the limits of the present article, and a connected narrative has therefore not been attempted.

The ordinary vicissitudes, adventures and hardships incident to travel in an unknown country were encountered, and are here and there briefly chronicled; but many incidents which relieved the daily round of life on the river have been crowded aside, and necessarily exist only as memories which are exclusively the traveller's own.

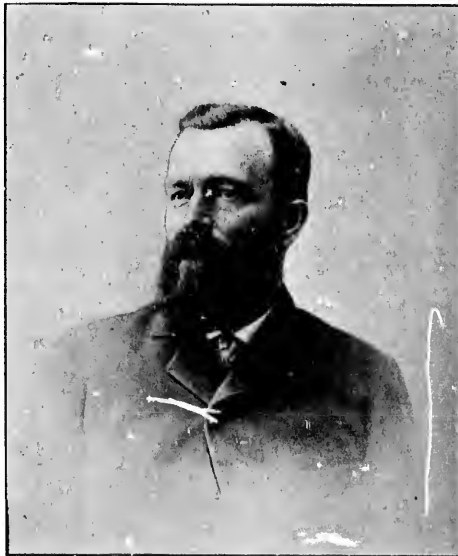
I am conscious that the endeavor to condense a journey of this kind within reasonable compass must result in the loss of interest which a disconnected style of narrative unavoidably entails, and yet I hope that the more ex-

tended view thus rendered possible, and the more comprehensive idea given of this great country as a whole, will be found to be more than compensating advantages.

Our daily method of work on the river was about as follows.

The captain was an early riser naturally, and now, being anxious to get on

down the river, he developed an abnormal propensity in this direction. About three o'clock in the morning he would begin to turn over and grunt something about getting up. After a few of these turnings and gruntings, he would ask what time it was. A sleepy admonition from the tired bone and muscle of the expedition to "keep quiet" was all the answer he



WILLIAM OGILVIE, THE EXPLORER.

would get. After awhile he would sit up boldly and "put the previous question," and when this became monotonous, he would, gathering fresh courage with every passing minute, endeavor to rouse the cook by shouting; but, as

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this particular cook was no exception to the ordinary run of cooks, rousing him was no easy task. However, the captain persevered, and finally about five o'clock, with a sleepy yawn, the cook would turn out, and the business of the day would begin.

By six, or half-past six, breakfast would be over, and I would be on the river with Morrison and the two basemen continuing the survey from the point where we had left it the previous evening, leaving the crew of the "Hoodalinka" to break camp and help the cook with the dishes.

The time when the boat passed us, generally about ten or eleven o'clock, was carefully noted, along with the distance traversed, and it was then an easy matter for Gladman to estimate the respective rates of travel of the canoes and the boat, so that when a distance down stream had been traversed which was likely to be reached by the survey, a convenient spot would be chosen and the camp pitched.

Along in the evening, when it was beginning to get too dark to work, on turning round some bend in the river, the camp-fire would be seen brightly shining ahead, and I need hardly add that supper was generally a hearty meal.

After supper there were notes to write out, observations to reduce, the work of the day to be plotted, and the work of the next day to be planned, so that I considered myself fortunate when eleven o'clock found me seeking "tired nature's sweet restorer, balmy sleep," and I sank into unconsciousness, from which even the captain's eternal "Vell, boys, vat time is it?" had no power to rouse me.

In this way, day after day, we continued to descend the river.

For some distance below the "White Horse" Rapids, the current is swift and the river wide, with many gravel bars. The reach between these rapids and Lake Labarge, a distance of twenty-seven and a half miles, is all smooth water with a strong current.

About midway in this stretch, the Tahk-heena River joins the Lewes. This river is apparently about half the size of the latter, and its waters are muddy, indicating its passage through a clayey district. I obtained some indefinite information about this river from an Indian whom I met just below its mouth, but I could not readily make him understand me, and his replies were a compound of Chinook, Tagish and signs, and therefore largely unintelligible. From what I could understand with any certainty, the river was easy to descend, there being no bad rapids, and it came out of a lake much larger than any I had yet passed.

Here I may remark that I have invariably found it difficult to get reliable or definite information from Indians. The reasons for this are many. They all expect to make something out of a white man, and consequently are very chary about doing or saying anything unless they think they will be well rewarded for it. They are naturally, too, very suspicious of strangers, and it takes some time and some knowledge of the language to overcome this suspicion and gain their confidence. If you begin at once to ask questions about their country, without previously having them thoroughly understand that you have no unfriendly motive in doing so, they become alarmed, and, although you may not meet with a positive refusal to answer questions, you make very little progress in getting desired information. On the other hand, I have met cases where, either through fear or hope of reward, they were only too anxious to impart all they knew or had heard, and even more if they thought it would please their hearer. I need hardly say that such information is often not at all in accordance with the facts.

Lake Labarge was reached on the evening of the 26th July, and our camp pitched on its southern shore. The lake is thirty-one miles in length,

broad at both ends and narrow in the middle, lying north and south, like a long and slender foot-print made by some gigantic Titan in long-bygone days.

As the prevailing wind blows almost constantly down the lake, the miners complain much of detention from the roughness of the water, and for the three days I was on the lake, I certainly cannot complain of any lack of attention from blustering Australis.

It is well out in the lake; the nearest point of it to the western shore is upwards of half a mile distant, and the extreme width of the lake here, as determined from triangulation, is not more than five miles, which includes the depth of the deepest bays on the western side. It is therefore difficult to understand that he did not see it as an island. The upper half of this island is gravelly, and does not rise very high above the lake; the lower end is



THE GREAT CANON ON THE YUKON.

The survey was carried along the western shore, which is irregular in many places, being indented by large, shallow bays, especially at the upper and lower ends.

Just above where the lake narrows in the middle, there is a large island, which is shown on Schwatka's map as a peninsula, and called by him Riechtofen Rocks. How he came to think it a peninsula I cannot understand, as

rocky and high, the rock of a bright red color and probably granite.

At the lower end of the lake there is a deep, wide valley extending northwards, which has evidently at one time been the outlet of the lake. In this the mixed timber, poplar and spruce, is of a size which betokens a fair soil: the herbage, too, is more than usually rich for this region. This valley, which Dr. Dawson has named

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"Ogilvie Valley," is extensive, and, if ever required as an aid to the sustenance of our people; will figure largely in the district's agricultural assets.

We left this, the last lake of the great chain, behind us on Saturday,

with interest not unmixed with apprehension. After friendly relations had been established, I endeavoured to get some information from them. One of these Indians could speak a little Chinook and I was fortunate enough



LOOKING UP THE RAPIDS BELOW THE CANON.

the 30th of July, and proceeded with a moderate current of about four miles an hour. The river just here is crooked and runs past high, steep banks surmounted by scrub pine and stunted poplar which shut in the narrow valley. There are, however, many flats of moderate extent, along the river and at its confluence with other streams, where the soil is fair.

The Tes-lin-too, the El Dorado of Captain Moore, was reached on Monday, the 1st of August. In response to the Captain's stentorian challenge, "Hello-o-o dere! any miners dere?" a couple of families of Indians who hunt in the vicinity appeared upon the bank and regarded our approach

to have two men with me who understood his jargon perfectly. He told me, greatly to the Captain's chagrin, that the miners had all moved further down the river some time ago, to Cassiar Bar and other places. He also told me, with an appearance of truth and frankness, that they had seen nothing whatever of a war-party of Aiyaua Indians from Stewart River. I succeeded also in obtaining some information with regard to the river itself. The river, he said, was easy to ascend, and presented the same appearance eight days' journey up as at the mouth; then a lake was reached, which took one day to cross; the river was then followed again for half a day

to another lake which took two days to traverse. Into this lake emptied a stream which they used as a highway to the coast, passing by way of the Taku River. He said it took four days, when they had loads to carry, from the head of canoe navigation on the Tes-lin-too to salt water on the Taku Inlet; but when they came light they took less than two days.

It may be well to point out, in view of explorations at present going on, that the route to the sea here referred to cannot, in any sense, be considered as unexplored. Teslin Lake has been known to the miners for many years.

About sixteen years ago a miner named Monroe prospected up the Taku, and learned from the Indians something of a large lake not far from that river. He crossed over and found it and then recrossed to the sea. Mr. T. Boswell, with his brother and another miner, spent most of the summer of 1887 on the Tes-lin-too River and Teslin Lake, and from their account and Monroe's, together with the information which I obtained from the Indians met at the mouth of the river, a pretty clear general idea of the region has been arrived at. An instrumental survey is, however, still a desideratum.

Combining all accounts, it is certain that this branch is the longer and more important of the two, and that it offers easy and uninterrupted navigation for more than double the distance which the Lewes does.

The water of the Tes-lin-too is of a dark brown color, similar in appearance to the Ottawa River water, and a little turbid. Notwithstanding the difference of volume of discharge, the Tes-lin-too changes completely the character of the river below the junction, and a person coming up stream would, at the forks, unhesitatingly pronounce the Tes-lin-too to be the main stream. The water of the Lewes is blue in color and comparatively clear.

About eighteen miles below the Tes-

lin-too I saw the first place that had been worked for gold. A hut had been erected and there were indications that a party had wintered here. Between it and Big Salmon River six other locations were met with. One of them, Cassiar Bar, had been worked in the previous season by a party of four who took out six thousand dollars in thirty days. They were still working there when I passed on the 3rd of August, but stated that all they could get this season was about ten dollars a day, and that it was now about worked out.

At the time of my visit they were trying the bank, but found the ground frozen at a depth of about three feet, though there was no timber or moss on it. They had recourse to fire to thaw out the ground, but found this slow work.

Two of the party subsequently went down to Forty Mile River, where I met one of them. He was a Swede, and had been gold-mining for upwards of twenty-five years in California and British Columbia. He gave me his opinion of the district in these words, "I never saw a country where there was so much gold and so evenly distributed; no place is very rich, but no place is very poor, and every man can make a 'grub stake'" (that is enough to feed and clothe him for a year).

The whole length of the Tes-lin-too yields fine gold at the rate of from eight to ten dollars a day; but, as the heart's desire of the miners is coarse gold, they do not remain long in a country in which the fine gold only is found—generally no longer than is necessary to make a "grub-stake,"—unless the gold is in unusually large quantities.

Between the Tes-lin-too and the Big Salmon (D'Abbadie of Schwatka) is thirty-three and a half miles, in which the Lewes preserves a generally uniform width and current.

The waters of the Big Salmon are sluggish and shallow. The valley, as seen from the mouth, is wide, and

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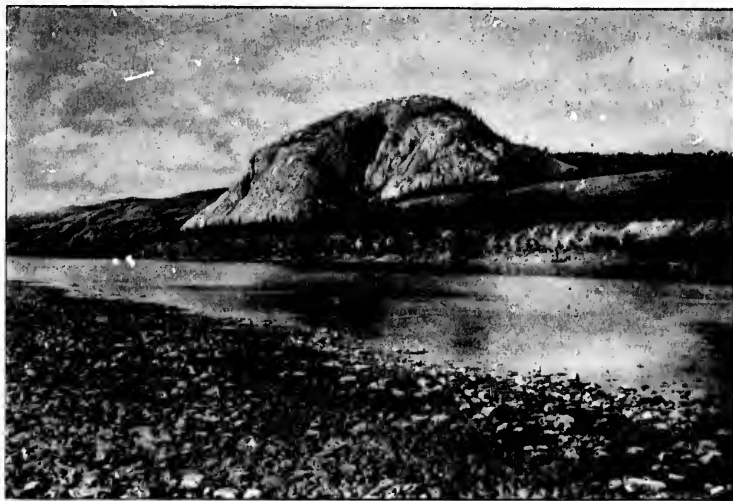
gives one the impression of being oc-
cupied by a much more important
stream. Looking up it, in the distance
could be seen many high peaks cover-
ed with snow, and, as this was in the
beginning of August, it is likely they
are always so covered—which would
make their probable altitude above
the river, five thousand feet or more.

Two days' run, or about thirty-six
miles, the river constantly winding
round low, sandy points, and dotted
with small, well-timbered islands,
brought us to the Little Salmon (Daly
of Schwatka), a small and unimport-
ant stream entering from the east.
The water is clear, but of a brownish
hue. The valley bears to the north-
east, and six or seven miles up it some
high cliffs of red rock, apparently
granite, can be seen.

five hundred feet. It is of a light grey
color, but what the character of the
rock is I could not determine, as I saw
it only from the river, which is about
a quarter of a mile distant.

We passed the mouth of the Nor-
denskiöld on the 9th of August. The
river here makes a loop of eight miles
round a hill on the east bank, named
by Schwatka Tantalus Butte. The
distance across from point to point is
only half a mile.

Early the next day we heard the
booming of the Rink Rapids in the
distance, and it was not long before
they were in sight. These rapids are
known to miners as Five Finger rapids,
from the fact that five large, bold
masses of rock stand in mid-channel.
This obstruction backs up the water so
as to raise it about a foot, causing a



THE EAGLE'S NEST.

One of the most remarkable objects
along the river, located just below the
Little Salmon, is a huge hemisphere
of rock, called the "Eagle's Nest," ris-
ing abruptly from a gravel slope on
the east bank, to a height of about

swell below for a few yards. The
islands are composed of conglomerate
rock, similar to the cliffs on each side
of the river, from which one would in-
fer that there has been a fall here in
past ages. For about two miles below

the rapid there is a swift current; not swift enough, however, to prevent the ascent of a steambot of moderate power; and the rapids themselves I do not think would present any serious obstacle to the ascent of a good boat. In very high water warping might be required.

Nothing whatever was seen here of the "hundreds of gulls," which have their breeding grounds on these rocky points, noticed by Schwatka. These, as well as the "dense swarms of the omnipresent mosquito," were conspicuous by their absence.

With regard to the mosquitoes on the Yukon, Lieut. Schwatka has expressed his mind freely. He says:—

"The mosquitoes were now (5th July) thick beyond anything I have ever seen. As we crossed boggy places, or the marshy rims of the numerous inland lakes, they rose in dense swarms. Hunting, the only object one could have in inland excursions, became impossible on account of these insects; their stings could not be endured, and in looking through such swarms, it was not possible to take sure sight at the game."

I believe this part of the Yukon country (foot of the Cañon) to be scarcely habitable in the summer, on account of these pests, and think their numbers sufficient reason for the complete absence of game during that part of the year. On the lower river, beyond Fort Yukon, their numbers appreciably decrease. * * * It is not until the first severe frost comes—about the first of September—that this annoyance is abated completely."

I passed the Cañon less than three weeks later in July than Lieut. Schwatka, but saw very few mosquitoes there; and even as far as the boundary, though a few were seen here and there, we certainly suffered no inconvenience whatever from them.

I believe the exact reverse of what is stated above with reference to the decrease of mosquitoes below Fort Yukon, to be the case. Below Fort Yukon the country along the river becomes flat, and great areas of tundra, or frozen morass, occur. These tundra becoming soaked with summer rains, which can only penetrate to a depth of a few inches, become regular swamps, the natural breeding-grounds for all kinds of insect life; so that if mosquitoes abound on any part of the

river, it would be natural to suppose that it would be in the vicinity of the tundra lands. As I did not go below the boundary, however, I can only speak with certainty of the upper part of the river. Practically speaking, there were, when I passed, no mosquitoes there. There is an operation, known in French cookery as *farcing*, commonly practised by small school-boys upon credulous companions, and capable of furnishing much mild amusement when indulged in to a limited extent. I have found the miners of the Yukon to be particularly fond of this amusement; and this may account for the highly colored stories of Esquimo dogs, and even of bears, having been killed by mosquitoes, which were gravely related to the gallant lieutenant by these accomplished *farceurs*.

After getting a couple of snap-shots at the rapids, we ran through and camped for dinner on a little shelving point on the east bank.

About a mile and a half below our camping-place, a small, dark-colored stream, the Tatshun, enters the river from the east. To this spot I directed the basemen, after dinner, to proceed. As they neared the point, I took up my station at the telescope, and was idly watching them, when a sight met my view that sent the blood in an instant tingling through my veins with excitement. The canoe was within a few yards of the shore, when suddenly, as if by magic, the bank above became literally alive with Indians. Shouting, gesticulating wildly, and flourishing their arms about, they came charging furiously down the sloping side of the river.

Now we had not seen an Indian for three hundred miles, and, indeed, with the exception of a solitary one near the mouth of the Tahk-heena, and the few miserable Tagish encountered at the Teslin-too, we had seen none since we entered the country. Our apprehensions of trouble had gradually subsided the farther we advanced; but

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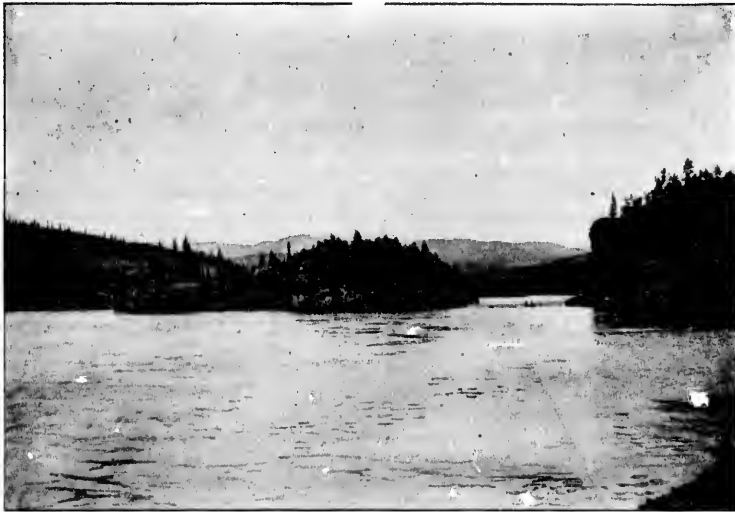
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now our worst fears about the Indians told of in the miner's story at Chilkoot Inlet received ample confirmation from these unmistakably hostile demonstrations. The suddenness, also, with which they had burst upon our view, made them an alarming spectacle. "There they are at last," was the thought that passed quickly from lip to lip.

In a moment our little camp was astir. To seize my Bullard, leap into the canoe with Morrison, and call to

her bodily. The "*Hoodalinka's*" slashing sweeps, beating the water to a foam, could be heard in the rear. It was a race for life!

It is said there is but one step, and that a short one, from tragedy to comedy; but Momus never dropped the awful mask of Mars more quickly than he did on this occasion. By the time we were fairly into the race, there seemed to be a lull in the hostile demonstrations—some devilish ruse, no doubt. As we hurried on with re-



THE RISK RAPIDS. THE "HOODALINKA" TAKING THE DIP.

the others to follow to the rescue, were the acts of a few seconds. The crew of the "*Hoodalinka*" had two rifles—a Winchester and a Martini-Henri; besides these, every man had a Colt's revolver, and we determined to make as good a fight as possible under the circumstances.

But one idea filled our minds—to get there in time to prevent the massacre of our companions; and, bending every energy to the task, the little "*Yukon*" shot through the water, impelled by strokes that almost lifted

newed energy, Gladman quietly picked up the field glass to reconnoitre the enemy.

"It's all right," he shouted from the boat, in the coolest possible tone; "they're shaking hands all around." This was true enough; the warlike scene had shifted with the suddenness of a panoramic view. The poor savages were huddled together on the beach, extending the most friendly and cordial welcome to Parker and Sparks, who were standing unhurt in their midst. Moreover, we now noticed

what, in our excitement, we had omitted to observe—that not one of the savages was armed.

The relief from the tension of mind experienced by men nerved for a desperate encounter, who suddenly find that the enemy has vanished into smoke, can be better imagined than described. The ludicrousness of the situation struck us so forcibly that we gave way to prolonged peals of the heartiest laughter that have ever rung on the quiet bosom of the great Yukon.

It has been my lot to meet many Indians roaming the vast tracts from British Columbia to Labrador; but, of all the miserable creatures I ever saw, these were, without exception, the worst, the poorest, and the most unintelligent. It is needless to say that none of our party understood anything they said, as they could not speak a word of any language but their own. As an instance of their stupidity, I may mention that, wanting to buy some tea and other provisions from me, they tendered in payment the tin stamps that are put by some manufacturers on plugs of tobacco. These they signified to me had been given to them by the coast Indians in exchange for furs. It is possible they had taken them off the tobacco brought to them by these Indians, and were trying to swindle me, but I am inclined to think not.

They were engaged in salmon fishing at the mouth of the Tatshun, and I tried by signs to get some information from them about the stream they were fishing in, but I failed. I tried, in the same way, to learn if there were any more Indians in the vicinity, but again I utterly failed. I then tried by signs to find out how many days it took to go down to Pelly River, but, although I have never known these signs to fail in eliciting information in any other part of the territory, they did not understand.

One thing, however, they did comprehend. Thinking that my men

would relish some fresh fish, and knowing that these Indians are expert fishers, I took some silver from my pocket and, holding it in my hand, went through a little pantomime performance. The Indians gravely watched me pointing to their nets and to the river, and making the motion of giving the coins. Two of them understood what was wanted, and catching up their nets, sprang down the bank with great alacrity. They were gone about ten minutes, returning with three fine salmon.

As their mode of catching salmon is identical with that mysterious process witnessed by Schwatka further down the river, and which appears to have puzzled him greatly, I may describe it briefly.

The fish, in their long journey up from the sea—nearly two thousand miles—naturally follow the slack current in the shallow water near the shore, and they swim generally about two feet below the surface. One can easily trace their passage through the water by the slight ripple which they make on the surface, and, as they cannot see in the muddy water, they may, with care, be taken by gently placing a scoop-net in their way and lifting them out when they enter it. *Voilà tout le mystère!* The Indian judges the depth by the size and character of the advancing ripple, and simply moves his net to and fro, keeping it always directly in front of the unsuspecting fish. The salmon are passing constantly, thousands every day, so that an Indian youth has plenty of practice and soon becomes expert in this peculiar mode of fishing. No picturesque watcher on the bank was seen, nor was any extraordinary power of vision necessary, the ripple being plainly visible to every one. On the way down the Lewes, the first of these "salmon ripples" noticed by us was about twenty-five miles above Five Finger Rapids. I have frequently seen them on the Thompson and Fraser rivers and

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in other parts of British Columbia, but there, as the streams are for the most part clear and the surface broken by eddies, a different method of taking the fish has to be adopted.

The Indian, knowing the habits of the fish, chooses some jutting point round which the river takes a sudden bend. The slack water is, of course, inshore, and though he cannot see the fish, on account of the roughness of the water, the fisher knows that hundreds of salmon are passing this point every hour. He gently drops his scoop-net into the water upstream, sweeps down with the current through three quarters of the circumference of the circle, lifts the net, completes the circle, quietly replaces the net and repeats the operation over and over again.

In these sweeps the greatest care is necessary, as the fish are exceedingly alert and the least inadvertence will send the whole line off into deep water. The Indian's judgment and skill here come into constant play and also finds ample exercise in the selection of suitable fishing grounds.

Six miles below Rink Rapids are what are known as "Little Rapids." This is simply a barrier of rocks which extends from the westerly side of the river about half way across. Over this barrier there is a ripple which would offer no great obstacle to the descent in a good canoe. On the easterly side there is no ripple—the current is smooth and the water apparently deep. I tried to sound it with a six foot paddle, but could not reach the bottom.

About a mile below Little Rapids the river spreads out into a lake-like expanse, with many islands; this continues for about three miles when it contracts to something like the usual width; but bars and small islands are numerous all the way to Pelly River. About five miles above Pelly River there is another lake-like expanse filled with islands. The river here is nearly a mile wide, and so numerous and close are the islands that it is im-

possible to tell, when floating among them, where the shores of the river are. The current, too, is swift, leading one to suppose the water shallow; but I think that even here a channel deep enough for such boats as will navigate this part of the river, could easily be found. Schwatka named this group "Ingersoll Islands."

On the 11th of August, near Hooche-koo Bluff, I met a party of miners coming out who had passed Stewart River a few days before. They had seen no sign of Doctor Dawson there. This was agreeable news to me, as I expected that on account of the many delays I had met with on the coast range, he would have reached that point long before I arrived.

These miners also gave me the welcome news that the story told at the coast about the fight with the Indians at Stewart River was a pure fabrication. The individual who spread the rumor was a lawless character who had attempted to take the life of another miner—for which offence he was ordered to leave the district in mid-winter, an order which the miners consider equivalent to a sentence of death. Strange to say, however, he succeeded in reaching the coast, having made a distance of over five hundred miles, of the most difficult and dangerous travelling, between the months of February and May; and there, partly from malice and partly to account plausibly for his inopportune appearance, he concocted the diabolical story which I had heard.

The method of administering justice among the miners is simple and expeditious. They have their own code of laws, based on a pretty clear application of the principle of right and wrong in dealing with each other, and any one who should attempt, by means of technicalities or "sharp practice," to make wrong appear right, would, I fancy, be judged more guilty than the culprit himself. Any one who has been wronged, or thinks he has, calls a meeting of the camp, which at once

resolves itself into a board of trial to hear and dispose of the case. In all such trials, a man's known character for truthful and honorable dealing, or the reverse, is an important factor.

he had been so confidently building all the way down the river, now tumbled about his ears in a sad heap of ruins. One of his boys had evidently had enough of the country, and



CONFLUENCE OF THE PELLY AND YUKON.*

The miners, although they may not, perhaps, understand all the fine shades of difference between *meum* and *tuum* distinguished by a Supreme Court lawyer, are keen judges of fair play, and it is hardly necessary to add that their decisions, from which there is no appeal, are generally regarded as satisfactory by all interested in the case. This is certainly more than can be said of the decisions of many of the so-called "Courts of Justice" of more favored countries.

The same evening I met nine miners on their way out, and the next day I met three boats, each containing four men. In the crew of one of them was a son of Captain Moore, from whom the Captain obtained such information as induced him to turn back and accompany them out. I was sorry for the old man: the air-castles, which

was glad to get out of it, even with empty pockets; the other, after various fruitless efforts to make a "grub stake," had given it up, and was sawing wood for the more prosperous miners at \$15 a month.

Next day, the 13th, I reached the mouth of the Pelly, and found that Dr. Dawson had arrived there on the 11th. The Doctor had also met with many delays, and, though nearly a month behind the time arranged for our meeting when I parted from him in May, we arrived here within two days of each other. He had also heard the story of the Indian uprising in the interior, and had, on account of it, been kept in a state of anxious watchfulness for the greater part of the summer. I was pleased to find that he

*The high cliff to the left is common to both rivers. The pine at the bottom of the cliff is probably 70 feet high.

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RUINS OF FORT SELKIRK ON THE YUKON.

was in no immediate want of provisions, the fear of which had caused me a great deal of uneasiness on the way down the river, as it had been arranged between us in Victoria that I was to take with me provisions for his party to do them until their return to the coast. The Doctor was so much behind the time arranged to meet me, and so anxious to avoid delay at the upper lakes, which freeze over early in the autumn, that he determined to start for the coast at once. I therefore set about making a short report and plan of my survey to this point; and, as I was not likely to get another opportunity of writing at such length for a year, I applied myself to a correspondence designed to satisfy my friends and acquaintances for the ensuing twelve months. This necessitated three days' hard work.

On the morning of the 17th, the Doctor departed for the outside world, leaving me with a feeling of loneliness

which can only be realized by those who have experienced it.

I remained at the mouth of the Pelly during the 'next day, taking magnetic and astronomical observations, and making some measurements of the river.

About a mile below the junction with the Lewes, and on the south side, stands all that remains of the only permanent trading post ever built by white men in the district. This post was established by Robert Campbell, for the Hudson's Bay Company, in the summer of 1848. It was first built upon the point of land between the two rivers, but this location proving untenable, on account of flooding by ice jams in the spring, it was, in the season of 1852, moved across the river to where the ruins now stand. It appears that the houses composing the post were not finished when the Indians from the coast on Chilkat and Chilkoot Inlets, came down the

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river to put a stop to the competitive trade which Mr. Campbell had inaugurated, and which they found to seriously interfere with their profits. Their method of trade appears to have been then pretty much as it is now—very one-sided. What they found convenient to take by force, they took; and what they found convenient to pay for, they paid for—at their own price.

Rumors had reached the post that the coast Indians contemplated a raid, and, in consequence, the friendly Indians in the vicinity remained about nearly all summer. Unfortunately, however, they went away for a short time, and, during their absence, the coast Indians arrived and pillaged the place, and set fire to it, leaving nothing but the remains of two chimneys, which are still standing. This raid and capture took place on Sunday, the 1st of August, 1852. Mr. Campbell was ordered to leave the country within twenty-four hours, and accordingly he dropped down the river. On his way he met some of the local Indians, and returned with them, but the robbers had made their escape. I have heard that the local Indians wished to pursue and overtake them, but to this Mr. Campbell would not consent. Had they done so, it is probable that not many of the raiders would have escaped, as the superior local knowledge of the natives would have given them an advantage difficult to estimate, and the confidence and spirit derived from the aid and presence of a white man would have been worth much in such a conflict.

Mr. Campbell went on down the river until he met the outfit for his post on its way up from Fort Yukon. He turned it back. He then ascended the Pelly, crossed to the Liard, and reached Fort Simpson, on the Mackenzie, late in October.

Nothing more was ever done in the vicinity of Fort Selkirk by the Hudson's Bay Company after these events, and in 1869 the company was ordered

by Captain Charles W. Raymond, who represented the United States Government, to evacuate the post at Fort Yukon, which he had ascertained to be west of the 141st meridian. The post was occupied by the company, however, for some time after the receipt of the order, until Rampart House, which was intended to be on British territory, and to take the trade previously done at Fort Yukon, was built. Under present conditions the company cannot very well compete with the Alaska Fur Company, whose agents do the only trade in the district, and they appear to have abandoned—for the present at least—all attempts to do any trade nearer to it than Rampart House, to which point, notwithstanding the distance and difficulties in the way, many of the Indians on the Pelly-Yukon make a trip every two or three years to procure goods in exchange for their furs.

The ruins of Fort Selkirk stand on a flat of considerable extent, which is covered with a small growth of willow, poplar, and a few spruce. The soil is a gravelly loam, covering a sub-soil of gravel, evidently detritus. This flat extends up the river for several miles, but is all covered thickly with timber, except a small piece around the site of the fort.

On the north side of the river there is also a large plateau, bounded by a perpendicular basalt cliff, two or three hundred feet high, on which the soil appears to be poor, judging from the thinness and smallness of the trees. This plateau seems to extend up the Pelly for some distance, and down the Yukon some ten or twelve miles. As seen from the river, it reminds one of the slopes and hills around Kamloops in British Columbia.

On the 19th I resumed my journey northward. Opposite Fort Selkirk, the Pelly-Yukon river is about one-third of a mile broad; and it maintains this width down to White River, a distance of ninety-six miles. Islands are numerous, so much so that there

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are few parts of the river where one or more are not in sight; many of them are of considerable size, and nearly all are well timbered. Bars are also numerous, but nearly all are composed of gravel, so that navigators will not have to complain of shifting sand-bars. The current, as a general thing, is not so rapid as in the upper part of the river, and the depth in the main channel was always found to exceed six feet.

25th. The water of this river is a chalky white color, and so muddy that it is impossible to see through one-eighth of an inch of it. The current is very strong, probably eight miles or more per hour. I spent most of the day trying to ascend the river, but found it impracticable; after trying for several hours, the basemen succeeded in doing about half a mile only, and I came to the conclusion that it was useless to try to get up this stream to



INDIAN GRAVE NEAR RUINS OF FORT SELKIRK.

On the evening of the 22nd, on coming ashore to pitch our camp for the night, I was fortunate enough to get a shot at a "wood cariboo," which came down to the river-side to drink, a few hundred yards from the spot where we had landed. This was the only "wood cariboo" seen on the river. It is a much larger and more beautiful animal than the ordinary cariboo which roams in vast herds over these northern hills, and resembles the elk or wapiti, except that the antlers are smaller.

White River was reached on the

boundary with canoes. Had it proved feasible, I had intended making a survey of this stream to the boundary, to discover more especially the facilities it offered for the transport of supplies in the event of a survey of the international boundary being undertaken.

The water from this river, though probably not one-fourth of the volume of the Pelly-Yukon, discolors the water of the latter completely, and about two miles below the junction the Pelly-Yukon appears almost as dirty as the White River.

Between White and Stewart rivers the river spreads out to a mile and upwards in width, and is a maze of islands and bars.

Stewart River, which was reached on the following day, enters from the east in the middle of a wide valley, with low hills on both sides, rising on the north side in clearly marked steps or terraces to distant hills of considerable height. The river, a short distance up, is two hundred yards in width, the current slack, and the water shallow and clear, but dark-colored. While at the mouth, I was fortunate enough to meet a miner, named McDonald, who had spent the whole of the summer of 1887 on the river and its branches, prospecting and exploring. He gave me a good deal of information, which I have incorporated in my map of the district. This man had ascended two of the main branches of the river. At the head of one of them he found a large lake, which he named Mayhew Lake; on the other branch he found falls, which he estimated to be from one to two hundred feet in height. I met several parties afterwards who had seen these falls, and they corroborated this estimate of their height. McDonald went on past the falls to the head of this branch, and found terraced gravel hills to the west and north; he crossed them to the north and found a river flowing northward. On this he embarked on a raft, and floated down it for a day or two, thinking it would turn to the west and join the Stewart, but finding it still continuing north, and acquiring too much volume to be any of the branches he had seen while passing up the Stewart, he returned to his point of departure, and after prospecting among the hills around the head of the river he started westward, crossing a high range of mountains composed principally of shales with many thin seams of what is called quartz, ranging from one to six inches in thickness. On the west side of this range he found the head waters of Beaver

River, which he descended on a raft, taking five days to do so.

It is probable the river flowing northward, on which he made a journey and returned, is a branch of Peel River. The timber on the gravel terraces of the water-shed, he described as small and open. He was alone in this unknown wilderness all summer, not seeing even any of the natives. There are few men, I think, so constituted as to be capable of isolating themselves in such a manner.

On the 1st of September, we passed the site of the temporary trading post shown on the maps as Fort Reliance. A few miles above this point the Tondac River of the Indians (Deer River of Schwatka) enters from the east. It is a small river about forty yards wide at the mouth, and shallow; the water is clear and transparent and of a beautiful blue color. The Indians catch great numbers of salmon here. They had been fishing shortly before my arrival, and the river for some distance up was full of salmon traps.

Several days of continuous heavy rain now interrupted our work, so that Forty Mile River (Cone Hill River of Schwatka) was not reached till the 7th of September.

The current in Forty Mile River is generally strong, and there are numerous rapids, one, in particular, not far from the mouth, in which several miners have been drowned. The river is not wide, and one would think an ordinary swimmer would have no difficulty in reaching land; but the coldness of the water soon benumbs a man completely and renders him powerless. In the early part of the summer an Indian, from Tanana, with his family, was coming down to trade at the post at the mouth of Forty Mile River; his canoe upset in these rapids and he was thrown clear of it, but the woman and children clung to it. In the rough water he lost sight of them and concluding that they were lost, it is said he deliberately drew his knife and cut his throat, thus perishing, while his family were

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hauled ashore by some miners. The chief of the band to which this Indian belonged came to the post and demanded pay for his loss, which he contended was occasioned by the traders having moved from Belle Isle to Forty Mile, thus causing his men to descend this dangerous rapid; and there is little doubt that had there not been so many white men in the vicinity he would have tried to enforce his demand.

Fifteen miles below Forty Mile River a large mass of rock stands on the east bank. This was named by Schwatka "Roquette Rock," but it is known to traders as "Old Woman Rock;" a similar mass on the west side of the river being known as "Old Man Rock." The origin of these names is an Indian legend, of which the following is the version given to me by the traders:—

In remote ages there lived in this locality a powerful Tshamen. There also lived in the neighborhood of this powerful being a poor man who had the great misfortune to have an inveterate scold for a wife. He bore the infliction for a long time without murmuring, in the hope that Xantippe would relent; but time only seemed to increase the virulence of her tongue and temper. At length, growing weary of the unceasing torment, he complained to the Tshaumen, who holds a position and exercises an influence among the people he lives with something akin to that of the wise men or magi of olden times in the east. The Tshaumen comforted him and sent him home with the assurance that all would soon be well.

Shortly after this the poor man went out to hunt and remained away many days endeavoring to replenish the domestic larder, but without avail; he returned weary and hungry, only to be met by his wife with a more than usually violent outburst of scolding. This so provoked him that he gathered all his strength and energy for one grand effort, and gave her a kick that sent her clear across the river. On

landing, she was converted into the mass of rock which remains to this day a memorial of her viciousness and a warning to all future scolds. The metamorphosis was effected by the Tshaumen, but how the necessary force was acquired to send her across the river, here half a mile wide, or whether the kick was administered by the Tshaumen or the husband, my narrator could not say. He was also altogether at a loss to account for the conversion of the husband into the mass of rock on the west side of the river; nor can I offer any theory, unless it be that he was petrified by astonishment at the result.

Such legends as this would be of interest to ethnologists if they could be procured directly from the Indians; but repeated by men who have little or no knowledge of the utility of legendary lore, and less sympathy with it, they lose much of their value.

On the 14th of September, I finished my survey to the boundary. In the afternoon, while waiting for a sight, an incident occurred which relieved the tedium and furnished amusement for many days.

Parker and Sparks had gone ahead down the river to set up the base. Instead of doing so, however, they appeared to be beating about the bush in a most unaccountable manner. I was becoming impatient at the delay, and watching through the glass, when I saw them make a swift rush from the wooded bank to the canoe, grasp the paddles and ply them with desperate energy. My first thought was that they had been attacked by a bear, but Morrison, who was watching their movements closely, said:

"Is there not something in the river ahead of them?"

"Yes, by George! they are after a moose," I cried, turning the glass in the direction indicated. A magnificent buck moose had taken the water some fifty yards ahead of them. Now a man with a canoe can easily overtake a moose swimming, and the con-

sequence was, that before they had reached the middle of the river, they were right on top of the animal. So close in fact were they, that they could have jumped upon its back if they had so wished.

Now was the time for the *coup-de-grace*, and, when I saw Parker hastily drop the paddle, and nervously fumble about for his rifle, I knew the curtain was up for a highly entertaining performance. A puff of smoke went up, and—bang! went the Winchester, announcing that the battle had begun. Without waiting to see the effect of Parker's shot, Sparks excitedly whipped out his revolver and began a regular fusillade at short range. The fun was now fast and furious. Bang! went the Winchester—Pop! Pop! went the pistol shots—and on serenely swam the moose, making straight for a bar in the river.

"By George! Charlie, they are going to lose him," I said, laughing till the tears ran down my face. "Here is our winter camp, and lots of fresh

meat right at the door; you had better go down and try a shot."

In the meantime the young Nimrods had emptied both rifle and revolver to no effect; the moose had gained the bar and was flying across it at railway speed. Gladman, whom nothing ever unduly excited, set off leisurely. Arrived at the point where the moose had taken the water, he proceeded methodically to set up and adjust the base. By this time the moose had gained the bank and was lost to view, still there by Parker and Sparks, who, having no more ammunition, were yelping like a couple of dogs.

While taking the angles I was startled to see the moose suddenly break covert from the bluff right above Gladman's head and come tearing down the bank towards him. The moment was an exciting one. Startled as I was to see the animal reappear in this way, I was thunder-struck to see that Gladman was entirely unconscious of danger, and thinking, no doubt, that the moose had made good



THE EXPEDITION ON THE YUKON.

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his escape, and that it would be useless to follow him, was standing with his back to the bluff busied about some little matters of the camp.

I pride myself on being able to shout when the occasion demands it, and now, making a trumpet of my hands, in my excitement I fairly roared, "Moose, Charlie! Moose!! M-oo-s-e!!!"

Gladman heard and understood, though the distance must have been a good mile and a half.

Picking up his rifle, he ran up and down the beach looking in all directions. He could see no trace of the animal, while from my point of view, with the glass, I could plainly see him, with nose outstretched and antlers laid back, crashing down the bank not twenty yards from him.

The mystery was cleared up by Gladman walking quietly down the shore, round a bend or bay in the river, to a point about half a mile below the camp, from which the faint yelping of "the dogs" proceeded. This point was directly in the line of sight of the telescope, and it was here, instead of at the camp, that I had seen the moose rushing down the bank. When this simple explanation dawned upon me, it is needless to say that I felt mortified at my stupidity. My vexation vanished, however, when a few minutes later I heard two shots in quick succession from Gladman's rifle, which I knew meant that we should have moose steak for supper.

We had now reached our winter camp, and the next few days were busily spent in preparing our winter quarters, and in building a magnetic observatory and a transit house. As I had been led to expect extremely low temperature during the winter, I adopted precautionary measures, in order to be as comfortable during our stay there as circumstances would permit.

A few remarks descriptive of our residence may not be uninteresting.

After clearing away the top soil and excavating some distance into the side of the hill for a foundation, the bottom round of the house was laid and embedded in the place so cleared. The next round of logs was then put up and fitted in place; it was then rolled off, and on top of the first round was laid a thick layer of moss. The second round of logs was then put back in its place on top of the moss, which was so thick that the second round did not lie on the saddles at the corners, but rode on the moss. This was done with each succeeding round until the requisite height was reached, when the ordinary kind of shanty roof, consisting of poles, was put on. On these was laid a layer of moss about one foot thick, and on this about one foot of clay. In the roof were two ventilators, which could be closed altogether if necessary. The faithful "*Hoodalinka*" was taken to pieces, as we had no further use for her, to supply boards for flooring and a door.

To heat the building, a large stone furnace was built, in size three feet by eight; the front end of this was fashioned into a fireplace with an oven on top for cooking; the other end was formed into a chimney. The structure was a large mass of stone, bound together by a tough white clay which we found in the vicinity, and which baked hard and white, and did not crack with the heat. When this mass was once heated, which it took two days to do, it retained the heat for a long time.

With the weight of the roof and walls, the moss between the logs was so pressed, that it filled every crevice, and made almost a solid wall. During the winter the ventilators were kept open all the time; yet the lowest temperature observed in the house during our stay was 48° Fahrenheit; the average in the morning, before the fire was lighted, was about 60° Fahrenheit.

(TO BE CONTINUED.)

ORIGIN OF THE SOCIAL CRISIS IN THE UNITED STATES.

(A Monarchist's View.)

BY VISCOUNT DE FRONSAC.

WHEN to an organism or to a mechanism anything happens to disturb the plan of its motion, before the reason why the disturbance has happened may be known, the laws that govern must be understood. That great complex organism, the state, whose unit in some epochs is the family, in others is the individual, and in some times and places is both, is no exception to the rule. It is an error of judgment to suppose that any law has exceptions—exceptions belong to different categories.

The United States was founded on two different systems of social polity. The Southern colonies reckoned family as the political unit, and early had hereditary estates engrafted into their system. In Virginia and the Carolinas entailed estates were permitted by law. This law fostered the growth of the family, and favored agriculture necessarily. Consequent on this, city influence in Southern affairs was small, and Southern cities could not compare, even with cities of the same size in the North, in wealth, culture, and enterprise. The South had few manufactures. The glory and valor of the section was with the country families, and with them none in the North could compare in fame and continuity of excellence. The sum total of wealth in the South was not so great as that in the North; but, individually, the people were more comfortable, for in the North there early began that instability of institutions resulting in the increase of wealth among the few, and extreme poverty and industrial servitude among the many.

The Northern colonists came to the

New World to found a government without a king, and a church without a bishop. As aristocracy is an adjunct of monarchy, and aristocracy relies on the strength and permanence of the family, the Puritans of the New England colonies made laws inhibiting the entailment of estates. Agriculture is the necessary pursuit of those who have great estates. Since, in New England, the individual instead of the family was made the political unit, and the laws were so framed as to discourage great landed holdings, the enterprise of the section went to the building of towns and cities. What farms there were, were poor and small, and the farming class were stingy and dwarfed in sentiment. The best blood was in the cities, of which Boston was chief. The chief pursuit was commerce on the seas, and the merchant class of the higher order were cultivated and liberal by intercourse with foreign nations, and their children received the benefit of their parents' experience, education and wealth. The commercial cities of New England also received, among foreign settlers of a mean description who acted as servants and laborers, others of a higher degree, until gradually the old Puritan stiffness and bigotry wore away, and the family as a unit, if not actually in use, began to have a theoretical value.

But with the formation and growth of cities and towns in the interior of the New England and Middle States, a new element began to exercise an influence over the laws already in existence. These new cities of the interior—away from the sea—were not based on commerce, but owed their

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STATES.

DOWN THE YUKON AND UP THE MAGKENZIE.*

200 Miles by Foot and Paddle.

BY WILLIAM OGILVIE, D.L.S., F.R.G.S.

III.

OUR residence here in our winter camp lasted from the 14th of September to the 3rd of March—five and a half months. During this period, I was chiefly engaged in making astronomical and magnetic observations, and in plotting and tabulating my work to this point.

The days became shorter and shorter, until, on the 7th of December, the sun appeared for the last time above the horizon, when I made the prediction: that it would not again be seen until the 5th of January. For this appalling statement I was promptly arrested and court-martialled by the party, and, with mock solemnity, the sentence of capital punishment was pronounced upon me, conditionally on the prediction failing to be fulfilled. When at last the 5th of January arrived, we were all eagerly on the lookout for the appearance of the long-lost luminary. At a few minutes before 10 a.m., the hour announced for the panorama to commence, clouds spread over the horizon, and I began to despair of the programme being carried out; when suddenly a rift fortunately occurred in the proper quarter, and shortly afterwards a beam of golden sunshine shot over the hills, illuminating the surrounding gloomy woods and the camp. This was hailed with delight by the members of the party; my sentence was at once cancelled; and the glad event was celebrated with all the enthusiasm of which our limited circumstances would permit. Had our camp been situated on the summit of one of the surrounding mountains, instead of in the valley of the river, the sun would not have totally disap-

peared, being visible from there for at least a few minutes on even the shortest day.

The average daily duration of actual darkness during the absence of the sun, was twenty hours; the remaining four being twilight. This period of darkness and gloom appeared interminable, as day after day and week after week dragged its slow and monotonous length along, during which the members of the party, with the exception of myself and the cook, had no regular occupation. Even upon the miners, who are more or less accustomed to the region, this long, dreary night has a most depressing influence, and there is a strong tendency among them to become despondent and morose.

Frequent exchanges of visits with these men, and an ample supply of reading matter, which we had brought with us, together with cards, draughts, and other home amusements, lent their assistance in whiling away the long, dreary hours. My men also constructed a toboggan slide down the side of one of the hills, which was a source of considerable amusement, and of much needed recreation to both body and mind. It was a great novelty to the miners, who thoroughly enjoyed the sport, and whose boyish shouts of laughter and glee "set the wild echoes flying" through the lonely silence, as a half dozen of them at a time went down the chute and out over the river at the rate of one hundred miles an hour.

In spite, however, of all efforts to

* Owing to the defective development of the negatives of views taken in the country described in the present instalment of Mr. Ogilvie's article, no illustrations can be given of the remarkable scenery along the route between the Yukon and Fort McPherson on the Mackenzie River.

appear cheerful and contented, a desire for communication with the outside world, and especially with home and those near and dear to us, repeatedly overcame us, and brought on frequent fits of dejection and despondency so severe that, on several occasions, I was driven almost to desperation, and seriously considered the terminating of the expedition here, and packing up and retracing our steps to the coast.

The lowest temperature recorded during the winter was 55°.1 F. below zero. On seven days over 50° below zero was recorded, and on twenty-six days over 40°. The average minimum temperature for November was, —5°.1; for December, —33°.6; for January, —25°.3, and for February, —16°.8 F.

About one hundred miners wintered in this vicinity. Their principal occupations and amusements were playing cards and telling lies. Poker is the chief game, and is always played for gold dust; the play is strictly honest and fair—woe to the player who should attempt any tricks or sharp play. As for the other part of their pastime, it is always in order for an aspirant for the proud position of being the greatest liar, to hold forth. Many of the stories possess originality and humor, but, as a rule, they are childish extravagances and impossibilities of the Baron Munchausen order. About forty miles up the river from my quarters, thirty miners were encamped on an island, which was called, from this circumstance, "Liars' Island," and the residents were known as the "Thirty Liars." There was good reason for these designations.

None of the miners belong to the desperado type—the career of such being invariably cut short among them,—and the customary features, such as the bowie-knife, revolver, and rifle, which, in the minds of the general public, are associated with mining life, are here largely conspicuous by their absence. Property and person among the miners are held sacred, and the

neighboring Indians are not troublesome.

A generous spirit of communism prevails, and any one of their number, who, by accident or illness, is unable to provide for himself, is carefully looked after by his fellows. In all their dealings with each other, they are strictly honorable and true; but this appears to be the limit of their code of ethics.

The only traders in the district, Messrs. Harper & McQuestion, distribute the rations which they import to each miner alike, taking the chances of being paid in all cases in which the recipients have nothing to give in return at the time. Instances are very rare in which they fail to receive, sooner or later, from each miner the full amount of his account. One of the miners, named Missouri Frank, wanted more than his share of the butter which the firm had imported, and offered to pay in gold for the same. Although others were unable to pay for their shares, he was refused any further allowance, and that same night he stole what butter there was in the cellar. Upon the detection of the theft a few days afterwards, a meeting of the miners was called, and a committee of five appointed, who proceeded to Frank's cabin and demanded the stolen butter. The most frantic denial of the theft were useless; the butter was produced and placed on a sled, and Frank was compelled to draw it back to the post—a distance of eighteen miles. He was then ordered to immediately remove to a distance of not less than 150 miles, with which order he had the prudence to comply.

The gold-mining of the region is confined chiefly to the Stewart and Forty Mile Rivers, as on the Lewes and Pelly Rivers the necessary sluicing is impossible, except by pumping. The value of the metal found on these rivers up to 1887 may be estimated at \$250,000, although it is impossible to obtain from the miners themselves

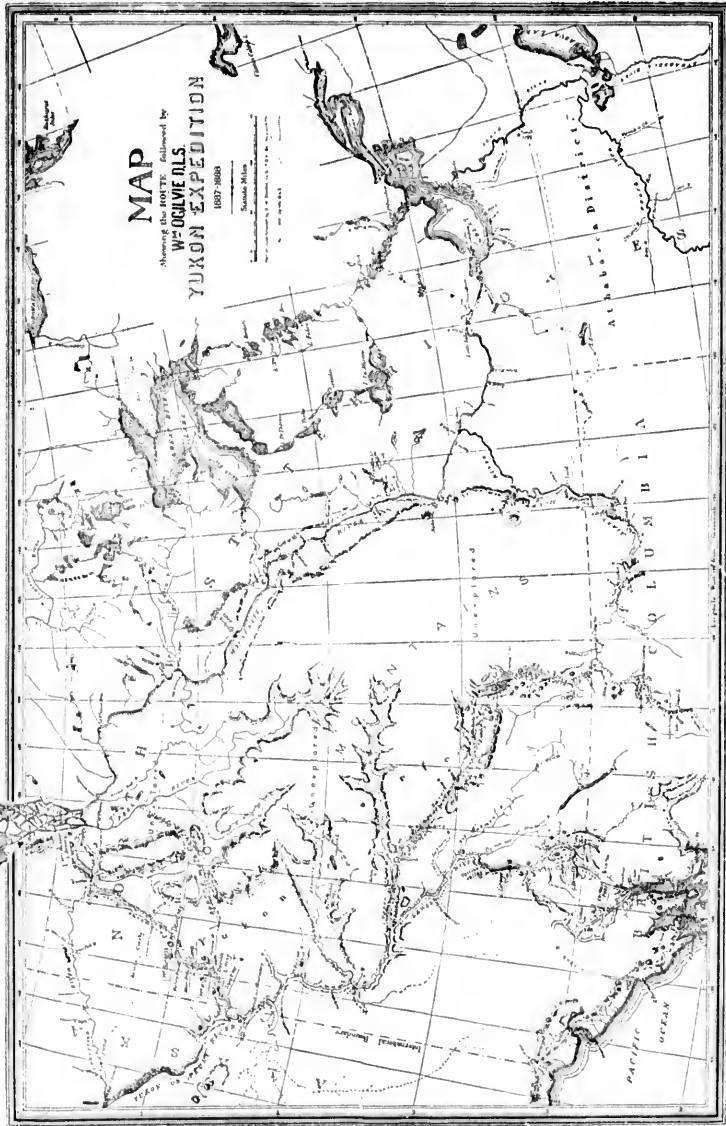


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any reliable information as to the amount they individually produce. They are, as a rule, inveterate jokers, and the higher the official or social position of the person with whom they are conversing, the greater the delight they take in hoaxing him. They do not even disclose to each other, much less to out-siders, the amount of their earnings. The highest amount reported as one man's earnings during the season was \$6,000, and in several cases \$100 a day was alleged to have been made. While, however, instances in which large amounts have been earned are comparatively few, nearly all the miners succeed in making what is called a "grub stake,"—that is, sufficient for the purchase of the necessaries of life for one year.

The mining on Stewart River was confined wholly to bars in the stream; the beach and bank bars were timbered, and at no great depth frozen, and to work them would necessitate a resort to hydraulic mining, for which there was no machinery in the district.

During the fall of 1886 several miners combined and secured the services of the engines of the supply steamer, "New Racket," with which to work pumps for sluicing. The boat was drawn up on a bar, her engines detached from the wheels, and made to drive a set of pumps manufactured on the ground, which supplied water for a set of sluicing boxes. In less than a month, the miners cleared \$1,000 each, and paid an equal amount for the use of the engines. Many of the miners who had spent the season of 1886 on Stewart River, and 1887 on Forty Mile River, seemed to prefer the former, as, according to them, there were no such failures on it as on the latter, each man being able to secure at least a "grub stake."

Forty Mile River is the only stream on which, up to the spring of 1888, coarse gold, the great *desideratum* of the miners, was found. The largest nugget was worth \$39. It was lost on the body of a miner who was drowned

at the Cañon. This stream is termed a "bed-rock" stream—that is, one in the bed of which there is little or no drift or detrital matter, the bottom being rock. In many places this rock has been scraped with knives to obtain the small amount of detritus, and its accompanying gold. Platinum is generally found associated with the gold, particularly on this river.

I venture to assert that rich finds will yet be made in this region, of both coarse gold and auriferous quartz. It is not probable that such a vast extent of country should have all its fine gold deposited as sediment, brought from a distance in past ages of the world's development. If this theory is correct, the matrix, from which all the gold on these streams is derived, must still exist, in part at least, and will in all probability be discovered, thus enriching this otherwise gloomy and desolate region.

The process of mining in the district is as follows:—When a miner "strikes" a bar he "prospects" it by washing a few panfuls of the gravel or sand of which it is composed. According to the number of "colors" he finds to the pan, that is, the number of specks of gold he can detect, after all the dirt has been washed out, he judges of its richness.

"Placer" mining is carried on by clearing all the coarse gravel and stone off a patch of ground, and lifting some of the finer gravel or sand in a pan. The pan is then filled with water, and a few rapid shakes and whirls, bring the gold to the bottom, on account of its greater specific gravity. The gravel and sand on the top is then carefully washed from the pan bearing the gold, with a quantity of heavy black sand, which invariably accompanies it. This sand is pulverized magnetic iron ore. Should the gold be fine, the contents of the pan are thrown into a barrel of water containing a few pounds of mercury, with which the gold forms an amalgam. When sufficient amalgam has been produced, it is "roasted" or

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"fired," and is then squeezed through a buck-skin bag. The mercury that comes through the bag is again placed in the barrel of water, while the gold is heated in order to vaporize as much as possible of the mercury still in combination with it. This is called the "pan" or "hand" method, and on account of its laboriousness, is never employed when it is possible to procure a "rocker," or to use sluices.

A rocker is simply a box about three feet long by two wide, made in two parts. The upper part is shallow, with a heavy sheet-iron bottom, punched full of quarter-inch holes. The lower part is fitted with an inclined shelf, about midway in its depth, covered by a heavy woollen blanket. The whole is then mounted on two rockers resembling those of a child's cradle. It must be located near a supply of water. The upper box is filled with the sand just mentioned, and with one hand the miner rocks and the other ladles in water. The pure matter, with the gold, falls through the holes upon the blanket, which checks its progress, and holds the particles of gold. Across the bottom of the box are fixed a number of thin slats, behind which a small quantity of mercury is placed to arrest any particles of gold which may escape the blanket. The blanket is, at intervals, taken out and rinsed into a barrel; if the gold is fine, mercury is placed in the barrel, as already mentioned.

Sluicing is always employed when possible. It requires a good supply of water, with sufficient head or fall. A long box is made of planks, with slats across the bottom, or shallow holes placed in such order that a particle could not run along the bottom without entering one of them. Several of such boxes are fitted into one another to form one continuous box, and the whole is then set up with considerable slope. Gravel is shovelled into the highest part, into which is also directed a stream of water. The gravel and sand is washed downward by the cur-

rent, the gold being detained on the slats, or in the holes, by its weight. If the gold be fine, mercury is used as in the case of the rocker. By this method three times as much sand and gravel can be washed as by the rocker in the same time. In the end, the boxes are burned, and the ashes washed for the gold held in the wood.

The principal furs procured in the district are the silver-grey and black fox, which more than equal in value all the other skins. The red fox is also common, and a species called the blue is abundant near the coast. Marten, or sable, are numerous; also lynx, but otter are scarce, and beaver is almost unknown.

Game, too, is fast disappearing. The baneful effects of indiscriminate slaughter, by the Indians, of game and fur-bearing animals, are here, as elsewhere in this northern country, becoming sadly apparent. For the irresistible propensity on the part of the Indian to kill any animal he chances to see, there has, as yet, been discovered no remedy. Police surveillance, or any kindred preventive measure, throughout such a vast region is, of course, out of the question, and all attempts to persuade or influence them to observe discretion in the matter has proved unavailing. I have known them to break into a beaver house and kill all the inmates at a time of the year when the skins were worthless, and some of the young scarcely able to crawl about. On one occasion I was in company with an Indian when two cariboo passed us. Although we had plenty of fresh meat on hand, he insisted on having me shoot them, and was greatly displeased because I would neither do so, nor lend him my rifle for the purpose, indicating as best he could by signs and broken English that he wanted to kill every animal he saw.

Four species of bears are found in the district—the grizzly, brown, black, and a small kind, locally known as the "silver-tip," grey in color, with white

throat and beard, and said to be exceedingly fierce and aggressive. A few wolves and arctic rabbits were seen, and the surrounding mountains abound in goats and big-horn sheep.

Birds are scarce. A number of ravens were seen along the river, and four of them remained around the camp all the winter. They were unusually active and noisy in stormy weather, their hoarse croak having a weird and dismal sound amid the roar of the elements.

Fish are not found in large quantities in the district, with the exception of a small species locally known as the arctic trout, and called by Schwatka, the grayling. It differs, however, from the ordinary descriptions and drawings of the grayling. It seldom exceeds ten inches in length, has very large fins, which give it the appearance, when in motion, of having wings, and is of a brownish grey color on the back and sides.

No record of the appearance and brilliancy of the aurora was kept during the winter, with the exception of its appearance three times by daylight, when it was seen as a long, thin, streamer-like cloud, fluctuating in intensity, suddenly increasing and decreasing in extent, quick and shifting in its movements, and of about the brilliancy of pale aurora when seen at night. As to the aurora being audible, I may say that I frequently listened during an unusually brilliant display, and amid profound silence, but was never conscious of even the slightest sensation of sound. I have met individuals, however, who claim to hear a slight rustling when the aurora makes a sudden rush. A member of my exploring party, in 1882, in the Peace River district, was so confident of this that one night I took him beyond the reach of noise from the camp, blindfolded him, and then watched the play of the streamers. At each brilliant and sudden change of the aurora, he exclaimed, "Don't you hear it?"

The extraordinary spectacle of green

clouds was witnessed on the 19th and on the 29th of February, just before sunrise. On both occasions the sky was covered with downy white clouds, while there was a slight fall of minute ice crystals, accompanied by an unusually high temperature. The color was a brilliant emerald green, fringed on the lower side with yellow, which, as the sun gradually rose, encroached on the green until the clouds were all yellow. This color changed to orange and red after the sun had risen above the horizon. On the first occasion, the green color was seen for about fifteen minutes; on the second for about five. It is probable that the form of the snow crystals in the air produced abnormal refraction which made the green rays of the spectrum conspicuous.

In this region there are occasional falls of remarkably large *ærolites*. During the winter of 1883, an unusually large *ærolite* fell with terrific force and noise, illuminating as brightly as mid-day the ill-lighted huts of the miners. Some idea of its magnitude may be obtained from the fact that at places twenty-two miles apart, those who heard it had the same impression as to its direction and sound.

On the 17th of February, I was on the way from Forty-Mile River to my camp, accompanied by a miner who had witnessed the flash and heard the report of this *ærolite*. Nine miles above my destination we halted for dinner, and just as we were preparing to resume our journey, a tremendous explosion was heard, followed by a rending, crashing sound, as though the side had been torn out of a mountain, and had fallen from a great height. The ice on which I was standing appeared to shake, and had it not been for the snow, which was falling thickly at the time, I would have fancied that the catastrophe would be seen on the mountain side a mile or so distant. The miner, who was at the time arranging the harness on his dogs, exclaimed, "That's one of them things." The miners at Belle Isle, fifteen miles

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from the spot where I was at the time, state that the sound and direction appeared to them as it did to me.

When the days became sufficiently long, I commenced preparations for my expedition towards the mouth of the Mackenzie River, a distance of over four hundred miles, by a route never before travelled by a white man. Two members of my party of six—Day and McNeill, on account of ill-health, did not attempt the journey, leaving Morrison, Gladman, Parker and Sparks to accompany me. The outfit was hauled to Belle Isle, a distance of twenty-four miles; and on the 17th of March we bade good-bye to the miners, with regret, and yet with a thrill of satisfaction that we were now started homeward on our long journey. More than 2,500 miles were still lying between us and the nearest railway station, nearly all of which had to be got over by foot or paddle.

Our supplies and canoes were packed on toboggans, and with the assistance of nine Indian teams of four dogs each, we began our march over the snow to the mouth of the Tat-on-duc River.

Up the bed of this river, now covered with ice, we proceeded for eleven miles, where a stream of warm water enters it, which melts the ice on the surface for some distance. Just above this point the river enters a cañon. This is one of the grandest sights I have ever beheld. It is forty or fifty feet wide; and the walls rise perpendicularly, on one side to a height of 700 feet, and on the other of 500 feet; then sloping off to the sides of high mountains. It is half a mile long, and although there is a slight bend in the middle, it can be seen through from end to end.

The camp of the Indians accompanying me was situated about seven miles above this point, and as we arrived there on Saturday, they desired us to remain with them until Monday. We complied with their wishes, and on

Sunday witnessed the religious services of these simple aborigines, which consisted of reading in their own language the service of the Episcopal Church, translated by Archdeacon Macdonald, a highly venerated missionary, and in singing a few hymns to old and simple tunes, in which, to their delight, we heartily joined.

The tents of these Indians are built differently from those of any other North American tribe which I have visited. Willows are fixed in the ground in an elliptical form, eighteen or twenty feet long, by ten or fourteen wide. They are bent into the proper curves and fastened together at the top. Over this framework are thrown deer skins, dressed with the hair on, the hair being inside. Although a large opening is left at the top for the smoke to escape, a small fire keeps the tent warm.

Their winter clothing is made of the same kind of skin, and is worn with the hair inside. The leggings and feet-covering are in one piece, and the coat is made after the manner of a shirt. In the case of young children, the ends of the sleeves are sewn up to prevent the hands from getting out.

Six miles above the camp, or twenty-five from the mouth of the river, there is a small cañon, the walls of which, though perpendicular, are not high. The water here is exceedingly rough, as is the case at nearly every point along the Tat-on-duc, which is really an important mountain-stream sixty or seventy miles long, and falling about 2,800 feet in that distance.

Four miles further on, as we were passing a mountain, the Indians informed me that on the other side of it was a small lake, which never freezes, the water being constantly disturbed by a strong wind blowing into it. This wind, they said, was deadly, and any man or animal coming near the lake died on its banks, or was blown into the water and drowned, and for this reason they have a superstitious dread of approaching it. They also

stated that large numbers of sheep and goats are seen around it (accounted for, no doubt, by the fact that these are there undisturbed by hunters) and that many of their skeletons are strewn along the beach.

Upon asking the Indians to guide me to this wonderful lake they refused, saying that we would surely never return alive, nor could any offer induce them to either accompany me or direct me to it. They regarded me and my party as being in their special charge while in their territory, and dreaded the consequences should anything befall us. Such superstition on the part of the Indian is frequently a matter of serious annoyance to the explorer and the searcher after scientific information.

My curiosity, however, was not of long duration, as the key of the mystery was soon afterwards obtained. About seven miles further up there is, along the east bank, a low swamp, from which is emitted a strong odor of sulphuretted hydrogen gas. This gas, the Indians said, is the same kind of *wind* as that blowing into the lake. According to this, the disturbance of the water is caused by an immense escape of the gas, which is strong enough to overpower any animal that may come within its reach. There was nothing in the appearance of the surrounding rocks to indicate that the lake was the crater of an extinct volcano, which would be a simple explanation of the phenomenon.

A short distance further on is a cañon, which the Indians described as being the largest and worst on the river, and which, they said, contains a high waterfall. I did not see it, as we turned into a creek to avoid it. We ascended this creek about four and a half miles, when we turned to the left, going up a narrow valley lying between two high, bald mountains, on the bare sides of which many wild sheep were seen feeding. There are places along this creek where the ice remains all summer. The water runs on top of the ice, continually adding

to its thickness, until, in places, the valley has the appearance of a glacier. On the south side a curiously formed range skirts the edge of the valley for miles. It rises sharply from the bottom to upwards of two thousand feet to the west, ending in a table-land, which extends as far as the eye can reach. On the eastern edge of this table-land rises an immense wall, from seven hundred to one thousand feet high, and which appeared, from where I saw it, to be perpendicular on both sides,—its thickness about one-third of its height. It is weathered into peculiar shapes, resembling in places the ruins of ancient buildings. There are several holes in it, through one of which we could see the plateau beyond. In the bottom of the valley there are numerous mounds of gravel, indicating glacial action.

At the summit of the pass through the range separating this valley from that of the main river, the scenery is sublime. Here, on either side of the pass, are two lofty peaks, which I have named Mounts Deville and King. When I arrived in the latter part of the afternoon, the summits of these two mountains were enveloped in mist, while the background between them was a dense mass of clouds, of such fleecy whiteness, that it was impossible to distinguish the snow-covered horizon. This was in some respects the most memorable and inspiring scene I ever beheld. The fact that I was the first, and, in all probability would be for many years, the last, white man to visit this locality and witness this wondrous spectacle, made a peculiar and indescribable impression upon me. It seemed as though I was the first of mortals to whom it was permitted to gaze through the portals of time into eternity. Early next morning the clouds scattered, revealing a scene of transcendent splendour. In the fore-ground stood the colossal forms of Mounts Deville and King, in solemn and majestic loneliness, conveying to the mind an idea

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of vastness such as I had never before conceived, while in every direction, as far as the eye could reach, appeared to brood the spirit of profound solitude, silence, and desolation.

Eight miles up from the point where we again entered the river, the stream turns sharply to the north, between two high mountains. As far as could be seen, the river, with its valley, was a field of ice of great thickness. In some places hillocks of ice were formed by the water bursting through and freezing as it overflowed. Much of this ice also remains through the summer.

Leaving the river, and ascending a mile up the valley of a small stream coming from the east, we reached the top of a low ridge which forms the watershed between the waters of the Tat-on-duc and those of a large river which the Indians assured me flowed into the Peel. I was much puzzled over this information, and it was only after they had repeatedly drawn in the snow, maps of the district, and after much argument and explanation by word and sign, that I gave credit to their statements. I then proposed to go down this river to the Peel and reach the Mackenzie by that route. At this the Indians were horrified, assuring me that there were most dangerous and impassible cañons on the river, and that we would certainly be lost if we attempted it, and they would be blamed for our disappearance. Their statements, coupled with the fact that the barometer stood at 26.65 inches,—showing an altitude of over three thousand feet, which would have to be descended before the Peel was reached, induced me not to try the route. Subsequent evidence which I procured corroborated the statements of the Indians concerning the direction and character of the stream. This river, which is not shown on any map of the district hitherto published, and which has never been referred to by any other explorer, has been named by Mr. J. Johnston, Geographer to the

Department of the Interior of Canada, "Ogilvie River."

Here the Indians turned back. No offer could induce them to accompany me with their dog teams any further; so, after paying them off, we bade farewell to our simple and kind-hearted escort, not without emotion on their part, which was fully reciprocated by us. The reason of their refusal to accompany me further was that they have a great dread of a tribe which they call Nahone, and which they suppose exists somewhere in the vicinity of these mountains. They speak of this tribe in a low tone of voice, looking suspiciously and timidly around, as though fearful of being overheard. They believe them to be cannibals, eating their food raw, and living outside without any covering for their bodies—like wild animals. They also seem to ascribe to them supernatural powers, for when, as I was trying to induce them to continue the journey with me, I pointed to my rifle and said I would shoot any Nahone who should attempt to molest me, they gave their heads an incredulous shake, as if they could not believe it. It appears that at one time an unusually fierce and warlike tribe inhabited the region around the head waters of the Liard and Pelly Rivers. Rumors of their aggressiveness probably reached these peaceful people, which would give rise, in time, to their needless feelings of alarm and dread. They admitted that none of them had ever seen a Nahone, or had ever heard of any person having seen one; yet nothing, except perhaps extreme want, would induce even a strong force of them to remain in this locality.

From here to the Porcupine River is sixteen and a half miles, thirteen of which is drained by the Ogilvie River. The country is slightly undulating, and wooded with stunted scattering timber, the existence of which is a matter of surprise, considering that the latitude is 65° 25' and the

altitude more than 3,000 feet above the level of the sea. In the open woods there is considerable fine short grass, and the willows along the numerous creeks in the neighborhood are as large as in southern countries.

Where the Porcupine is reached, it is a large creek, flowing northward from between two mountains. The valley can be seen for about six miles up, when it turns to the west, and disappears. About half a mile from here the stream enters a lake three miles long and upwards of one mile wide. At the lower end of the lake, which lies close to the foot of a lofty range of mountains, the stream turns from a northerly to a westerly direction, and, about a mile further on, enters another lake about as large as the first, from which it emerges double its former size. The valley is about a mile wide, well timbered in the bottom, and some of the trees are over a foot in diameter, clean trunked, and suitable for making lumber.

After parting from the Indians, the work of hauling our outfit over the snow and slush was exceedingly laborious, and we were fast becoming exhausted and unequal to the task. There was danger also of our provisions running short, if such severe labor were continued (three times the quantity being consumed under this labor than would suffice under ordinary circumstances). Hence I decided to halt until the ice broke up and we could use our canoes; and so we had a hut erected, consisting of canvas stretched over a wooden frame. Here we remained for six weeks—from the 10th of April to the 21st of May. Though this was a much-needed relief to our wearied bodies, we were greatly discouraged and disappointed by this long delay in our homeward journey. In our winter camp we frequently enjoyed the jovial society of the miners, and a visit to some of them could be made at any time we felt so inclined. We were always aware, too, that, as a last resort, we

could discontinue the exploration work we had set out to accomplish, and return in the spring to civilization. But here in this camp we were absolute prisoners; our nearest neighbors, the Tat-on-due Indians, were seventy miles away, and escape in any direction, however great the emergency, was, for the time being, impossible. Can it be wondered at that doubts were entertained by members of the party that we would ever reach our destination by this unknown route, and that fears were expressed that we would all perish and never be heard of again?

After a week's recuperation in camp, however, the men became reconciled to their lot, and gloomy forebodings gave way to hope. Cheerfulness, real or assumed, was regarded as a duty, and, from this time, merriment became the order of the day.

An unailing source of amusement and interest to us during our imprisonment was the Canada Jay, or Whiskey Jack, as it is commonly called. This bird is about the size and shape of the ordinary blue jay, but grey in color. It is celebrated for its familiarity with animals and man, hence the name, "Moose Bird," by which it is sometimes called. They came around our camp door in large numbers, chattering in a most comical manner, and greedily devouring what crumbs and scraps we threw to them. Numbers of them were caught in snares, and little collars of colored material were placed around their necks, and, thus arrayed, they were given their freedom. Their antics, when removing these collars from each other, were extremely comical. Some of them were re-caught four or five times.

The cunning of these birds is remarkable. One of them was noticed to be particularly bold and cheeky, and all attempts to capture him were in vain. At length a bag was prepared, with a hoop in its mouth to hold it open, and some food was placed around the mouth and inside. The bird approached it cautiously, and, af-

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ter a time, entered the trap. One of the men made a rush to close the mouth of the bag, and, in his haste, accidentally fell upon it. When it was opened, the jay was, to all appearances, dead and limp. An altercation arose between the man who fell on the bag and another who was particularly fond of the bird, during which the carcass was sadly tossed out of the camp. It had not reached the ground, however, when the bird flew rapidly to the branch of the nearest tree, and there commenced an unusually vigorous chattering and scolding, which, with the expression of bewildered astonishment on the countenances of the disputants, produced the most uproarious and long-continued laughter among the rest of us.

Owing to the isolation of this district, animal life was abundant. Otter and marten were numerous, and there were indications of beaver, also of the fox and lynx. Ptarmigan were plentiful, as well as the Canada jay just mentioned.

Vast numbers of moose and cariboo wander throughout the district, and as a consequence of being unmolested by hunters, were much less fearful of man than in other places. During the winter, the moose live on buds and young twigs of the willow, while the cariboo live chiefly on moss. This they find high up on the hill sides in winter, and lower down in summer. They stand facing upwards, and pull the snow down towards them, uncovering a patch which they crop; and they then proceed a step upwards, where they do likewise. We noticed hill sides on which the snow had been pawed over in this manner for more than a mile in length by a quarter of a mile in breadth, hardly a square yard being missed. I had been told that at times the Indians pursue the moose on snow shoes, and run them down, and I decided to verify this by experiment. I started after one in deep, soft snow, but could not approach near enough to the animal to get a shot at

it. At times I would gain upon it, but I fell frequently and thus lost my advantage. After pursuing the brute for over five miles, I gave up the contest, but not before he showed signs of distress: his tongue hung out, and he was so winded that he stopped whenever I did. I afterwards learned that the snow-shoes which the Indians use on these occasions are made specially for the purpose, and are as long as the height of the man who is to use them, and about fifteen inches wide. My shoes were of this width, but only two feet long, so that I sank almost to the knee at each step.

When the snow is not deep, and the animals are hard to approach, the Indians resort to the following stratagem:—A ravine filled with snow is selected, and around it, on the lower side, is built a brush fence, which is extended onwards and backwards on each side to the uplands, diverging until the ends are some miles apart. This fence consists merely of crotched sticks, driven into the snow at intervals of a few yards, with poles laid horizontally in the crotches, the chief object being to make the agency of man in its construction as conspicuous as possible. A party then scours the country around the mouth of the trap, gradually approaching it, and driving the animals in the vicinity between the arms, which they avoid as soon as they see, and rush on to the snow pit at the end, where they are easily dispatched by the Indians, who become almost frantic with excitement, and an uncontrollable desire to kill every animal within reach. On our journey between our winter quarter and La Pierre's House, we saw four of these traps.

In spite of such wholesale and promiscuous slaughter of these brutes, innumerable herds of them range over the whole of this northern country through which we passed.

Shortly after settling in our camp, a herd of cariboo was announced as approaching us. Four of us took our rifles, Gladman, an excellent shot, ac-

companied me, and Morrison and Sparks going in a different direction. The latter two came suddenly on the herd coming up a slight incline, and Sparks at once fired. Upon this the brutes made a stampede straight towards them, and while they were passing both men fired all the cartridges in their repeating rifles. Attracted by the noise of the shooting, Gladman and I ran to the scene, but not a cariboo, nor even a trace of blood on the ground remained as the result of the fusillade. This incident illustrates how men, exceptionally brave and cool-headed, become suddenly attacked with what is known as "buck-fever," on such an occasion as this. It is perhaps needless to add that this event was the subject of considerable badinage at the expense of Morrison and Sparks, especially as we were in need of fresh meat. A few days afterwards I secured a shot at a cariboo, but found the meat so infested with parasitic larvæ as to be unfit for food.

The lowest temperature recorded during April was 37° F below zero. This was on the 4th, and for the six following days the minimum temperature was lower than 30° below zero. The snow began to show signs of melting on the 29th April, and on the 30th the thermometer stood at 40° above zero. On this day also occurred the first appearance of insect life, a small fly coming out of the river in great numbers, flying about and crawling over the snow. On the 5th day of May the temperature was 2° below zero, and was the last time a minus reading was recorded. On the 6th, the water in the river began to rise. On the 8th a flock of wild geese were seen flying in a south-westerly direction, as though coming from the Mackenzie River. The common house fly made its appearance the same day. The first swans were seen on the 11th; cranes on the 15th; and mosquitoes on the 14th.

The ice in the vicinity of the camp

being broken up, and my men impatient and anxious to make a start, our supplies and outfit were securely packed in the two canoes, and we left our spring quarters on the 21st May. We had only gone three miles, however, when we found it utterly impossible to make any further progress. The river was solidly blocked with ice for miles, and we were reluctantly compelled to re-construct our camp and remain until the ice began to move. On the 28th we again set out, and by paddling through the open spaces, and dragging the canoes across jams and floating fields of ice, we succeeded in getting ten miles down the stream. Here was an enormous jam of more than a mile in length, over which it was impossible to haul the canoes, and which had raised the water on both sides of the river so that we could neither puck past it, nor even find a camping place until we had gone back some distance. This caused a whole day's delay, after which the jam moved sufficiently far to allow us to reach dry land on the east side, to which point the canoes and equipages were brought, and from there packed to the foot of the jam. Just when we had finished packing, the jam burst and the river cleared, so that all our severe labor was unnecessary. About six miles below this, a large creek comes in from the west. At its mouth are many old racks for drying fish, erected by the Indians many years ago; from this circumstance I have called the stream the "Fishing Branch" of the Porcupine. The water of this stream is black and clear; while that of the main river is blue. About a mile beyond the entrance of the Fishing Branch, another jam caused a delay of a day, and after eight miles of most dangerous and difficult canoeing, another impassable jam was encountered. As this gave no signs of breaking up, we decided to get around it, which we did by wading, packing and canoeing through the surrounding woods. A little further on there is a

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sharp turn in the river, and immediately below it a rapid which we entered before we had time to realize our danger. We fortunately got through, with no other mishap than one of the canoes filling with water and nearly sinking.

Twenty miles below the Fishing Branch, the river suddenly leaves the mountains, running under the base of the last peak, which is 2,500 feet high, and which I have named Mount Dewdney. As far as can be seen from this point, the mountains trend east and west, those on the east being lower, and gradually sloping off as if to another deep valley at no great distance.

From our camp to this point is about thirty-seven miles, in which there is a fall of four hundred feet. No sign of stratification was observed along the river, nor were there seen any traces of organic remains.

After leaving the mountains, the river winds through an undulating and wooded country. The banks are nowhere more than eighty or one hundred feet high, and generally consist of clay, with occasional exposures of a black shale, which decomposes into a rich black clay. The timber on the uplands, though thick, is not large enough for any other purpose than fuel. About thirteen miles below the mountains, a large rock exposure extends for half a mile on the east bank. It rises three or four hundred feet above the river, and is weathered into fantastic resemblances to old buildings, for which reason I have called it Cathedral Rock.

About forty miles below the mountains, a large tributary flows in from the south-west, and below this the current of the Porcupine becomes deeper and slower, and would be navigable for steamers of moderate draught.

A mile and a half below this, a stream one hundred yards wide flows in, and the width of the Porcupine averages one hundred and fifty yards.

From here down to the mouth of

Bell River, the fall is not noticeable by barometer, and the current is very slow. The latter river comes in from the east. As far up as its junction with Eagle River, it is one hundred yards wide. Its low banks are thinly wooded. By mistake we went up Eagle River one day's journey—twenty-seven miles. As we were encamped on the bank, a party of Indians, who had been on a hunting expedition, came down the river in skin boats, loaded with furs. These boats are made by sewing together a number of deer or moose skins, raw, with the hair taken off. A keel is laid down, and willow ribs and framework of the required dimensions are attached to it, and over this the cover is stretched after being soaked in water. When dry, it is smeared with melted fat.

By signs, we beckoned the Indians to come ashore. As they were approaching, I noticed my double-barreled shot-gun, which was loaded, lying on the ground, and, fearing an accident if they attempted to handle and examine it, I took it up and withdrew the cartridges. At this action they became alarmed and suspicious, and it was with difficulty that we assured them we intended no harm, and induced them to land. After they had partaken of our hospitality, and were presented with a pound or so of our tea, they became quite friendly and communicative. Having learned from them that we had come up the wrong river, we at once retraced our steps, reaching Bell River at one o'clock in the morning, at which hour the sun was well above the horizon. It astonished the Indians greatly to see how we managed our canoes in the ice. In order to prevent them being crushed, it was often necessary to hastily jump out upon a floating mass and haul the canoes out quickly until the danger was past, when we re-embarked in the same spot, or dragged it across to open water on the other side. Ice of this kind was encountered all the way to La Pierre's House, which we reached

at nine o'clock at night, or rather in the afternoon, of the 6th of June. A large number of natives were here when we arrived. Our canoes and outfit were a subject of great curiosity to them, and the accounts of one of the Indians who accompanied us for the previous two days as to how we worked through the ice caused them to regard the white man's canoe as being a creature of life and spirit.

The distance from here to Fort McPherson is eighty miles by trail, and the trip is usually made in three days. By the route, however, which it was necessary for us to take with our canoes, eleven days of infinite toil and difficulty were occupied between the two posts. We set out on the 8th, going up Bell River to a pass across the watershed between it and Trout River, by which we were to reach the Peel. Although the distance to the pass was only twenty-one miles, owing to ice jams and the sinuosities of the river, it took us three days to reach it. The current was not strong, but there were shoals where the ice, fully five feet thick, was grounded and piled up so as to dam the water back until sufficient force was accumulated to push it over or break it up. Leaving the river at the pass, we entered a creek, up which for the first few hundred yards we easily paddled. For the next mile and a half, however, the creek was a continuous rapid, and there not being sufficient water to carry us in our canoes, we had to drag them after us, wading through the water amid thickly falling snow. At the end of the rapid the ice was solid, and at least ten feet thick, which rendered necessary the packing of our outfit for about a mile, to where the stream was again open, where we re-embarked and paddled without difficulty for six miles, or three miles in a direct line. Here again we had to

pack about four miles to a creek flowing into Trout River. This creek was so full of ice and snow that, although it was only three and a half miles to the river, a whole day was consumed in getting there.

The country around here is almost treeless, only a few stunted spruce being seen near the lakes.

Ten and a half miles from where we entered Trout River, it leaves the mountains, passing through a cañon, the walls of which are eighty feet high. The fall in this distance is three hundred and sixty feet, but, being uniform, the current, though swift and rough, is not dangerous for canoes. In the next fourteen miles the fall is seven hundred and thirty feet, or fifty-two to the mile. This is not uniform, being broken into several rapids, the running of which was, to say the least, exciting. In the very last yard of the last of these rapids, when but twenty miles of smooth water lay between us and Fort McPherson, my canoe, which had passed unharmed through the dangers and vicissitudes of over a thousand miles since we entered Alaska, had its side broken by an unseen stick. The fracture was speedily remedied and the journey continued to the Peel River, which was entered on the 19th.

This was the most northerly point reached by the expedition,—67° 45',—yet trees of considerable size are found along the banks of the river. The length of time that timber, when cut or hewn, will preserve a fresh appearance in this region is remarkable. Trees and logs cut in 1872 appeared as if only cut a few months ago. The same thing was noticed on the Upper Porcupine.

Early in the morning of the 20th of June we arrived at Fort McPherson.

(TO BE CONTINUED.)

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ers in the various women's societies of the Dominion are concerned, she has captured them entirely, and Her Excellency's acceptance of the post of President in the National Council of Women for Canada, at their recent meeting in Toronto, strengthened this influence. The speech delivered by her upon that occasion was remarkable. Its keynote may be found in this paragraph:

"Do we value our responsibilities as mothers, as sisters, as friends, as the makers or mappers of home life, of social life?"

Unity of organization was what she wanted, though the objects of the individual societies might be different. Increased strength would then come to the central body and be diffused throughout all its limbs no matter how diverse the ends in view. In this plea Her Excellency was successful. But to reach the hearts of Canadian women as a whole, public bodies, however strong, are not sufficient, because the majority do not take a marked interest in them. That will have to be left to time and to the qualities portrayed by a lady member of the Chicago *Herald's* staff a few weeks since:

"Lady Aberdeen is a beautiful woman in the best sense of the word. Her frank face, her sunny smile, her cordial manner, and her quiet dignity all bespeak the perfect gentlewoman."

Such is a brief sketch of our new Governor-General and his wife. His Excellency has a great future before him, in Canada and elsewhere. His

ability in saying the right thing in the right place, his reputation for tact, and his high personal character will be powerful factors in that direction.

There may be one difficulty to overcome. Writers, like W. T. Stead, in the *Review of Reviews*, who never have a good word for Canada, and who never cease prating about that unity of sentiment between England and America, which residents in the United States find so much difficulty in discovering, already speak of the "magnificent opportunities" now lying before Lord and Lady Aberdeen for "the promotion of an Anglo-American entente." Such utterances overlook the vital fact that Canada does not exist for the sole purpose of unifying British and American sentiment, and that the Governor-General of Canada is not here as an ambassador from Great Britain to the United States, but as a representative upon Canadian soil of the sovereign of our own Empire. The great interest so generously taken by Lord and Lady Aberdeen in the Chicago fair has led, in certain quarters, to this strange misconception of their duties. But time, as in many other things, will prove the error—and in this case it may well be expected, place the new occupants of Rideau Hall high in the roll of Canadian fame, and leave for the Earl of Aberdeen a reputation and a popularity which will compare with that of even his most distinguished predecessor.



DOWN THE YUKON AND UP THE MACKENZIE.

*3200 Miles by Foot and Paddle.**

BY WILLIAM OGILVIE, D.L.S., F.R.G.S.

IV.

FORT MCPHERSON stands on a high bank of gravel and slate, on the east side of the Peel River, about fourteen miles above the point where it divides and joins the Mackenzie delta, which is common to both rivers. The height of this bank rapidly decreases towards the mouth of the river, where it almost entirely disappears. The country surrounding has evidently at one time been a part of the Arctic Ocean which has been gradually filled up with alluvial deposits brought down by the two rivers.

On this rich soil, the timber, mostly spruce, with some tamarac, birch and poplar, is, for the latitude, very large. As far as I could learn, no attempt at cultivating cereals or roots has been made at Fort McPherson, but considering the prevailing temperatures during the growing months, the period of vegetation, and the duration of sun-

shine at this northern point, it seems evident that Fort McPherson has all the essential elements for the successful cultivation of most cereals and vegetables. There are twenty-four hours sunshine each day from about the 1st of June to the 15th of July; and during the four growing months, May, June, July and August, the sun is below the horizon altogether only a little over three hundred hours, or about one-tenth of the time. When the temperature is suitable, vegetation, under these conditions, thrives to an almost incredible degree. When I arrived at Fort McPherson, on the 20th of June, the new buds on the trees were just perceptible, and on the evening of the 22nd, when I left, the trees were almost fully in leaf.

The following table, which I have computed, showing comprehensively the different durations of sunlight for the latitudes of Ottawa, Forts Chipewyan, Simpson, Good Hope and McPherson, may not be uninteresting:—

—	OTTAWA.	CHPEWYAN	SIMPSON.	GOOD HOPE.	MCPHERSON.
LATITUDE.....	45° 26'	58° 43'	61° 52'	66° 16'	67° 26'
	H. M.	H. M.	H. M.	H. M.	H. M.
Hours sunlight, May 1...	14 08	15 34	16 05	17 06	17 30
" " June 1...	15 16	17 36	18 39	21 04	24 00
" " June 21...	15 30	18 44	19 14	22 48	24 00
" " July 1...	15 24	18 36	19 02	22 04	24 00
" " Aug. 1...	14 32	16 16	16 56	18 16	19 24
" " Aug. 31...	13 08	13 52	14 08	14 36	14 44
	Hours.	Hours.	Hours.	Hours.	Hours.
Hours sunlight in May....	456	514	538	592	706
" " June....	462	549	570	662	720
" " July....	464	539	558	625	684
" " August..	423	467	481	519	527
Totals.....	1,805 or 75 days 5 hrs.	2,060, or 85 dys. 20 hrs.	2,147, or 89 dys. 11 hrs.	2,398, or 99 dys. 22 hrs.	2,637, or 109 days 21 hours.

* Several of the illustrations accompanying the present article are from photographs taken by the French traveller, Le Comte de Sahville, and kindly loaned by His Honor Lieut. Governor Schultz, of Manitoba. The other illustrations are from photographs by Mr. Ogilvie.

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The number of hours of sunlight in each month has been obtained from the mean of the numbers at the beginning and ending of the month, neglecting the want of uniformity in the rate of change of the sun's declination. Were the light of each day in the period separately computed, the totals would show even more difference in favor of the North. In the foregoing table refraction has not been taken into account, except in the case of Fort McPherson. Allowance for refraction would increase the duration of sunlight at all the other places, but much more in the North than in the South.

During my stay at the fort I had the pleasure of being entertained by

of friendship, and those of the great white queen who had sent me into this land of great mountains and mighty rivers, where, though the summer might be short and uncertain, and the winter long and cold, I had found that the love of my red brothers was constant and their hearts always warm and true. At the conclusion of my little speech I distributed some provisions, and a few small articles, as presents among them.

After dinner we were treated to an exhibition of step-dancing. A villainous looking kit was produced which, in the hands of a stalwart son of the forest, screeched as if all the demons in pandemonium were tearing at its insides.



PROTESTANT MISSION AT FORT MCPHERSON.

Chief Robert of the Loucheux Indians, who gave a grand dinner in my honor. The Hudson's Bay Company's officers, chiefs of neighboring tribes, and others, were invited to the banquet, which consisted simply of boiled meat and tea. This was partaken of, however, with much dignity and decorum. Chief Robert made me and my party a formal address of welcome, which was translated for us by the interpreter. He said that his fare was simple and frugal, and he knew that it was not such cheer as his white brother from the far distant south was accustomed to, but to such as it was we were heartily welcome. Of course, I had to make a suitable reply, thanking him for his hospitality and expressing my feelings

"Nunc pede libero, pulsanda tellus." The louder it screeched the higher the dusky heels flew, some of the noble red men displaying a surprising degree of agility and proving themselves to be proficient in the terpsichorean art.

Their national dance, however, is a very different affair, consisting of a series of monotonous, jerky movements, performed with swaying and rocking bodies and accompanied by much dismal chanting or howling and vigorous beating of tom-toms, which, at night particularly, and around a flickering camp fire, has a weird and gruesome effect. After the dancing, games of various kinds were indulged in. One in particular, which I had never seen before, in some respects analogous to

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3.	684
4.	527
5, or 2hrs.	2,637, or 109 days 21 hours.

by the French traveller.
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our children's game of snap-dragon, afforded considerable amusement. A pot of dried meat is put on to boil, and when it is done the sport begins. The boys having collected from all sides, an Indian seizes the pot and runs hither and thither at full speed through the camp with it, the boys making frantic dives for the pot as its smoking savory contents are whirled past them. Unfortunately, the runner, in this case, though fleet, was not sure of foot, and, stumbling against a little mound, he sent the pot flying, and himself went heels over head, with the whole pack

there to connect with my micrometer survey of the Athabasca and the Peace rivers. I tried to take some observations for latitude, but as the sun never set, I could get only a couple of meridian altitudes of first magnitude stars, in addition to that of the sun. The instrument used was faulty, so that the result, $67^{\circ} 26'$, cannot be accepted with much confidence, as it may be in error a minute or more. I observed the sun, east and west, for azimuth, and that night did what I think no other Dominion Land Surveyor has ever done,—I took the sun's lower or mid-



BLACK MOUNTAIN, BELOW PEEL RIVER.

of boys writhing, struggling and kicking on top of him. The dogs, in the melee, quick to seize the opportunity of a life time, pounced upon and secured the lion's share of the meat. But, alas! they had bolted it blazing hot, and then howls of anguish, rising and falling through all the varied gamut of canine vocal expression, could be heard for long after our departure.

The greater part of two days was spent in making preparations to resume the micrometer survey and carry it from this point to Fort Chipewyan,

night transit across the meridian, for time. On the 22nd of June I took a set of magnetic observations, and all the necessary preparations for the survey being completed, started the work at six o'clock that evening, completing about seven miles.

Between Peel river and the Mackenzie about two-thirds of the channel in the delta averages more than a quarter of a mile wide; the remainder about one hundred yards. All of it was deep when I passed through, and the Hudson's Bay Company's steamer *Wrigley*,

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drawing five feet of water, finds no difficulty in navigating it. The banks do not rise more than ten or fifteen feet above the water, and the current is continually wearing away the soft deposit and carrying it down to the lower part of the delta and to the Arctic ocean.

Where we enter the Mackenzie proper, the channel is three-fourths of a mile wide, but it is only one of four, there being three large islands at this point. The whole width of the river cannot be less than three or four miles. Looking northward, down the westerly channel, the view is bounded by the sky, and widens in the distance so that

islands. The shore on the east side is sloping, while that on the west is generally perpendicular, showing the action of the current, which is wearing into and carrying away portions of it. This form of bank changes into steep shale rock on both sides, gradually increasing in height as far as the Narrows, where they are probably one hundred and fifty feet above the water.

On the Mackenzie I did not stay long enough to learn much about the Indians in the district, nor did I see many of them. While we were in the delta, nine large boats loaded with Esquimaux from the coast passed us on their way up to Fort McPherson

to do their trading for the season, in one of which I noticed a young woman devouring a raw musk-rat with evident relish. These people come up from the coast in skin boats, called *oumiaks*, made, it is said, of whale skin put round a wood frame. These boats present a very neat appearance, and are capable of carrying about two tons each. Whale oil is one of



STEAMER WRIGLEY, BELOW THE BANK ON PEEL RIVER.

one can fancy he is looking out to sea. This can hardly be so, but from the altitude of the bank where I stood, added to my own height, the horizon must have been six miles away, and a bank in the channel of equal height would have been visible twice that distance. Now if the supposed bank was timbered, as was that on which I stood, it would be visible ten or twelve miles farther, but none was in sight.

A north wind raises quite a swell here, and the salty odor of the sea air is plainly perceptible above the delta. The banks continue low, and the country flat on both sides of the river, for some nine or ten miles above the

principal articles which they bring in for sale.

The Esquimaux are reputed to be great thieves, and to require close watching. For this reason they were not encouraged to remain when they called at our camp. Moreover, as they are not very cleanly in person, their presence is not desirable. They were formerly very aggressive toward the Indians on the lower part of the river, frequently coming up and robbing, and, sometimes, killing them. Many years ago they received a severe chastisement for this from the combined whites and Indians, and since that have been guilty of no very ag-

gressive act, though they are inclined to be overbearing when they have the advantage in numbers. It is said that murders are frequent among themselves; and, as in most savage tribes, retribution is the prerogative of the kin of the murdered. Missionaries have tried to do something toward their moral improvement, but, hitherto, without very much effect.

Recalling the description of the much-dreaded Nahones, given to me by the Indians of the Porcupine,—their fierceness, and warlike nature, eating their food raw, and so on,—the idea has occurred to me that this agrees closely with the character of the Esquimaux,



CAPTAIN BELL, STEAMER WRIGLEY.

and that, possibly, these have been mistaken by the Indians for the redoubtable Nahones. This seems more probable, also, when it is remembered that the Esquimaux formerly used to make frequent long incursions inland, in the course of some of which they must inevitably have encountered the Indians of the Porcupine.

A few miles above the Narrows the banks change from rock to clay and gravel, and continue generally steep and high as far as Fort Good Hope. In a few places the bank recedes from the river for a short distance, forming a low flat, on which generally grows

some fair spruce timber. I noticed that these flats are being eaten away by the action of the current and waves. The greatest extent of level ground I saw is opposite the site of Fort Good Hope. For a distance of about eighty miles up from the delta the river is clear of bars and islands; it then widens to two miles or more, and scattered bars and small islands occur. The current is uniform, as one would expect in such an immense volume of water, and never exceeds four miles an hour. There are many places where, looking up and down the valley, the view is bounded by a water horizon.

No rivers of importance flow into the Mackenzie between Red and Hare Indian Rivers. Sixty miles above Red River, a stream one hundred yards wide enters from the north-east. I think this is a river which an old man at Fort Good Hope described to me as one up which a Hudson's Bay Company's officer went, many years ago, to its source, which he found to be not far from the head waters of Anderson River, which flows into the Arctic Ocean. It would appear from the old man's statement that several trips up it have since been made; but his information was vague, and I afterwards met no one who could give me a reliable account of this river.

One hundred and thirty miles further on, Loon River enters from the east, and, twenty miles above this Hare Indian River also enters from the same side. The Indians report that Hare Indian River rises in a range of hills on the north-west side of Great Bear Lake, but about its navigability I could learn nothing. There was an old Indian at Fort Good Hope, who had been up to the head waters of this river several times, from whom I had hoped to obtain some reliable information; but because he saw me taking an observation in daylight, and learned that I could see the stars at that time, he would tell me nothing, saying: "A man who could

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A few days before reaching Good Hope, a cow moose and calf were noticed crossing the river. Although we were not in need of meat at the time, the love of sport was so great that the forward boat, with Sparks, Gladman, and a Fort Good Hope Indian, whom we had picked up at Fort McPherson, at once gave chase. We had heard stories of the fierceness of the female moose when protecting its young, and the men determined now to put these yarns to the proof by attempting to separate the mother from the calf. This proved to be most dan-

gerous sport, and had they not been expert canoeemen, it would certainly have resulted in disaster. The moose kept herself between the calf and the canoe, and whenever the latter came too close, she would turn and charge, making three or four frantic bounds

through the water at a terrific rate of speed. A couple of swift strokes of the paddle would send the canoe out of danger, and the mother would return to the calf, whose bellowing could be heard for miles around, and, placing her breast against his side, push against him as hard as she could. The attack on the calf would then be repeated from the other side, and with the same result. In this way, the canoe making sudden dashes at the calf, the mother furiously charging back, and the calf bellowing as if his life depended on it, the shore was reached. Here the moose might easily have made off at once, but this she refused to do, still keeping her body between the calf and danger, until he

had reached a point of safety far up the bank.

Now, whatever the Indian's ideas of all this had been, he certainly never dreamt that the white men intended the moose to escape. Such an idea never entered his mind. When, therefore, he saw the poor animal turn to follow the calf up the bank, his excitement reached a climax, and, seizing a rifle, he levelled it at the faithful creature. Gladman, however, who had no intention of seeing the panting victor, after such a hard-fought battle and such a magnificent display of courage, stricken down in the moment of her triumph in that dastardly manner, leaped upon him and wrested the rifle from him. To any one who is famil-



R. C. CHURCH AND DWELLING HOUSE AT GOOD HOPE.

iar with the Indian character, and particularly with his propensity to slaughter every wild animal he comes across, it is needless for me to attempt to describe the bewildered amazement of this particular Indian. He sulked for three days, and would not speak a word to any member of the party; at first he would hardly eat his food. When we arrived at Good Hope he relieved his mind by telling everybody that we were lunatics, which statement, I have no doubt, he himself firmly believed.

We reached Fort Good Hope on Saturday, the 24th of July, and remained over Sunday.

The Fort is built on the east side of the Mackenzie, about two miles above

Hare Indian River, and two below the "Ramparts." It was originally about one hundred and twenty miles down the river from this point, but was subsequently removed to the Upper Manitou Island, whence it was swept by a flood in 1836. It was then built on its present site. The Hudson's Bay Company has quite a large establishment at this point, consisting of half-a-dozen houses and some stables. The Roman Catholic Church has a flourishing mission here, and the church is said to possess one of the best finished interiors in the country.



GREAT SLAVE RIVER. STR. GRAHAME AT SMITH'S LANDING.

Two miles above the Fort we enter what is known in the vicinity as the "Ramparts," though in the more south-westerly part of the country it would be called the "Cañon." Here, for a distance of seven miles, the river runs between perpendicular and occasionally overhanging walls of rock. At the lower end they rise one hundred and fifty feet above the water, but their height decreases as we near the upper end, at which point they are not more than fifty or sixty feet. The river, at the lower end of the "Ramparts," is nearly a mile wide, but its walls gradually converge until, about three miles up, the width is not

more than half a mile, and this continues to the upper end. Sir Alexander Mackenzie, when passing through, sounded at its upper end, and found three hundred feet of water, which accounts for the fact that although the Cañon is so narrow the current is not perceptibly increased.

When Mackenzie discovered and explored this river in 1789, he met some Indians a short distance above this place. After confidence had been established by means of presents, he prepared to start onward; and, although his newly-made friends told

him there was great danger ahead in the form of a rapid or cataract which would swallow him and his party without fail, he continued, the Indians following and warning him of his danger. He advanced cautiously into the "Ramparts," but could hear or see nothing to verify their statements. At last, when through, they admitted that the only bad water to be encountered was now passed, but that behind the

island just below was a bad spirit or monster which would devour the whole party; failing there, the next island below would surely reveal him. From this incident the two islands have received the names of Upper and Lower Manitou, respectively.

Mackenzie's experience with these Indians all along the river is identical with that of nearly every traveller through regions previously unexplored. Everywhere he came in contact with them, they manifested, at first, dread of himself and party, and, when friendship and confidence had been established, they nearly always tried to detain him by representing the people in the

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direction he was going as unnaturally bloodthirsty and cruel, sometimes asserting the existence of monsters with supernatural powers, as in the present case. The people, too, on a very large river far to the west of the Mackenzie, probably the Yukon, they described to him as monsters in size, power and cruelty.

In our own time, after all the intercourse that there has been between them and the whites, more than a suspicion of such unknown, cruel people lurks in the minds of many of the Indians. It would be futile for me to try to ascribe an origin for these fears, my knowledge of their language and idiosyncrasies being so limited.

In the fall of 1887 a whale made its way up the river to the "Ramparts," remaining there the whole season, and, before the river froze over, it was often seen blowing. At first the Indians were afraid, but they soon became accustomed to the sight, and shot at the whale whenever it approached the shore. In the spring its dead body was beached by the ice on the west shore, seven or eight miles below Fort Good Hope, and the Indians used part of it for dog food. I enquired its dimensions from several who had seen it. They described it as about twice as long as one of their canoes and thicker through than their own height. This would mean a length of from twenty-five to twenty-eight feet. I have often heard it stated that all the channels of the Mackenzie delta are shallow, but the presence of this whale assures us that one of them, at least, is over six feet deep.

Forty-eight miles from Fort Good Hope, Sans Sault Rapid is reached. This, like the rapid at the head of the "Ramparts," is all on one side of the river, which is here a mile and a quarter wide. As I went up the west side, and the rapid is on the other, extending but little more than a third of the way across, I cannot say that I saw anything of it. I heard the roar plainly enough, but saw nothing ex-

cept a swift current. It is caused by a ledge of rocks extending partially across the river.

A ridge of hills here extend beyond the river from the Rocky Mountains, occasional glimpses of which can be caught from the water.

Just above this the Mackenzie turns sharply to the east from its southerly direction, and skirts the base of the mountains for six miles. Its course then curves a little to the south, when, what might be termed a cañon, is entered, which extends for nine or ten miles. The river here averages a mile in width, and is walled on both sides by perpendicular limestone cliffs, rising from one to two hundred feet above the water. On the south side, this wall terminates in what is known as "Wolverine Rock," which rises perpendicularly from the water to a height of about three hundred feet. The formation is limestone, the strata of which stand almost on edge, and the water has worn through them in several places, so that one can sail underneath. Above this point the mountains again approach the river for a few miles, when they suddenly drop almost to the level of the plain. The banks here are clay and gravel, with an average height of from one hundred to one hundred and fifty feet.

Six and one-half miles above Sans Sault Rapids, Careajou River empties its waters into the Mackenzie from the west. This river, I believe to be the largest tributary of the Mackenzie below the Liard. An Indian with me stated that this stream was very large and very long, and that they had ascended it for great distances through the mountains. He pointed out the direction of the valley for some distance above the mouth, and it appeared to run parallel to the Mackenzie; turning sharply to the west, it was lost among the hills.

Creeping around a bend in the river, close to shore—to avoid the floating logs and driftwood, which filled it on the afternoon of the 21st of July—about



INDIAN CAMP BELOW GOOD HOPE, SHOWING METHOD OF DRYING FISH.

one hundred miles above Fort Good Hope, we met the Hudson's Bay Company's little steamer "Wrigley" on her way down to Fort McPherson. As she was overdue at Good Hope, we had been expecting to meet her, but the suddenness with which she dawned upon our view in that region of loneliness and desolation, startled us. Parker was in advance with the line, but it did not need his excited shout of "steamer ahead" to focus all eyes upon her. There she was, puffing away, about half a mile out in the current. Would she pass without seeing us?

The thought was appalling. It flashed through all minds at once. Parker let a series of yells out of him that would have done credit to a Comanche chief on the warpath. I have said that nothing ever excited Gladman, but I make a notable exception of this case. Seizing his rifle, he fired a signal shot, and waited breathlessly, vowing with flashing eyes that he would shoot *into her* if she passed us. Morrison caught up one of the signal flags and waved it excitedly. In anxious suspense we waited several minutes, which seemed like hours. Would she pass?

A lump rose in my throat as I saw the little prow turn slowly towards the shore and I knew that we were

seen, while an answering shout assured us that we were recognized as "Ogilvie's party." This incident reads only like an ordinary occurrence here, but to me, it was no ordinary event—to me that little boat, slowly steaming towards us, with the grand old flag aloft, was *home*, and all that the word implies, and thus only can I explain the frenzy and excitement that possessed the whole party. For fourteen months we had been wandering in this dreary wilderness, unknowing and unknown, and now in the form of that small boat, home burst upon our view. I have somewhere heard or read, that Payne, who wrote "Home Sweet Home," was himself a homeless wanderer. Be that true or not, as a fact, I can believe the idea is true, and that only one who had felt the aching void that nothing but home can fill, could compose such a song, or infuse so much feeling into so few words. It may seem strange, but my emotion at the moment completely overmastered me, and I could not restrain my tears. On board the steamer were Bishop Bompas, who is in charge of the diocese of Mackenzie River for the Church Missionary Society of England, Lord Lonsdale and party on a holiday excursion, Mr. Camsill, Chief Factor of

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the district for the Hudson's Bay Company, and others, and from them I heard the first news from the outside world since May in the previous year.

Opposite where I met the steamer is a large island in the river, which the officers of the boat and Mr. Camsill named "Ogilvie's Island," requesting me to so mark it on my map, as henceforth it would be known by that name throughout the district.

Four hundred and forty-four miles from Fort McPherson brought us to Fort Norman, which is situated on the east bank of the Mackenzie, just above the entrance of Great Bear River. I arrived here on Saturday, the 28th of July.

At Fort McPherson I had expected to get letters from home, and I was sorely disappointed to find that though every letter was plainly marked, "*To be kept at Fort McPherson till called for,*" my mail had all been sent on to Rampart House on the Porcupine, on the supposition that I was coming through that way, the only known route, and in the hope that I would thus get it so much earlier. When I learned this, an Indian courier was at once despatched to Rampart House for it, and I left McPherson with instructions for it to be sent on after me.

It was while I was here at Fort Norman, delayed by two days' rain, that it overtook me, brought up by the steamer "Wrigley," and, though the dates of the letters were all many months old, the contents came with all the welcome freshness of the morning newspaper.

As these letters had travelled over two thousand two hundred miles by dog-team, a word of explanation here with regard to the Hudson's Bay Company's postal arrangements in the far north may not be out of place.

The northern winter "Packet" now starts by dog teams from points along the Canadian Pacific Railway sometime about Christmas. A few years ago, before the railway was built, the general

starting point was, of course, at Winnipeg. The packet consists entirely of mail matter. No goods or provisions of any kind are carried with it, and as the first requisite is speed, its bulk and weight are reduced as much as possible, and it is carried by relays of the fastest dog teams from post to post.

The parcels for the different posts are made up separately, and packed in boxes and loaded on the sleds, so that there is nothing to do at each post but to open the proper box, take out the parcel and nail up the box again. The rapidity with which this is done is surprising.

The arrival of the Packet at a post is an event not likely to be forgotten by one who has witnessed it. A keen rivalry exists among the different posts in sending on the Packet with the least possible delay. Everything else must give way to it for the time. For days before its arrival it is hourly expected, and the anxiety if the Packet does not arrive at the proper date is very much like the feverish excitement with which an overdue ocean steamer is awaited. Dogs, drivers and sleds are prepared long beforehand, and ready to start at a moment's notice. The excitement is so great as to interfere with all other work, and all ears are strained night and day to catch the first tinkle of the approaching bells.

On one occasion, while I was at a post in the Hudson's Bay district, the Packet was expected, and for two days the officer who was in charge of the post, a young French-Canadian, never took off his clothes, nor lay down to sleep. At intervals he would spring up and listen, and then sit down again, or resume his walk up and down the room. At length, about three o'clock on the morning of the third day, the Packet, which had been delayed by heavy snowstorms, arrived. For a few minutes a lively scene ensued. A kick in the ribs brought Pierre, the teamster, ready dressed, to his feet. The fresh team was harnessed while the load was being unstrapped and the parcel

for the post taken out. The load was quickly shifted and made secure, and, with a snap of the long whip and a "Hoop-la!" Pierre was off into the darkness of the night, leaving behind the worn-out driver and the tired dogs standing in the welcome ruddy glow of the open doorway.

At Fort Norman, the Hudson's Bay Company had a garden, with turnips, potatoes and other vegetables. The potato vines were from six to ten inches long, and did not promise a good yield. The Roman Catholic Mission had about an acre under cultivation, the soil being of better quality, and the potato vines nearly covering the

summer and much retarded vegetation. The Roman Catholic missionary told me that in twenty years' residence at the place, he did not recollect such a cool, damp, cloudy summer.

On the east side of the river, two miles below Fort Norman, a limestone ridge, known as "Bear Rock," rises one thousand five hundred feet above the water, and maintains this height for some distance northward from the Mackenzie. All along the river here, the main range of the Rocky Mountains was occasionally in sight. I tried to locate the most prominent peaks by triangulation, but, on account of continuous wet weather during the whole

summer, I did not succeed as well as I wished, although I continued this work to within a few miles of Fort Simpson. The data thus collected, when placed on my map, will permit an approximate location of the main range for the future maps of the district. In most cases, the angular altitudes of the peaks were noted, so that their heights and positions can both be given. At



H. B. CO.'S RESIDENCE AND STORE, FT. SIMPSON, MACKENZIE RIVER.

Fort Norman, the mountains are not more than twenty miles distant, but, just south of that point, they turn away from the river, and are not visible for some distance.

In 1844, Fort Norman stood twenty-three miles above its present site, on the west bank, but when that fort was built I could not learn. During the occupation of that site, one evening the occupants of the fort observed that the water in the river was falling very rapidly. They, however, retired to sleep, not expecting any danger. Early in the morning they were aroused by finding the water in their houses floating them out of bed.

ground. The Anglican missionary had planted a smaller piece of ground near the river, on a sheltered bench below the top of the bank and facing south. Here the growth was much stronger than at either of the other places. Some barley had been sown in it, and was well-grown, the stalks averaging from two to two and a half feet high, and the heads being long and just beginning to fill. The growth of grass on this flat is luxuriant. Near the edge of the woods, wild vetches grow as long and as vigorously as near Edmonton. Every one complained of the cold, wet weather which prevailed during the

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They escaped by means of boats, but all their cattle and other property was carried away. It was afterwards discovered that the fall in the water had been caused by an immense landslide damming the waters of the south branch of the Liard River, and the flood by their release. The fort was then removed to its present site. Just above the point where this incident occurred, the river expands into what might be called a lake, only that it is filled with islands, and all the waterways together, probably, do not amount to much more than a mile in breadth. This expansion is six miles long and four wide. Above this the current is very swift, part of it running fully eight miles an hour. In this portion the current washes the base of a high clay bank on the west side, and is continually undermining it, so that it is unsafe to either walk along the bank, or sail close to it in a small boat.

About three and a half miles above Fort Norman, on the east bank of the river, two extensive exposures of lignite occur. The upper one is overlaid by about fifty feet of clay and a few feet of friable sandstone, and is about fifteen feet thick. The other seam is of about the same thickness, and probably forty feet lower. When I was there, it was nearly all under water.

The upper seam *has been on fire for over a hundred years*, as it was burning when Sir Alexander Mackenzie passed in 1789, and, according to Indian tradition, it must have been burning much longer. The place is locally known as "Le Boucan," from the fact that the Indians hereabout smoke and cook large quantities of meat or fish in these convenient fire pits. The fire extends at present about two miles along the river, not continuously, but at intervals; when I passed, it was burning in three or four places. After it has burned a certain distance into the seam, the overlying mass of clay falls in, and, to some extent, suppresses the fire. This clay is, in time, baked into

a red colored rock, in which are found innumerable impressions of leaves of plants. Some specimens of these I brought home. Traces of this red rock were noticed on the bank some distance below Fort Norman; but no trace of lignite was seen near it, the lignite having probably been all burned.

The burning seam appears to be of poor quality, containing much shale and sand, which is converted by the heat into scoriae. It did not appear to me that it would be difficult to cut off all the burning places, and thus stop the further advance of the fire, which is destroying what yet may be of use. In order to find whether the combustion could be checked, I took a shovel at one place and soon had all the burning coal for a short distance completely cut off, so that the fire ceased for a time at that spot. It is a pity that at least an attempt to put out the fire is not made. Many persons in the district have an idea that it is subterranean, and that the seat of it cannot be reached. This is a mistake, as at the point mentioned I cleared the fire off from the face of the seam to its base, and found underneath no trace of burning. The lower seam appears to be of better quality, there being no shale or sand mixed with it, as far as I could see.

Heavy rain detained us here for two days, and we burned a good deal of lignite from the lower seam, as we could not reach the top of the bank to procure wood, and could find only a log or two of driftwood. The coal burned well in the open air, and threw out a much stronger heat than a wood fire. These seams are visible at frequent intervals for eight or ten miles, and appear, from the reports of travelers, to extend up Great Bear River for a considerable distance. No other traces of coal were observed on the river.

About a hundred miles above Fort Norman, on the west side, a river discharges a large volume of clear, black

water, which rushes bodily half-way across the Mackenzie, and preserves its distinctive character for several miles before it mingles with the main stream. The name applied to this river by the people at Fort Wrigley was "*La rivière du vieux grand lac.*" It is said to flow out of a lake of considerable extent, lying not far from the Mackenzie. Many peaks can be seen up its valley.

Six hundred and twenty-four miles from Fort McPherson brings us to Fort Wrigley. This post was formerly known as "Little Rapid," but has received the name it now bears in honor of Chief Commissioner Wrigley, of the Hudson's Bay Company. Just above the fort there is a swift rush of water over some limestone rock which appears to extend across the river. On the west side two small islands confine a part of the stream in a funnel-like channel, which, being shallow, causes a slight rapid, and gives rise to the former name of the post.

At Fort Wrigley, some slight attempts had been made at cultivation, but I do not consider them a fair test of the capabilities of the place. When I was there, the people were gathering blueberries, then fully ripe, and as large and well-flavored as they are in Ontario. Ripe strawberries were found on the 9th August ninety miles below this, and a few raspberries soon afterwards. Above Fort Wrigley, wild gooseberries, and both red and black currants were found in abundance, some of the islands being literally covered with the bushes. The gooseberries were large and well-flavored, and the currants would compare favor-

ably with the same fruit as cultivated in the vicinity of Ottawa, the black currants being especially large and mel- low. This was in the middle of August, in latitude 68°.

For about sixty miles below Fort Wrigley a range of mountains runs parallel to the river on its east side. They are in many places so close to it that the foot-hills come down to the water, especially near the fort; but just above this point they turn away eastward. Above Fort Wrigley the east bank is generally low and swampy, but the west (although low near the river) gradually rises to a height of seven or eight hundred feet. Fifty-eight miles above Fort Wrigley this hill terminates in a bold, high point, and the ridge turns off to the south-west, enclosing a deep, wide valley between it and the mountains, which here approach the river. This range continues south-eastward out of sight. The positions and heights of some of the peaks were determined by triangulation. One of them was found to



EPISCOPAL CHURCH, FORT SIMPSON.
Bishop's Residence in Back-ground.

rise 4,675 feet above the river.

We arrived at Fort Simpson on Friday, the 24th of August, and remained until the following Tuesday. The Hudson's Bay Company has here a large plot of ground, planted with potatoes, turnips, onions, and other

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garden produce, such as is generally grown without artificial means in Ontario. The growing vegetables looked almost as good as the same kinds seen on the Ottawa market at the same date. Lettuce, particularly, was very large and fine. There was also a large area of barley, which looked well and promised an abundant return, if allowed to ripen. The grain was then full and plump, and just beginning to harden, but fears were entertained that a frost might come and spoil it. The people there claimed that the prevailing cool, cloudy weather had retarded its growth, as otherwise it would then have been out of danger from frost. This cereal has been grown with success at Fort Simpson for many years. The garden altogether presented an appearance hardly to be expected at a point 1,150 miles further north than Ottawa.

The fort is situated on an island just below the junction of the Mackenzie and the Liard Rivers, and the presence of the large body of water may moderate the climate and account for the fine appearance of the garden.

The arrival of a party at a post, it is needless to say, is not an event of everyday occurrence, and hence it is frequently made the occasion of some sort of demonstration or jollification. This was the case at Fort Simpson, where an impromptu dance was got up in our special honor.

During the evening an incident occurred which furnished unbounded amusement. There was at the fort a snobbish young employé of the company, named Miller, whose insufferable conceit appears to have offended the male portion of the little community to such an extent that it was determined on this occasion to give him a lesson which he would not easily forget. Accordingly, when Miller made his appearance, and stepped jauntily into the ring to dance, word was quietly passed around among the men to *let him dance*. All went well for a while, and he continued to have it all

his own way. At length he began to show signs of fatigue, but no one stepped in to relieve him. His partners had been cut out several times, but, whenever he looked around, the men were all steadfastly contemplating the floor. Now, by the etiquette of the dance, it is considered a disgrace to discontinue until relieved, and as it was a warm August night, poor Miller began to feel decidedly uncomfortable. Throwing off his coat, he danced away in his shirtsleeves, the perspiration rolling down his face. The fiddler, seeing the fun, kept up a breakneck pace, and poor Miller's vest, collar, and cravat were soon keeping company with his coat on the floor. Finally, seeing that it was all of no use, his whole body steaming, and his face livid with suppressed anger and wounded conceit, he stopped abruptly, and burst out with, "Well, say! I'm not going to do all this blasted dancing!" A roar of laughter greeted this statement, amid which poor Miller, quite crestfallen, picked up his things and disappeared.

A short distance above the confluence, the Mackenzie narrows to an average width of little over half-a-mile, with a generally swift current. This continues for seventy-five miles above Fort Simpson, and causes this part of the river to be called the "Line," from the fact that large boats cannot be rowed against the current, but have to be hauled by a line attached to them and pulled by men on shore. This is the common mode of navigation on all the northern rivers where there are no steamers, as it is less laborious than rowing against a current.

The season of 1888 was unusually wet, and the water in the rivers and lakes correspondingly high. The flat shores above the Line were all submerged, sometimes for several hundred yards into the woods, so that I found it impossible to carry on the survey in the ordinary manner. I spent two days experimenting, to find if I could not

continue the accurate instrumental survey by some other method than that heretofore used, but failed. There are no hills in the vicinity of the river, so that a triangulation was impossible, nor could I find any spots on the shore where cutting trees would enable me to continue the micrometer survey.



R. C. MISSION, FORT SIMISON.

I was compelled above this point to abandon the instrumental survey, and carry on a mere track survey, taking compass courses and obtaining the distances from point to point by the time and estimated rate of travel. I intended to resume the micrometer survey as soon as the height of the water permitted, expecting to find suitable conditions a short distance up. I found the general state of the shores, however, the same all the way to Great Slave Lake, and along it to the mouth of Great Slave River. I was compelled to continue the compass survey to that river and up it several miles before the banks were high enough to permit a continuous micrometer survey. Even then much of the instrumental work was done in mud so soft that frequently one could not stand without sticks under his feet to prevent sticking.

We arrived at Fort Providence on Saturday, the 8th of September. Wild gooseberries and currants were plentiful along the banks, but at this season

somewhat over-ripe. At the fort, where we remained over Sunday, the usual collection of buildings at a Hudson Bay Company's post is to be found. The Roman Catholic church has also a mission here. Wheat has been grown here for many years by the Hudson Bay Company, generally being fairly ripe before it is touched by frost, and sometimes escaping altogether. The wheat is ground in a small handmill, and the flour is used by the people of the fort. While here I ground a few pounds of the crop of 1887, and had the flour made into a cake, which, though not as good as that made from quadruple X flour, was palatable, and would probably sustain life as effectually as any other.

A few miles above Fort Providence a small black object was noticed in the river, which did not appear to be moving with the current. An examination with the glass proved it to be a bear leisurely crossing the river. Both canoes put after him at once and drove him towards the shore. Whenever the canoes would come too close he would turn and snort defiance at us, then turn and resume his course. Gladman claimed the honor of the shot—which was accorded on condition that he would not shoot until bruin began to rise out of the water, or at say twenty or thirty yards from the shore. When within two hundred yards of the shore, however, Gladman begged to be allowed to shoot, and I consented, warning him, however, that we ran more risk of losing him in that way than by waiting. Parker and Sparks lay down in the *Mackenzie* to steady her, while Gladman knelt in the bow. Preparing ourselves for a spurt forward with the *Yukon*, Morrison and I waited the

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shot. A sharp report, and the bear's extended nose settled level with the water and in a moment more his head had disappeared beneath the surface. Dashing the paddles into the water, the little *Yukon* swept over the spot, and plunging my arm down after the disappearing head I caught and held it by the shaggy hair until the others came up. Catching him by the ears, we towed him to shore between the canoes. He was an enormous fellow, one of the largest of his kind I have ever seen. The skin, exchanged at Fort Resolution, brought us four pounds of tea, of which we were in need.

Forty-six miles from Fort Providence we enter Great Slave Lake. The south shore of the lake, between the Mackenzie and Great Slave Rivers, is so low and flat that most of it was submerged when I passed. Around the mouth of Buffalo River is a prairie some forty or fifty acres in extent, on which the Indians have built a house and erected racks for drying fish.

At Fort Resolution the Hudson's Bay Company were growing potatoes, turnips and barley. The Anglican Missionary also had a garden in which were potatoes, cabbage, cauliflowers, turnips, onions and peas, the latter still green on the 21st of September. The Roman Catholic Church also had, when I passed, a mission on an island in the lake, about two miles from the fort, which has since been removed to the mainland. At the fort I took magnetic observations, as well as star transits, to determine the error of my chronometer. I then resumed the micrometer survey; but, after working seven miles from the fort I found the shore around the delta of Great Slave River so low and muddy that I was forced to desist, and I had to go up the stream some distance before I found ground dry enough to land on. In this place I was unable to get even compass bearings, as the channels of the delta are very narrow and crooked. When I reached a point probably seven or eight miles from the lake I resumed the in-

strumental survey, this time to carry it through without a break to my station at Fort Chipewyan, connecting there with my survey of the Athabasca River.

As we approach Fort Smith, the banks of the river begin to rise, until at that point a height of one hundred and sixty feet is reached. At the fort the drift, composed of clay, gravel and sand, lies on top of granite rock, which for sixteen miles up causes many rapids in the river. This is the head of the run of the steamer *Wrigley*. The distance from Fort McPherson is twelve hundred and seventy-three miles.

On the evening of the 19th of October I had completed the survey almost to Lake Athabasca, and was confident of reaching Fort Chipewyan with it during the next day, when the ice which had formed along the shores of the lake was blown out of the bays and carried down the river by the current in such quantities that evening that I became alarmed at the prospect of being closed in before morning, and therefore at once started for the lake. When I arrived there about nine o'clock, there was a furious snow storm raging, so that I had to remain on the shore until the next morning, when I proceeded to the fort. The weather moderated in a day or two, and I completed the survey on Thursday, the 24th of October.

More than one hundred guests crowded the large room of the fort at my levee, and a more miscellaneous collection of human beings it would be impossible to imagine. They came from near and far; within a radius of twenty miles no one was forgotten. Such a brilliant assemblage, it has seldom been my privilege to meet. They came in silks and satins, and in ribbons and laces which defy my powers of description. The half-breed is inordinately fond of color and fine clothes; he will give his last dollar cheerfully to rig out himself, or his squaw, in the most gorgeous attire his money will buy, and when he is so

dressed you may depend upon it that he is fully conscious of his own superiority and importance. This was certainly true in the case of Jimmy Flett, a half-breed fiddler and general beau, whom I must attempt to describe, for "thereby hangs a tale."

He had on an immaculate white shirt, collar and flaming necktie, trousers of the finest blue broadcloth the Hudson's Bay Company imports for the use of its officers, moccasins embroidered with silk and beads in all the colors of the rainbow, a jaunty yellow cap with ribbons streaming from it, and, to crown all, a bright vermilion plush vest. Jimmy wore no coat, because that would have hidden the gorgeous vest. The general effect of this outfit was indescribably



FORT MCMURRAY, ATHABASCA RIVER.

stunning. At the far end of the rooms, squatted on the floor, and enveloped in an immense green blanket, I noticed an old squaw, who went by the name of Mother Cowley,—a well-known character about the fort, who gleaned a scanty livelihood from the meagre charity of the little community. How old Cowley came to be there I do not know, nor did I stop to enquire. The idea of doing her a good turn and at the same time having some fun at the expense of the radiant Jimmy took possession of me. Crossing quietly over to her I offered her a pound of candies if she would get up and "cut out" the girl who was dancing with Jimmy Flett. It was a great temptation—but she was afraid of offending Jimmy, of whom she stood somewhat

in awe. The offer of a loaf of bread in addition to the candies, however, brought her to her feet, and, seeing that she still hesitated, I threw in, as an additional bribe, a plug of the best Myrtle Navy tobacco. This had the desired effect. With her blanket extended in both hands like an enormous bird, she made a sudden swoop in front of the girl, and commenced a series of the most extraordinary leapings and gyrations imaginable. At the sight of this grotesque figure, Jimmy stopped, paralyzed with astonishment; the fiddler also stopped, but the old woman continued to wave her arms and to bounce up and down as if her body were balanced on steel springs instead of legs. Cries of "Go on! go on!" to the fiddler, started the jig again: mechanically Jimmy's feet began to move, and amid roars of laughter Sparks rushed in and cut Jimmy out. Then Morrison took a hand, and imitating the antics of the old woman, began to bounce up and down with extended

arms. This was the signal for a general uproar of merriment such as I have never heard equalled.

It was generally conceded that this ball eclipsed any social event which had taken place at Chipewyan within the memory of the oldest inhabitant.

As soon as the ice on the river was strong enough and the snow sufficiently deep, I took my departure from Fort Chipewyan for Edmonton. We left the fort between three and four o'clock in the dark of the early morning of the 27th of November, travelling by way of Quatre Fourches channel and Lake Maumewa. The ice on the lake was still so thin and frail that we had to proceed with the utmost caution. It was seven o'clock before we had made one mile from the fort on our

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homeward journey. In spite of the utmost caution, however, Morrison, who was in advance, was unfortunate enough to break through the ice and had a narrow escape from drowning. By lying down on the ice and reaching a snowshoe to him, Parker and I succeeded with some difficulty in pulling him out.

On the way I made a rough survey of the channels and Lake Mammowa, which will enable me to lay them down on our maps more correctly than has heretofore been done.

Although I had left the two Peterboro' canoes, which had seen such good service, and also some baggage, at Chipewyan, in order to reach Fort McMurray I was obliged to take three dog teams with me as far as Point Brulé on the Athabasca River, from which place I sent one of them back.

The dogs are great eaters, and the chief inconvenience of this mode of travel is in the amount of dog fish which has to be carried. At starting, the sleds were so heavily loaded that they could barely creep along, but as they were lightened by dogs and men at the rate of about fifty pounds a day, it was not long before the load was sufficiently reduced to be carried by two teams.

Fish are numerous in the Mackenzie. The principal species is that known as the "inconnu." Those caught in the lower river are very good eating, much resembling salmon in taste, being also firm and juicy. The flesh is a light pink in color, but as they ascend the river and become poor, this tint turns white and the flesh gets soft and unpalatable. They average ten or twelve pounds in weight, but have often been caught weighing thirty or forty. They ascend as far as the rapids on Great Slave River, where they are taken in the fall in great numbers for dog feed, being then so thin that they are considered unfit for human food. This fish is not fed to working dogs, unless scarcity of other fish compels it. There is a small fish locally known

as the "herring," somewhat resembling the "inconnu" in appearance, and which does not grow larger than a pound or two in weight. The staple fish of the district, and, for that matter, of the whole north-west, is the whitefish. It abounds in many parts of the river but especially in all the lakes discharging into it, and it forms the principal article of diet during the greater part of the year, as very little food is brought into the country. This fish is caught in large numbers everywhere. At Fort Chipewyan the Hudson's Bay Company required a winter supply of thirty-six thousand for the use of the post; the Roman Catholic Mission, twelve thousand; and the rest of the population at least thirty thousand more. Most of these were caught while I was there. Sometimes they are numerous in one place, and sometimes in another, so that long journeys are often necessary from the place where they are caught to where they are to be used. This necessitates a large number of dogs to haul them home, which is a very poor method, though the only one in use. To overcome this inconvenience, Mr. McDougall, at Chipewyan, has built an ice-boat, but has, so far, met with indifferent success, the ice having been unusually rough during both of the preceding two falls.

Our daily programme during this last section of our long journey was as follows: We would turn out at three o'clock, have breakfast, break camp and be ready to start at four. The sun rose at about nine o'clock and set at about three in the afternoon. Dinner was eaten at sunrise, then we pushed ahead till sunset or as long after as there was twilight enough to see to pitch our camp.

In the morning, after leaving Fort Chipewyan, while running down a steep hill in the woods in the dark, I was unfortunate enough to strike my boot against a sharp stump partly covered by snow, and burst the nail completely from my great toe so that

it hung only by the skin. A somewhat similar accident happened to Gladman. Though little would have been thought of this at another time, we had now before us, four hundred miles of walking, with feet in that condition, so that this trivial accident for a time assumed serious proportions. It was impossible to stop, as we had just provisions for six days, or sufficient to take us to Fort McMurray. It was equally impossible to ride, as the sleds were carrying every pound the dogs could draw. We were impatient to proceed, and the thought of turning back to Chipewyan and prolonging our stay there was repellant. Chafing with vexation and suffering intolerable pain, there was nothing for it but to hobble along as best we could to McMurray. The agony of walking under such circumstances was so great that we made slow progress. By the time we reached McMurray, however, on the



INDIAN CAMP AT FORT CHIPEWYAN.

3rd of December, the inflammation had subsided so that we were able to proceed on the 5th, though walking was still painful, taking the Hudson's Bay Company's winter trail to White Fish Lake, and having the assistance of two of the Company's dog teams which

were going across to the Long Portage. From White Fish Lake, my track out was south-easterly over an Indian trail never before travelled by white men, to Heart Lake; thence to Lac la Biche, and thence by horses and sleighs to Victoria, on the Saskatchewan River. On the way from Fort McMurray to Lac la Biche, I kept up a survey of my track, rough, it is true; but on plotting it I find that it agrees with the latitudes of the terminal points within three or four miles, though these latitudes are uncertain. This will fill a gap in our maps, as heretofore nothing certain was known of that region. I arrived at Edmonton on the evening of the twenty-third of December, and after transacting some business there, I left by wagon for Calgary, the nearest railroad station on the Canadian Pacific Railway on Christmas morning.

I reached Calgary on the morning of the twenty-ninth of December, and Ottawa a few days later. It would be ungrateful in me to close this narrative without acknowledging the kindness and attention of all with whom I came in contact on my travels. On the coast, the United States officers shewed me personally every possible attention, and did all in their power to assist me. In the interior, the miners were not less considerate and thoughtful, and the traders, Messrs. Harper and

McQuestion, were more than kind; giving me much valuable advice, often when it was against their own pecuniary interest to do so, and aiding me in my dealings with the natives to the best of their power. To the missionaries, both Protestant and Roman Catholic,

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on the Mackenzie River, I owe much for their hospitality and disinterested advice and assistance. To the officers of the Hudson's Bay Company, both myself personally, and the party generally, owe much for their readiness everywhere to assist us. I can truthfully say that their kindness and assistance were disinterested and genuine, if aiding me, often without being asked, and certainly with no pecuniary profit to themselves or the Company, be any proof of it.

To the four men who accompanied me through the whole journey, I would here return thanks for their cordial co-operation, and spirited readiness to do their duty at all times and in all places. They were called on to toil for long hours, and under conditions more disagreeable and hazardous than fall to the lot of many; yet they never flinched, even when their lives were in danger.

The total result of the expedition has been, in round numbers, nearly nineteen hundred miles of accurate instrumental survey, and a very close approximate determination of the position of the International Boundary Line on the Pelly-Yukon and Forty Mile Rivers. In addition to this, about eight hundred miles of partially instrumental survey was made, which, when plotted, proves more accurate than I had expected. Of this, between five and six hundred miles was over country previously unknown and untravelled by white men. The knowledge gathered by this expedition will enable us to almost complete the map of the extreme north-western portion of the Dominion, as it will serve as a sketch on which to adjust aright the mass of disjointed information we already possess.

A WILLOW AT GRAND PRE.

The fitful rustle of thy sea-green leaves
Tells of the homeward tide, and free-blown air
Upturns thy gleaming leafage like a share,—
A silvery foam, thy bosom, as it heaves!
O slender fronds, pale as a moonbeam weaves,
Some grief through you is telling unaware!
O, peasant tree, the regal tide doth bare,
Like thee, its breast to ebbs and floods,—and grieves!

Willow of Normandy, say, do the birds
Of motherland plain in thy sea-chant low,
Or voice of those who brought thee in the ships
To tidal vales of Acadie, or words
Heavy with heart-ache whence sad Gaspereau
Bore on its flood the fleet with iron lips?

THEODORE H. RAND.

McMASTER UNIVERSITY.