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THE KLONDIKE OFFICIAL GUIDE

PREPARED BY WM OGILVIE,
DOMINION LAND SURVEYOR
AND EXPLORER.

OGILVIE'S PARTY ON THE YUKON 1887.

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OF THE DEPARTMENT OF INTERIOR OF
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On the Dalton Trail.—Band of 120 Cattle on the Summit of the Pass between the Klehine and Chilkat Rivers.

Herbert M. Price
from Sir H. Joly de Lotbinière
May 1898.

THE KLONDIKE

OFFICIAL GUIDE

CANADA'S GREAT GOLD FIELD

THE YUKON DISTRICT

PREPARED BY

WM. OGILVIE

Astronomer of the Department of the Interior, Dominion Land Surveyor and Explorer

With Numerous Maps and Illustrations

AND

REGULATIONS GOVERNING PLACER MINING

Published by authority of the Department of the Interior of the Dominion of Canada

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PREFACE.

VERY few places have attracted the attention of the world to the same extent as that fraction of the Yukon District of the Dominion of Canada known as Klondike, This interest was aroused within the past few months, and has grown so vastly that scores of thousands are directing their gaze thitherwards, hopeful of fortune and happiness.

That the fullest information be accorded all so inclined, the Hon., The Minister of the Interior, directed that a hand book containing the completest possible information be issued as soon as practicable. Naturally this task fell to myself, as I had been more associated with that region than any other Canadian official. The work was commenced about the middle of December last, a few days after my return thence; and when it is considered that maps had specially to be prepared, photographs selected and put in shape for reproduction, besides much original matter written, and many previous reports by others and myself read, and extracts bearing on that district made, put in order, and connected in an intelligible way with the recent matter, it can be understood why in some respects this book is not as finished as I would like, more especially when we recollect that most of the work fell to myself, as my notes taken in the field as they were, often when my fingers were benumbed with cold and my senses almost paralyzed with long exposure to fierce wintry winds on the bleak mountain tops, were only decipherable by myself, and there was no time to transcribe them into legible hand.

Taken as a whole, I venture to hope the book will fill a great gap, though there may be a few places left unstopped. These, however, can be readily filled by those inclined to think for themselves. The extracts from previous reports have been revised and extended to what was known at time of writing; so, if reference is made to those reports, differences will be found.

The recent part is as full as I thought it necessary to make it.

To go into detail enough to leave no question unanswered, would take much more time than I had at my command.

I know from experience that the many-headed propound questions, various, relevant and irrelevant, and were I inclined, could fill this volume with specimens of such, unique in their way. Many, many queries of that kind are ignored on these pages, but I look for the sympathy of practical, self-reliant men and women.

The maps have been very hurriedly prepared, and embrace in a crude way all the available information, both from actual survey, and observations and reports.

On the large map, showing the various routes, it will be noted that where the route follows a stream or other waterway it can be fairly closely located. When it is overland, we must not assume more than that the line of route marked in a general way indicates where it is intended to put a road. This is because no survey has been made of such routes, or if it has no returns of it were available.

WILLIAM OGILVIE.

Ottawa, January 27th, 1898.

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Railway and Steamboat Communication

BY AN

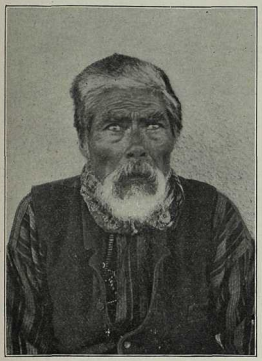
ALL CANADIAN ROUTE.

Since the following pages were written the Canadian Government has completed arrangements which will, during the coming season, remove the great difficulties which have heretofore stood in the way of travel and transport to the Yukon District. The route to be opened is by steamer from Victoria or Vancouver to Wrangel, thence by the Stikine River to Telegraph Creek, thence overland 150 miles to Teslin Lake, thence down Teslin Lake, the Hootaluqua, Lewis and Yukon Rivers to Dawson City. Large steamers run the year round to the mouth of the Stikine River. From that point a sleigh road to Teslin Lake will be open for travel with stopping places every 25 miles, on the 10th March. Persons going in can thus reach Teslin Lake and make their preparations to go down from that point by water when the ice goes out, which is usually about May 15th. While those who wish to prospect in the south-eastern part of the Yukon District may find to their advantage to go by one of the overland routes, the great bulk of the travel to Dawson City and its neighborhood will find an easy route by way of the Stikine and Teslin Lake.

River steamers will ply all summer from the mouth of the Stikine to Telegraph Creek. A wagon road with abundance of transportation facilities will be available from Telegraph Creek to Teslin Lake, and steamers will be plying on this lake and the Hootaluqua, Lewis and Yukon Rivers. On the *First day of September* a railway will be in operation from Telegraph Creek to Teslin Lake, so that from that time until the ice forms in the Fall, generally about October 20th, there will be an uninterrupted steamboat and railway connection to Dawson City. Persons travelling by this route, or any of the all Canadian overland routes described in the following pamphlet, will avoid payment of duties if their outfits are purchased in Canada.

Canada's Great Gold Field

THE YUKON DISTRICT



From Photo. by W. Ogilvie.
Chief Charlie.

THE YUKON DISTRICT comprises, speaking generally, that part of the North-west Territories lying west of the water shed of the Mackenzie River; most of it is drained by the Yukon River and its tributaries. It covers a distance of about 650 miles along the river from the coast range of mountains.

The first people from civilization to enter the country were the traders for the Hudson Bay Company. In the year 1840 Mr. Robert Campbell was commissioned by Sir George Simpson to explore the Upper Liard and to cross the height-of-land in search of any river flowing to the westward. After ascending the river to its head waters he struck across to the head of the Pelly River, thence down the Pelly to the confluence of the Lewes, at which point he turned back, his men having become discouraged by the stories of the Wood Indians encamped there, who represented that the lower portion of the river was inhabited by a tribe of cannibals. In 1847 Fort Yukon was established at the mouth of the Porcupine by Mr. A. H. Murray, another member of the Hudson Bay Company.

In 1848 Campbell established Fort Selkirk at the confluence of the Pelly and Lewes Rivers; it was plundered and destroyed in 1852 by the Coast Indians, and only the ruins now exist of what was at one time the most important post of the Hudson Bay Company to the west of the Rocky Mountains in the far north. In 1869 the Hudson Bay Company's officer was notified to leave Fort Yukon by the United States Government officers, they having ascertained by astronomical observations that the post was not located in British territory. The officer thereupon ascended the Porcupine to a point which was supposed to be within British jurisdiction, where he established Rampart House; but in 1890 Mr. J. H. Turner of the United States Coast Survey found it to be 20 miles within the lines of the United States. Consequently in 1891 the post was moved 20 miles further up the river to be within British territory.

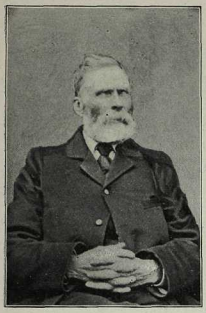
The next people to enter the country for trading purposes were Messrs. Harper and McQuesten. They have been trading in the country since 1874 and have occupied numerous posts all along the river, the greater number of which have been abandoned. Mr. Harper was located as a trader at Fort Selkirk, and Mr. McQuesten is in the employ of the Alaska Commercial Company at Circle City, which is the distributing point for the vast regions surrounding Birch Creek, Alaska. In 1882 a number of miners entered the Yukon country by the Dyea Pass; it is still the only route used to any extent by the miners, and is shorter than the other passes though not the lowest. In 1883 Lieutenant Schwatka crossed this same pass and descended the Lewes and Yukon Rivers to the ocean.

The history of the Yukon District within recent years will be best described by the following extract from the annual report of the Deputy of the Minister of the Interior for the year 1895:

"In the year 1887 the Hon. Thomas White, then Minister of the Interior, authorized the organization of an expedition having for its object the exploration of that region of the North-west Territories of Canada which is drained by the Yukon River. The work was entrusted to Dr. George M. Dawson, now the Director of the Geological Survey, and Mr. Wm. Ogilvie, the well known explorer and surveyor. Dr. Dawson devoted the whole of that season, and Mr. Ogilvie a period covering nearly two years, to obtaining geological, topographical, and general information, chiefly respecting the tract of country lying adjacent to the 141st meridian of longitude, which by the Treaty of St. Petersburg is designated as the boundary line from the neighborhood of Mount St. Elias to the Arctic Ocean between Alaska and the adjoining possessions of the British Crown which now form part of the North-west Territories of Canada.

"The explorers found that in proximity to the boundary line there existed extensive and valuable placer gold mines, in which even then as many as three hundred miners were at work. Mr. Ogilvie determined, by a series of lunar observations, the point at which the Yukon River is intersected by the 141st meridian, and marked approximately the same on the ground. He also determined and marked roughly the point at which the western affluent of the Yukon, known as Fortymile River, is crossed by the same meridian line, that point being situated at a distance of about twenty-three miles from the mouth of the creek. This survey proved that the places which had been selected as the most convenient, owing to the physical conformation of the region, from which to distribute the supplies imported for the various mining camps, and from which to conduct the other business incident to the mining operations—places situate at the confluence of the Fortymile River and the Yukon, and to which the names of Fortymile and Cudahy havebeen given—are well within Canadian territory. The greater proportion of the mines then being worked Mr. Ogilvie found to be on the Canadian side of the international boundary line, but he reported the existence of some mining fields to the south, the exact position of which with respect to the boundary he did not have the opportunity to fix.

"The number of persons engaged in mining in the locality mentioned has steadily increased year by year since the date of Mr. Ogilvie's survey, and it is estimated that at the commencement of the past season not less than one thousand men were so employed. Incident to this mineral development there must follow a corresponding growth in the volume of business of all descriptions, particularly the importation of dutiable goods, and the occupation of tracts of the public lands for mining purposes which according to the mining regulations are subject to the payment of certain prescribed dues and charges. The Alaska Commercial Company, for many years subsequent to the retirement of the Hudson Bay Company, had a practical monopoly of the trade of the Yukon, carrying into the country and delivering at various points along the river, without regard to the international boundary line or the customs laws and regulations of Canada, such articles of commerce as were required for the prosecution of the fur trade and latterly of placer mining, these



From Photo. by W. Ogilvie.
Mr. Harper, Yukon Pioneer.

being the only two existing industries. With the discovery of gold, however, came the organization of a competing company known as the North American Transportation and Trading Company, having its headquarters in Chicago and its chief trading and distributing post at Cudahy. This company has been engaged in this trade for over three years, and during the past season despatched two ocean steamers from Seattle to St. Michael, at the mouth of the Yukon, the merchandise from which was, at the last mentioned point, transhipped into river steamers and carried to points inland, but chiefly to the company's distributing centre within Canadian territory. Importations of considerable value, consisting of the immediately requisite supplies of the miners, and their tools, also reach the Canadian portion of the Yukon District from Juneau, in the United States, by way of the Dyea Inlet, the mountain passes, and the chain of waterways leading therefrom to Cudahy. Upon none of these importations had any duty been collected, except a sum of $3,248.80 paid to Inspector Constantine in 1894, by the two companies mentioned above, and it is safe to conclude, especially when it is remembered that the country produces none of the articles consumed within it except fresh meat, that a large revenue was being lost to the public exchequer under the then existing conditions.

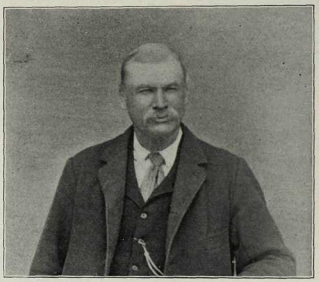
"For the purpose of ascertaining officially and authoritatively the condition of affairs to which the correspondence referred to in the preceding paragraph relates, the Honourable the President of the Privy Council, during the spring of 1894, despatched Inspector Charles Constantine, of the North-West Mounted Police Force, accompanied by Sergeant Brown, to Cudahy and the mining camps in its vicinity. The report made by Mr. Constantine on his return established the substantial accuracy of the representations already referred to. The value of the total output of gold for the season of 1894 he estimated at $300,000, a very large sum considering the relatively short period to which mining operations are, by the nature of the climate, confined.

"The facts recited clearly establish—first, that the time had arrived when it became the duty of the Gov-

From Photo. by W. Ogilvie.
Frederick W. Hart, Yukon Pioneer.

ernment of Canada to make more efficient provision for the maintenance of order, the enforcement of the laws, and the administration of justice in the Yukon country, especially in that section of it in which placer mining for gold is being prosecuted upon such an extensive scale, situated near to the boundary separating the North-west Territories from the possessions of the United States in Alaska; and, second, that while such measures as were necessary to that end were called for in the interests of humanity, and particularly for the security and safety of the lives and property of the Canadian subjects of Her Majesty resident in that country who are engaged in legitimate business pursuits, it was evident that the revenue justly due to the Government of Canada, under its customs, excise and land laws, and which would go a long way to pay the expenses of government, was being lost for the want of adequate machinery for its collection.

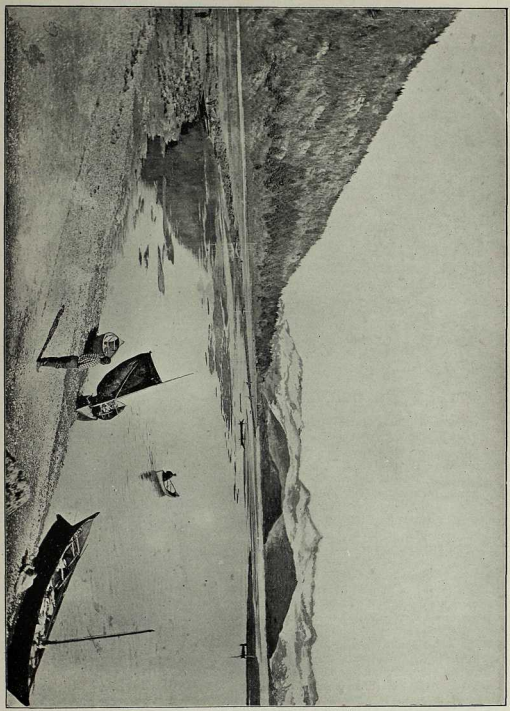
"Accordingly in June last a detachment* of twenty members of the Mounted Police Force including officers was detailed for service in that portion of the North-west Territories. The officer in command, in addition to the magisterial



Leroy N. McQuesten, One of the Yukon Pioneers.

and other duties he is required to perform by virtue of his office and under instructions from the Department of Mounted Police, was duly authorized to represent where necessary, and until other arrangements can be made, all the departments of the government having interests in that regio . Particularly he is authorized to perform the duties of Dominion lands agent, collector of customs, and collector of inland revenue. At the same time instructions were given Mr. William Ogilvie, the surveyor referred to as having, with Dr. Dawson, been entrusted with the conduct of the first government expedition to the Yukon, to proceed again to that district for the purpose of continuing and extending the work of determining the 141st meridian, of laying out building lots and mining claims, and generally of performing such duties as may be entrusted to him from time to time. Mr. Ogilvie's qualifications as a surveyor, and his previous experience as explorer of this section of the North-west, peculiarly fit him for the task.

* The detachment was made up as follows:—Inspector C. Constantine, Officer Commanding Yukon Detachment N. W. M. Police; Inspector, D. A. E. Strickland; Assistant-Surgeon, A. E. Wills; 2 Staff Sergeants; 2 Corporals; 13 Constables.



Pyramid Harbour, Head of Chilkat Inlet.

"As it appears quite certain, from the report made by Mr. Ogilvie on his return to Ottawa in 1889, and from the report of Mr. Constantine, that the operations of the miners are being conducted upon streams which have their sources in the United States Territory of Alaska, and flow into Canada on their way to join the Yukon, and as doubtless some of the placer diggings under development are situated on the United States side of the boundary, it is highly desirable, both for the purpose of settling definitely to which country any land occupied for mining or other purposes actually belongs, and in order that the jurisdiction of the courts and officers of the United States and Canada, for both civil and criminal purposes, may be established, that the determination of the 141st meridian west of Greenwich from the point of its intersection with the Yukon, as marked by Mr. Ogilvie in 1887-88, for a considerable distance south of the river, and possibly also for some distance to the north, should be proceeded with at once. Mr. Ogilvie's instructions require him to go on with the survey with all convenient speed, but in order that this work may be effective for the accomplishment of the object in view the co-operation of the Government of the United States is necessary. Correspondence is in progress through the proper authorities with a view to obtaining this co-operation. It may be mentioned that a United States surveyor has also determined the points at which the Yukon River and Fortymile River are intersected by the 141st meridian."

Since the date of the above report, Mr. D. W. Davis has been appointed collector of customs for the Yukon district.

The business of the Department of the Interior having grown to such proportions that Inspector Constantine was no longer able to deal with it and discharge the numerous other duties assigned to him, Mr. Thomas Fawcett, Dominion Topographical Surveyor, has been appointed gold commissioner, surveyor and general agent of the Minister of the Interior for the district. Accompanying him and acting under his instructions are two Dominion land surveyors, Jas. Gibbons and E. D. Bolton, with their parties.

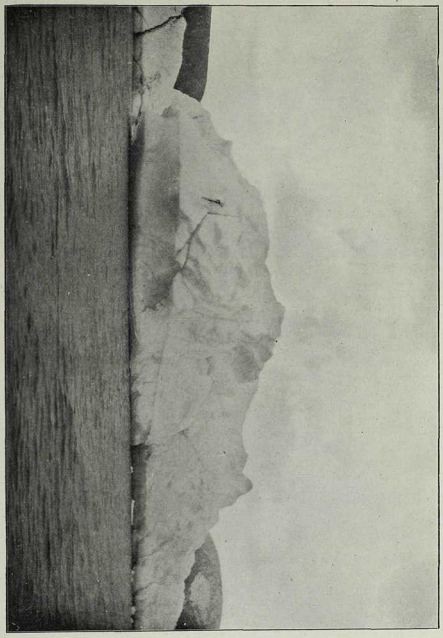
MR. OGILVIE'S EXPLORATION OF 1887.

Mr. W. Ogilvie describes as follows his trip down the Yukon River in 1887.

The first news I received on landing at Chilkat was that there was trouble in the interior, on the Lewes River, in the vicinity where I intended to go. A miner, who had recently arrived from the interior, stated that there had been a fight between the Indians and the miners at the mouth of Stewart River. The result of the affair, he 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 him, as he had gone to Juneau the day before I arrived. The rumour seemed to me to be somewhat improbable; but true or false, it was an unpleasant one to hear, and the only way to verify it was to go and see whether the Indians were hostile or not. Happily the whole story proved to be untrue. I subsequently learned from the miners in the interior that he had had difficulties with them, in consequence of which he was ordered in mid-winter to leave the region, which the miners consider equivalent to a sentence of death. Strange to say, he succeeded in getting out alive, making a distance of upwards of 500 miles of the most dangerous and difficult travelling. He started in the month of February, I think, and reached the coast in the month of May. It is reported that on his way out he had more trouble with an Indian whom he hired to accompany him. Another miner named Williams started from Stewart River for the coast in the month of December, carrying a message from Harper, McQuesten & Co., and mail from the miners. This man had the advantage at intervals of the assistance of the miners, a few of whom were scattered along the river in the vicinity of the Teslin (the Newberry of Schwatka). At the summit of the coast range he was detained by a snow storm

for three days, and the hardships he suffered brought on pneumonia, from the effects of which he died.

It is said by those familiar with the locality that the storms which rage in the upper altitudes of the coast range during the greater part of the time, from October



Iceberg at Head of Taku Inlet. *From Photo. by W. Ogilvie.*

to March, are terrific. A man caught in one of them runs the risk of losing his life, unless he can reach shelter in a short time. During the summer there is nearly always a wind blowing from the sea up Chatham Strait and Lynn Canal, which lie in almost a straight line with each other, and at the head of Lynn Canal are Chilkat

From Photo. by W. Ogilvie.

Looking Down Chilkoot Pass and Inlet from a Point 1½ Miles above Tide-water (Raining.)

and Chilkoot Inlets. The distance from the coast down these channels to the open sea is about 380 miles. The mountains on each side of the water confine the currents of air, and deflect inclined currents in the direction of the axis of the channel, so that there is nearly always a strong wind blowing up the channel. Coming from the sea, this wind is heavily charged with moisture, which is precipitated when the air current strikes the mountains, and the fall of rain and snow is consequently very heavy.

After landing at Chilkoot the weather continued very wet for three days, so that I could not do anything in the way of commencing the survey, and during the delay myself and party were employed in making preparations for carrying the instruments, provisions and other baggage up to the head of Dyea Inlet, a distance of 20½ miles. This was accomplished by securing the services of two boats belonging to a trader, which were towed to the head of the Dyea Inlet by the United States gunboat "Pinta," to the commander of which (Capt. Newell) I owe a debt of gratitude for his very obliging and attentive treatment of myself and party.

FROM DYEA INLET TO THE ALASKA BOUNDARY.

On the 30th of May I commenced the survey by connecting Pyramid Island in Chilkat Inlet with Chilkoot Inlet at Haines mission. At this point a Protestant mission was established some years ago; but it is now abandoned, owing, as I was informed, to the very unpleasant conduct of the Chilkoot Indians. I could not learn that they had committed any overt act of hostility, but it appears the missionary tried to relieve the sufferings of a sick Indian child. Unfortunately, the child died, and the father attributed the death to the missionary, and from that time acted in so suspicious a manner towards the children of the latter, that he considered it unsafe to remain in the vicinity, and moved into Juneau.

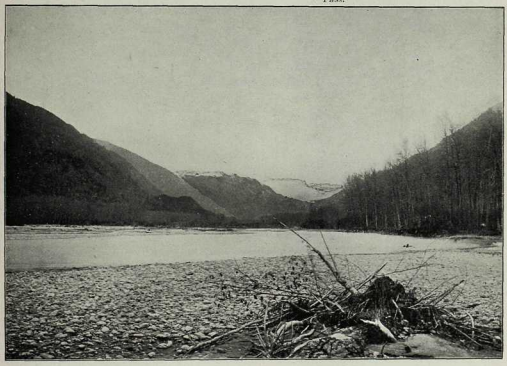
The teacher of the United States Government school for Indians at Haines mission, Col. Ripinsky, told me he had got into trouble in the same way. A sick

Indian to whom he administered medicine at first became much worse, in consequence, apparently, of the treatment, and during this time the patient's relatives walked about in an exciting manner, manifesting very unpleasant signs of hostility. Fortunately the man finally recovered, but Col. Ripinsky has no doubt that his life would not have been safe had he died.

The latitude and longitude of a point near Pyramid Island were determined in 1869 by a United States Coast Survey party, who were sent out to observe the eclipse of the sun in the month of August of that year. The position then determined is given in the "Alaska Coast Pilot" as latitude 59° 11′ 43″.0, longitude 135° 27′ 04″.5. The longitude was determined by chronometers, thirteen having been used by the expedition. Where the point was fixed I could not ascertain, so I took the centre of the island. This island is pyramidal in form, as seen from the south-west or north-east, and about 500 yards long by 200 wide. It is composed of sand and clay, and rises about 80 feet above high tide, being evidently the result of glacial action. At low tide there is very little water on the north side of the island, and it is only a question of a few years until it will cease to be an island altogether, owing to the constant accumulation of drift brought down by the streams flowing into the inlet.

To carry the survey from the island across to Chilkoot Inlet I had to get up on the mountains north of Haines mission, and from there could see both inlets. Owing to the bad weather I could get no observation for azimuth, and had to produce the survey from Pyramid Island to Dyea Inlet by reading the angles of deflection between the courses. At Dyea Inlet I got my first observation, and deduced the azimuths of my courses up to that point. Dyea Inlet has evidently been the valley of a glacier; its sides are steep and smooth from glacial action; and this, with the wind almost constantly blowing landward, renders getting upon the shore difficult. Some long sights were therefore necessary. The survey was

Pass.



From Photo. by W. Ogilvie.

Looking Up Chilkoot Pass from a Point 1½ Miles above Tide-water (Raining.)

made up to the head of the inlet on the 2nd of June. Preparations were then commenced for taking the supplies and instruments over the coast range of mountains to the head of Lake Lindeman on the Lewes River. Commander Newell kindly aided me in making arrangements with the Indians, and did all he could to induce them to be reasonable in their demands. This, however, neither he nor any one else could accomplish. They refused to carry to the lake for less than $20 per hundred pounds, and as they had learned that the expedition was an English one, the second chief of the Chilkoot Indians recalled some memories of an old quarrel which the tribe had with the English many years ago, in which an uncle of his was killed, and he thought we should pay for the loss of his uncle by being charged an exorbitant price for our packing, of which he had the sole control. Commander Newell told him I had a permit from the Great Father at Washington to pass through his country safely, that he would see that I did so, and if the Indians interfered with me they would be punished for doing so. After much talk they consented to carry our stuff to the summit of the mountain for $10 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.

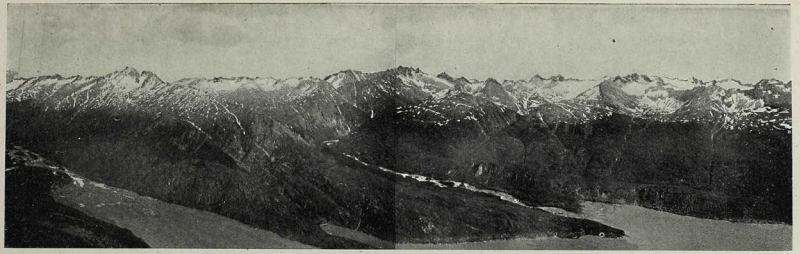
On the 6th of June 120 Indians, men, women and children, started for the summit. I sent two of my party with them to see the goods delivered at the place agreed upon. Each carrier when given a pack also got a ticket, on which was inscribed the contents of the pack, its weight, and the amount the individual 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 at the foot of the cañon, 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, &c., some of which were duplicated three and four times. I then found why some of them had pretended to lose their tickets at the summit. Three or four who had thus acted presented themselves twice for payment, producing first the receipted ticket, afterwards the one they claimed to have lost, demanding pay for both. They were much taken aback when they found that their duplicity had been discovered.

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 got 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 half a dollar. Another man stepped up and demanded pay, stating that the canoe was his. To see what the result would be, I gave to him the same amount as to the first. Immediately there were three or four more claimants for the canoe. I dismissed them with a blessing, and made up my mind that I would wade the next creek.

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 to invite trouble. I am strongly 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 trouble.

While making the survey from the head of tide water I took the azimuths

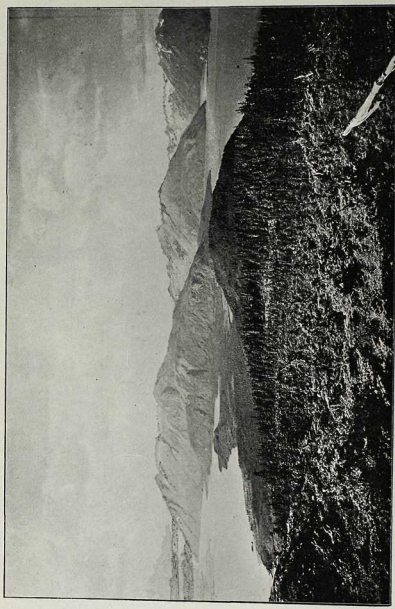


Dyea River. (Looking N. E.) Skaguay River. *From Photo. by J. J. McArthur.*

Skaguay River and Dyea Inlet. *From Photo. by J. J. McArthur*
Skaguay. Dyea.

and altitudes of several of the highest peaks around the head of the inlet, in order to locate them, and obtain an idea of the general height of the peaks in the coast range. As it does not appear to have been done before, I have taken the opportunity of naming all the peaks, the positions of which I fixed in the above way. The names and altitudes appear on my map.

Mouth of Chilkat River. Haines Mission. Chilkoot Inlet.



From Photo. by J. J. McArthur.

Looking North from Mountain South of Haines Mission.

While going up from the head of canoe navigation on the Dyea River, I took the angles of elevation of each station from the preceding one. I would have done this from tide water up, but found many of the courses so short and with so little increase in height that with the instrument I had it was inappreciable. From these

angles I have computed the height of the summit of the Dyea Pass, above the head of canoe navigation, as it appeared to me in June, 1887, and find it to be 3,378 feet. What depth of snow there was I cannot say. The head of canoe navigation I estimate at about 120 feet above tide water. Dr. Dawson gives it as 124 feet.

I determined the descent from the summit to Lake Lindeman by carrying the aneroid from the lake to the summit and back again, the interval of time from start to return being about eight hours. Taking the mean of the readings at the lake, start and return, and the single reading at the summit, the height of the summit above the lake was found to be 1,237 feet. While making the survey from the summit down to the lake I took the angles of depression of each station from the preceding one, and from these angles I deduced the difference of height, which I found to be 1,354 feet, or 117 feet more than that found by the aneroid. This is

Boulder Ceeek. *From Photo. by J. J. McArthur.*

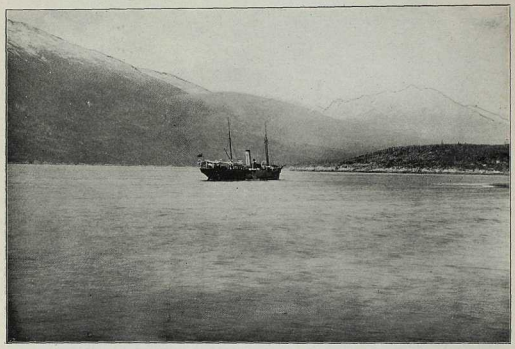
The Klehini River Flats—Looking Down and Across Boulder Creek.

quite a large difference; but when we consider the altitude of the place, the sudden changes of temperature, and the atmospheric conditions, it is not more than one might expect.

While at Juneau I heard reports of a low pass from the head of Chilkoot Inlet to the head waters of Lewes River. During the time I was at the head of Dyea Inlet I made inquiries regarding it, and found that there was such a pass, but could learn nothing definite about it from either whites or Indians. As Capt. Moore, who accompanied me, was very anxious to go through it, and as the reports of the Dyea Pass indicated that no wagon road or railroad could ever be built through it, while the new pass appeared, from what little knowledge I could get of it, to be much lower and possibly feasible for a wagon road, I determined to send the cap-

The distance from the head of Dyea Inlet to the summit of the pass is 15 miles, and the whole length of the pass to Lake Lindeman is 23 miles.

tain by that way, if I could get an Indian to accompany him. This, I found, would be difficult to do. None of the Chilkoots appeared to know anything of the pass, and I concluded that they wished to keep its existence and condition a secret. The Tagish, or Stick Indians, as the interior Indians are locally called, are afraid to do anything in opposition to the wishes of the Chilkoots; so it was difficult to get any of them to join Capt Moore; but after much talk and encouragement from the whites around, one of them named "Jim" was induced to go. He had been through this pass before, and proved reliable and useful. The information obtained from Capt. Moore's exploration I have incorporated in my plan of the survey from Dyea Inlet, but it is not as complete as I would have liked. I have named this pass "White Pass," in honour of the late Hon Thos. White, Minister of the Interior, under whose authority the expedition was organized. Commencing

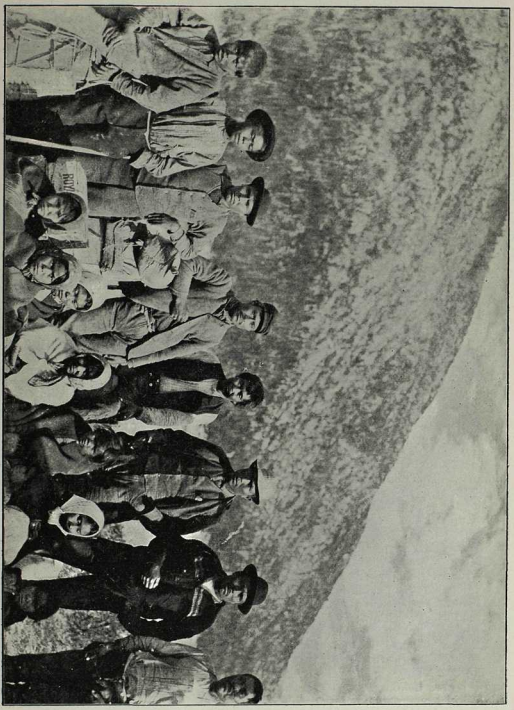


From Photo. by W. Ogilvie.

Skaguay Bay—Steamer Quadra in Foreground.

at Dyea Inlet, about two miles south of its north end, it follows up the valley of the Skaguay River to its source, and thence down the valley of another river which Capt. Moore reported to empty into the Takone or Windy Arm of Tagish Lake. Dr. Dawson says this stream empties into the eastern arm of the Tagish Lake, and in that event Capt. Moore is mistaken. Capt. Moore did not go all the way through to the lake, but assumed from reports he heard from the miners and others that the stream flowed into Windy Arm, and this also was the idea of the Indian "Jim" from what I could gather from his remarks in broken English and Chinook. Capt. Moore estimates the distance from tide water to the summit at about 18 miles, and from the summit to the lake at about 22 to 23 miles. He reports the pass as thickly timbered all the way through.

The timber line on the south side of the Dyea pass, as determined by barometer reading, is about 2,300 feet above the sea, while on the north side it is about 1,000 feet below the summit. This large difference is due, I think, to the different conditions in the two places. On the south side the valley is narrow and deep,



Indian Packers on Chilkoot Pass.

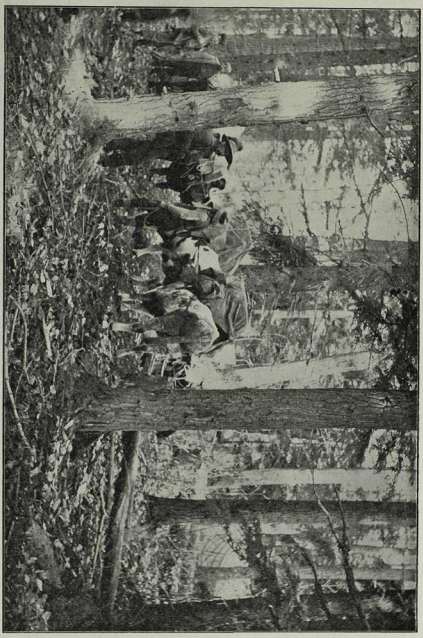
and the sun cannot produce its full effect. The snow also is much deeper there, owing to the quantity which drifts in from the surrounding mountains. On the north side the surface is sloping, and more exposed to the sun's rays. On the south side the timber is of the class peculiar to the coast, and on the north that peculiar to the interior. The latter would grow at a greater altitude than the coast timber. It is possible that the summit of White Pass is not higher than the timber line on the north of the Dyea Pass, or about 2,500 feet above tide water, and it is possibly even lower than this, as the timber in a valley such as the White Pass would hardly live at the same altitude as on the open slope on the north side.

Capt. Moore has had considerable experience in building roads in mountainous countries. He considers that this would be an easy route for a wagon road compared with some roads he has seen in British Columbia. Assuming his distances to be correct, and the height of the pass to be probably about correctly indicated, the grades would not be very steep, and a railroad could easily be carried through if necessary.

After completing the survey down to the lake, I set about getting my baggage down too. Of all the Indians who came to the summit with packs, only four or five could be induced to remain and pack down to the lake, although I was paying them at the rate of $4 per hundred pounds. After one trip down only two men remained, and they only in hopes of stealing something. One of them appropriated a pair of boots, and was much surprised to find that he had to pay for them on being settled with. I could not blame them much for not caring to work, as the weather was very disagreeable—it rained or snowed almost continuously. After the Indians left I tried to get down the stuff with the aid of my own men, but it was slavish and unhealthy labour, 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 on snow blindness, the pain of which only those who have suffered from it can realize. I had two sleds with me which were made in Juneau 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 in this way would seriously interfere with the programme arranged with Dr. Dawson, to say nothing of the suffering of the men and myself, and the liability to sickness which protracted physical exertion under such uncomfortable conditions and continued suffering from snow blindness expose us to. I had with me a white man who lived at the head of the inlet with a Tagish Indian woman. This man had a good deal of influence with the Tagish tribe, of whom the greater number were then in the neighbourhood where he resided, trying to get some odd jobs of work, and I sent him to the head of the inlet to try and induce the Tagish Indians to undertake the transportation, offering them $5 per hundred pounds. In the meantime Capt. Moore and the Indian "Jim" 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. After they were at work for a few days some of the Chilkoots came out and also started to work. Soon I had quite

a number at work and was 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, wet snow, the Indians soon began to quit work for a day or two at a time, and to gamble with one



Loading Pack Oxen at Skagway. *From Photo. by H. A. Bliss.*

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 which I had with me.

These two canoes travelled about 3,000 miles by rail and about 1,000 miles by steamship before being brought into service. They did considerable work on Chilkoot and Dyea Inlets, and were then packed over to the head of Lewes River (Lake Lindeman), from where they were used in making the survey of Lewes and Yukon Rivers. In this work they made about 650 landings. They were then transported on sleighs from the boundary on the Yukon to navigable water on the Porcupine.

In the spring of 1888 they descended the latter river, heavily loaded, and through much rough water, to the mouth of Bell River, and up it to McDougall Pass. They were then carried over the pass to Poplar River and were used in going down the latter to Peel River, and thence up Mackenzie River 1,400 miles; or, exclusive of railway and ship carriage, they were carried about 170 miles and did about 2,500 miles of work for the expedition, making in all about 1,700 landings in no easy manner and going through some very bad water. I left them at Fort Chipewyan in fairly good condition, and, with a little painting, they would go through the same ordeal again.

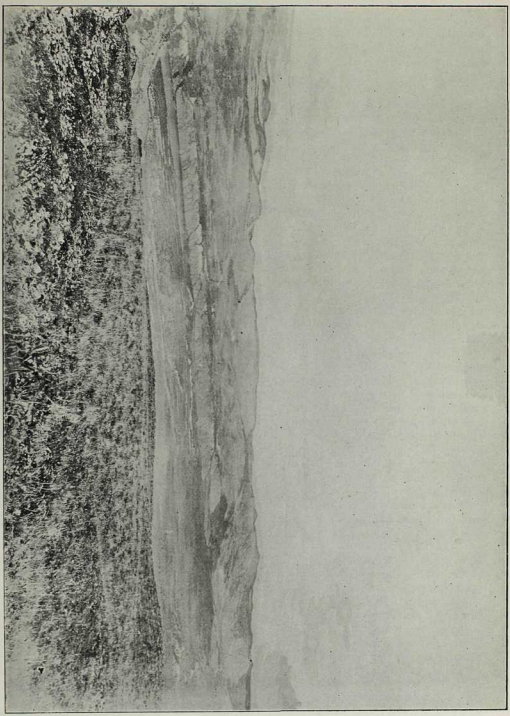
After getting all my outfit over to the foot of Lake Lindeman I set some of the party to pack it to the head of Lake Bennett. The stream between these two lakes is too shallow and rough to permit of canoe navigation, and everything had to be portaged the greater part of the way.

I employed the rest of the party in looking for timber to build a boat to carry my outfit of provisions and implements down the river to the vicinity of the international boundary, a distance of about 700 miles. It took several days to find a tree large enough to make plank for the boat I wanted, as the timber around the upper end of the lake is small and scrubby. My boat was finished on the evening of the 11th of July, and on the 12th I started a portion of the party to load it and go ahead with it and the outfit to the cañon. They had instructions to examine the cañon 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 started to carry on the survey, which may now be said to have fairly started down the lakes. This proved tedious work, on account of the 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 found 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.

The survey was completed to the cañon on the 20th of July. There I found the party with the large boat had arrived on the 18th, having carried a part of the supplies past the cañon, and were awaiting my arrival to run through it with the rest in the boat. Before doing so, however, I made an examination of the cañon. The rapids below it, particularly the last rapid of the series (called the White Horse by the miners), I found would not be safe to run. I sent two men through the cañon in one of the canoes to await the arrival of the boat, and to be ready in case of an accident to pick us up. Every man in the party was supplied with a life-preserver, so that should a casualty occur we would all have floated. Those in the canoe got through all right; but they would not have liked to repeat the trip. They said the canoe jumped about a great deal more than they thought it would, and I had the same experience when going through in the boat.

The passage through is made in about three minutes, or at the rate of about



On the Dalton Trail, Looking N. W. over Hutsh Lake and the Valley of the Nordenskiold Rivers. About ten miles of the Valley are Seen in the View. White Spots are Volcanic Ash Deposits.

12½ miles an hour. If the boat is kept clear of the sides there is not much danger in high water ; but in low water there is a rock in the middle of the channel, near the upper end of the cañon, that renders the passage more difficult. I did not see this rock myself, but got my information from some miners I met in the interior, who described it as being about 150 yards down from the head and a little to the west of the middle of the channel. In low water it barely projects above the surface. When I passed through there was no indication of it, either from the bank above or from the boat.

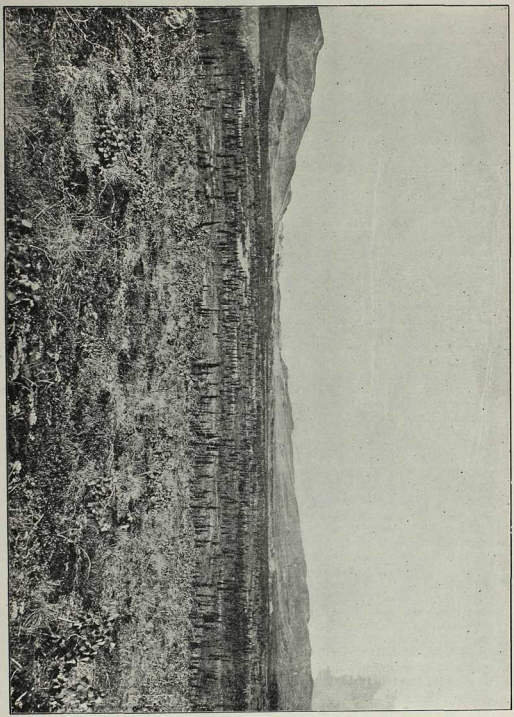
The distance from the head to the foot of the cañon is five-eighths of a mile. There is a basin about midway in it about 150 yards in diameter. This basin is circular in form, with steep sloping sides about 100 feet high. The lower part of the cañon is much rougher to run through than the upper part, the fall being apparently much greater. The sides are generally perpendicular, about 80 to 100 feet high, and consist of basalt, in some places showing hexagonal columns.

The White Horse Rapids are about three-eighths of a mile long. They are the most dangerous rapids on the river, and have seldom been run through in boats except by accident. They are confined by low basaltic banks, which, at the foot, suddenly close in and make the channel about 30 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 up hill, notably one at the foot of the cañon. This roadway and the windlasses must have cost them many hours of hard labour. Should it ever be necessary, a tramway could be built past the cañon on the east side with no great difficulty. With the exception of the Five Finger Rapids these appear to be the only serious rapids on the whole length of the river.

Five Finger Rapids are formed by several islands standing in the channel and backing up the water so much as to raise it about a foot, causing a swell below for a few yards. The islands are composed of conglomerate rock, similar to the cliffs on each side of the river, whence one would infer that there has been a fall here in past ages. For about two miles below the rapids there is a pretty swift current, but not enough to prevent the ascent of a steamboat 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. Six miles below these rapids are what are known as "Rink 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 of a good canoe. On the easterly side there is no ripple, and the current is smooth and the water apparently deep. I tried with a 6 foot paddle, but could not reach the bottom.

On the 11th of August I met a party of miners coming out who had passed Stewart River a few days before. They saw no sign of Dr. Dawson having been there. This was welcome news for me, as I expected he would have reached that point long before I arrived, on account of the many delays I had met with on the coast range. These miners also gave me the pleasant news that the story told at the coast about the fight with the Indians at Stewart River was false, and stated substantially what I have already repeated concerning it. The same evening I met more miners on their way out, and the next day met three boats, each containing four men. In the crew of one of them was a son of Capt. Moore, from whom the captain got such information as induced him to turn back and accompany them out.

Next day, the 13th, I got to the mouth of the Pelly, and found that Dr. Dawson had arrived there on the 11th. The doctor also had experienced many delays, and had heard the same story of the Indian uprising in the interior. I was pleased to find that he was in no immediate want of provisions, the fear of which had



On the Dalton Trail 25 Miles South of Hutshi Village, Looking West Along the Valley of the Kaskawulsh River. Valley about 4 Miles Wide.

caused me a great deal of uneasiness on the way down the river, as it was 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 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 left for the outside world, leaving me with a feeling of loneliness that only those who have experienced it can realize. I remained at the mouth of the Pelly during the next day taking magnetic and astronomical observations, and making some measurements of the river. On the 19th I resumed the survey and reached White River on the 25th. Here I spent most of a day trying to ascend this river, but found it impracticable, on account of the swift current and shallow and very muddy water. The water is 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, and the numerous bars in the bed are constantly changing place. After trying for several hours, the base men 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 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.

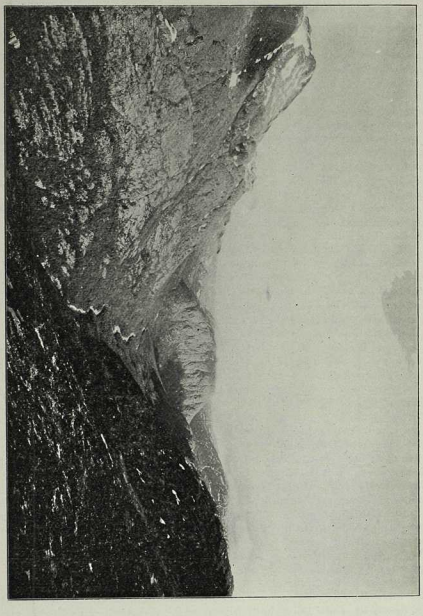
I reached Stewart River on the 26th. Here I remained a day taking magnetic observations, and getting information from a miner, named McDonald, about the country up that river. McDonald had spent the summer up the river prospecting and exploring. His information will be given in detail further on.

Fort Reliance was reached on the 1st of September, and Fortymile River (Cone-Hill River of Schwatka) on the 7th. In the interval between Fort Reliance and Fortymile River there were several days lost by rain.

At Fortymile River I made some arrangements with the traders there (Messrs. Harper & McQuesten) about supplies during the winter, and about getting Indians to assist me in crossing from the Yukon to the head of the Porcupine, or perhaps on to the Peel River. I then made a survey of the Fortymile River up to the cañon. I found the cañon would be difficult of ascent, and dangerous to descend, and, therefore, concluded to defer further operations until the winter, and until after I had determined the longitude of my winter post near the boundary, when I would be in a much better position to locate the intersection of the International Boundary with this river, a point important to determine on account of the number and richness of the mining claims on the river.

I left Fortymile River for the boundary line between Alaska and the Northwest Territories on the 12th September, and finished the survey to that point on the 14th. I then spent two days in examining the valley of the river in the vicinity of the boundary to get the most extensive view of the horizon possible, and to find a tree large enough to serve for a transit stand.

Before leaving Toronto I got Mr. Foster to make large brass plates with V's on them, which could be screwed firmly to a stump, and thus be made to serve as a transit stand. I required a stump at least 22 inches in diameter to make a base large enough for the plates when properly placed for the transit. In a search which covered about four miles of the river bank, on both sides, I found only one tree as large as 18 inches. I mention this fact to give an idea of the size of the trees along the river in this vicinity. I had this stump enlarged by firmly fixing pieces on the sides so as to bring it up to the requisite size. This done, I built around the stump a small transit house of the ordinary form and then mounted and adjusted my transit. Meanwhile, most of the party were busy preparing our winter quarters and building a magnetic observatory. As I had been led to ex-



The Skaguay River above Porcupine Creek. *From Photo. by J. J. McArthur.*

pect extremely low temperatures during the winter, I adopted precautionary measures, so as to be as comfortable as circumstances would permit during our stay there.

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SURVEY OF FORTYMILE RIVER, FROM ITS MOUTH TO THE INTERNATIONAL BOUNDARY LINE.

On the 9th of February I started with the survey from where I had left it in the summer, as already mentioned.

During the progress of this work the weather was cold, and as the days were only four or five hours long the progress was necessarily slow, so that I did not complete the survey to the boundary until the 12th. The distance from the mouth of the Fortymile River up it to the boundary is, by the river, twenty-three miles. I marked the approxmiate intersection of the river by the boundary by blazing trees on both sides and marked on some of the trees the letters "A" and "C" on the west and east sides, respectively, for Alaska and Canada.

The natural features of the ground here afford also a good mark. On the north side of the river two small creeks fall into Fortymile River, almost together, and between them there is a sharp rocky mound about 150 feet high. This mound stands about where the boundary crosses the river, and from this point one can see northwards up the valleys of the creeks for several miles. This is the first place on the Fortymile where such a distant view can be had.

I returned to the post at the mouth of the river, and spent two days with the traders Harper and McQuesten and the miners who were camped around.

Harper, McQuesten & Co. moved from Stewart River down to this point in the spring of 1887, so as to be where most of the miners were located. On Fortymile River, in the season of 1886, coarse gold was found, the first discovered on the Yukon or any of its tributaries. Coarse gold is the desideratum of all gold miners, and as soon as the news of the discovery spread to the other mining camps, where nothing but fine or dust gold had yet been found, they all repaired to the coarse gold diggings on Fortymile.

About one hundred miners wintered in the country, most of whom camped at Fortymile. A few wintered down at the old trading post built by Francois Mercier of Montreal, and named by him Belle Isle. This post is just above where Lieut. Schwatka located the International Boundary, but it is about twelve miles below the boundary by my survey and observations.

When I was at Fortymile River the miners were very anxious to see me, and to know our mining regulations and laws. I explained everything they inquired about as fully as my knowledge and the documents at my disposal would permit. Many of them who were used to the United States system of each mining community making its own by-laws, based on the general mining law of the country, and electing their own recorder to attend to the regulations and see them carried out, thought some of our regulations rather stringent and hard. I heard their statements and answered such of them as I could, and also promised to lay their views before the Department. This I have already done in a report sent by me in the spring of 1888. As this report is of purely administrative import, it is not necessary to quote it here.

During the winter there were many cases of sickness at Fortymile, most of them scurvy. There were three deaths, only one of which was due to scurvy.

I returned to my quarters on the 17th February, and immediately set the party at work drawing the canoes and instruments, and about four months' provisions, down to Belle Isle, about fifteen miles down the river from my house. This was to be our starting point for the Mackenzie River.

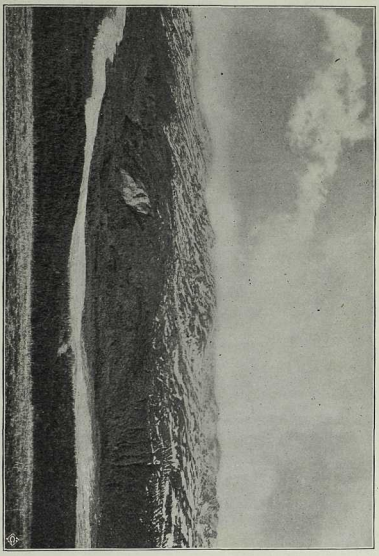
DESCRIPTION OF THE YUKON, ITS AFFLUENT STREAMS, AND THE ADJACENT COUNTRY.

I will now give from my own observation and from information received, a more detailed description of the Lewes River, its affluent streams, and the resources of the adjacent country.

For the purpose of navigation a description of the Lewes River begins at the head of Lake Bennett. Above that point, and between it and Lake Lindeman, there is only about three-quarters of a mile of river, which is about fifty yards wide, and two or three feet deep, and is so swift and rough generally, that navigation is out of the question.

Lake Lindeman is about five miles long and half a mile wide. It is deep enough for all ordinary purposes. Lake Bennett* is twenty-five and a half miles

Dalton's Caché



The Kishini River Flats. *From Photo. by J. J. Medrthur.*

long, the upper fourteen of which is about half a mile wide. About midway in its length an arm comes in from the west, which Schwatka appears to have

* A small saw-mill has been erected at the head of Lake Bennett; lumber for boat building sells at $100 per M. Boats 25 feet long and 5 feet beam are $60 each. Last year the ice broke up in the lake on the 12th June, but this season is earlier and the boats are expected to go down the lake about the 1st of June.

mistaken for a river, and named Wheaton River. This arm is wider than the other arm down to that point, and is reported by Indians to be longer and heading in a glacier which lies in the pass at the head of Chilkoot Inlet. This arm is, as far as seen, surrounded by high mountains, apparently much higher than those on the arm we travelled down. Below the junction of the two arms the lake is about one and a half miles wide, with deep water. Above the forks the water of the east branch is muddy. This is caused by the streams from the numerous glaciers on the head of the tributaries of Lake Lindeman.

A stream which flows into Lake Bennett at the south-west corner is also very dirty, and has shoaled quite a large portion of the lake at its mouth. The beach at the lower end of this lake is comparatively flat and the water shoal. A deep, wide valley extends northwards from the north end of the lake, apparently reaching to the cañon, or a short distance above it. This may have been originally a course for the waters of the river. The bottom of the valley is wide and sandy, and covered with scrubby timber, principally poplar and pitch-pine. The waters of the lake empty at the extreme north-east angle through a channel not more than one hundred yards wide, which soon expands into what Schwatka called Nares Lake. * Through this narrow channel there is quite a current, and more than 7 feet of water, as a 6 foot paddle and a foot of arm added to its length did not reach the bottom.

The hills at the upper end of Lake Rennet rise abruptly from the water's edge. At the lower end they are neither so steep nor so high.

Nares Lake is only two and a half miles long, and its greatest width is about a mile; it is not deep, but is navigable for boats drawing 5 or 6 feet of water; it is separated from Lake Bennett by a shallow sandy point of not more than 200 yards in length.

No streams of any consequence empty into either of these lakes. A small river flows into Lake Bennett on the west side, a short distance north of the fork, and another at the extreme north-west angle, but neither of them is of any consequence in a navigable sense. The former seems to be what Schwatka referred to as Wheaton River.

Nares Lake flows through a narrow curved channel into Tagish Lake. This channel is not more than 600 or 700 yards long, and the water in it appears to be sufficiently deep for boats that could navigate the lake. The land between the lakes along this channel is low, swampy, and covered with willows, and, at the stage in which I saw it, did not rise more than 3 feet above the water. The hills on the south-west side slope up easily, and are not high; on the north side the deep valley already referred to borders it; and on the east side the mountains rise abruptly from the lake shore.

Tagish Lake is about a mile wide for the first two miles of its length, when it is joined by what the miners have called the Windy Arm. One of the Tagish Indians informed me they called it Takone Lake. Here the lake expands to a width of about two miles for a distance of some three miles, when it suddenly narrows to about half a mile for a distance of a little over a mile, after which it widens again to about a mile and a half or more.

Ten miles from the head of the lake it is joined by the Taku Arm from the south. This arm 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. It is apparently over a mile wide at its mouth or junction.

Dr. Dawson includes all these arms under the common name of Tagish Lake. This is much more simple and comprehensive than the various names given them by travellers. 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 all included under one name.

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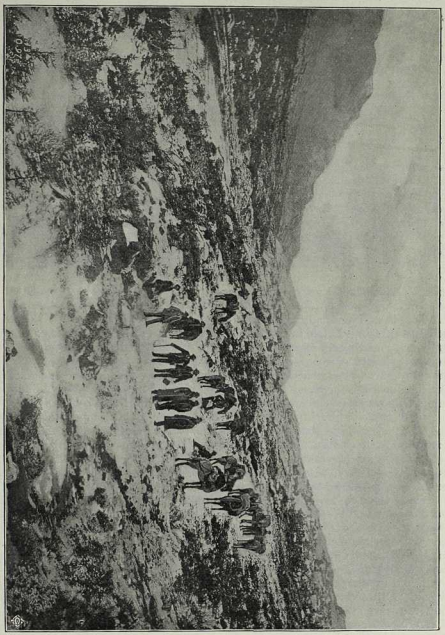
* The connecting waters between Lake Bennett and Tagish Lake constitute what is now called Caribou Crossing.



From Photo. by W. Ogilvie.

Hon. Mr. Sifton's Party at Lunch on Skaguay Trail Near Summit of White Pass.

From the junction with the Taku Arm, or the easterly arm, to the north end of the lake, the distance is about six miles, the greater part being over two miles wide. The west side is very flat and shallow, so much so that it was impossible in many places to get our canoes to the shore, 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 found on the west side, with many large rocks. They passed through it in the night in a rain storm, and were much alarmed for the safety of the boat and provisions. It would appear that this part of the lake requires some improvement to make it in keeping with the rest of the water system with which it is connected.*

Where the river debouches from it, it is about 150 yards wide, and for a short distance not more than 5 or 6 feet deep. The depth is, however, soon increased to 10 feet or more, and so continues down to what Schwatka calls Marsh Lake. 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 Lake "Mud Lake," on account of its shallowness and flat, muddy shores, as seen along the west side, the side nearly always travelled, as it is more sheltered from the prevailing southerly winds. The term "Mud Lake" is, however, not applicable to this lake, as only a comparatively small part of it is shallow or muddy; and it is nearly as inapplicable to Marsh Lake, as the latter is not markedly muddy along the west side, and from the appearance of the east shore one would not judge it to be so, as the banks appear to be high and gravelly.

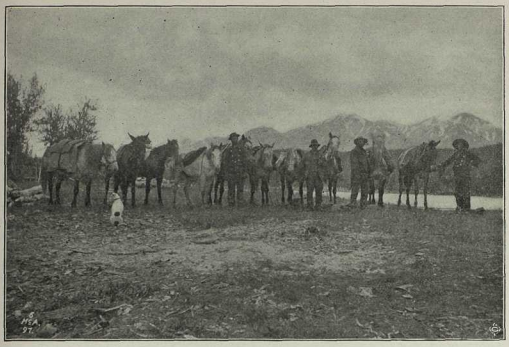
Marsh Lake is a little over nineteen miles long, and averages about two miles in width. I tried to determine the width of it as I went along with my survey, by taking azimuths of points on the eastern shore from different stations of the survey; but in only one case did I succeed, as there were no prominent marks on that shore which could be identified from more than one place. The piece of river connecting Tagish and Marsh Lakes is about five miles long, and averages 150 to 200 yards in width, and, as already mentioned, is deep, except for a short distance at the head. On it are situated the only Indian houses to be found in the interior with any pretension to skill in construction. They show much more labour and imitativeness 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 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.

The Lewes River, where it leaves Marsh Lake, is about 200 yards wide, and averages this width as far as the cañon. I did not try to find bottom anywhere as I went along, except where I had reason to think it shallow, and there I always tried with my paddle. I did not anywhere find bottom with this, which shows that there is no part of this stretch of the river with less than six feet of water at medium height, at which stage it appeared to me the river was at that time.

From the head of Lake Bennett to the cañon the corrected distance is ninety-five miles, all of which is navigable for boats drawing 5 feet or more. Add to this the westerly arm of Lake Bennett, and the Windy Arm of Tagish Lake, each about fifteen miles in length, and the easterly 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 miles in length, all easily navigable; and, as has been pointed out, easily connected with Dyea Inlet through the White Pass.

No streams of any importance enter any of these lakes so far as I know. A

* The middle of the lake is deep enough for any craft that can sail the lakes above.



From Photo. by J. J. McArthur.
Dalton's Pack Train at Dalton's Post—Looking South.

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. Another small stream, apparently only a creek, enters the south-east angle of the lake. 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 Teslin is not more than thirty or forty miles in width at this point.

The easterly arm of Tagish Lake is, so far, with the exception of reports from Indians, unknown; but it is equally improbable that any river of importance enters it, as it is so near the source of the waters flowing northwards. However, this is a question that can only be decided by a proper exploration. The cañon I have already described, and will only add that it is five-eighths of a mile long, about 100 feet wide, with perpendicular banks of basaltic rock from 60 to 100 feet high.

Below the cañon proper there is a stretch of rapids for about a mile; then about half a mile of smooth water, following which are the White Horse Rapids, which are three-eighths of a mile long, and unsafe for boats.

The total fall in the cañon and succeeding rapids was measured and found to be 32 feet. Were it ever necessary to make this part of the river navigable, it will be no easy task to overcome the obstacles at this point; but a tram or railway could, with very little difficulty, be constructed along the east side of the river past them.

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. The average width is about 150 yards. There is no impediment to navigation other than the swift current, and this is no stronger than on the lower part of the river, which is already navigated; nor is it worse than on the Saskatchewan and Red Rivers in the more eastern part of our territory.

About midway in this stretch the Takhini River* joins the Lewes. This river is, apparently, about half the size of the latter. Its waters are muddy, indicating its passage through a clayey district. I got some indefinite information about this river from an Indian who happened to meet me 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. Most of those it has been my lot to meet are expecting to make something, and consequently are very chary about doing or saying anything unless they think they will be well rewarded for it. They are naturally very suspicious of strangers, and it takes some time, and some knowledge of their language, to overcome this suspicion and gain their confidence. If you begin at once to ask questions about their country, without previously having them 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.

I have several times found that some act of mine when in their presence has aroused either their fear, superstition or cupidity. As an instance: on the Bell River I met some Indians coming down stream as I was going up. We were ashore at the time, and invited them to join us. They started to come in, but very slowly, and all the time kept a watchful eye on us. I noticed that my double-barrelled shot gun was lying at my feet, loaded, and picked it up to unload it, as I knew they would be handling it after landing. This alarmed them so much that it was some time before they came in, and I don't think they would have come ashore at all had they not heard that a party of whitemen, of whom we answered the description, were coming through that way (they had learned this from the Hudson Bay Company's officers), and concluded we were the party described to them. After drinking some of our tea, and getting a supply for themselves, they became quite friendly and communicative.

Again, on the Mackenzie River, while two Indians were coming ashore at my camp, I picked up a telescope to look for a signal across the river. In looking for it I had to point it towards the Indians, who immediately turned and fled. Next day I called at the Indian encampment and explained through my interpreter what I had really done. When they understood it, it caused the camp much amusement.

At Fort Good Hope, on the Mackenzie, I heard of an old Indian who had been a great deal on the Hare Indian River and could give valuable information regarding it. I asked to have him brought in, that I might question him. In the meantime I set about getting an observation for azimuth, and was busy observing when he came. The interpreter asked me what I was doing; I told him. He asked what I was looking up so much for; I said I was looking at a star. As the time was early in the evening, and the sun well up in the sky, he at first doubted my statement, but, finally believing, he explained to the Indians around what I was doing, and pointed out to them where the star was. They looked up in an awed manner, and walked off. When I finished my observation and inquired for the old man, I was told that he was not inclined to see me. I found him, but he refused to answer any questions, saying that there was no use in telling me anything, for

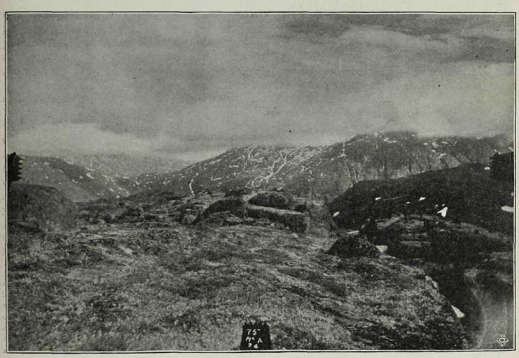
* The Takhini was formerly much used by the Chilkat Indians as a means of reaching the interior, but never by the miners owing to the distance from the sea to its head.

when I could see stars during daylight I could just as easily see all the river, and nothing could convince him to the contrary.

I cite these as instances of what one meets with who comes in contact with Indians, and of how trifles affect them. A sojourn of two or three days with them and the assistance of a common friend would do much to disabuse them of such ideas, but when you have no such aids you must not expect to make much progress.

Lake Labarge is thirty-one miles long. In the upper thirteen it varies from three to four miles in width ; it then narrows to about two miles for a distance of seven miles, when it begins to widen again, and gradually expands to about two and a-half or three miles, the lower six miles of it maintaining the latter width. The survey was carried along the western shore, and while so engaged I determined the width of the upper wide part by triangulation at two points, the width of the narrow middle part at three points, and the width of the lower part at three points. Dr. Dawson on his way out made a track survey of the eastern shore. The western shore is irregular in many places, being indented by large bays, especially at the upper and lower ends. These bays are, as a rule, shallow, more especially those at the lower end.

Just above where the lake narrows in the middle there is a large island. It is three and a-half miles long and about half a mile in width. It is shown on Schwatka's map as a peninsula, and called by him Richtofen Rocks. How he came to think it a peninsula I cannot understand, as 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 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 rocky and high, the rock being of a bright red colour.



From Photo. by J. J. McArthur.

Looking North.—Summit of White Pass to the Left of Centre.

At the lower end of the lake there is a large valley extending northwards, which has evidently at one time been the outlet of the lake. Dr. Dawson has noted it and its peculiarities. His remarks regarding it will be found on pages 156-160 of his report entitled "Yukon District and Northern portion of British Columbia," published in 1889.

The width of the Lewes River as it leaves the lake is the same as at its entrance, about 200 yards. Its waters when I was there were murky. This is caused by the action of the waves on the shore along the lower end of the lake. The water at the upper end and at the middle of the lake is quite clear, so much so that the bottom can be distinctly seen at a depth of 6 or 7 feet. The wind blows almost constantly down this lake, and in a high wind it gets very rough. The miners complain of much detention owing to this cause, and certainly I cannot complain of a lack of wind while I was on the lake. This lake was named after one Mike Labarge, a Canadian from the vicinity of Montreal, who was engaged by the Western Union Telegraph Company, exploring the river and adjacent country for the purpose of connecting Europe and America by telegraph through British Columbia, and Alaska, and across Bering Strait to Asia, and thence to Europe. This exploration took place in 1867, but it does not appear that Labarge then, nor for some years after, saw the lake called by his name. The successful laying of the Atlantic cable in 1866 put a stop to this project, and the exploring parties sent out were recalled as soon as word could be got to them. It seems that Labarge had got up as far as the Pelly before he received his recall; he had heard something of a large lake some distance further up the river, and afterwards spoke of it to some traders and miners who called it after him.

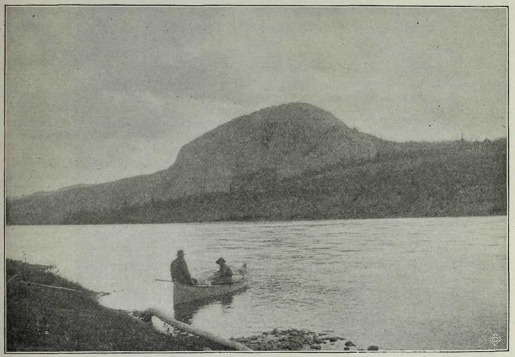
After leaving Lake Labarge the river, for a distance of about five miles, preserves a generally uniform width and an easy current of about four miles per hour. It then makes a short turn round a low gravel point, and flows in exactly the opposite of its general course for a mile, when it again turns sharply to its general direction. The current around this curve and for some distance below it—in all four or five miles—is very swift. I timed it in several places and found it from six to seven miles an hour. It then moderates to four or five, but is generally swift to the Teslin River, thirty-one and seven-tenths miles from Lake Labarge. The average width of this part of the river is about 150 yards, and the depth is sufficient to afford passage for boats drawing at least 5 feet. It is, as a rule, crooked, and consequently a little difficult to navigate.

The Teslin* was so called by Dr. Dawson—this, according to information obtained by him, being the Indian name. It is called by the miners "Hootalinkwa" or Hootalinqua, and was called by Schwatka, who appears to have bestowed no other attention to it, the Newberry, although it is apparently much larger than the Lewes. This was so apparent that in my interim reports I stated it as a fact. Owing to circumstances already narrated, I had not time while at the mouth to make any measurement to determine the relative size of the rivers; but on his way out Dr. Dawson made these measurements, and his report, before referred to, gives the following values of the cross sections of each stream: Lewes, 3,015 feet; Teslin, 3,809 feet. In the same connection he states that the Lewes appeared to be about 1 foot above its lowest summer level, while the Teslin appeared to be at its lowest level. Assuming this to be so, and taking his widths as our data, it

* The limited amount of prospecting that has been done on this river is said to be very satisfactory, fine gold having been found in all parts of the river. The lack of supplies is the great drawback to its development, and this will not be overcome to any extent until by some means heavy freight can be brought over the coast range to the head of the river. Indeed, owing to the difficulties attending access and transportation, the great drawback to the entire Yukon District at present is the want of heavy mining machinery and the scarcity of supplies. The Government being aware of the requirements and possibilities of the country, has undertaken the task of making preliminary surveys for trails and railroads, and no doubt in the near future the avenue for better and quicker transportation facilities will be opened up.

would reduce his cross section of the Lewes to 2,595 feet. Owing, however, to the current in the Lewes, as determined by Dr. Dawson, being just double that of the Teslin, the figures being 5.68 and 2.88 miles per hour, respectively, the discharge of the Lewes, taking these figures again, is 18,644 feet, and of the Teslin 11,436 feet. To reduce the Lewes to its lowest level the doctor says would make its discharge 15,600 feet.

The water of the Teslin is of a dark brown colour, similar in appearance to the Ottawa River water, and a little turbid. Notwithstanding the difference of volume of discharge, the Teslin changes completely the character of the river below the junction, and a person coming up the river would, at the forks, unhesitatingly pronounce the Teslin the main stream. The water of the Lewes is blue in colour, and at the time I speak of was somewhat dirty—not enough so, however, to prevent one seeing to a depth of two or three feet.



Eagle's Nest. *From Photo. by W. Ogilvie.*

Many years ago, sixteen I think, a man 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 spent some time in prospecting, and then recrossed to the sea. This man had been at Fortymile River, and I heard from the miners there his account of the appearance of the lake, which was not detailed enough to be of service.

Assuming this as the main river, and adding its length to the Lewes-Yukon below the junction, gives upwards of 2,200 miles of river, fully two-thirds of which runs through a very mountainous country, without an impediment to navigation. It is reported to be better timbered than the Lewes.

Some indefinite information was obtained as to the position of this river in the neighbourhood of Marsh Lake tending to show that the distance between them was only about thirty or forty miles.

Between the Teslin and the Big Salmon, so called by the miners, or D'Abbadie by Schwatka, the distance is thirty-three and a-half miles, in which the Lewes preserves a generally uniform width and current. For a few miles below the Teslin it is a little over the ordinary width, but then contracts to about two hundred yards, which it maintains with little variation. The current is generally from four to five miles per hour.

The Big Salmon I found to be about one hundred yards wide near the mouth, the depth not more than four or five feet, and the current, so far as could be seen, sluggish. None of the miners I met could give me any information concerning this stream; but Dr. Dawson was more fortunate, and met a man who had spent most of the summer of 1887 prospecting on it. His opinion was that it might be navigable for small stern-wheel steamers for many miles.* The valley, as seen from the mouth, is wide, and gives one the impression of being occupied by a much more important stream. Looking up it, in the distance could be seen many high peaks covered with snow. As the date was August it is likely they are always so covered, which would make their probable altitude above the river 5,000 feet or more.

Dr. Dawson, in his report, incorporates fully the notes obtained from the miners. I will trespass so far on these as to say that they called the distance to a small lake near the head of the river 190 miles from the mouth. This lake was estimated to be four miles in length; another lake about 12 miles above this was estimated to be twenty-four miles long, and its upper end distant only about eight miles from the Teslin. These distances, if correct, make this river much more important than a casual glance at it would indicate; this, however, will be more fully spoken of under its proper head.

Just below the Big Salmon, the Lewes takes a bend of nearly a right angle. Its course from the junction with the Takhini to this point is generally a little east of north; at this point it turns to nearly west for some distance. Its course between here and its confluence with the Pelly is north-west, and, I may add, it preserves this general direction down to the confluence with the Porcupine. The river also changes in another respect; it is generally wider, and often expands into what might be called lakes, in which are islands. Some of these lakes are of considerable length, and well timbered.

To determine which channel is the main one, that is, which carries the greatest volume of water, or is best available for the purposes of navigation, among these islands, would require more time than I could devote to it on my way down; consequently I cannot say more than that I have no reason to doubt that a channel giving six feet or more of water could easily be found. Whenever, in the main channel, I had reason to think the water shallow, I tried it with my paddle, but always failed to find bottom, which gives upwards of six feet. Of course I often found less than this, but not in what I considered the main channel.

Thirty-six and a quarter miles below the Big Salmon, the Little Salmon—the Daly of Schwatka—enters the Lewes. The river is about 60 yards wide at the mouth, and not more than two or three feet in depth. The water is clear and of a brownish hue; there is not much current at the mouth, nor as far as can be seen up the stream. The valley which, from the mouth, does not appear extensive, bears north-east for some distance, when it appears to turn more to the east. Six or seven miles up, and apparently on the north side, some high cliffs of red rock, apparently granite, can be seen. It is said that some miners have prospected this stream, but I could learn nothing definite about it.

Lewes River makes a turn here to the south-west, and runs in that direction six miles, when it again turns to the north-west for seven miles, and then makes a short, sharp turn to the south and west around a low sandy point, which will, at

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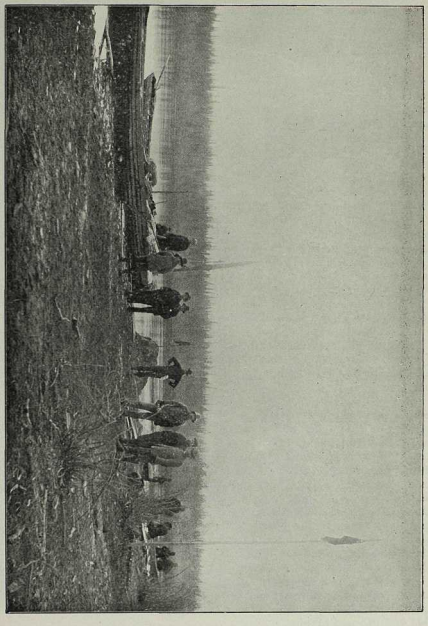
* My examination of the mouth of this stream in 1895 leads me to believe this opinion is erroneous.—W. O.



From Photo. by W. Ogilvie.

Police and Customs Station at Tagish Lake.—Hon. C. Sifton, Major Walsh and Inspector Strickland Standing Together.

some day in the near future, be cut through by the current, which will shorten the river three or four miles.

Eight miles below Little Salmon River, a large rock called the Eagle's Nest Rock, stands up in a gravel slope on the easterly bank of the river. It rises about five hundred feet above the river, and is composed of a light grey stone. What the character of this rock is I could not observe, as I saw it only from the river, which is about a quarter of a mile distant. On the westerly side of the river there are two or three other isolated masses of apparently the same kind of rock. One of them might appropriately be called a mountain; it is south-west from the Eagle's Nest and distant from it about three miles.

Thirty-two miles below Eagle's Nest Rock, Nordenskiold River enters from the west. It is an unimportant stream, being not more than one hundred and twenty feet wide at the mouth, and only a few inches deep. The valley, as far as can be seen, is not extensive, and being very crooked, it is hard to tell what its general direction is.

The Lewes, between the Little Salmon and the Nordenskiold, maintains a width of from two to three hundred yards, with an occasional expansion where there are islands. It is serpentine in its course most of the way, and where the Nordenskiold joins it is very crooked, running several times under a hill, named by Schwatka Tantalus Butte, and in other places leaving it, for a distance of eight miles. The distance across from point to point is only half a mile.

Below this to Five Finger Rapids, so-called from the fact that five large masses of rock stand in mid-channel, the river assumes its ordinary straightness and width, with a current from four to five miles per hour. I have already described Five Finger Rapids; I do not think they will prove anything more than a slight obstruction in the navigation of the river. A boat of ordinary power would probably have to help herself up with windlass and line in high water.

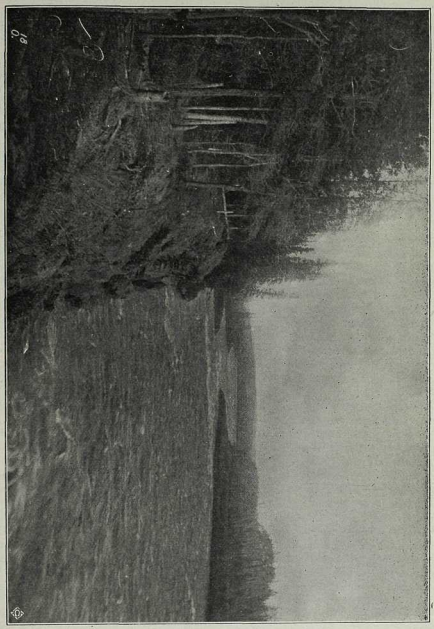
Below the rapids, for about two miles, the current is strong—probably six miles per hour—but the water seems to be deep enough for any boat that is likely to navigate it.

Six miles below this, as already noticed, Rink Rapids are situated. They are of no great importance, the westerly half of the stream only being obstructed. The easterly half is not in any way affected, the current being smooth and the water deep.

Below Five Finger Rapids about two miles a small stream enters from the east. It is called by Dr. Dawson Tatshun River. It is not more than 30 or 40 feet wide at the mouth, and contains only a little clear, brownish water. Here I met the only Indians seen on the river between Teslin and Stewart Rivers. They were engaged in catching salmon at the mouth of the Tatshun, and were the poorest and most unintelligent Indians it has ever been my lot to meet. 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. I tried by signs to get some information from them about the stream they were fishing in, but failed. I tried in the same way to learn if there were any more Indians in the vicinity, but again 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. They appeared to be alarmed by our presence; and, as we had not yet been assured as to the rumour concerning the trouble between the miners and Indians, we felt a little apprehensive, but being able to learn nothing from them we had to put our fears aside and proceed blindly.

Between Five Finger Rapids and Pelly River, fifty-eight and a half miles, no streams of any importance enter the Lewes; in fact, with the exception of the Tatshun, it may be said that none at all enter.

About a mile below Rink Rapids the river spreads out into a lake-like expanse, with many islands; this continues for about three miles, when it contracts



White Horse Rapids, looking down. *From Photo. by W. Ogilvie.*

to something like the usual width ; but bars and small islands are very 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 for three or four miles is nearly a mile wide, and so numerous and close are the islands that it is impossible 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 even here a channel deep enough for such boats as will navigate this part of the river can be found. Schwatka named this group of islands "Ingersoll Islands."

At the mouth of the Pelly the Lewes is about half a mile wide, and here too there are many islands, but not in groups as at Ingersoll Islands.

About a mile below the Pelly, just at the ruins of Fort Selkirk, the Yukon was found to be 565 yards wide; about two-thirds being ten feet deep, with a current of about four and three-quarter miles per hour ; the remaining third was more than half taken up by a bar, and the current between it and the south shore was very slack.

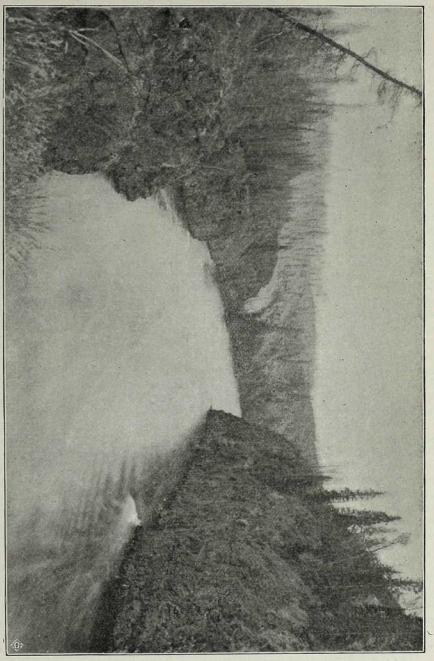
Pelly River at its mouth is about two hundred yards wide, and continues this width as far up as could be seen. Dr. Dawson made a survey and examination of this river, which will be found in his report already cited, "Yukon District and Northern British Columbia."

Just here for a short distance the course of the Yukon is nearly west, and on the south side, about a mile below the mouth of the Lewes, stands all that remains of the only trading post ever built by white men in the district.* This post was established by Robert Campbell, for the Hudson Bay Company, in the summer of 1848. It was first built on 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 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 it convenient to take by force they took, and what it was convenient to pay for at their own price they paid for.

Mr. Campbell's first visit to the site of Fort Selkirk was made in 1840, under instructions from Sir George Simpson, then Governor of the Hudson's Bay Company. He crossed from the head waters of the Liard to the waters of the Pelly. It appears the Pelly, where he struck it, was a stream of considerable size, for he speaks of its appearance when he first saw it from "Pelly Banks," the name given the bank from which he first beheld it, as a "splendid river in the distance." In June, 1843, he descended the Pelly to its confluence with the larger stream, which he named the "Lewes." Here he found many families of the native Indians—"Wood Indians," he called them. These people conveyed to him, as best they could by word and sign, the dangers that would attend a further descent of the river, representing that the country below theirs was inhabited by a tribe of fierce cannibals, who would assuredly kill and eat them. This so terrified his men that he had to return by the way he came, pursued, as he afterwards learned, by the Indians, who would have murdered himself and party had they got a favourable opportunity. It was not until 1850 that he could establish, what he says he all along believed, "that the Pelly and Yukon were identical." This he did by descending the river to where the Porcupine joins it, and where in 1847 Fort Yukon was established by Mr. A. H. Murray for the Hudson Bay Company. Mr. Campbell then named the river he had discovered and explored from the height of land to the junction with the Porcupine, "Pelly River," and had it delineated and so named on a map of that part of the country, drawn by J. Arrowsmith, the geographer for the Hudson's Bay Company, in 1853.

With reference to the tales told him by the Indians of bad people outside of

*Knocked down by the Indians in 1894.



Looking up Miles Canon.

From Photo. by W. Ogilvie.

their country, I may say that Mackenzie tells pretty much the same story of the Indians on the Mackenzie when he discovered and explored the river in 1789. He had the advantage of having Indians along with him whose language was radically the same as that of the people he was coming among, and his statements are more explicit and detailed. Everywhere he came in contact with them they manifested, first, dread of himself and party, and when friendship and confidence were established they nearly always tried to detain him by representing the people in the direction he was going as unnaturally bloodthirsty and cruel, sometimes asserting the existence of monsters with supernatural powers, as at Manitou Island, a few miles below the present Fort Good Hope, and the people 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 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.

Nothing more was ever done in the vicinity of Fort Selkirk* by the Hudson Bay Company after these events, and in 1869 the Company was ordered by Capt. Charles W. Raymond, who represented the United States Government, to evacuate the post at Fort Yukon, he having found that it was west of the 141st meridian. The post was occupied by the Company, however, for some time after the receipt of this order, and until Rampart House was built, which was intended to be on British Territory, and to take the trade previously done at Fort Yukon.

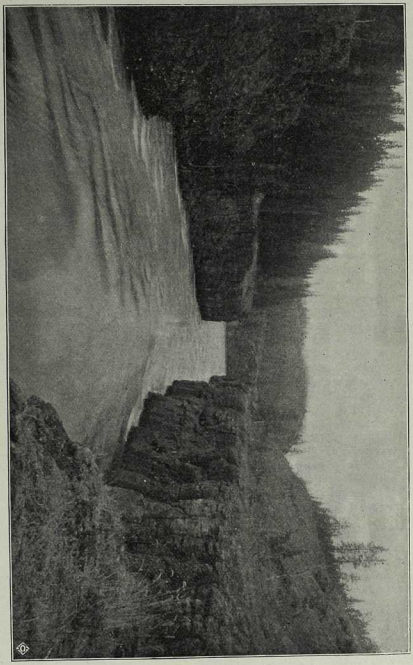
Under present conditions the Company cannot very well compete with the Alaska Commercial Company, whose agents do the only trade in the district,† and they appear to have abandoned—for the present at least—all attempt to do any trade nearer to it than Rampart House, to which point, notwithstanding the distance and difficulties in the way, many of the Indians on the Yukon make a trip every two or three years to procure goods in exchange for their furs. The clothing and blankets brought in by the Hudson Bay Company they claim are much better than those traded on their own river by the Americans. Those of them that I saw who had any English blankets exhibited them with pride, and exclaimed "good." They point to an American blanket in contempt, with the remark "no good," and speak of their clothing in the same way.

On many maps of Alaska a place named "Reid's House" is shown on or near the upper waters of Stewart River. I made enquiries of all whom I thought likely to know anything concerning this post, but failed to elicit any information showing that there ever had been such a place. I enquired of Mr. Reid, who was in the Company's service with Mr. Campbell at Fort Selkirk, and after whom I thought, possibly, the place had been called, but he told me he knew of no such post, but that there was a small lake at some distance in a northerly direction from Fort Selkirk, where fish were procured. A sort of shelter had been made at that point for the fishermen, and a few furs might have been obtained there, but it was never regarded as a trading post.

Below Fort Selkirk, the Yukon River is from five to six hundred yards broad, and maintains this width down to White River, a distance of ninety-six miles. Islands are numerous, so much so that there are very few parts of the river where there are not one or more in sight. Many of them are of considerable size, and nearly all are well timbered. Bars are also numerous, but almost all are composed of gravel, so that navigators will not have to complain of shifting sand-bars. The

*This is now a winter port for steamboats of the North American Transportation and Trading Company, plying the Yukon and its tributaries. There is also a trading post here owned by Harper, who was at one time of the firm of Harper & McQuesten, traders.

†Since the date of this report the North American Transportation and Trading Company, better known in the Yukon Valley as "Captain Healy's Company," has established a number of posts on the river.



Miles Cañon, looking down. *From Photo. by W. Ogilvie.*

current, as a general thing, is not so rapid as in the upper part of the river, averaging about four miles per hour. The depth in the main channel was always found to be more than six feet.

From Pelly River to within twelve miles of White River the general course of the river is a little north of west; it then turns to the north, and the general course as far as the site of Fort Reliance is due north.

White River enters the main river from the west. At the mouth it is about two hundred yards wide, but a great part of it is filled with ever-shifting sand-bars, the main volume of water being confined to a channel not more than one hundred yards in width. The current is very strong, certainly not less than eight miles per hour. The colour of the water bears witness to this, as it is much the muddiest that I have ever seen.*

Mr. Harper, of the firm of Harper, McQuesten & Co., went up this river with sleds in the fall of 1872, a distance of fifty or sixty miles. He describes it as possessing the same general features all the way up, with much clay soil along its banks. Its general course, as sketched by him on a map of mine, is for a distance of about thirty miles a little north-west, thence south-west thirty or thirty-five miles, when it deflects to the north-west running along the base of a high mountain ridge. If the courses given are correct it must rise somewhere near the head of Fortymile River; and if so, its length is not at all in keeping with the volume of its discharge, when compared with the known length and discharge of other rivers in the territory. Mr. Harper mentioned an extensive flat south of the mountain range spoken of, across which many high mountain peaks could be seen. One of these he thought must be Mount St. Elias, as it overtopped all the others; but, as Mount St. Elias is about one hundred and eighty miles distant, his conclusion is not tenable. From his description of this mountain it must be more than twice the height of the highest peaks seen anywhere on the lower river, and consequently must be ten or twelve thousand feet above the sea. He stated that the current in the river was very swift, as far as he ascended, and the water muddy. The water from this river, though probably not a fourth of the volume of the Yukon, discolours the water of the latter completely; and a couple of miles below the junction the whole river appears almost as dirty as White River.

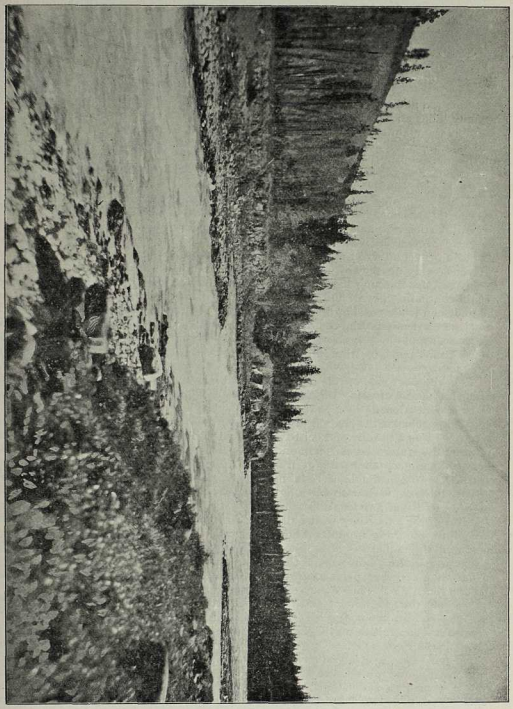
Between White and Stewart Rivers, ten miles, the river spreads out to a mile and upwards in width, and is a maze of islands and bars. The survey was carried down the easterly shore, and many of the channels passed through barely afforded water enough to float the canoes. The main channel is along the westerly shore, down which the large boat went, and the crew reported plenty of water.

Stewart River enters from the east in the middle of a wide valley, with low hills on both sides, rising on the north side in steps or terraces to distant hills of considerable height. The river half a mile or so above the mouth is two hundred yards in width. The current is slack and the water shallow and clear, but dark coloured.

While at the mouth I was fortunate enough to meet a miner 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 of which I give a summary. He is a native of New Brunswick, Alexander McDonald by name, and has spent some years mining in other places, but was very reticent about what he had made or found. Fifty or sixty miles up the Stewart a large creek enters from the south which he called Rosebud Creek, and thirty or forty miles further up a considerable stream flows from the north-east, which appears to be Beaver River, as marked

McQuesten R.

*The White River very probably flows over volcanic deposits as its sediments would indicate; no doubt this would account for the discolouration of its waters. The volcanic ash appears to cover a great extent of the Upper Yukon basin drained by the Lewes and Pelly Rivers. Very full treatment of the subject is given by Dr. Dawson, in his report entitled "Yukon District and Northern portion of British Columbia."



White Horse Rapids, looking up.

From Photo. by W. Ogilvie.

on the maps of that part of the country. From the head of this stream he floated down on a raft, taking five days to do so. He estimated his progress at forty or fifty miles each day, which gives a length of from two hundred to two hundred and fifty miles. This is probably an over estimate, unless the stream is very crooked, which, he stated, was not the case. As much of his time would be taken up in prospecting, I should call thirty miles or less a closer estimate of his progress. This river is from fifty to eighty yards wide, and was never more than four or five feet deep, often being not more than two or three; the current, he said, was not at all swift. Above the mouth of this stream the main river is from one hundred to one hundred and thirty yards wide, with an even current and clear water. Sixty or seventy miles above the last mentioned branch another large branch joins, which is possibly the main river. At the head of it he found a lake nearly thirty miles long, and averaging a mile and a half in width, which he called Mayo Lake, after one of the partners in the firm of Harper, McQuesten & Co. He explored the lake and the head of the river, but did not see the river again until he reached the lower part near its mouth.

Thirty miles or so above the forks on the other branch there are falls, which McDonald estimated to be between one and two hundred feet in height. I met several parties who had seen these falls, and they corroborate 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 the point of his 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 he called quartz, ranging from one to six inches in thickness.

On the west side of this range he found a river flowing out of what he called Mayo Lake, and crossing this got to the head of Beaver River, which he descended as before mentioned.

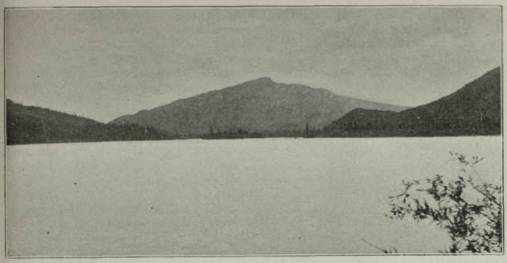
It is probable the river flowing northwards, on which he made a journey and returned, was a branch of Peel River. He described the timber on the gravel terraces of the watershed as small and open. He was alone in this unknown wilderness all summer, not seeing even any of the natives. There are few men so constituted as to be capable of isolating themselves in such a manner. Judging from all I could learn it is probable a light-draught steamboat could navigate nearly all of Stewart River and its tributaries.

From Stewart River to the site of Fort Reliance,* seventy-three and a quarter miles, the Yukon is broad and full of islands. The average width is between a half and three-quarters of a mile, but there are many expansions where it is over a mile in breadth; however, in these places it cannot be said that the waterway is wider than at other parts of the river, the islands being so large and numerous. In this reach no streams of any importance enter.

About thirteen miles below Stewart River a large valley joins that of the river, but the stream occupying it is only a large creek. This agrees in position with what has been called Sixtymile River, which was supposed to be about that distance above Fort Reliance, but it does not agree with descriptions which I received of it; moreover, as Sixtymile River is known to be a stream of considerable length, this creek would not answer its description.

Twenty-two and a half miles from Stewart River another and larger creek enters from the same side; it agrees with the descriptions of Sixtymile River, and

* This was at one time a trading post occupied by Messrs. Harper & McQuesten.



From Photo. by W. Ogilvie.

Junction of the Lewis and Teslin Rivers.

I have so marked it on my map. This stream is of no importance, except for what mineral wealth may be found on it.*

Six and a half miles above Fort Reliance the Klondike † River of the Indians (Deer River of Schwatka) enters from the east. It is a small river about one hundred yards wide at the mouth, and shallow; the water is clear and transparent, and of beautiful blue colour. The Indians catch numbers of salmon here. They had been fishing shortly before my arrival, and the river, for some distance up, was full of salmon traps.

A miner had prospected up this river for an estimated distance of forty miles, in the season of 1887. I did not see him, but got some of his information at second hand. The water being so beautifully clear I thought it must come through a large lake not far up; but as far as he had gone no lakes were seen. He said the current was comparatively slack, with an occasional "ripple" or small rapid. Where he turned back the river is surrounded by high mountains, which were then covered with snow, which accounts for the purity and clearness of the water.

It appears that the Indians go up this stream a long distance to hunt, but I could learn nothing definite as to their statements concerning it.

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* Sixtymile River is about one hundred miles long, very crooked, with a swift current and many rapids, and is therefore not easy to ascend.

Miller, Glacier, Gold, Little Gold and Bedrock Creeks are all tributaries of Sixtymile. Some of the richest discoveries in gold so far made in the interior since 1894 have been upon these creeks; especially has this been the case upon the two first mentioned.

Freight for the mines is taken up Fortymile River in summer for a distance of 26 miles, then portaged across to the heads of Miller and Glacier Creeks. In the winter it is hauled in by dogs.

The trip from Cudahy or Fortymile to the post at the mouth of Sixtymile River is made by ascending Fortymile River some distance, making a short portage to Sixtymile River and running down with its swift current. Coming back on the Yukon, nearly the whole of the round trip is made down stream.

Indian Creek enters the Yukon from the east about 17 miles below Sixtymile. It is reported to be rich in gold, but owing to the scarcity of supplies its development has been retarded.

Messrs. Harper & Co. have a trading post and a saw-mill on an island at the mouth of the creek, both of which are in charge of Mr. J. Ladue, one of the partners of the firm, and who was at one time in the employ of the Alaska Commercial Company.

† Dawson City is situated at the mouth of the Klondike, and although it was located only a few months ago it is the scene of great activity. Very rich deposits of gold have been lately found on Bonanza Creek and other affluents of the Klondike.

Twelve and a half miles below Fort Reliance, the Chandindu River, as named by Schwatka, enters from the east. It is thirty to forty yards wide at the mouth, very shallow, and for half a mile up is one continuous rapid. Its valley is wide and can be seen for a long distance looking north-eastward from the mouth.

Between Fort Reliance and Fortymile River (called Cone Hill River by Schwatka) the Yukon assumes its normal appearance, having fewer islands and being narrower, averaging four to six hundred yards wide, and the current being more regular. This stretch is forty-six miles long, but was estimated by the traders at forty, from which the Fortymile River took its name.

Fortymile River* joins the main river from the west. Its general course as far up as the International Boundary, a distance of twenty-three miles, is south-west; after this it is reported by the miners to run nearer south. Many of them claim to have ascended this stream for more than one hundred miles, and speak of it there as quite a large river. They say that at that distance it has reached the level of the plateau, and the country adjoining it they describe as flat and swampy, rising very little above the river. It is only a short distance across to the Tanana River—a large tributary of the Yukon—which is here described as an important stream. However, only about twenty-three miles of Fortymile River are in Canada; and the upper part of it and its relation to other rivers in the district have no direct interest for us.

Fortymile River is one hundred to one hundred and fifty yards wide at the mouth, and the current is generally strong, with many small rapids. Eight miles up is the so-called cañon; it is hardly entitled to that distinctive name, being simply a crooked contraction of the river, with steep rocky banks, and on the north side there is plenty of room to walk along the beach. At the lower end of the cañon there is a short turn and swift water in which are some large rocks; these cannot generally be seen, and there is much danger of striking them running down in a boat. At this point several miners have been drowned by their boats being upset in collision with these rocks. It is no great distance to either shore, 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 summer of 1887, an Indian, from Tanana, with his family, was coming down to trade at the post at the mouth of Fortymile River; his canoe struck on these rocks and upset, and he was thrown clear of the canoe, but the woman and children clung to it. In the rough water he lost sight of them, and concluded that they were lost; it is said he deliberately drew his knife and cut his throat, thus perishing, while his family were 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 Fortymile, thus causing them 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.

The length of the so-called cañon is about a mile. Above it the river up to the boundary is generally smooth, with swift current and an occasional ripple. The amount of water discharged by this stream is considerable; but there is no prospect of navigation, it being so swift and broken by small rapids.

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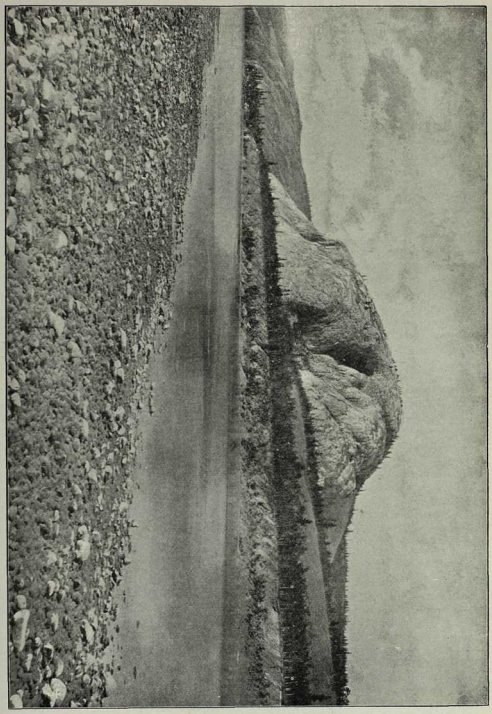
*Fortymile townsite is situated on the south side of the Fortymile River at its junction with the Yukon. The Alaska Commercial Company has a station here which was for some years in charge of L. N. McQuesten; there are also several blacksmith shops, restaurants, billiard halls, bakeries, an opera house, and so on. Rather more than half a mile below Fortymile townsite the town of Cudahy was founded on the north side of Fortymile River in the summer of 1892. It is named after a well-known member of the North American Transportation and Trading Company. In population and extent of business the town bears comparison with its neighbour across the river. The opposition in trade has been the means of very materially reducing the cost of supplies and living. The North American Transportation and Trading Company has erected a saw-mill and some large warehouses. Fort Constantine was established here immediately upon the arrival of the Mounted Police detachment in the latter part of July, 1895.



The "Eagle's Nest" on the Yukon River, 300 Miles above Tide-water.

From Fortymile River to the boundary the Yukon preserves the same general character as between Fort Reliance and Fortymile, the greatest width being about half a mile and the least about a quarter.

Fifteen miles below Fortymile River a large mass of rock stands on the east bank. This was named by Schwatka "Roquette Rock," but is known to the 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 a powerful shaman, pronounced Tshaumen by the Indians, this being the local name for what is known as medicine man among the Indians farther south and east. The Tshaumen holds a position and exercises an influence among the people he lives with, something akin to the wise men or magi of olden times in the East. In this powerful being's locality there lived 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 hopes that she would relent, but time seemed only to increase the affliction; at length, growing weary of the unceasing torment, he complained to the Tshaumen, who comforted him, and sent him home with the assurance that all would soon be well.

Shortly after this he went out to hunt, and remained away for many days endeavouring to get some provisions for home use, 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 clean 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 about half a mile wide), or whether the kick was administered by the Tshaumen or the husband, my narrator could not say. He was altogether at a loss to account for conversion of the husband into the mass of rock on the west side of the river; nor can I offer any theory unless it is that he was *petrified* by astonishment at the result.

Such legends as this would be of interest to ethnologists if they could be procured direct 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.

Between Fortymile River and the boundary line no stream of any size joins the Yukon; in fact, there is only one stream, which some of the miners have named Sheep Creek, but as there is another stream further down the river, called by the same name, I have named it Coal Creek. It is five miles below Fortymile, and comes in from the east, and is a large creek, but not at all navigable. On it some extensive coal seams were seen, which will be more fully referred to further on.

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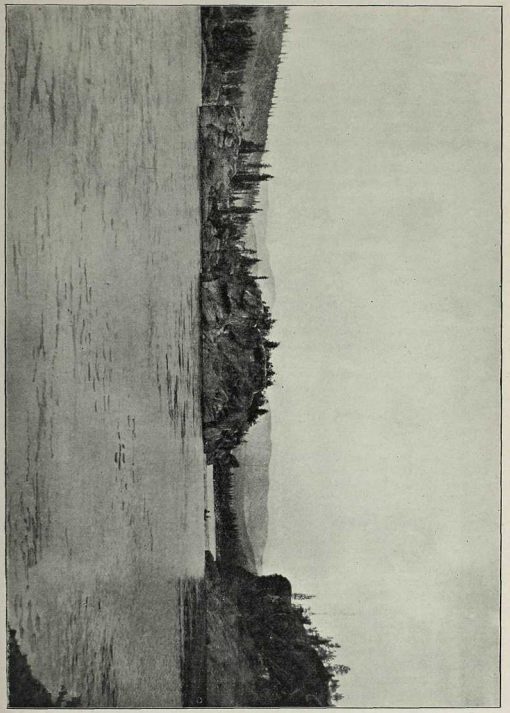
At the boundary the river is somewhat contracted, and measures only 1,280 feet across in the winter; but in summer, at ordinary water level, it would be about one hundred feet wider. Immediately below the boundary it expands to its usual width, which is about 2,000 feet. The cross sectional area at the boundary, measured in December, 1895, is 21,818 feet. There is a channel 600 feet wide, not less than 22 feet deep, and one 400 feet wide, not less than 26 feet deep. During summer level those depths would not be less than 4 feet deeper, and the cross sectional area 27,000. The discharge at this first level is approximately 96,000 cubic feet per second, at summer level it approximates 135,000 cubic feet; at flood level it approaches 180,000 cubic feet or more, possibly reaching, for short times, 225,000.

For the sake of comparison, I give the discharge of the St. Lawrence and



Five Fingers, looking down.—Boat taking the dip.

From Photo. by W. Ogilvie.

Ottawa Rivers, being the mean of the years 1867 to 1882; St. Lawrence, mean 900,000 feet; Ottawa, at Grenville, mean 85,000 feet.

The current, from the boundary down to the confluence with the Porcupine, is said to be strong, and much the same as that above; from the Porcupine down for a distance of five or six hundred miles it is called medium, and the remainder easy.

On the 22nd September a small steamboat named the "New Racket" passed my camp on her way up to Fortymile River with supplies; she was about forty feet long and nine or ten feet beam, with about two feet draught. The boat was wholly taken up with engine and boiler, the berths for the crew being over the engine room. The propelling power was a stern wheel, driven by two engines of large size for such a small boat. It was claimed for her by her captain, A. Mayo, of the firm of Harper, McQuesten & Co., that she could make ten miles an hour in dead water. She was then twenty-two days out from St. Michael Island, near the mouth of the river. Mr. Mayo claimed that this was longer than usual, on account of the boiler tubes being out of order and leaking badly, so that it was impossible to keep more than fifty pounds pressure, while that generally used was about double. That this was true was apparent from the fact that it took her about five hours to make four miles; and at one place below my camp she hung for over an hour without making any progress at all, nor could she pass that point until she stopped and bottled up steam.

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AGRICULTURAL CAPABILITIES OF THE YUKON BASIN.

The agricultural capabilities of the country along the river are not great, nor is the land which can be seen from the river of good quality.

When we consider further the unsuitable climatic conditions which prevail in the region it may be said that as an agricultural district this portion of the country will never be of value.

My meteorological records show over eight degrees of frost on the 1st of August, over ten on the 3rd, and four times during the month the minimum temperature was below freezing. On the 13th September the minimum temperature was 16°, and all the minimum readings for the remainder of the month were below freezing.

Along the east side of Lake Bennett, opposite the Chilkoot, or western arm, there are some flats of dry gravelly soil, which would make a few farms of limited extent. On the west side, around the mouth of Wheaton River, there is an extensive flat of sand and gravel, covered with small pine and spruce of stunted growth. The vegetation is poor and sparse, not at all what one would desire to see on a place upon which he was thinking of settling. At the lower end of the lake there is another extensive flat of sandy soil, thinly clad with small poplars and pines. The same remarks apply to this flat as to that at Wheaton River.

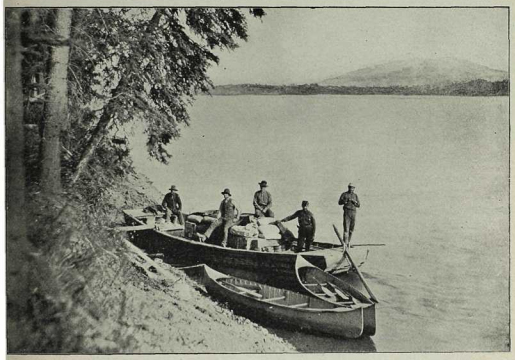
Along the westerly shore of Tagish Lake there is a large extent of low, swampy flats, a part of which might be used for the production of such roots and cereals as the climate would permit. Along the west side of Marsh Lake there is also much flat surface of the same general character, on which I saw some coarse grass which would serve as food for cattle. Along the east side the surface appeared higher and terraced, and is probably less suited to the requirements of the agriculturalist. Along the head of the river, for some miles below Marsh Lake, there are flats on both sides, which would, as far as surface conformation goes, serve for farms. The soil is of much better quality than any heretofore seen, as is proved by the larger and thicker growth of timber and underbrush which it supports. The soil bears less the character of detritus, and more that of alluvium, than that seen above.

As we approach the cañon the banks become higher and the bottom lands narrower, with some escarpments along the river. At the cañon the bank on the

west side rises two hundred feet and upwards above the river, and the soil is light and sandy. On the east side the bank is not so high, but the soil is of the same character, and the timber small and poor, being nearly all stunted pine.

Between the cañon and Lake Labarge, as far as seen from the river, there is not much land of value. The banks are generally high, and the soil light and sandy. At the head of the lake there is an extensive flat, partly covered with timber, much larger and better than any seen above this point. Poplar eight and ten inches in diameter were not uncommon, and some spruce of fifteen and sixteen inches, and many of upwards of a foot in diameter, were also noticed. The soil, however, is light, and the vegetation, especially the grass, thin and poor.

Some miles down the lake an extensive valley joins that of the lake on the west side. This valley contains a small stream. Around this place there is some land that might be useful, as the grass and vegetation is much better than any seen so far.



Ogilvie's Party and Boats at Mouth of Pelly River, August, 1887.

On the lower end of the lake, on the west side, there is also a considerable plain which might be utilized; the soil in parts of it is good. I saw one part where the timber had been burned some time ago; here, both the soil and vegetation were good, and two or three of the plants seen are common in this part of Ontario, but they had not the vigorous appearance which the same plants have here.

Northward from the end of the lake there is a deep, wide valley, which Dr. Dawson has named "Ogilvie Valley." 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 is extensive, and, if ever required as an aid in the sustenance of our people, will figure largely in the district's agricultural assets.

Below the lake the valley of the river is not as a rule wide, and the banks are often steep and high. There are, however, many flats of moderate extent along

the river, and at its confluence with other streams. The soil of many of these is fair.

About forty miles above the mouth of the Pelly River there is an extensive flat on both sides of the Lewes. The soil here is poor and sandy, with small open timber. At Pelly River there is a flat of considerable extent on which the ruins of Fort Selkirk stand. It is covered with a small growth of poplar and a few spruce. The soil is a gravelly loam of about eight inches in depth, the subsoil being gravel, evidently detritus. This flat extends up the river for some miles, but is all covered thickly with timber, except a small piece around the site of the fort.

On the east side of the river there is also a large plateau, but it is two or three hundred feet above the river, and 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 for ten or twelve miles. As seen from the river, it reminds one of the slopes and hills around Kamloops in British Columbia, and like them, though not well suited to agriculture, might yield fair pasturage should such ever be required.

A serious objection to it, however, for that purpose, if it is not watered on the surface by ponds, is that the river is difficult of access, as the plateau on the side towards the river is bounded by a perpendicular basalt cliff, which, without artificial arrangement, would completely bar approach to the water. This cliff is more than two hundred feet high at the confluence, and becomes lower as we descend the river until, at the lower end, it is not more than sixty to eighty feet high.

Between Pelly and White Rivers there are no flats of any extent. At White River there is a flat of several thousand acres, but it is all timbered, and the surface of the soil is covered with a thick growth of moss, which prevents the frost ever leaving the ground. This has so preserved fallen timber and the foliage of the trees that much of it is lying on the surface nearly as sound as when it fell. On this account the vegetable mould on the gravel is thin and poor. The standing timber also bears witness to the coldness of the soil by its slow and generally small growth. A few trees near the bank, where the sun can heat the soil, are of fair size, but further back they are generally small.

At Stewart River there is another large flat to which the same general remarks are applicable. Thence, to the site of Fort Reliance, there are no flats of any importance. High above the river in some places there are extensive wooded slopes, which, when cleared, would be well suited for such agricultural purposes as the climate would permit.

At Fort Reliance there is a flat of probably 1,500 acres in extent; but although Messrs. Harper & McQuesten lived there for some years, it appears they never made any agricultural experiments, believing that they would be futile.

At the Fortymile River there is a flat of about four or five hundred acres in area, on which the soil is of better quality than on many of the other places mentioned. On this Messrs. Harper & McQuesten erected their dwelling and store-houses. They gave it as their opinion that only very hardy roots would live through the many cold nights of the summer months, and that the season is so short that even if they survived the cold they would not attain a size fit for use.

The river is not generally clear of ice until between the 15th of May and the 1st of June, and heavy frosts occur early in September, and sometimes earlier.

At the boundary there are two flats of several hundred acres each, one on the west side, the other three miles above it on the east side. Both of these are covered with poplar, spruce and white birch, also some willow and small pine.

In making preparations for the foundations of our house at our winter quarters near the boundary we had to excavate in the bank of the river, and in an exposed place where the sun's rays could reach the surface without hindrance from trees or other shade we found the depth to the perpetually frozen ground to be not more than two feet. In the woods where the ground was covered with over a foot of

From Photo. by W. Ogilvie.

Harper & Ladue's Sawmill at Ogilvie, now at Dawson.

moss the frozen ground is immediately below the moss. On this the timber is generally small, and of very slow growth, as is evident from the number of annual rings of growth. I have seen trees of only three or four inches in diameter which were upwards of one hundred and fifty years old.

It is difficult to form an estimate of the total area of agricultural land seen, but it certainly bears a very small proportion to the remainder of the country. I think ten townships, or 360 square miles, would be a very liberal estimate for all the places mentioned. This gives us 230,400 acres, or, say, 1,000 farms. The available land on the affluents of the river would probably double this, or give 2,000 farms in that part of our territory, but on the most of these the returns would be meagre.

Without the discovery and development of large mineral wealth it is not likely that the slender agricultural resources of the region will ever attract attention, at least until the better parts of our territories are crowded.

In the event of such discovery some of the land might be used for the production of vegetable food for the miners; but, even in that case, with the transport facilities which the district commands, it is very doubtful if it could compete profitably with the south and east.

My meteorological records for 1895–6 show as follows:—

August, 1895—32° and below, 5 times.
40° " 9 times.
September, 1895—32° and below, 18 times.
40° " 29 times.
May, 1896—Lowest temperature 5°; 3 times, 1st, 2nd and 3rd.
32° and below, 18 times.
40° " 30 times.
Highest temperature 62°; twice, 18th and 23rd.

June, 1896—Lowest temperature 28°; twice, 1st and 2nd.
32° and below, 4 times.
40° " 17 times.
Highest temperature 80°; on the 30th.
July, 1896—Lowest temperature 33°; on the 27th.
40° and below, 9 times.
Highest temperature 81°; twice, 1st and 2nd.
August, 1896—Lowest temperature 27°.2; on the 31st.
32° and below, twice.
40° " 13 times.
Highest temperature 76°; on the 14th.
September, 1896—Lowest temperature 4°.8; on the 30th.
32° and below, 8 times.
40° " 23 times.
Highest temperature 63°; on the 17th.

During the summer of 1897 at Dawson, temperatures as high as 90° were observed in the shade in July, but this was an exceptionally dry, warm month.

On my way down the river in 1895 I observed the temperature of the river water at various points as follows:—

Lake Bennett,	August	8th,	1895,	49°
Lake Marsh,	"	13th,	"	55°
Above Teslin River,	"	19th,	"	53°
Teslin River,	"	19th,	"	54°
Big Salmon,	"	20th,	"	49°
Yukon, just below,	"	20th,	"	53°
Pelly River,	"	22nd,	"	56°
Yukon, above White River,	"	26th,	"	55°.5
White River,	"	26th,	"	52°.5
Yukon, above Stewart,	"	26th,	"	55°
Stewart River,	"	26th,	"	56°
Sixtymile River,	"	27th,	"	46°
Klondike River,	"	28th,	"	49°.5
Yukon, at Reliance,	"	28th,	"	55°
Fortymile River,	"	30th,	"	52°
Yukon River,	"	30th,	"	54°.7
Yukon, at boundary,	September	12th,	"	46°
" "	"	24th,	"	39°
" "	October	1st,	"	39°
" "	"	16th,	"	32°

The proximity of such a large body of water at those temperatures must have a beneficial effect on vegetation, and consequently we will have more success near the river than elsewhere. An old miner settled on Fortymile River, above the boundary, tried for several years to raise potatoes, but was baulked every year by frost, until he found a hillside on which the sun did not shine until about midday. This allowed the stalk to gradually get rid of the frost and recover before the heat of the sun's rays blasted them.

In this place he raised tubers developed enough to reproduce, but not as dry and well flavoured as we would wish.

In the town of Fortymile, close to the Yukon, potatoes, radishes, turnips, cabbage and lettuce have been grown with fair success, especially the last named. Another garden in a fairly situated, well sheltered spot at Cudahy gave fair radishes, turnips, cabbage and lettuce. Very fair potatoes were grown on an island at the mouth of the Sixtymile, in the Yukon, by Mr. Harper. He had also a garden at Selkirk (mouth of the Pelly), in which he planted potatoes for several years, but to protect them from frost went to the expense of having an immense

awning made of heavy cotton which he lowered on them every clear night when frost threatened. Without this they would not have ripened.

Oats have been sown at Fortymile for several years but never ripened, though they develop enough to make fair fodder. Some wheat at Cudahy, in 1896, developed fine straw and a large head, but no kernel before frost killed it.

Some timothy grass at the same place grew to about half the size it does in Ontario or Quebec.

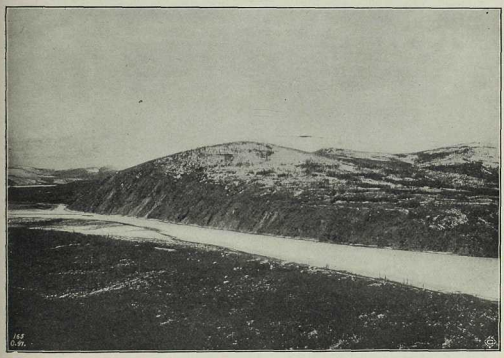
TIMBER FOR USE IN BUILDING AND MANUFACTURING.

The amount of this class of timber in the district along the river is not at all important. There is a large extent of forest which would yield firewood, and timber for use in mines, but for the manufacture of lumber there is very little.

To give an idea of its scarceness, I may state that two of my party made a thorough search of all the timbered land around the head of Lake Bennett, and down the lake for over ten miles, and in all this search only one tree was found suitable for making such plank as we required for the construction of our large boat. This tree made four planks 15 inches wide at the butt, 7 at the top, and 31 feet long

Such other planks as we wanted had to be cut out of short logs, of which some, 10 to 14 inches in diameter and 10 to 16 feet long, could be found at long intervals. The boat required only 450 feet of plank for its construction, yet some of the logs had to be carried nearly 200 yards, 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 being generally the largest and cleanest-trunked.

These remarks apply to the timber until we reach the lower end of Marsh Lake. On the head of the river, near the lake, some trees of fair size, 12 to 14



Dawson, April, 1897. *From Photo. by W. Ogilvie.*

inches in diameter, and carrying their thickness very well, could be got, but their number was small, and they were much scattered.

At the cañon the timber is small and scrubby; below it there were a few trees that would yield planks from 7 to 10 inches wide, but they have been nearly all cut by the miners, many of whom made rafts at the head of Lake Bennett, floated down to White Horse Rapids, and there abandoned them for boats which they then built.

The great bulk of the timber in the district suitable for manufacture into lumber is to be found on the islands in the river. On them the soil is warmer and richer, the sun's rays striking the surface for a much longer time, and more directly than on the banks.

At the confluence with the Pelly, on the east side of the river, there is a grove of spruce, from which some very nice lumber could be made, and on the islands below this much of the same class of timber exists. Near White and Stewart Rivers there is a good deal of nice clean timber, but it is small. It is said there is more good timber on Stewart River in proportion to the ground wooded than on the main river.

Between Stewart River and the boundary there is not so much surface covered with large trees as on many of the flats above it, the valley being generally narrower, and the sides steeper than higher up the river. This, of course, precludes the growth of timber.

To estimate the quantity of timber in the vicinity of the river in our territory would be an impossible task, having only such data as I was able to collect on my way down. I would, however, say that one-fourth of the area I have given as agricultural land would be a fair conjecture. This would give us two and a half townships, or ninety square miles, of fairly well timbered ground; but it must be borne in mind that there is not more than a square mile or so of that in any one place, and most of the timber would be small and poor compared with the timber of Manitoba and the easterly part of the North-west Territories.

At the Boundary Line I required, as has already been explained, a tree 22 inches in diameter at the ground on which to erect my transit. An exhaustive search of over three square miles of the woods there, though showing many trees of convenient size for house logs, and many for small clean planks, showed only one 18 inches in diameter at a distance of five feet above the ground.

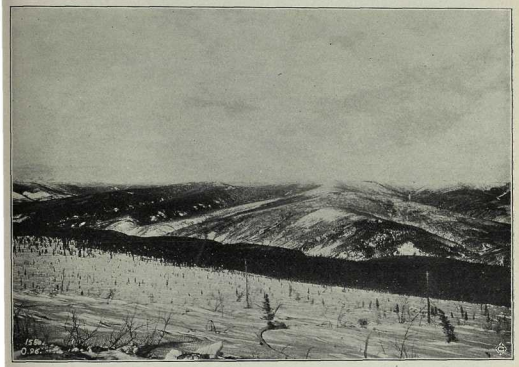
It may be said that the country might furnish much timber, which, though not fit to be classed as merchantable, would meet many of the requirements of the only industry the country is ever likely to have, viz., mining.

MINERALS.

Under this head I will first mention coal. A thin seam of this was found on Lewes River, about six miles above Five Finger Rapids. This seam was about three feet thick and at that stage of water was 8 or 10 feet above the river. It could be traced for several hundred yards along the bank. Dr. Dawson made an examination of this seam, and I quote from his report regarding it: "This exposure includes, within 60 feet of the base of the bluff, at least three coal beds, of which the lowest is about three feet thick. This and the other beds contain some good-looking coal, of which a thickness of about a foot sometimes occurs, but the greater part of the material is so sandy and impure as to be useless." This exposure has since been located and claimed by Mr. Harper. He had a shaft driven into the hill about 20 feet, from which he took some coal for local forge use, and claimed it served the purpose well. The coal that far in was hard and bright, but is scattered in irregularly thin seams through a soft sandstone rock. This rock has to be taken out with and separated from the coal. This shaft does not include all the coal veins, as they appear to be scattered through this hill-side for many feet. As far as this shaft goes there appears to be a slight dip to the east.

At Rink Rapids thin seams of coal were seen in some shale on the east bank of the river. They were unimportant, being only an inch or so thick, but they show a probable continuation of the first mentioned bed, and a likelihood that a search would reveal an exposure of some value.

No other trace of coal was seen until Coal Creek, five miles below Fortymile River, was reached. In the drift at the mouth of this creek I picked up specimens of coal much weathered and worn. I made inquiries of the Indians in the vicinity, but they manifested surprise at my showing it to them and burning some of it before them. They professed entire ignorance of the existence of any such stuff up the creek, and said they had never seen or heard of it, though they must, however, have seen it at Belle Isle, near which place there is some on a creek that comes in from the west. Some of this Messrs. Harper & McQuesten had brought to the post and burned there, and they had also sent some to San Francisco to be tested.



From Photo. by W. Ogilvie.

On Eldorado Creek.—Looking N. W. across Bonanza Valley.

METALS FOUND ON THE RIVER.

About two miles up Fortymile River there are large exposures of a white and a gray limestone, containing many thin seams and pockets of galena. One of the seams as seen on the bank is of considerable extent, but as to its length there is no evidence, as it is all covered with drift. Two specimens were sent out and have been assayed by Mr. G. C. Hoffman, of the Geological Survey, with the following result: Specimen marked II., from Fortymile, about two and a half miles up, contains: gold, a distinct trace; silver, $38\frac{64}{100}$ ounces to the ton of 2,000 pounds.

Specimen marked III., from exposure on Fortymile River, about three-quarters of a mile up, contains neither gold nor silver.

Were these seams properly surveyed the former might be found of sufficient extent and value to warrant development.

Specimen marked I., from north bank of Yukon River, opposite the mouth of Klondike River, about five miles above Fort Reliance, contains: gold, a trace; silver, $3\frac{64}{100}$ ounces to the ton.

Mr. Harper told me he had sent out specimens of the latter ore to San Francisco some years ago for assay, and that it was pronounced good, but he could not give the value. I did not make an examination of the seam, but it appeared to be extensive. It is of a bluish colour on the surface, and earthy in appearance.

Specimen marked IV., from near station 634 of survey, or near Chandindu River, ten or twelve miles below Fort Reliance, contains: gold, a trace; silver, 0.117 ounces to the ton. Nothing was observed at this point to indicate an extensive quantity of this ore.

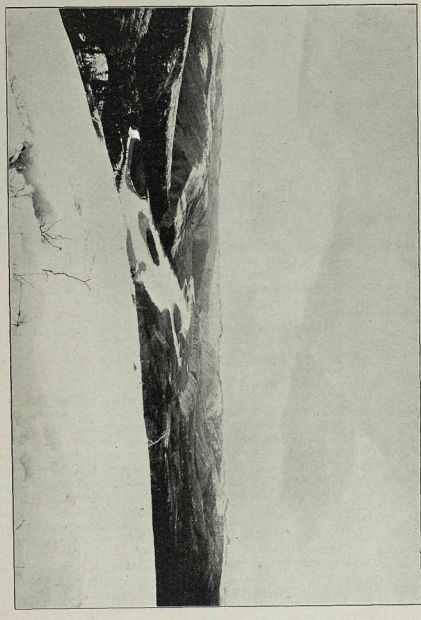
It must be borne in mind that these specimens were found by accident. A closer examination of the localities might reveal valuable seams. I have described the specimens found in the order of their value. Though none of them are rich, they show that through an extensive district there are at least indications of wealth. The order in which they were picked up on the river is, I., IV., and II. and III. together on Fortymile River. From I. to III. is about forty miles in an air line. I was informed that gold and silver-bearing specimens of quartz had been found on Sixtymile River, but I can give no details. I was also informed that a specimen of gold-bearing quartz was picked up some years ago, high up on the side of the bank of Yukon River, opposite the mouth of White River. It was sent to San Francisco and assayed, showing the enormous value of $20,000 to the ton. This specimen was picked up above high water mark, so that it must have been found at or near its origin, or have been transported there by a glacier, the bank being about 1,200 feet high. No further details regarding this specimen could be learned.

An extensive ledge of gold-bearing quartz is reported on the westerly side of the river, about two miles above Stewart River, but regarding it I could learn nothing definite. It may be a continuation of the same ledge which yielded the foregoing specimen.

While on Lake Bennett building our boat I found an extensive ledge of quartz and sent specimens of it out by Dr. Dawson. The assay showed that they contained only traces of gold. The ledge is 60 to 80 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 colours of gold.

While we were working at our boat an expert, employed by some California capitalists, came in with an old man who had made a descent of the river the previous summer. The old man and his party were storm-staid on what he called Lake Bennett, and while so delayed he found an enormous exposure of what he thought was gold-bearing rock. He took out specimens of it, and had them assayed at San Francisco. The result was so promising ($8.80 of gold, and 92 cents of silver to the ton) that he enlisted the interest of some capitalists who sent him out with the expert to locate and test it thoroughly. The old man described the exposure so minutely and circumstantially that one could scarcely disbelieve his statement. They looked for the ledge for some days, but could find nothing resembling what he described. They then called upon me and requested my aid. As I was making all possible haste to keep my appointment with Dr. Dawson at Pelly River I was loath to lose time in aiding the the search, but, on account of the importance of the matter, and the old man's earnestness and importunity, and influenced further by a certificate of assay which he had, showing the specimens to have yielded the amounts stated (about equal to the celebrated Treadwell mine at Juneau, Alaska, the rock of which he said his mine much resembled), I at last consented.

I spent a day and a night searching with him and his associates, but we failed



From Photo. by W. Ogilvie.

Looking North Down Yukon River, from Mountain Top East of Dawson.

to find anything like what he described. The old man told so many conflicting stories, and seemed to know so little of the lake, that I became convinced he was astray, and had been hoaxed by some one with a piece of the Treadwell rock. I then left them to shift for themselves. The expert took the same view of the matter, and, as he was in charge of the search, ended it there.

I afterwards, on Lake Tagish, saw a place much resembling that described. It is on the south side of the lake, and just east of its junction with the Takone arm. I was strongly of opinion that this is the place he referred to, and would have examined it to verify my impression, but the wind was too strong and the lake too rough to allow of crossing over.

These are all the indications of ore *in situ* which I saw or heard of.

The gold heretofore found and worked in this district has been all placer gold. Search was made for it occasionally by us along the lakes and river as we descended, but with the exception of the colours mentioned at the quartz ledge on Lake Bennett, none was found until after we had passed Lake Labarge, about six miles below which, at a sharp, short bend in the river we found in a bar many colours to the pan. It may be said generally that colours are found anywhere on the river between that point and the boundary, and also on the tributaries which have been prospected.

It is probable that we have not less than 1,400 miles of stream in our part of the district, upon all of which gold can be found.

About eighteen miles below the Teslin I saw the first place that had been worked for gold. Here a hut had been erected, and there were indications that a party had wintered there. Between it and Big Salmon River six other locations were met with. One of them named Cassiar Bar was worked in the season of 1886, by a party of four, who took out $6,000 in thirty days. They were working there when I passed in 1887, but stated that all they could get that season was $10 per day, and that it was then (3rd August) 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 this party subsequently went down to Fortymile 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 on 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; every man can make a 'grub stake' (that is enough to feed and clothe him for a year) which is more than I can say of the other places I have been in."

In conversation with Mr. T. Boswell, who, as already stated, had prospected the Teslin or Newberry River, in the summer of 1887, I learned that the whole length of that river yielded fine gold, generally at the rate of $8 to $10 per day; but as the miners' great desideratum is coarse gold, they do not remain long in a country in which only fine gold is found—generally no longer than is necessary to make a "grub stake," unless gold is in unusually large quantities. Mr. Boswell, therefore, went to the lower part of the river, having heard the reports of rich finds.

Stewart River was the first in the district on which mining to any extent was done. In 1886 there were quite a number of miners on it engaged in washing gold, and they all appear to have done fairly well. Their exact number I could not ascertain.

I may say that it is generally very difficult to get any exact, or even approximately exact, statement of facts or values from miners. Many of them are inveterate jokers, and take delight in hoaxing: the higher the official or social position of the person they hoax the better they are pleased. I have several times found that after spending hours getting information from one of them it would be all contradicted by the next one I met. Another cause of difficulty in getting trustworthy

From Photo. by W. Ogilvie.

Looking N. W. from Head of Bonanza Creek.

information from them is that in a certain sense they consider every government official or agent their enemy, and that he is in the country to spy upon their doings, and find out their earnings, which latter the great majority of them are very much averse to have known.

So far as I could see or learn, they do not even disclose to each other their earnings for the season. I met one or two who told me that they had made a certain amount in the season, but on enquiry among the rest these statements were ridiculed and declared untrue. As a rule they are very generous and honest in their dealings with their fellow men, but a desire for correct geographical or statistical knowledge does not actuate very many of them ; hence the disagreement and often contradiction in their statements.

I have heard the amount of gold taken from off Stewart River in 1885 and 1886 estimated at various amounts. One estimate was $300,000, but this must be excessive. The highest amount I heard as representing one man's earnings was about $6,000. This may be true, as many agree that $30 per day, per man, was common on many of the bars of the river, and instances of as high as $100 per day having been earned were spoken of.

The only mining done on Stewart River was on the bars in the river ; the bench and bank bars were all timbered and frozen, so that to work them would entail a resort to hydraulic mining, for which there was no machinery in the country.

During the fall of 1886, three or four miners combined and got the owners of the "New Racket" steamboat to allow the use of her engine to work pumps for sluicing with. The boat was hauled 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. With this crude machinery, in less than a month, the miners cleared $1,000 each, and paid an equal amount to the owners of the boat as their share.

Alexander McDonald, who has been mentioned before, reported to me that the gold on the upper river was somewhat coarser than that on the lower, but not enough so as to be called "coarse gold." He seemed to be satisfied with the result of his season's prospecting, and intended spending the next season there. This man wandered around the country prospecting alone until 1894 (I think), when his dead body was found on the bank of the Yukon River, and buried where it was found. It appears he started off alone as usual on a prospecting trip up the Yukon, and on the way, it is supposed, he was taken sick, as the body was found wrapped in his blankets, and bore the appearance of dying while asleep.

Many of the miners who had spent 1886 on Stewart River, and 1887 on Fortymile River, seemed to think the former the better all round mining field, as there were no such failures there as on Fortymile, and they declared their intention to make their way back to the Stewart for the season of 1888.

Fortymile River is the only river in the district on which, up to the fall of 1888, coarse gold had been found, and it may be said that much of it can hardly claim that distinctive title. The largest nugget found was worth about $39. It was lost on the body of a miner who was drowned at the cañon. Several other nuggets of much less value have been found, but the number of pieces which one could call "nugget" are few.

The miners term Fortymile a "bed-rock" creek—that is, one in the bed of which there is little or no drift, or detrital matter, the bottom of the river being bed-rock. In many places this rock has been scraped with knives by the miners, in order to gather the small amount of detritus and its accompanying gold.

Very little of the gold on this creek was found in Canadian territory, the coarsest gold being found well up the river. The river had been prospected in 1887 for upwards of one hundred miles, and gold found all the way up. The great point with a miner is to find where the gold comes from. To do this he has to reach a point on the river where there is none; then he knows he has passed the source, and will search in side valleys and gulches. The theory seems to be that the gold is stored up somewhere and dribbled out along the river.

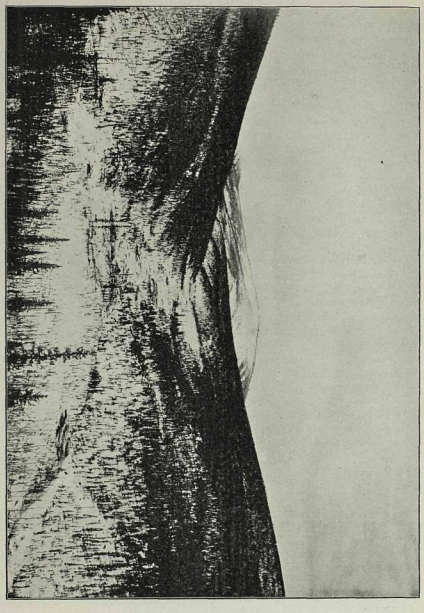
Pieces of gold-bearing quartz had frequently been picked up along the river in the shallow drift, but none had been found in place, nor did it appear to me that much search had been made for it. Near the mouth of the river there is an extensive flat of detrital matter through which a couple of small creeks flow. This is all said to be gold-bearing, and, it was thought, would pay well for sluicing. Accordingly a couple of claimants had staked off claims at the mouth of the creek, and intended to try sluicing in the season of 1888. I have not heard how the venture succeeded. It was abandoned in 1889 through high water.

During the season of 1887 some miners prospected Pelly River, but I have no information as to their success. Dr. Dawson mentions the fact of their being there, but does not appear to have got any statistics from them.

Big and Little Salmon Rivers have also been prospected, with the usual result that more or less gold has been found everywhere.

I think it may, with confidence, be asserted that rich finds will yet be made of both coarse gold and gold-bearing quartz. It is not likely in the nature of things 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 is not the case, the matrix from which all the gold on these streams has come must still exist, in part at least, and will no doubt be discovered, and thus enrich this otherwise gloomy and desolate region.

There are many bank and bench bars along the river which would pay well if sluiced, but there is no convenient or economical way of getting water on them, and there is no pumping machinery as yet in the country. One bank bar of large extent, called Rogers' Bar, just below Old Man Rock, attracted attention in the spring of 1888, and some miners were thinking of getting in an engine and pumps to work it. I made an estimate of the size of engine required for their needs, and



From Photo. by W. Ogilvie.

Looking across Bonanza Valley and up Eldorado Valley to Claim No. 7.

computed the probable cost of the plant laid down, but it does not appear that they made any further move.

This bar is more than fifty feet above the water. It fronts on the river for more than two miles, and is in places nearly two miles deep. It is believed that in past ages the Old Man and Old Woman rocks were connected and formed a barrier across the river, over which there was a cataract. Below this the fine gold remained, while the sand and gravel were in part carried further down. So impressed were some persons with the prospect of rich finds on this bar that they thought of bringing water across from the high level of Fortymile River, a distance of over thirty miles; but when I went up Fortymile River to the boundary I saw that it could not be done without the aid of force pumps, and I explained this drawback to them. This bar is said to yield four to six cents to the pan, which, with plenty of water for sluicing, would pay well, while its large extent would warrant considerable outlay. Doubtless there are many other bars as rich as this one, though not as large.

Platinum is generally found associated with gold. This is particularly the case on Fortymile River.

As very few outside of mining communities understand anything of the nomenclature of the craft, or of the methods employed to separate the very small quantities of the precious metal from the baser material with which it is associated, a short description will not be out of place.

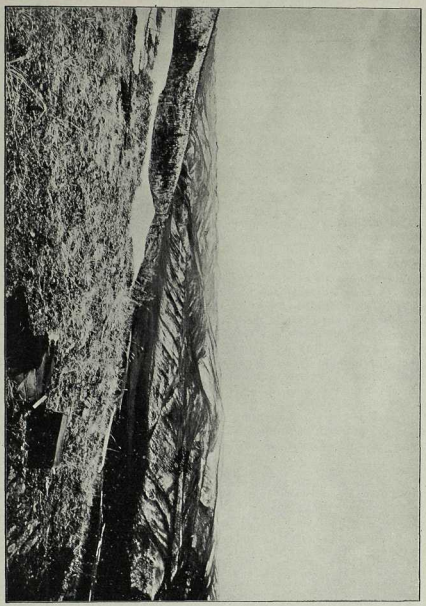
When a miner "strikes" a bar he "prospects" it by washing a few panfuls of the gravel or sand of which it is composed. According to the number of "colours" he finds to the pan, that is, the number of specks of gold he can see in his pan after all the dirt has been washed out, he judges of its richness. Many of them have had so much experience that they can tell in a few minutes, very nearly, how much a bar will yield per day to the man.

The process of "placer" mining is about as follows: After clearing all the coarse gravel and stone off a patch of ground, the miner lifts a little of the finer gravel or sand in his pan, which is a broad, shallow dish, made of strong sheet steel; he then puts in water enough to fill the pan, and gives it a few rapid whirls and shakes; this tends to bring the gold to the bottom on account of its greater specific gravity. The dish is then shaken and held in such a way that the gravel and sand are gradually washed out, care being taken as the process nears completion to avoid letting out the finer and heavier parts that have settled to the bottom. Finally all that is left in the pan is whatever gold may have been in the dish and some black sand which almost invariably accompanies it.

This black sand is nothing but pulverized magnetic iron ore. Should the gold thus found be fine, the contents of the pan are thrown into a barrel containing water and a pound or two of mercury. As soon as the gold comes into contact with the mercury it combines with it and forms an amalgam. The process is continued until enough amalgam has been formed to pay for "roasting" or "firing." It is then squeezed through a buckskin bag, all the mercury that comes through the bag being put back into the barrel to serve again, and what remains in the bag is placed in a retort, if the miner has one, or, if not, on a shovel, and heated until nearly all the mercury is vaporized. The gold then remains in a lump, with some mercury still held in combination with it.

This is called the "pan" or "hand" method, and is never, on account of its slowness and laboriousness, continued for any length of time when it is possible to procure a "rocker," or to make and work sluices.

A "rocker" is simply a box about three feet long and two wide, made in two parts, the top part being shallow, with a heavy sheet iron bottom, which is punched full of quarter-inch holes. The other part of the box is fitted with an inclined shelf about midway in its depth, which is six or eight inches lower at its lower end than at its upper. Over this is placed a piece of heavy woollen blanket. The whole is then mounted on two rockers, much resembling those of an ordinary



From Photo. by W. Ogilvie.

From mountain top east of Dawson.—Looking up and across the Klondike Valley.

cradle, and when in use they are placed on two blocks of wood so that the whole may be readily rocked. After the miner has selected his claim, he looks for the most convenient place to set up his "rocker," which must be near a good supply of water. Then he proceeds to clear away all the stones and coarse gravel, gathering the finer gravel and sand in a heap near the "rocker." The shallow box on top is filled with this, and with one hand the miner rocks it, while with the other he ladles in water. The finer matter with the gold falls through the holes on to the blanket, which checks its progress, and holds the fine particles of gold, while the sand and other matter pass over it to the bottom of the box, which is sloped so that what comes through is washed downwards and finally out of the box. Across the bottom of the box are fixed thin slats, behind which some mercury is placed to catch any particles of gold which may escape the blanket. If the gold is nuggety, the large nuggets are found in the upper box, their weight detaining them until all the lighter stuff has passed through, and the smaller ones are held by a deeper slat at the outward end of the bottom of the box. The piece of blanket is, at intervals, taken out and rinsed into a barrel; if the gold is fine, mercury is placed at the bottom of the barrel, as already mentioned.

Sluicing is always employed when possible. It requires a good supply of water with sufficient head or fall. The process is as follows: Planks are procured and formed into a box of suitable width and depth. Slats are fixed across the bottom of the box at suitable intervals, or shallow holes bored in the bottom in such order that no particle could run along the bottom in a straight line and escape running over a hole. Several of these boxes are then set up with a considerable slope and are fitted into one another at the ends like a stove-pipe. A stream of water is now directed into the upper end of the highest box. The gravel having been collected, as in the case of the rocker, it is shovelled into the upper box and is washed downwards by the strong current of water. The gold is detained by its weight, and is held by the slats or in the holes mentioned; if it is fine, mercury is placed behind the slats, or in these holes to catch it. In this way about three times as much dirt can be washed as by the rocker, and consequently three times as much gold is secured in a given time. After the boxes are done with they are burned, and the ashes washed for the gold held in the wood.*

Unfortunately, on Lewes and Pelly Rivers there is no way of sluicing without the aid of pumps, there being no streams with fall enough to get the necessary current in the sluice boxes.

There is very little reliable information as to the amount of gold that has been taken out of the district since its discovery and development. The following is the best estimate which I can form on the subject:

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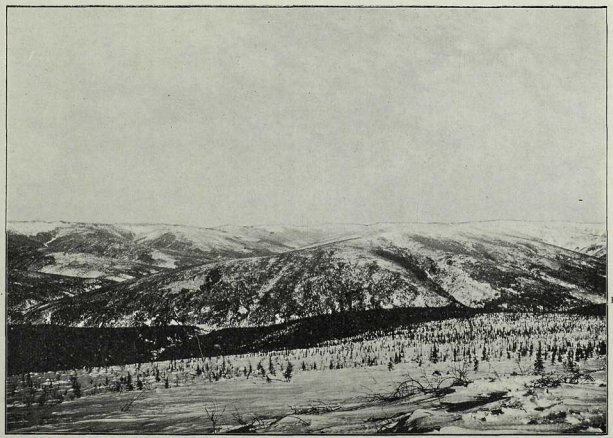
*A great many of the miners spend their time in the summer prospecting and in the winter resort to a method lately adopted, and which is called "burning." They make fires on the surface, thus thawing the ground until the bed rock is reached, then drift and tunnel; the pay dirt is brought to the surface and heaped in a pile until spring, when water can be obtained. The sluice boxes are then set up and the dirt is washed out, thus enabling the miner to work advantageously and profitably the year round. This method has been found very satisfactory in places where the pay streak is at any great depth from the surface. In this way the complaint is overcome which has been so commonly advanced by miners and others, that in the Yukon several months of the year are lost in idleness. Winter usually sets in very soon after the middle of September, and continues until the beginning of June, and is decidedly cold. The mercury frequently falls to 60 degrees below zero, but in the interior there is so little humidity in the atmosphere that the cold is more easily endured than on the coast. The temperature runs pretty high in summer as well as low in the winter; it is quite a common thing for the thermometer to register 80-90 degrees in the shade. There is continuous daylight from the middle of May until the early part of August, but in the depth of winter there is little more than three hours of partial daylight in the twenty-four. So that constant daylight for a portion of the year and almost total darkness for another portion might very well create doubts in one's mind as to what portion of the day in either case should be given to sleep. In the summer months it is possible for a miner to put in as many hours as he has the power to endure the physical strain. Constant daylight admits of several shifts of men being employed, and in this way mining operations may go on continuously throughout every hour of the day.

Bonanza.



Eldorado.

Irish Gulch.

From Photo. by W. Ogilvie.

On Eldorado Creek, Looking S. E.—Confluence of Bonanza and Eldorado on Extreme Left—Bonanza Continuing up on Left, Eldorado Valley in Foreground.

Stewart River was pretty well worked for two seasons, 1885-86, by about forty men, some of whom made at least $5,000. Assuming that they averaged half that amount, we have $100,000 as their earnings. Fortymile River, the only other stream from which any large quantity has been taken, was worked in the summer of 1887 by about three hundred men, many of whom spent only a few weeks on the river, some only a few days. The statement made by those of whom I inquired was that all who worked on the river for any length of time made a "grub stake." Putting this at the lowest value I placed on it, $450, and assuming that two hundred and fifty men made each this sum, we have $112,500 as the amount taken out on this stream. I have heard the sum placed at $130,000.

All the gold taken from the other streams by prospectors would not amount to more than a few thousand dollars, so that it is probable the total amount taken out of the whole district is in the vicinity of a quarter of a million dollars, of which about half was taken out in our territory.

I learned that the prevailing high water interfered very much with the success of the miners in the season of 1888, and that many of them left the country in the fall. It is probable, however, that a few will remain prospecting until something rich is found.

As Dr. Dawson has reported on the geology of the region along the Lewes, and Mr. McConnell has made an examination of the Yukon from Porcupine River, it is needless to do more than to refer their reports. I may briefly state, however, that the whole course of the river in Canada is through a mountainous country, the rocks of which, as far as seen, are principally granite, schists, shales and some limestone, the latter at Lake Labarge. There is also some basalt at the cañon and at the confluence with Pelly River.

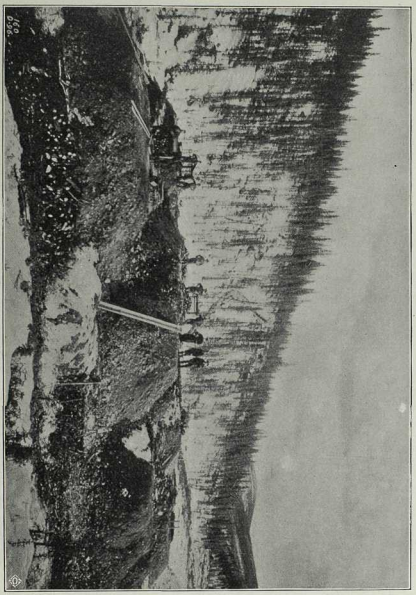
Just below Coal Creek a range of high mountains comes in from the southeast, and continues down the river past the boundary. These mountains are composed principally of limestone, with occasional exposure of shale and sandstone.

While going down the river with the survey I located some prominent peaks by triangulation, and determined their height. Unfortunately, I could not, owing to cloudy weather, get as many as I wished. Those located are shown on my map of the survey. I have named a few of them, as they have not, to my knowledge, been previously named.

One of them, seen from the south end of Lake Labarge on the east side, I have named Mount Dawson, after Dr. Dawson of the Geological Survey. Its altitude above the lake was taken from two points on the east side, from which its distance was, respectively, 724.5 and 773 chains. The height, as deduced from the observed angles of elevation of the top from each station, was, respectively, 3,238 and 3,263 feet. Part of this difference is no doubt due to want of precision in the instrument used, and part to the fact that the same point may not have been sighted on from both stations. The latter height is probably the nearer to the truth. The altitude of the lake I have put at 1,959 feet, which would make the height of the mountain 5,222 feet above the sea.

Another peak near the boundary I have named Mount Morrison, after a member of my party; and another Mount Gladman, after another member. These two peaks are the highest seen from the river in the vicinity of the boundary. Mount Morrison was ascended and its height determined by aneroid barometer, the mean of the readings at starting from and returning to the river being compared with the reading at the top. The difference between the two readings at the river was about fifty feet. The height thus determined was 2,390 feet, which gives the altitude above sea 3,180 feet. Mount Gladman was apparently a little higher.

The only people doing business in the country outside of gold mining were Messrs. Harper, Questen & Co. They have been trading at several points on the river pretty constantly since 1874. They occupied Fort Reliance for some years, and in 1886 they established a post at Stewart River to meet the demands of the



From Photo. by W. Ogilvie.

Dump on Claims 5 and 6, Eldorado, out of Which were Washed $126,000.

miners who were working there. They did not anticipate the rush to the country that took place in that year, and their supplies ran short, so that all were for some months on the verge of starvation. Unfortunately, too, scurvy broke out in the camp, and there was much suffering.

In 1887 they established a post at Fortymile River, whither nearly all the miners had gone, coarse gold having been discovered there during the previous fall. During the winter of 1887-88 they did business at both these posts, Messrs. Harper & McQuesten being in charge of Fortymile, and Mr. Mayo at Stewart River. The latter post was kept open principally for the Indian trade, though had there been no miners there it is probable they would have abandoned it. I could not learn definitely the amount of their sales to the miners in 1887, as it is a delicate question to ask a person who is selling foreign goods in Canadian territory to reveal to a Canadian employed by the Government the amount of his trade. Very likely, had I asked the question, I would have received a short answer, though in every other way I am under great obligation to Messrs. Harper & McQuesten for acts of kindness and attention, both sought and unsought.

A person who had a good idea of the amount of their business during the season estimated their sales at $60,000, and from facts which came under my own observation I consider this not far from the truth.

Until the miners visited the country the trade done by this firm was confined to barter with the natives for furs. I understand that they do a sort of commission business for the Alaska Commercial Company—that is, the company supply goods at a certain advance on San Francisco prices, and deliver them at the trading post at a certain rate per ton. In payment they take whatever pelts have been collected at a certain pre-arranged price, varying according to the state of the fur market. I understand, however, their freight charges remain constant, and are $30 per ton for goods paid for in furs, and $125 per ton for goods paid for in cash, the latter being the goods imported for the use of the miners.

Their prices for goods in 1887 were not exorbitant, yet there must have been a fair profit. They were: Flour, $17.50 per hundred pounds; bacon, $40 per hundred; beans, $18 per bushel; sugar, $30 per hundred, and tea, $1.25 per pound. Both of these gentlemen came into the country in the summer of 1873, Mr. Harper crossing the mountains from the Cariboo gold fields in British Columbia, and descending Laird River to the Mackenzie. He went down the latter river and up the Peel, whence he crossed to the waters of the Porcupine, which he descended to the Yukon; he then went up the latter to White River, where he wintered.

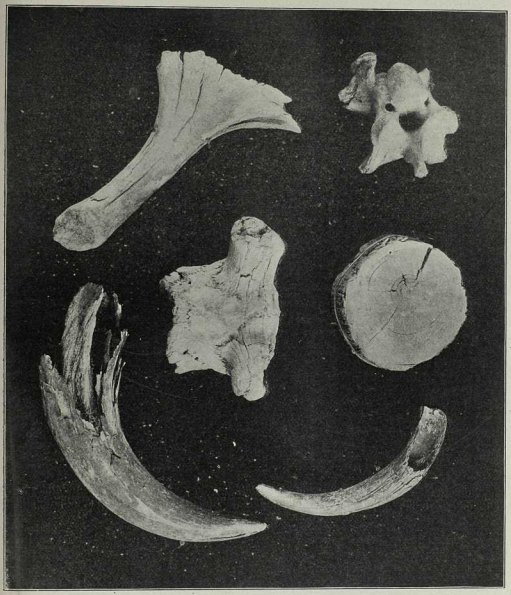
Mr. McQuesten came in at the same time by way of Peace River, trading for a short time around Lake Athabasca before he descended the Mackenzie.

The principal furs procured in the district are the silver-gray and black fox, the number of which bears a greater ratio to the number of red foxes than in any other part of the country. The red fox is very common, and a species called the blue is abundant near the coast. Marten, or sable, are also numerous, as are lynx; but otter are scarce, and beaver almost unknown.

It is probable that the value of the gray and black fox skins taken out of the country more than equals in value all the other furs. I could get no statistics concerning this trade for obvious reasons.

Game is not now as abundant as before mining began, and it is difficult, in fact impossible, to get any close to the river. The Indians have to ascend the tributary streams ten to twenty miles to get anything worth going after. Here on the uplands vast herds of caribou* still wander, and when the Indians encounter a herd they allow very few to escape, even though they do not require the meat. When they have plenty they are not at all provident, and consequently are often in

*There were no caribou in this locality last year.



From Photo. by W. Ogilvie.

Animal Remains found in the Pay-Streak on Bonanza and Eldorado Creeks, and Section of Wood found 12 Feet below the Surface on Bonanza Creek.

want when game is scarce. They often kill animals which they know are so poor as to be useless for food, just for the love of slaughter.

An Indian who was with me one day saw two caribou passing and wanted me to shoot them. I explained to him that we had plenty, and that I would not destroy them uselessly, but this did not accord with his ideas. He felt displeased because I did not kill them myself or lend him my rifle for the purpose, and remarked in as good English as he could command: "I like to kill whenever I see it."

Some years ago moose were very numerous along the river, but now they are very seldom seen, except at some distance back from it. Early in the winter of 1887-88 the Indians remained around the miners' camps, and subsisted by begging until all further charity was refused. Even this for some time did not stir them, and it was not until near Christmas that sheer hunger drove them off to hunt. One party went up the Tatonduc some fifteen or twenty miles, and in a short time was revelling in game, especially caribou. The other party did not succeed for some time in getting anything, although a large district was searched over, but finally went up Coal Creek about twenty miles, and there killed eighteen moose in one day. They brought in two thousand pounds of the meat to the post, and sold it for ten cents per pound to the miners, with whom it was in great demand on account of the prevalence of scurvy in the camp.

A boom in mining would soon exterminate the game in the district along the river.

The ordinary caribou runs in herds, often numbering hundreds. It is easily approached, and, when fired at, jumps around awhile as though undecided what to do; it then runs a short distance, but just as likely towards the hunter as from him, stops again, and so on for a number of times. At last, after many of them have been killed, the remainder start on a continuous run, and probably do not stop until they have covered twenty or thirty miles. When the Indians find a herd they surround it, gradually contracting the circle thus formed, when the animals, being too timid to escape by a sudden rush, are slaughtered wholesale.

There are four species of bear found in the district—the grizzly, brown, black, and a small kind, locally known as the "silver-tip," the latter being gray in colour, with a white throat and beard, whence its name. It is said to be fierce, and does not to wait to be attacked, but to attack on sight. I had not the pleasure of seeing any, but heard many "yarns" about them, some of which, I think, were "hunters' tales." It appears, however, that miners and Indians, unless travelling in numbers, or especially well armed, give them as wide a berth as they conveniently can.

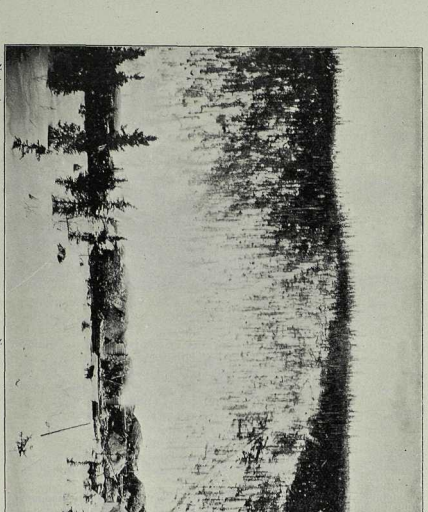
Wolves are not plentiful. A few of the common gray species only are killed, the black being very scarce.

The arctic rabbit or hare is sometimes found, but they are not numerous. There is a curious fact in connection with the ordinary hare or rabbit which I have observed, but of which I have never yet seen any satisfactory explanation. Their numbers vary from a very few to myriads, in periods of seven years. For about three years one may travel for days without seeing more than a sign of them; then for two years they are numerous, and increase for two years more, until finally the country is alive with them, when they begin to disappear, and in a few months there are none to be seen. If it is an epidemic that carries them off, it is strange that their carcasses are never observed in any number.

It appears the martens are also subject to a periodical increase and decrease, and in this case a satisfactory explanation of the cause is also wanting.

The mountain sheep (Big Horn) and mountain goat exist everywhere in the territory; but, as they generally frequent the sides of the highest mountains, they are seldom seen from the river. There is a beautiful species of pure white Big Horn found in the mountains on the head of Coal Creek, and presumably elsewhere in that region.

Birds are scarce. A few ravens were seen along the river, and three or four



No. 1. No. 2.

From Photo. by W. Ogilvie.

Mine Dumps on Claims Nos. 1 and 2 Eldorado.—Fires burning on No. 2.

remained in the vicinity of the boundary all winter. They were generally more active and noisy on stormy days than at other times, and their hoarse croak had a dismal sound amid the roar of the elements.

A few magpies were seen near Nordenskiold River, and a few white-headed eagles were also noticed.

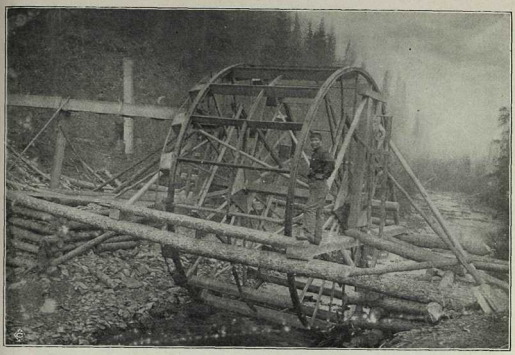
During the winter, near the boundary, numbers of small birds, somewhat resembling the "chick-adee," were seen, but they were much larger and had not the same note. Of owls, not a specimen was met with anywhere. Partridges were very scarce, only half a dozen or so of the ordinary kind being noticed; but at the head of the Tatonduc and Porcupine, ptarmigan were abundant. Wild geese and ducks are plentiful in their season, and of ducks there are many more species than I have seen in any other part of the territory. Most of these were observed on the head of the Porcupine; but, having no means of preserving the skins, I had to come away without specimens. A very beautiful species of loon or diver was met with on the Porcupine. It is smaller than the great northern diver, but marked much the same on the body, the difference being principally in the head and neck—the bill is sharper and finer and the head smaller; but its chief distinguishing feature is the neck, which is covered with long, beautiful dun-coloured down for more than half its length from the head downwards. I tried to kill one so as to get the skin as a specimen, but after I had fired three times at close range with heavy shot it seemed as lively as if I had not fired at all. I then killed it with my rifle, but the bullet so tore and mangled the skin that it was useless.

With the exception of a small species, locally called the arctic trout, fish are not numerous in the district. Schwatka calls this trout the grayling, but from the descriptions and drawings of that fish which I have seen this is a different fish. It seldom exceeds ten inches in length, and has fins very large for its size, which gave it, when in motion, the appearance of having wings. Its dorsal fin is very large, being fully half the length of the body, and very high. It is of a brownish gray colour on the back and sides, and lighter on the belly. It is found in large numbers in the upper part of the river, especially where the current is swift, and takes any kind of bait greedily. The flesh is somewhat soft and not very palatable. Lake trout are caught in the lakes, but, as far as I saw, are not numerous nor of large size. They take a troll bait readily, and a few were caught in that way coming down the lakes, but the largest did not weigh more than six or seven pounds. Salmon came up, I was assured by several Indians, natives of the district, as far as Lake Labarge, and are never found above it, but Dr. Dawson reports their dead bodies along the river for some miles above the cañon. I mention this to show the unreliability of information received from the natives, who frequently neither understand nor are understood.

On the way down salmon were first seen twenty or twenty-five miles above Five Finger Rapids. One can easily trace their passage through the water by the slight ripple they make on the surface, and, with care, they can be taken by gently placing a scoop net in their way and lifting them out when they enter it. After coming up the river two thousand miles they are poor, and would not realize much in the market. At the boundary, in the early winter months, the Indians caught some that were frozen in on small streams, and fed them to their dogs. Some of these I saw; they were poor and spent.

I had very little opportunity to learn anything of the language, manners, customs or religion of the natives on my way through their country, my time with them being so short, and none of the whites whom I met in the district seemed to possess any information upon which I could draw. I got a few items, but as they may or may not be facts, I shall not report them. The statements of every one I met, however, pretty well establish that by one of their laws inheritance is through the mother.

Since the foregoing was originally written, numerous and important changes have occurred in the Yukon District. In those days the administration of law was



From Photo. by W. Ogilvie.

Wheel on Bonanza Creek to raise water for sluicing.—Skookim Jim, an Indian, standing on frame.

entirely in the hands of the miners themselves, being dispensed by meetings at which all curious or interested attended, and all had a vote in the decision or adjustment. In the main the parties meant well, but often queer views were taken, and it might be said that a man who was personally unpopular fared badly, and that, too, without the parties who decided feeling that they had gone the least bit astray. Nothing else could be expected as this is human nature the world over.

Now the Canadian Government has a properly organized staff of officers resident in the country to attend to all matters pertaining to the proper administration of justice without favour to any, and we may unhesitatingly take up our abode there, looking to as mnch protection for life and property as in any other part of the continent.

In assurance of this the following statement is made :

THE GOVERNMENT OF THE YUKON TERRITORY.

The Government of Canada has defined that portion of the North-West Territories, which is to be officially known as "The Yukon Territory," and has provided for it an organized government. This Territory is bounded on the south by the 60th parallel of latitude, on the east by the watershed between the basins of the Yukon and Mackenzie Rivers, and on the west by the 141 meridian west of Greenwich or the International Boundary line, and on the north by the waters of the Arctic Ocean.

All south of the 60th parallel of latitude is in the Province of British Columbia, except the coast strip of Alaska, known as "South-eastern Alaska," and law will no doubt be administered there by the government of that Province.

This, of course, differs from the ordinary machinery of Government in Canada, but is just what is required at present and for the next few years.

The chief official is known as the "Commissioner of the Yukon Territory." All the Government officials, with the exception of the Judge of the Supreme Court are under his control, and any one of them may be suspended by him for cause. The detachment of North-West Mounted Poltce stationed in the Yukon Territory is under his orders, and he is given ample powers to enable him to meet any difficulty that may arise, without having to wait for authority from Ottawa. This Officer reports frequently to the Minister of the Interior, and the Government is thereby kept fully informed concerning everything that is transpiring in the Territory.

There is a Judge for the Territory. That is to say, one of the Judges of the Supreme Court of the North-West Territories has been sent to administer the ordinary laws of Canada aad the North-West Territories in the Yukon District.

A *Gold Commissioner* has been sent up to the headquarters of the Territory. His duties are in relation to the granting of mining claims, titles, permits for cutting timber on Government lands and the settlement of disputes between conflicting claimants. He is an officer of the Department of the Interior.

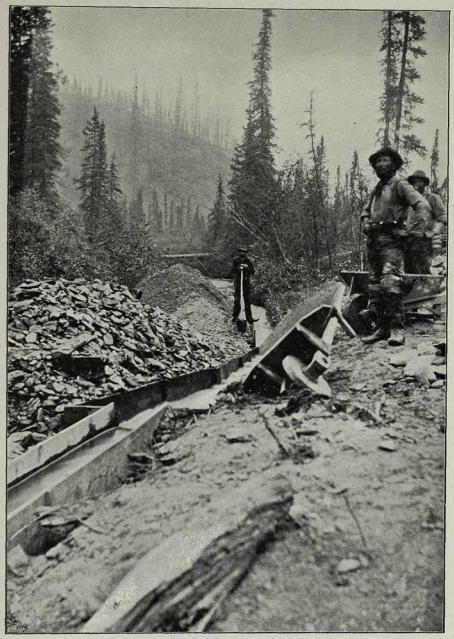
The Registrar of the "Yukon Lands Registrar District" is a lawyer whose duties combine clerkship of the Court and the registration of titles.

There are four Land Surveyors acting under the instructions of the Gold Commissioner, and, like him, they are officers of the Department of the Interior.

There are also a uumber of Customs Officers stationed at various points along the lines of entry into the Yukon Territory, and there is a force of Mounted Police at present nnmbering 100, but will immediately be increased to 250.

The Mail Service of the Territory is performed at present by the Mounted Police. A monthly mail is despatched each way *i.e.*, between the Coast and the Interior.

Police Stations are to be established in the Spring on the Stikeen River, on the Dalton Trail, at the Junction of the White and Dyea Passes, at Tagish Lake, at the White Horse Rapids, at the mouth of the Hootalinqua River, at Selkirk, Dawson and Cudahy, and patrols will traverse the country between these points, so law and order will be preserved at all points throughout the country where miners may have established themselves.



From Photo. by W. Ogilvie.

Sluicing on Bonanza Creek.—Claim No. 2 below Discovery and Showing Mode of Washing Gravel. At this Point $8,000 were taken out of a Hole 14 Feet Wide and Twenty-Four Feet Long.

MORE RECENT DISCOVERIES.

Facts and Information, with Advice, Suggestions, Etc., Etc.

Some of the earliest efforts of mining in the Yukon District were made by some British Columbia miners who endeavoured to reach the southern part of the Yukon watershed from the Cassair District of British Columbia. These efforts were, however, not successful from a miner's point of view, nothing came of them.

In 1873 Mr. Arthur Harper, Frederick Hart, Samuel Wilkinson, George W. Finch, and Andrew Kansellar, left British Columbia to prospect the Liard, Mackenzie, Porcupine and Yukon. They made their way from Peace River in the vicinity of Fort St. John to the head waters of a stream known as the Nelson, an affluent of the Liard, down which they went in the winter and early spring months to a point where they considered it feasible for canoe navigation. As soon as the river opened they started in their dug-out canoes, prospecting as they went, the result of Harper's prospecting being, as he summed it up to me, "nothing on the Nelson, prospects on the Liard, nothing on the Mackenzie, good prospects on the Peel, some on the Porcupine, and prospects everywhere on the Yukon. In the fall they made their way from Fort Yukon, at the mouth of the Porcupine, up to White River about 400 miles, where they remained during the winter prospecting the White, and the streams in its vicinity. Finding nothing sufficient to pay them for their trouble, and provisions being very scarce, they in the spring returned down the river, making their way to St. Michaels, where some of them entered the service of the Alaska Commercial Company, then trading in the Yukon Valley.

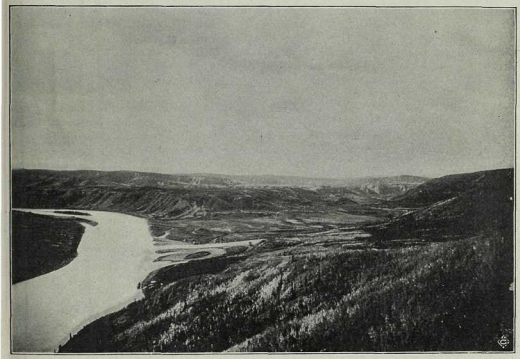
In the fall of 1874 Fort Reliance was erected by Leroy Napoleon McQuesten, and the next summer—that is, the summer of 1875—Harper joined him in partnership, and they continued to trade in partnership until 1889. Through Harper's correspondence some British Columbia miners came into the country prospecting, and in the early eighties prospecting in that country was begun in earnest, and in the last half of that decade a fair amount of success was achieved, especially on the Stewart River. The gold found upon these rivers is fine gold and requires the use of mercury for its separation from the sand, and although it was found in paying quantities—as high as $100 per day being made in some instances—fine gold never satisfied the old miners and prospectors. This caused a continuous search for coarse gold, and it was found in 1886 on the Fortymile River about 23½ miles above the mouth, or a few hundred yards above the International Boundary Line. This directed the attention of the miners in the district of Fortymile, and it continued to be the field of prospecting and exploration until 1891, when coarse gold was found on the head of Birch Creek, below the International Boundary Line. The existence of coarse gold was known in this district as early as 1864, for in a letter dated "Fort Yukon, 2nd October, 1864," written by a clerk in the service of the Hudson Bay Company at that post, to his father in Ontario, it is stated :—

"I had some thoughts of digging the gold here, but am not sure about it. . I do not think it is in paying quantities at the Fort, but if I could only get time to make an expedition up the Yukon, I expect we should find it in abundance, but I am always on the voyage or busy at the Fort during the summer, and in the winter nothing can be done in the way of gold hunting. I think that next fall, after arriving from my trip down the Yukon, I shall be able to go up the river. There is a

small river not far from here that the minister, the Revd. McDonald, saw so much gold on a year or two ago, that he could have gathered it with a spoon. I have often wished to go but can never find the time. Should I find gold in paying quantities I may turn gold digger, but this is *merely a last resort, when I can do no better.*"

It was mainly through the direction of the Canadian Missionary, the Venerable Archdeacon McDonald, above mentioned, that this field was opened.

These two points, Fortymile and Circle City, divided between them the attention of all the miners in the country up until 1896, when the discovery of Bonanza and Eldorado was made by George W. Carmack through the advice of Robert Henderson, an old miner, who had been prospecting on the Indian River and Gold Bottom Creek Valleys, and finding Carmack fishing at the mouth o the Klondike described to him the riches of Gold Bottom and advised him to try it. Carmack did so but was not satisfied, and on his return trip tried the creek known to the Indians as Tha-tat-dik, or, in English, Muffler Creek, since named Bonanza by the miners. On this, on the claim now known as "Discovery Claim," he found good prospects, and staked claims for himself and Indian associates, which led to the speedy staking of the whole creek and its branches and gulches. As soon as the season permitted these two creeks were thoroughly prospected and developed, and found to be so rich that the term applied to that district, "Klondike," is now known over the whole world. Prospecting has gone on in that region to such an extent that there are now numerous other creeks known and partially developed there, notably, Dominion, Sulphur, and Quartz Creeks, affluents of Indian Creek, which flows into the Yukon some 25 or 28 miles above Klondike. Recent reports from these creeks confirm their value, and on one of them as high as $9 per pan has been found. Of course, that is an exceptionally rich pan, but it appears from the rumours which have lately come out that they are rich and extensive—it is alleged being some 20 miles each in length. This, I think, may safely be cut in two, as miners' miles are generally short.



Mouth of Fortymile River. *From Photo. by W. Ogilvie.*

Several other creeks have been prospected, flowing directly into the Yukon between Klondike and Indian, and rumour says they are good. One creek, known as Mooseskin Creek, which flows into the Yukon about 1½ miles below Dawson, is reported good. Rumour asserts that from four to six feet in depth of pay dirt has been found, but no definite width had then been determined, ranging from eight (8) or ten (10) cents per pan to as high as eighty (80) cents. With this depth and richness and a reasonable width, say from forty (40) feet upwards, this creek is good enough to rank with the best. How much of it is gold bearing is not yet determined. In my opinion not more than a few miles at the mouth will be found so. It comes out of a range of high limestone mountains which are of such recent geological formation as to preclude the idea of gold being found in them. Indian Creek is practically unexplored as yet. A few miles of the main creek have been prospected and gold found in the sand, but with the exception of the three creeks mentioned—Dominion, Sulphur and Quartz—I do not know of any others having been prospected which flow into it. It is highly improbable that no more will be found in the valley of that stream, and special attention is invited to this creek.

As we proceed up the Yukon, or Pelly, as named by the late Robert Campbell of the Hudson Bay Company's service, other creeks join the Yukon at short intervals, many of them of considerable extent, and I have no doubt but that they will be found to yield much encouragement to the prospector. Last June (1897) Robert Henderson, before mentioned, discovered a new creek said to be 40 miles in length, which joins the Yukon from the east some 2½ miles below Stewart. For a few days there was quite an excitement concerning this creek, gold having been found at several points on it in paying quantities in the surface gravel, but the excitement fell almost as suddenly as it arose, and the creek was practically abandoned. Why this was I never could learn, as only a few prospectors' holes had been put down when the bulk of prospectors abandoned it in disgust, and returned to Dawson. It may yet be found well worthy of attention, in fact, many creeks in the district have been prospected by two or three different parties, abandoned, and finally found to be good. As an instance of this we may cite Miller Creek on the upper waters of Sixty-Mile. This creek was pretty well prospected by two different parties two different seasons, and abandoned. The third party, however, struck pay, and it proved to be the richest creek known in that country until the discovery of Bonanza and Eldorado, so that from this we may predict some hope for Henderson Creek yet.

Stewart River itself is a stream from 100 to 200 yards in width, and it is said about 400 miles in length. Its affluents will aggregate as much more, say 800 miles, or in round numbers say 1,000 miles. The smaller streams and gulches will aggregate possibly as much more, say 2,000. Now the Stewart River enjoys the reputation among the old hands in the district of being the best paying dirt in the country. When it was first mined on, many miners took from $30 to $100 per day out of the bars along the river, by ordinary rockers, and since that time prospectors never failed to find what is called a grub stake, that is, sufficient to purchase provisions, clothing, and other necessaries for one year, on its bars. They are cleaned off from year to year, and the wash of the river seems to renew the deposit of gold. Now this gold must come from somewhere, and prospecting never yet revealed from where. Special attention is directed to this stream as being one of the largest and most promising fields in that district.

Little prospecting has been done on the Pelly River, and not much success has attended what has been done, which may partly be attributed to the fact that little or no bedrock work was done. The few who tried it appear to have done only surface prospecting.

This river and its affluents will likely furnish as much, if not more, stream and gulch than Stewart River, and while it cannot be asserted that the prospects on it are as favorably reported on as those of the Stewart, it can be said that much less attention has been bestowed on them.

The Canadian Bank of Commerce

PAID-UP CAPITAL

$6,000,000

HON. GEO. A. COX, PRESIDENT.

ROBERT KILGOUR, VICE-PRESIDENT.

B. E. WALKER, GENERAL MANAGER.

J. H. PLUMMER, ASST. GEN'L MANAGER.

The Canadian Bank of Commerce, having been appointed agents of the Canadian Government for the

YUKON DISTRICT (KLONDIKE)

to receive the royalty on gold and to transact other banking business for the Government, will establish an agency at

DAWSON CITY

at the earliest date in the coming spring that the means of travel will permit.

DRAFTS AND LETTERS OF CREDIT

payable at Dawson City may be obtained on application to the Bank's representatives and correspondents.

Persons residing in Great Britain should communicate with the Bank of Scotland, London

Residents of Canada and the United States may apply personally or by letter to any of the branches, agencies or correspondents of the Bank mentioned below.

BRANCHES IN CANADA:

Ayr, Barrie, Belleville, Berlin, Blenheim, Brantford, Cayuga, Chatham, Collingwood, Dresden, Dundas, Dunnville, Galt, Goderich, Guelph, Hamilton, London, Montreal, Orangeville, Ottawa, Paris, Parkhill, Peterboro', St. Catharines, Sarnia, Sault Ste. Marie, Seaforth, Simcoe, Stratford, Strathroy, Toronto (8 offices), Toronto Junction, Walkerton, Walkerville, Waterloo, Windsor, Winnipeg, Woodstock

Agencies in the United States:

NEW YORK: The Canadian Bank of Commerce, 16 Exchange Place.

NEW ORLEANS: The Canadian Bank of Commerce, 810 Gravier Street.

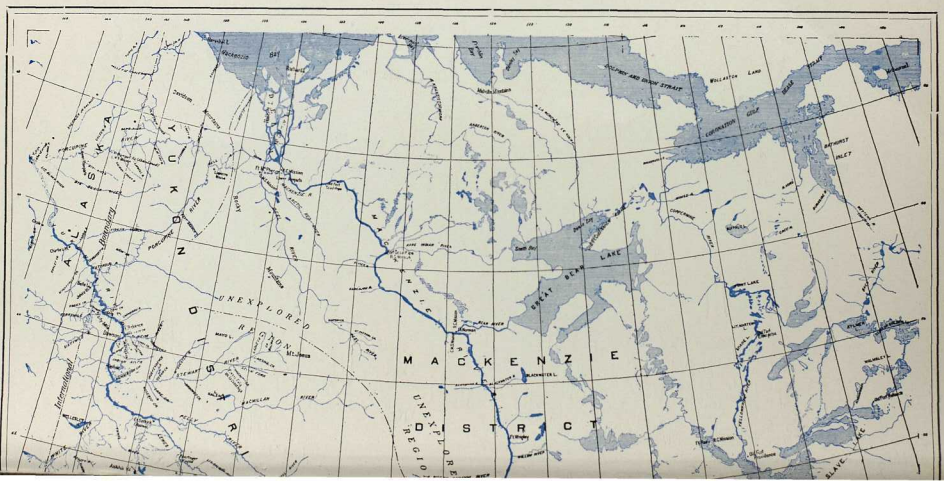
Correspondents:

THE BANK OF SCOTLAND, LONDON, ENGLAND.

THE NORTH WESTERN NATIONAL BANK, CHICAGO.

THE BANK OF BRITISH COLUMBIA IN BRITISH COLUMBIA, AND AT SAN FRANCISCO, CAL., AND PORTLAND, ORE.

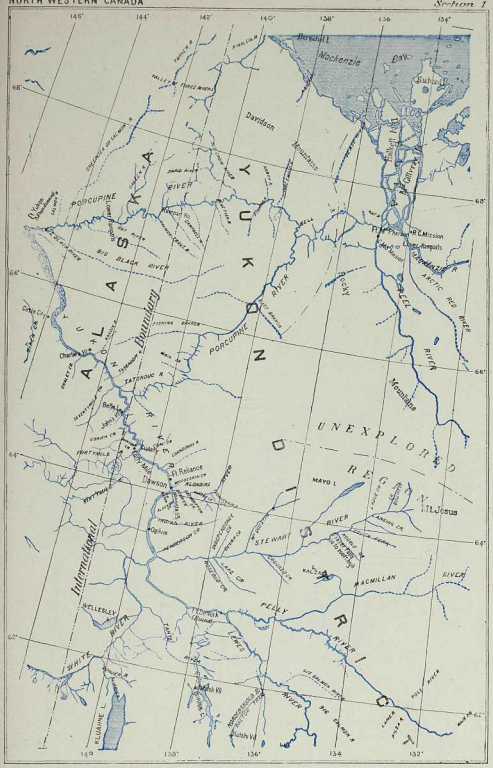
MAP OF THE WESTERN PORTION DOMINION OF CANADA.



BRITISH COLUMBIA
ALASKA
ATHABASCA
ALBERTA
NORTH PACIFIC OCEAN
ROCKY MOUNTAINS
BEAR LAKE
Victoria
Vancouver
Nanaimo
Prince Rupert
Port Simpson
Port Essington
Port Wrangel
Port Tongass
Port Chalmers
Port Simpson
Port Stewart
Port Mulgrave
Port Frederick

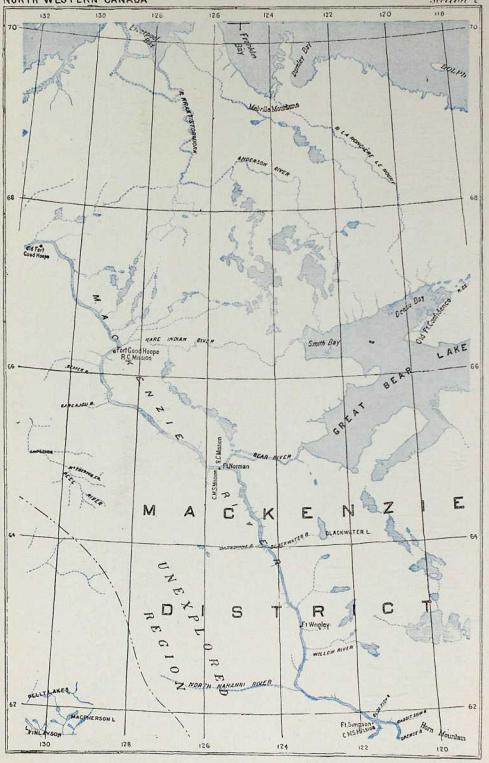
NORTH WESTERN CANADA

Section 1


Mackenzie
Bay
Herschel I.
Bathurst
Dalhousie
Mountains
Peel
River
Arctic Red River
Fort Norman
R.C. Mission
Fort Simpson
Fort Wrigley
Fort Liard
Fort Nelson
Fort Simpson
Fort Wrigley
Fort Liard
Fort Nelson
Fort Ware
Fort Grahame
Fort Dunvegan
Fort Vermilion
Fort Chipewyan
Fort Resolution
Fort Providence
Fort Rae

NORTH WESTERN CANADA

Section 2



SCALE OF STATUTE MILES

10 0 50 100 150 200

116°
114°
112°
110°
108°
106°
104°
70°
68°
66°
64°
62°
WOLLASTON LAND
CORONATION GULF
DEASE STRAIT
BATHURST INLET
COPPERMINE
RIVER
BUFFALO L.
GREAT SLAVE LAKE
MACKENZIE DISTRICT
FORT LAKE
ST. MARTEN L.
Old Fort Enterprise
YELLOWKNIFE RIVER
AYLMER L.
GREAT BEAR L.
WILMOT L.
Fort Rae R.C. Mission
Old Fort Providence
SCALE OF STATUTE MILES
10 0 50 100 150 200

140
138
136
134
132
130
60
58
56
54
Mt. Logan
Mt. St. Elias
Yakutat Bay
ALASKA
NORTH PACIFIC OCEAN
CROSS SOUND
Chichagof I.
Juneau
Sitka
Baranof I.
SITKA SD.
Kuiu I.
Wrangell
CHRISTIANA SOUND
Prince of Wales I.
Revilla Gigedo I.
DIXON ENTRANCE
Ketchikan
Graham I.
Queen Charlotte Is.
Dundas I.
Ft. Simpson
Port Simpson
Pelican Rapids
Dalton P.
L. TESLIN
WEALY L.
MARSH L.
TAGISH L.
LAKE BENNETT
LYNN CANAL
TAKU INLET
TAKU R.
STIKINE R.
SKEENA R.
NASS R.
ALSEK RIVER
TAKU RIVER
LIARD RIVER
TESLIN RIVER
YUKON RIVER
POST
SCALE OF STATUTE MILES
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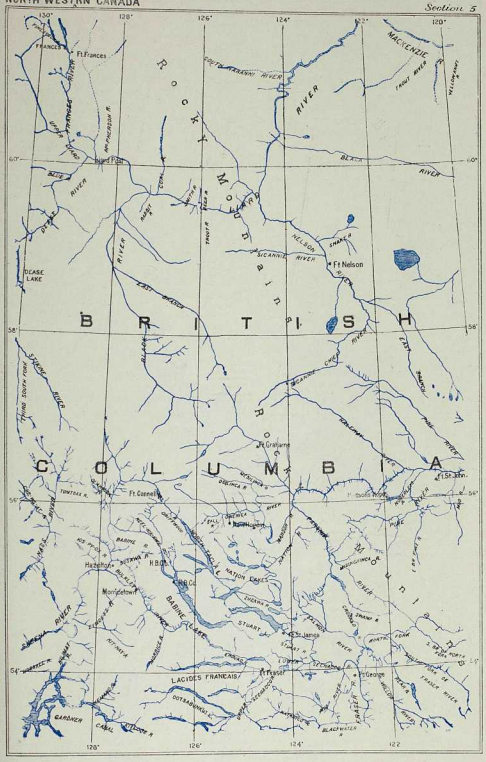
BRITISH
COLUMBIA
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Ft. Nelson
Ft. Grahame
Ft. St. John
Ft. Connelly
Hazelton
Bulkley
Nechako
Stuart
Stuart L.
Babine L.
Lac des Iles
Lac des Français
Ft. George
Ft. Fraser
Gardner Canal
Cutbank L.
Blackwater
Peace
Pine
Finlay
Frasier
Nechako
Bulkley
Skeena
Stikine
Liard
Kicking Horse
Kootenay
Columbia
Thompson
Nicola
Similkameen
Okanagan
Kettle
Pend Oreille
Flathead
Kootenay L.
Okanagan L.
Nicola L.
Pend Oreille L.
Flathead L.
Tulameen
Ashnola
Tobacco Plains
Ice River
Dease Lake
Dease River
Liard River
Black River
Muskwa River
Sikanni Chief River
Beatton River
Halfway River
Pine River
Kicking Horse Pass
Kootenay Lake
Columbia Lake
Lake Pend Oreille
Flathead Lake
Nechako Lake
Stuart Lake
Babine Lake
Lac des Iles
Lac des Français
Cutbank Lake
Gardner Canal
Blackwater
Ft. Frances
Ft. Fisher
Ft. George
Ft. Connelly
Ft. Grahame
Ft. Nelson
Ft. St. John
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Lake Pend Oreille
Flathead Lake
Nechako Lake
Stuart Lake
Babine Lake
Lac des Iles
Lac des Français
Cutbank Lake
Gardner Canal
Blackwater
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SCALE OF STATUTE MILES
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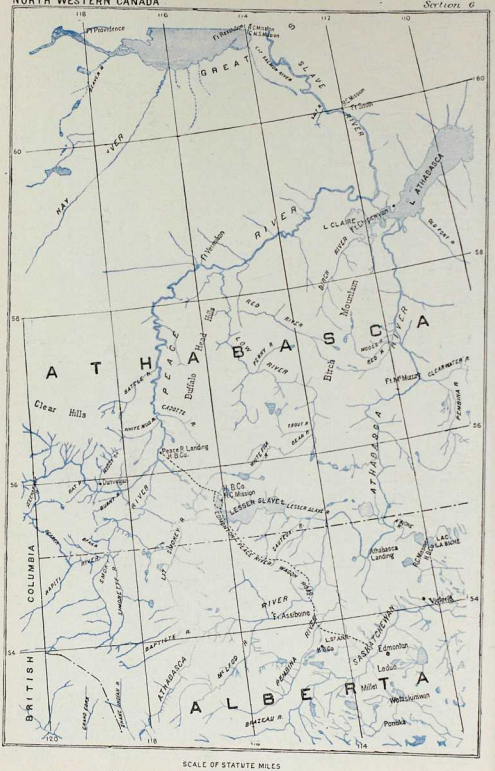

Providence
Fitzhugh
Resolution
GREAT
SLAVE
LAKE
Fort Smith
LAKE
ATHABASCA
L. CLAIRE
Fort Chipewyan
RIVER
Fort Vermilion
Fort Dunvegan
Dunvegan
Peace River
Dunvegan
Dunvegan
Red River
Birch Mountain
Fort Hudson
Fort Fitzgerald
Fort Smith
Fort Resolution
Fort Chipewyan
Fort Vermilion
Fort Dunvegan

BRITISH COLUMBIA
THE UNITED STATES
NORTH PACIFIC OCEAN
Princess Royal I.
Aristazabal I.
Roderick I.
Price I.
Bay Pt.
King
Hunter I.
Hecate I.
Calvert I.
Hesquiat Pt.
QUEEN CHARLOTTE SOUND
Malcolm
Gilford
San Joseph B.
QUATSINO SD.
Brooks Bay
Nootka I.
NOOTKA SD.
Flores I.
CLAYOQUOT SD.
BARCLAY SD.
Texada I.
Lasqueti I.
Gambier I.
Vancouver
Victoria
Sooke
Port Crescent
Mt Olympus
Seattle
Olympia
GRAYS HARBOR
Astoria
COLUMBIA RIVER
Portland
Index to positions of sections of map
No.1 No.2 No.3
No.4 No.5 No.6
No.7

KLONDIKE

Parties going to or residing in the Klondike would find it to their interest to communicate with the

Manufacturers Life Insurance Company . . .

HEAD OFFICE, TORONTO

GEO. GOODERHAM, President.

J. F. JUNKIN, General Manager.

GEO. A. STERLING, Secretary.

Authorized Capital, $2,000,000

RECORD OF TEN YEARS

	Income	Assets	Business in Force
Dec. 31st, 1887	27,964	155,877	2,536,000
Dec. 31st, 1892	230,281	536,067	8,136,989
Dec. 31st, 1897	448,000	1,306,466	11,867,229

Total Payments to Policyholders, over $600,000

Here are the Facts

You are Going to the Yukon District

YOU WILL REQUIRE

NUTRIMENT, with no unnecessary Bulk or Weight.
EVERY NECESSARY REQUISITE, with plenty of variety.
RIGHT GOODS AT RIGHT PRICES.
Food and Comfort Supplies being OUR SPECIALTY, we meet the situation completely with these goods, and a full supply of all other essentials.

Concentrated Soups,
Beef Bouillon Capsules,
Extracts of Beef (Solid and Fluid),
Meat and Fish Pastes,
Compressed Evaporated Vegetables,
Evaporated Fruits,
Condensed Coffee,
Extract of Coffee,
Cocoa Essence,
Condensed Cream,
Condensed Milk,
Condensed Coffee and Milk,
Saccharine,
Crystallized Eggs,
Klondike Yeast,
Klondike Biscuits,
Concentrated Vinegar,
Lime Fruit Tablets,
Lemonade Crystals,
Damp-proof Matches,
Non-explosive Fire Kindlers.

A Strong, Rich Cup of Tea is quickly prepared with our

"KOLONA"
PURE CEYLON TEA

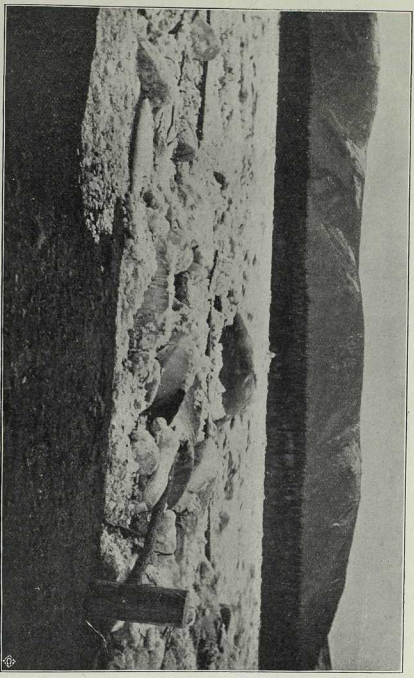
In Sealed Lead 1-2 lb. and 1 lb. Packets.

TORONTO is the Distributor for the Province of Ontario, the great producing centre for the bulk of supplies required in the Klondike and Yukon District, and therefore the cheapest and best market in which to purchase.

The Eby, Blain Company Limited

Wholesale Importing and Manufacturing Grocers

Toronto, Can.



† Break-up of the Ice on the Yukon River.

From Photo. by W. Ogilvie.

† The block of ice in right centre of picture is standing on edge in water 45 feet deep, and is being rolled along on the bottom like an immense wheel. It is 4 feet thick.

There is no reason why the branches and gulches of this river system should not yield in parts good pay, as it lies in the gold bearing zone running through and from British Columbia to the 141st meridian.

A small creek flowing into the Yukon or Lewes from the west or left side a few miles above the mouth of the Pelly, has been worked by several old timers for the last three or four years, with a fair amount of success. Another stream, joining the Lewes or Pelly about 30 miles below the mouth of the Pelly, good prospects are reported on, but how authentic these reports are cannot at present be said. Last summer newspaper reports aroused much excitement concerning the Pelly, and the enormous finds which it was alleged had been made there; in fact, one find was fabulous in its richness, but these do not appear to be more than newspaper reports.

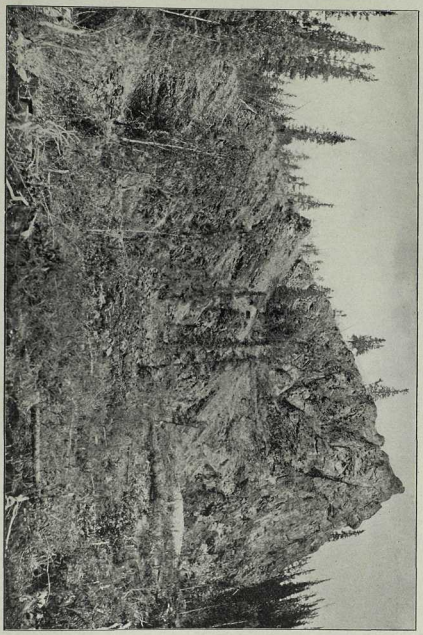
The Teslin, or Hootalinqua of the miners, some 200 miles farther up, in 1886 and 1887, was worked on and good pay found on the bars all along it. Just south of the head of this stream is the Cassair District of British Columbia, in which rich finds were made many years ago, and which old miners to-day assert is one of the best districts in America, were there better facilities for food supply. During 1885, 1886 and 1887, much mining was done on the Yukon River itself on the bars and banks along it. This extended from a few miles below the Teslin down to near the Pelly. One bar on the river, called Cassair Bar, near the Big Salmon River, was worked in 1886, and was so rich that four men cleaned up $6,000 in thirty days. Others came along after this party had left and took away more. The original party re-worked it in 1887, and took off $10 per man per day. Many of the bank claims yielded good pay too, and all furnished fair wages. The discovery of coarse gold for the time stopped all attempts to further develop those bar and bank diggings on the main river, but there cannot be any doubt that they will yet be profitably worked.

On the head waters of the Lewes silver has been found and some gold, but as the attention of most of the miners entering the country was directed to points further down, very little prospecting has been done here. I have seen several specimens of silver bearing ore which it is alleged came from this part of the country, and one old Californian in 1894 assured me he had found, in the vicinity of Tagish Lake, one of the richest silver bearing veins he ever heard of. That there was some truth in this assertion I do not doubt, as he showed me specimens of the ore.

On the head waters of the Alsek River, which flows into the Pacific Ocean between Lituya and Yakutat Bays, gold was found in 1896, but the party finding it was not prospecting; the find was due to an accident. He was crossing the river on horseback, his horse stumbled, threw him into the water, which was icy cold. He made his way as quickly as possible to the shore, and in climbing out grasped a small tree which came away by the roots. In the dirt which came with it he saw some yellow stuff which he picked up and found to be gold. This he preserved and exhibited to me at Cudahy, a few months later. He had something like $1 in coarse gold, which he found at this spot.

Midway on what is now known as the Dalton Trail, between the summit of the Coast Range and Selkirk, fine gold has also been found in the small streams which that trail crosses. This find also was not the result of any organized search, but entirely due to accident.

With these facts before us we may confidently assert that we have here a region situated in the North-West Territories upwards of 300 miles in length and 500 or more miles wide, along the southern boundary, for this zone extends southeastwards into British Columbia, and we may reasonably assume westward to and across the 141st meridian, for some of the streams heading on and near it, discharging into the Pacific Ocean west of Mount St. Elias, yield gold on their lower stretches, and we may reasonably assume the upper parts are gold bearing, too. Farther inland gold has been found on the upper waters of the Tanana, near the



Gold-Bearing Lode—Cone Hill. *From Photo. by W. Ogilvie.*

head waters of the Fortymile, and in 1873 and 1874 Harper and Harte found some gold on the south branch of White River, in the vicinity of the boundary line, all of which is a justification for this assumption. Thus we may conclude with reason that all that portion of the North-West Territory westward from the easterly limit of the Yukon water system to the 141st meridian, will prove more or less gold bearing.

The westerly boundary of this region—the 141st meridian, or International Boundary—is upwards of 300 miles in length; the southern boundary—the 60th parallel of latitude—is about 500 miles long, and the north-east boundary, an irregular line from the 60th parallel to the 141st meridian, in latitude 65° approximately, is upwards of 600 miles long. These three lines bound an area of about 125,000 square miles, over which gold is scattered more or less profusely.

At many of the points mentioned it will pay well for working even under present conditions, and at many others it will pay well when we have such facilities as we expect to have during the next year for entering and developing that region. Attention may be directed to the fact that the whole of that vast District owes its now world-wide reputation to the richness of 140 claims in the Klondike Division. 100 of these are on Bonanza Creek, and about 40 on Eldorado. To use a mining term, many of those claims are "world-beaters," and if the indications now known are worth anything at all they are worth from sixty to seventy millions of dollars in those two creeks.

Taking this division as a whole, including the three creeks named, affluent to Indian Creek, a district some 35 miles in length and 25 or more miles in width, if the indications can be relied on, there are one hundred million dollars in sight in that area. No one can guarantee this amount, but the prospects so far developed point to that sum pretty conclusively. This district is exceptionally rich. Nothing has ever been found like it heretofore in that country, in fact, in very few countries has anything been found like it, and while we cannot confidently assert that other finds as valuable as it will be made, it is altogether improbable that gold is scattered over such a vast extent, and only rich at a point which is less than the 140th part of the total area. If we add to this part of the northern area of British Columbia we increase it nearly two-fold, and the comparative area of the Klondike District is much lessened!

Taken all together we have a vast field with fair prospects, as fair it may be claimed as any other equally extensive region in the world. The natural conditions are not as favorable as in many other parts, but time and enterprise will no doubt agreeably modify many of them, and the reward may be great.

OTHER MINERALS FOUND IN THE YUKON DISTRICT.

Pieces of native copper have from time to time been brought in from the White River region by Indians. It is asserted by them that they found the copper on that stream. Possibly this is so, but it is yet undetermined. However, copper is being found on the head of Copper River in that vicinity, and these two streams head in the same area and it is probable that the Indians are correct. Mineral bearing lodes found in the vicinity of the mouth of the Klondike show traces of copper. On the Fortymile a few miles above the mouth there are some seams of lead ore or galena, containing silver; as high as 36½ ounces to the ton of 2,000 pounds has been assayed from it. Low grade specimens of asbestos have been found in the vicinity of Cudahy in an exposure of serpentine rock there. Commercially it is worth nothing, but shows that mineral exists in the country and may yet be found of commercial value. Iron has not yet been found in place, but one may infer from the abundance of black sand, as the miners term it—that is, magnetic iron ore ground to powder—in the gold-bearing streams that it will yet be found in place in some part of the country. In Hunker Creek it is exceedingly abundant and very coarse, almost as coarse as fine gravel. Coal abounds in the country. A short

distance above the Five Fingers Rapids several small coal seams crop out. They are close together, and although the seams are thin individually, collectively they may yet be worked with profit. Specimens of this coal were assayed in Ottawa by the Chemist of the Geological Survey Branch of the Department, with the following results:

Hygroscopic water	6.03
Volatite combustible matter	36.92
Fixed carbon	49.03
Ash	8.02

On Coal Creek, which joins the Yukon about four miles below Cudahy, extensive coal seams have been found and located. On a small creek named Cliff Creek, which joins some five or six miles below this, another extensive seam has

† Boundary *From Photo. by W. Ogilvie.*

At the Crossing of the International Boundary and the South Bank of Moose Creek.—International Boundary appears as a White Streak through the Woods.—White Summit in Centre is "The Dome."

been found and located. Coal is found in the drift in the streams between those and on another creek known as Flat Creek, below Cliff Creek. On Twelve Mile and Fifteen Mile Creeks—so named because they were supposed to be that distance below Fort Reliance—coal is also found, some six or eight miles from the Yukon River. Coal is reported at the head of the Klondike, and the report was accompanied by specimens of the mineral. I have heard it stated that coal is also seen in the drift of some of the upper streams of the Stewart River, the inference being that there is a continuous coal bearing strata running from the Yukon River in the vicinity of the Boundary Line south-eastwards through British Columbia, and possibly through that Province into the North West Territories. Specimens of the coal from Coal Creek and Cliff Creek were sent out for assay, and the Geological Survey Chemist reports on it as follows:

"The material at the time of its receipt was found to be completely disintegrated. It had evidently lost a certain proportion of the hygroscopic water originally contained in it; hence the following analysis must be considered as more nearly representing the composition of the fuel in an air-dried condition than as it occurs in its native state.

"Approximate analysis by fast coking of selected material gave:

Hygroscopic water	7.24
Volatite combustible matter	41.75
Fixed carbon	48.91
Ash (brownish yellow)	2.40
	100.00

"It yielded by slow coking a non-coherent coke, by fast coking a slightly fritted coke.

"The results of the examination of the fuel led to the inference that the materials of the seam in question represented a lignite of superior quality."

These coals are all of the same quality. So far as I know no good cooking coal has yet been found in that country. One thing will be noticed in connection with the Coal Creek coal is the remarkably low percentage of ash that it yields. No specimens yet tried, as far as I know, gave more than 5%, and some of it went below 1%.

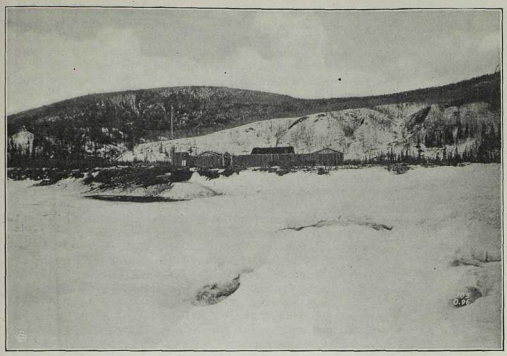
Approximate tests made with some of the surface coal from Coal Creek determined a ton of it, 2,000 pounds, to be equal to about 2½ cords of the spruce wood generally used as fuel in that region. A good sample of the coal would probably be equal to 3 cords. A cord of this wood will weigh nearly a ton and a half. For steamboat use this coal possesses a tremendous advantage both in space and weight.

The existence of silver I have previously mentioned on the upper stretches of the Lewis and its affluents.

Should lime be required in the reduction of ores or for building purposes, it will be found in abundance on Coal Creek, quite convenient to the Yukon River, as that stream pierces a range of cretaceous mountains, to which I have already referred.

HINTS ON PROSPECTING.

Having found a creek which we determine to prospect, we search for some sharp angle in it where the creek runs obliquely against a steep bank. In a place like this you are more apt to find gold than in other places in the creek valley True, it is only found on the surface and may be no indication of what is to be found below, for the gold found on the surface may have come from the hillside drift, the clay and sand which came with it being washed away by the creek waters; but you will sooner determine the fact whether or not there is gold in the valley at a point like this. Having satisfied ourselves that there is gold in sufficient quantity to warrant further prospecting, you now take the risk of sinking a "hole," as it is termed, to bed rock. The most convenient season to do this is early in the winter when the surface water is all frozen, otherwise it will interfere with your progress by flowing into your pit and putting out your fires, or at least preventing their most efficient action. If you cannot wait for this season choose some high spot where you will not likely be bothered with inflow of water. You will have a few feet more digging to do to bed rock, but you are more certain of reaching it. If you want to sink where the best pay is likely to be found, try just below the junction of some creek, gulch, or ravine with the main stream or valley. The heavier parts from both streams are held here. Experience shows that the best claims are generally just below a "forks," as it is termed. Having reached bed rock you may find pay, or you may not. If you think the surface prospects



Police Barracks, Cudahy. *From Photo. by W. Ogilvie.*

warrant you in extending your operations, select some other point in the creek valley and sink a hole to bed rock again. Continue in this way until the character of that part of the valley is determined, but it may be that you will "cross-cut" the whole valley, as it is termed, and find nothing; yet, this does not warrant you in assuming that there is nothing in that creek. I have known places where this was done without anything being found, and yet a few yards above or below a single hole found rich pay.

To work the claim properly, if the gravel is deep, it is necessary to do this by what is termed burning, that is, you thaw the frozen ground out with fire. This is a tedious and costly process and requires much more labor in procuring the wood and attending to the fires, disposing of the waste dirt, as it is called, that is, the non-paying dirt, than that connected with the actual paying dirt. Several schemes are now under way with a view to obviating these hindrances to mining in that country. Proposals to thaw out by steam are being tested, also by coal oil. This latter, if it can be perfected will be much the cheapest and most effective, as coal oil can be purchased in that country for about $1 per gallon, and later on, no doubt, much less. One scheme which has been proposed to me, it is asserted, will thaw one cubic yard of dirt with less than one gallon of coal oil. This, if successful, will certainly be a cheap and expeditious way of mining in that country. I am not in a position at present to give the details of this method, as it is only in the embryo state, but the results so far are encouraging.

Some of the proposed methods by steam appear practicable when used on a large scale; but, so far, it appears it does not realize expectations on a small scale, but this will no doubt be overcome by experiment.

I cannot advertise any particular scheme proposed as against any other, but have no doubt each exponent of any method will soon advertise it himself. My object is simply to call attention to the fact that some method other than firing as it is now used is speedily necessary. In places where the ground is shallow—that is, not more than 10 feet deep—what is called ground sluicing is resorted to. A ditch is

dug through the claim, a dam constructed in the upper end of it, and the water is directed through the ditch. The water soon wears away the ice-bound dirt down to the bed of gravel below. The heat of the sun melts the frozen dirt on the sides of the ditch, and it is thrown into the stream and carried down and away from the claim. In this way a part of the claim, 25 or 30 feet in width, is cleaned down to the gravel; sluice boxes are then erected and the gravel is shoveled into them, and any gold which it may contain is retained by the ripple bar in the boxes, while the gravel and sand are by the force of the current of water carried onwards and down to the tailings at the end of the line of sluice boxes. When bed rock is reached on this line another portion of the gravel is stripped of the muck and washed in the same way. It is evident that when the muck and gravel are too deep this method is impracticable, in which case the pay streak has to be "drifted" out by burning, which is done as follows :—

A hole is cut in the surface moss and debris down to solid ground. In this hole, which should be about 3 feet wide and 6 feet long, a fire is made, and when the fire has gone out the ashes and ground which it has thawed are thrown out; another fire is built, and the process repeated until bed rock is reached. The average rate of descent is about one foot per day. Bed rock reached, we now drift sideways—that is, we build our fire against the side of the hole or shaft which we consider the best pay will be found on, and proceed as when sinking the shaft, moving about one foot per day, as before stated. The fire will thaw out much more dirt than there is pay in, unless our pay streak is very deep, and we have carefully to separate the pay from the non-pay dirt, and hoist out only the pay dirt.

When we reach a distance of 20 to 30 feet from our shaft we have to put down another, and continue from it as before.

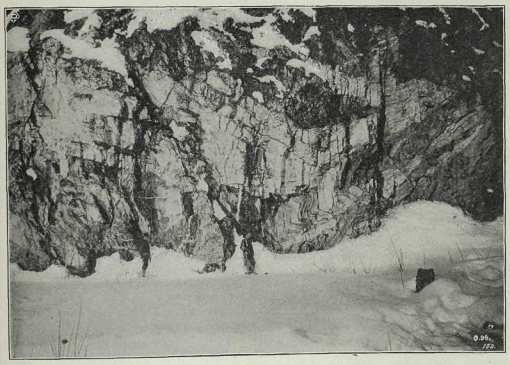
The greater part of the heat from our fire does us no good used in this way, and it is most desirable that some other method of thawing be developed as soon as possible.

As to the quantity that will pay, it is considered that 10 cents to the pan with three or four feet of dirt is excellent pay. Less, of course, pays in a less degree and more in a greater, but that is considered good pay in that country even under present conditions. A little experience will soon enable one to determine just how much there is in a pan. To the uninitiated 10 cents to the pan looks little more than a few specks of gold in one corner of the bottom, except in the case of flake gold, which may be so thin that a cent's worth of it will apparently cover the whole bottom of the pan, and the beginner will think he has struck something very rich. A little water poured into the pan soon shows us the difference between flake gold and coarse, though it may not be apparent to the eye. The flake rises in the agitated water and sinks slowly, which, of course, heavier gold will not do.

The lumber for sluice boxes, by which the gravel is washed as before described, has to be whip sawed. This involves a lot of tedious, difficult work. The only mill in the country was too much taken up with sawing lumber for building purposes to devote any attention to sluice box lumber. Hereafter saw mills may be more convenient. Sluice boxes require carefully-selected lumber, as free as possible from knots or knot holes. This, of course, those who go mining will soon ascertain for themselves and also quickly learn the best way to get over these difficulties.

Hillside prospecting has been resorted to already there and some fair claims found. This is conducted on the same principles as gulch prospecting, with the difference that there is much less depth of dirt on the hillside as a rule than in the bottom of a gulch. It is well to bear in mind that hillside claims are inconvenient to work; the water has either to be brought down along the hillside from a high level on the creek, which may necessitate a very long ditch. The working of them will be sure to conflict with the working of the gulch claims, and their location until after the gulch or creek claims are worked out is not desirable.

Quartz prospecting has been prosecuted to a very limited extent in that country, but that little has revealed that there are a great many lodes of low grade gold-bearing rock there, some of it too low to be considered at all in connection with milling for some time to come. Time, no doubt, will develop improved means and methods of meeting and combating the peculiar conditions existing there, and rendering profitable the most of this rock. The hillsides, for a height of about 1,000 feet above water level, are thickly covered with an undergrowth of scrub and moss. This practically precludes attempts at prospecting for quartz except in a few isolated spots. The mountain tops themselves, or the crests of the ridges, are bare of timber, but are covered with a sub-arctic moss which almost completely conceals the character of the rock. This, of course, is easily gotten over by smashing a few specimens here and there with a hammer, but prospecting for quartz in this way, to be prosecuted successfully, requires much more geological knowledge and technical training than the vast majority of the miners are possessed of, besides a keenness of observation that is rather rare. I think a small diamond drill plant would be about the most effective and satisfactory way of prospecting for gold-bearing rock. It could readily be used, no matter what the surface was like. I have often thought that some sort of a modification of it would be more convenient for prospecting for placer gold than the present method of burning down. By the time a few quartz mills are established there will no doubt be very many extensive and valuable quartz lodes discovered; as it is highly improbable that all the gold-bearing rock has been weathered or ground down, depositing its gold in the gulches, much of it must yet remain in the hills and mountains of the region of the diggings. The only question being, is it concentrated enough to pay for working, or scattered about in thin stringers, as the miners term it, at such distances apart as to preclude any idea of mining enterprise in that direction. Attention is called to the fact that many of the lodes found, and doubtless many



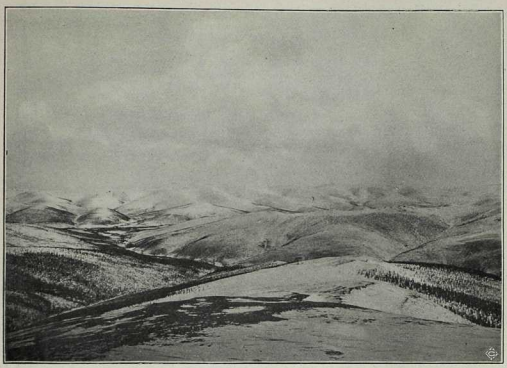
Rock Cliff on Glacier Creek, Tributary to Fortymile River, Alaska.

to be found, are so situated that water is practically not available during 6 or 7 months of the year. The small streams all freeze solid and remain so from November until May, and maybe longer. This will necessitate some other method of milling than the old one of pounding the rock in a box filled with water, and those contemplating quartz mining will do well to take this question into consideration.

A few remarks on the value of gold found in that country will not be out of place here. As a rule it ranges in "fineness," technically termed, from .723 to .875, that is, from about $15 per ounce, Troy weight, after melting, to about $18 per ounce, Troy weight, after melting. Before melting, and thus cleaned of the sand and quartz associated with it, the value per Troy ounce runs from fourteen dollars and ninety-two cents ($14.92) to seventeen dollars and ten cents ($17.10) on Bonanza and Eldorado, and as high as seventeen dollars and sixty-four ($17.64) in other places. The value of pure gold is twenty dollars and sixty-seven ($20.67) per ounce, Troy weight. The other part of the metal as it is mined is principally silver and copper. The low quality of Bonanza and Eldorado is more than compensated for by its quantity.

While prospecting the miner had better take a geologist's hammer with him. It is small and devised specially for that purpose. He also requires a shovel and a pick. As to food, bedding, &c., his own judgment will have to decide for him what he considers necessary. One thing he must guard against during the summer months are the mosquitoes, which plague the life out of anyone and everyone in the country for at least three months. During the evenings the temperature sometimes goes low enough to render them torpid for a short time, but when the weather is at all cloudy they are a continual torment, and a good supply of mosquito netting should be laid in. For this purpose the ordinary mosquito netting on sale is too coarse in the mesh, and I would recommend fine silk tissue. It excludes all flies, however, large or small, is not hurtful to the eyes as the coarser mosquito netting is, does not give one that sense of suffocation which mosquito netting generally does, and lasts much longer. A good pair of gum boots are actually necessary while prospecting. Much of the lower ground is swampy valley, with ice-cold water in it; and it is necessary to warmly clothe the feet; the other part of the body only requires protection from the mosquitoes. As to food, one has very often just to put up with what one can get there, which very often is not very varied, consisting principally of pork, bacon, beans, flour and tea. Later on, I will give some information as to the quality and kinds of food required and the amounts to be taken.

As to lumber, the only lumber of any value found in that region is scattered along the bottoms of the river valleys and streams. A few hundred feet up on the hillsides timber diminishes in size. The cause of this is that the ground is eternally frozen, being covered with a thick deposit of moss to a depth of two or more feet, and immediately under this the ice can be found at any time in the year. Now, trees growing on this naturally grow slowly. The season during which they grow is very short, being only three or four months, and the temperature in which they grow is extremely low. These causes combined produce trees not more than three inches in diameter, nearly two centuries old. The trees immediately adjacent to the banks of the streams and on islands often attain a diameter of fifteen or eighteen inches, but a few hundred feet away trees just the same age are not more than three or four inches in diameter. This is due to the warmth of the water in the streams, and the opening of the bed of the stream permitting more direct access of sunlight and heat to the surface near it. Even under those conditions suitable sluice-box lumber is widely scattered, and generally found in sheltered nooks in the valleys, facing the south. The best place to look for sluice-box lumber is in some deep gulch running in the direction of the meridian sun. Those searching for lumber had better confine their efforts to such gulches, as those facing the north yield nothing but scrub such as I have described.



View from Boundary Line, Looking Down Bed Rock Creek to Sixtymile River.

ROUTES.

I will now give a short outline sketch of the different routes proposed from the eastern and southern portion of this continent to that country.

PRINCE ALBERT ROUTE.

The first route to be noticed is the one starting from Prince Albert, Saskatchewan, or, we will say, generally, from the Saskatchewan District, following the old Hudson Bay Company's route *via* Green Lake, Beaver River, Lake Isle a la Crosse, Portage la Losche, and Clearwater River to Fort McMurray, at the foot of the rapids on the Athabasca River, whence the route is common to the next one to be described. I have no personal knowledge of this route, but the following, quoted from the *Saskatchewan Times* of December 21, 1897, may be of interest in connection with it. I may state that Prince Albert has railway communication with the Canadian Pacific Railway at Regina.

"Prince Albert to Green Lake by good wagon road, 140 miles.

"Green Lake to Portage la Losche, 220 miles by boats.

"Passing Portage la Losche (good road), 12 miles.

"Descending Clearwater River, 80 miles. Total, 450 miles by boats.

"It will be seen that this route, after traversing Green Lake, follows the course of Beaver River to Isle a la Crosse; then through Deep River and Clear Lake, Buffalo Lake, and Methy River and Lake to Portage la Losche. This portage is 12 miles in length, but presents no great difficulty to the transport of boats, etc., the road being good and draft animals procurable. From this portage the course of the Clearwater River is followed without interruption, except for one

or two insignificent portages, to its junction with the Athabasca near Fort McMurray."

THE EDMONTON ROUTE.

The next route in order is the Edmonton route, down the Mackenzie to Fort McPherson, thence to Dawson as follows: Leaving Edmonton, to which we get by railway, we have to make our way by cart or buckboard some 96 miles to Athabasca Landing.

From Athabasca Landing down stream the Athabasca River is free of hindrance to navigation for about 120 miles, when we reach Pelican Rapids. These are not difficult to navigate; the only trouble in them arises from low water and some rocks in the channel. When the water is high there is no danger at all. It appears they take their name from the presence of pelican in or about them nearly all summer; both times I went down the river I saw them there. A fair-sized canoe can be run down those rapids with safety.

One hundred and sixty-five miles below the landing Grand Rapids are reached. This is the rapid of the river, and partakes more of the nature of a cataract than of a rapid. In the middle of the channel there is an island, over which the Hudson Bay Company have constructed a tramway on which to transport the outfits for all the northern posts. The steamboat landing is about one and a half miles above the island, the intervening water very shallow, with many rocks and very rapid current. Through this the company has made a channel by removing rocks. Between this steamboat landing and Fort McMurray the company does all its transport with large boats, locally known as sturgeon nosed or sturgeon boats, from the fact that both bow and stern are spoon-shaped and somewhat resemble a sturgeon's nose. These boats are capable of floating about ten tons each, and are each manned with a crew of ten or twelve men, and when loaded draw upwards of two feet of water. The time of their ascent and descent varies much with the height of water, as in some of the rapids more or less portaging has to be done, which varies with the depth of water. Below the island in Grand Rapids there is nearly two miles of rough water, which in low water requires much care in navigating to avoid rocks and shallows.

Between Grand Rapids and Fort McMurray there are ten rapids. I obtained from the pilot of the steamboat (a man who was acknowledged by all I inquired of to possess as complete and reliable knowledge of the river from the Landing to Lake Athabasca as any man in the country) the names of those rapids and the best way to run down them.

The first in the order of descent is named "Brulé Rapids." It is about 25 miles below Grand Rapids. In it the river spreads out from 250 or 300 yards in width to upwards of 400. In mid-stream the water is shallow, so much so that large trees ground on their way down. The channel is on the left side of the river, and quite close to the shore. It is not more than one-fourth of a mile long, and by keeping not more than twenty or thirty yards from the shore there is no danger in its descent. It appears the rapid takes its name from the presence of an extensive brulé. About sixteen miles below it comes "Boiler Rapids." This is quite an extensive rapid though only the lower part of it is very rough. In high water the left side affords the safest channel to run in, and in low water the right side. It takes its name from the fact that the boiler intended for the Hudson's Bay Company's steamer on the lower river was lost in the rapid through the wrecking of the scow which contained it on its way through in 1882. At the foot of this rapid there is much rough water, which requires a good-sized canoe for its safe descent.

In sight of the lower end of the above comes "Drowned Rapids." The channel here is on the left side, quite close to the shore, and were it not for three or four large swells caused by rocks, it might be run down by anyone without any apprehension of danger. It takes its name from the fact that a man named

Thompson was drowned some years ago by the swamping of his canoe in running through it. I had the misfortune, in 1884, to lose a member of my party in a similar manner, though I have gone through them myself twice, and ran no risk that I was aware of. Less than a mile from this rapid we enter "Middle Rapid." This is not very rough, but is somewhat shallow and stony. The channel in this is on the right side.

The next rapid is known as "Long Rapid," and the channel here is also on the right side. The water is not very rough in it.

Next in succession is "Crooked Rapid," from the fact that in it the river makes a very short turn round a limestone point. The channel is on the right side, and is not rough, with the exception of a small "chute" just at the head; this requires care in a canoe.

"Stony Rapids" come next; in them the channel is on the right side, and is not very rough.

The next is appropriately known as the "Cascade," the river falling over a ledge of rock about three feet high. The channel is on the left side, and certain stages of water permit fair-sized canoes to descend it without much risk.

From Photo. by W. Ogilvie.
Inspector Strickland's Boy, at Cudahy, 1895.

Ora Wold, Born at Fortymile, Nov., 1895.

The last rapid worthy of note is known as "Mountain Rapid," by reason of the high banks in its vicinity. It is rather rough, but there is a good channel which at the head is on the left side, in the middle there is a piece of smooth water through which a crossing is made to the right side, which is quite smooth, while the left side is very rough.

The last of the series is known as "Moberly Rapid." It is only a ripple caused by some rocks on the left side of the river, in the midst of a swift current. On the right side the water is smooth enough for the passage of the smallest craft.

From the head of Grand Rapids to Fort McMurray is upwards of 85 miles, which is altogether too bad for the present steamer to ascend. It is

the opinion of some that with proper appliances she might succeed in doing so, but it appears to me that such a project would involve much expensive labour and considerable risk.

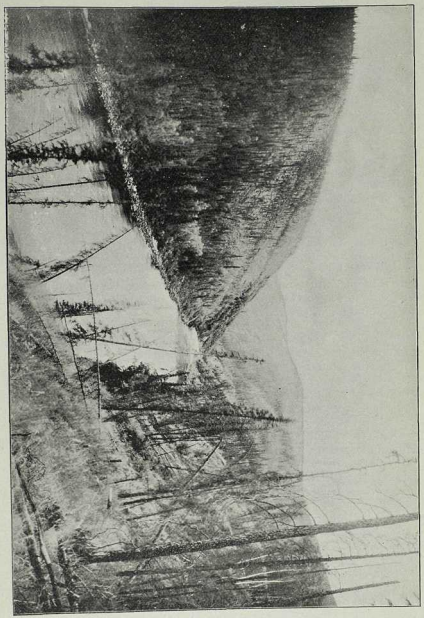
From McMurray to Fort Chipewyan on Lake Athabasca, a distance of about 180 miles by the shortest channels, but nearly 200 by the channel the steamboat has to pass through in ordinary stages of water, there is neither obstacle nor hindrance to its passage. This steamer also makes her way up Peace River as far as the fall, about 220 miles from Chipewyan, the only hindrance in this distance being the Little Rapid, about 100 miles from Chipewyan, and even this, except in very low water, is not serious.

From Chipewyan to Smith's Landing on Great Slave River there are no serious obstacles to navigation. There is a slight ripple in the channel between the lake and Great Slave River, caused by a ledge of rock across the outlet of the lake, and in low water the steamer sometimes touches bottom, but never so much as to detain her for any long period. In Great Slave River there are one or two places where rock ledges cause a ripple, and in low water the greater part of the channel is shallow, but in all these places there is a part where the water is deep enough to afford the steamer easy passage at all times.

From Smith's Landing to Fort Smith, about fourteen miles by the land or portage route and about sixteen by the river, there are numerous and bad rapids aggregating about 240 feet fall, which puts all thought of navigating it out of the question.

In continuing the statement of my route I may as well conjoin with it such information as I observed and gathered on my way concerning the navigability of the water route from Fort Smith to the Arctic Ocean and part of Great Slave Lake.

On my arrival at Fort Smith I found the Hudson Bay Company's steamer "Wrigley" there loading for her down trip. I arrived there on the afternoon of the 30th July, and spent the greater part of that night getting observations to determine its geographical position. The following evening the "Wrigley" started for Fort Resolution on Great Slave Lake, and on the way down I obtained much information of value from Captain Bell, commander of the steamer, concerning the depths of water and obstacles in the route. To render this information more intelligible I will premise with a short description of the "Wrigley" and the route she travels over. This steamer was built at Fort Smith by the Hudson Bay Company in 1886, and made her first trip in 1887. The magnitude of such an undertaking, small as she is, can be appreciated when we know that every bit of lumber used in her construction had to be sawn by hand. All her machinery had to be transported upwards of 100 miles by horses over pretty bad roads, and then taken nearly 300 miles in scows, and 300 on the Company's steamer "Grahame." Her dimensions as given me by Captain Bell are eighty feet keel, fourteen feet beam, five to six feet draught at stern when loaded and four to five at bow. Her propeller is a four-and-a-half feet four-bladed screw with adjustable blades. Her engine, manufactured by the John Doty Engine Co. of Toronto, with about 60 pounds pressure, will drive her about eight miles an hour, but she can be driven ten. In the course of a season the requirements of the Company's service necessitate her travelling about 6,500 miles, and her maximum load is about thirty tons. In this connection I will here state that the two steamers plying on the Athabasca, Peace and Great Slave Rivers are named respectively "Grahame" and "Athabasca" (the latter above Grand Rapids on the Athabasca and on Lesser Slave Rivers) are flat-bottomed stern wheelers capable of carrying one hundred and forty tons if required; with this load I was told they would draw two-and-a-half to three feet of water. Loaded light they draw less than two feet. They are said to be capable of steaming twelve miles an hour in dead water, but do not try more than ten. The "Grahame" was built at Fort Chipeweyan in 1882 and 1883, and as in the case of the "Wrigley" all the lumber for her had to be sawn by hand. The "Athabasca" was built at Athabasca Landing, but in her construction the aid of a Waterous portable saw-mill was obtained.



Looking up the Canyon on Fortymile. *From Photo. by W. Ogilvie.*

Going down the Great Slave River, Capt. Bell kindly pointed out to me the shallow places, and gave me the depths of water in each of them. Just below Fort Smith there is an extensive bar, but there is a channel through it which always affords plenty of water for the passage of the "Wrigley." The shallowest place in the river is alongside an island known as "Big Island." The lowest water Capt. Bell ever experienced in the country, which, by the way, is generally admitted to have been unusually low, gave six feet here; in average water there is nine feet, and at date of my passage (1st August) there was thirteen feet. This shoal is about 200 yards across, and is on the left side of the island. The other channel is much the widest, but is full of sand bars, and unless in very high water the "Wrigley" could not get through it. Capt. Bell found in all the other parts of the river from twelve to thirty-six feet of water at average height. As is usual in all such places, there are bars across all the mouths where they empty into the lake. On the one through which the steamer enters the lake there is in very low water five and a half feet and in high water eight; medium gives from six to seven, but this varies a good deal with the force and direction of the wind—a south-westerly wind lowering it and north-easterly raising it. Owing to the displacement of the channel marks by a violent storm a few days before our arrival, the boat ran aground on the bar, with no other result than a couple of hours' detention.

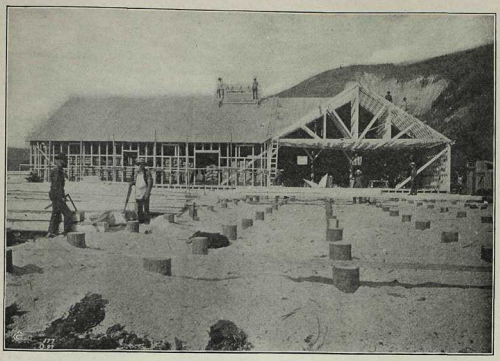
Capt. Bell informed me that in his passages around and across the Great Slave Lake he has done much sounding, and found generally as follows: Two miles from shore four fathoms, six miles twenty fathoms. In mid-lake on the way from the mouth of the Great Slave River to the head of Mackenzie River he generally found upwards of forty fathoms, and in places sixty fathoms gave no bottom. In the arm of the lake on which Fort Rae is situated he found fifty miles below Rae twenty fathoms, thirty miles from Rae three fathoms, eighteen miles two fathoms, and seven miles seven feet, which continues up to Rae. The bottom in this arm he found muddy, with many boulders in it.

At the entrance to the river from the lake, the river is very wide and consequently shallow. Search was made here for a suitable channel for the steamer, and of course the notes furnished refer exclusively to this channel. In ordinary low water this channel affords about six feet, in very low water only five feet. In ordinary high water, such as when I passed, there would be about nine feet, but in 1888 there must have been thirteen or fourteen feet. Capt. Bell thinks this shoal is the result of ice shoves by the ice on the lake, as quite close to it on both sides there is twelve to fourteen feet of water. It consists of gravel, and is, he says, only about two hundred yards across, so that improving it would not be a very difficult undertaking.

Five miles below this there is another shoal known as "Trout Island Shoal." On this in low water there is six feet of water, but it appears the depth is very irregular, which Capt. Bell thinks is due to the bottom being scraped by ice and deposited in heaps. He thinks a proper search would show a deep channel all through here, but it would be very crooked, as it would wind about those gravel heaps. This shoal extends about a mile and a half. Through "Beaver Lake" in low water there is ten feet in depth, in ordinary water twelve and in high water fourteen. Of course, this refers to the shallowest places in it.

Providence Rapid, situated a little above Fort Providence, gives five feet in the shallowest places in low water, in ordinary stages six to seven feet. This extends for about two miles. Here, as in the forementioned places, a good channel could be found, but it would be very crooked, so much so that a steamer descending could not keep in it. From this rapid down to Rapid Sans Sault the least depth in the lowest water was found to be twelve feet.

Rapid Sans Sault is caused by a ledge of rock extending across the river. Near the easterly shore the water drops over this a few inches and causes quite a commotion across the easterly half of the river. In the westerly half there appears to be a greater depth of water and smoother current. It need hardly be said that



From Photo. by W. Ogilvie.
Alaska Commercial Co's warehouse in course of erection at Dawson, July, 1897.

the steam-boat channel is on the westerly side in the smooth water. Over the ledge the lowest water found by Capt. Bell, in a year remarkable for the low state of all the rivers in the country, was six feet.

Over the ledge of the Cascade Rapids, which are caused by an obstruction similar to that at Rapid Sans Sault, Capt. Bell found nine feet in low water, and eleven in good water. The rapid is near the head of the "Ramparts."

Close to the Ramparts there is another rapid known as "Rampart Rapids"; this also is caused by rock bottom in the river. In it in lowest water Capt. Bell gives the depth as eleven feet, and in high water fifteen. This extends about half a mile.

In his various passages of the Ramparts, Capt. Bell has sounded without finding bottom with forty fathoms, which was the length of his sounding line. I have mentioned in my report for 1889 that Sir Alexander Mackenzie found fifty fathoms here.

Between the Ramparts and the delta, where the steamer leaves the main channel, less than twelve feet depth was never found, but Capt. Bell says that less might be found. Through the channels of the delta to Peel River no difficulty was ever experienced with the steamer.

In Peel River up to the bar, five miles below Fort McPherson, average depth of water about fifteen feet, on bar in low water about six feet, medium water seven feet.

Count de Sainville, a French gentleman who went down the Mackenzie in 1889, and spent much time in making an examination and rough survey of the delta of the Mackenzie and Peel Rivers, and the coast line in the estuary of those streams, was good enough to give me all the information in his power. His description of the country in this vicinity is interesting, and will be given later on. He assured me the most easterly channel of the delta is the main one, and he never found less

than twelve feet feet depth in it down to tide water. The tides do not come up more than ten or twelve miles above the ocean, and the rise is not more than a couple of feet. What depth might be found beyond the mouth of the river he is not prepared to say, but bars there may naturally be looked for. This gentleman purposes making further and more complete examinations which will, no doubt, be of much interest and value. He promised to send me a copy of his map of the delta, which he told me would differ much from what is usually shown on our maps. I have not yet received it nor do I expect it for some months to come.

Before resuming the narrative of my journey, I will give some notes I obtained from Capt. Segur, of the steamer "Athabasca," and Capt. Bell of the steamer "Wrigley," giving the times over the various parts of their runs.

Steamer "Athabasca," 2nd June, 1891, ran from Athabasca Landing down to landing of Grand Rapids, about 163 miles, in eighteen hours, with six large boats in tow. Up trip started on 6th June, running time to Athabasca Landing forty-eight hours. Second trip down, 13th July, running time down fifteen hours and forty-five minutes. In 1890, her first down trip, made the 2nd of June, was done in twenty hours and fifty minutes, and the return, 10th June, in fifty hours. This run was made in very low water.

The "Wrigley's" log shows the following averages between Fort Smith, the most southerly part of her run, and Fort McPherson, the most northerly; the distance between them is about 1,270 miles. From Smith to Resolution, nearly all on Great Slave River, average running time about eighteen hours; between Resolution and Providence about seventeen hours, of which one hundred and twenty-one is in Great Slave Lake; between Providence and Simpson about fourteen hours, Simpson to Wrigley about ten and a half hours, Wrigley to Norman about fourteen hours, Norman to Good Hope about thirteen hours, Good Hope to McPherson about twenty-four and a half hours. The total running time is 123½ hours, a trifle over ten and a quarter miles per hour.

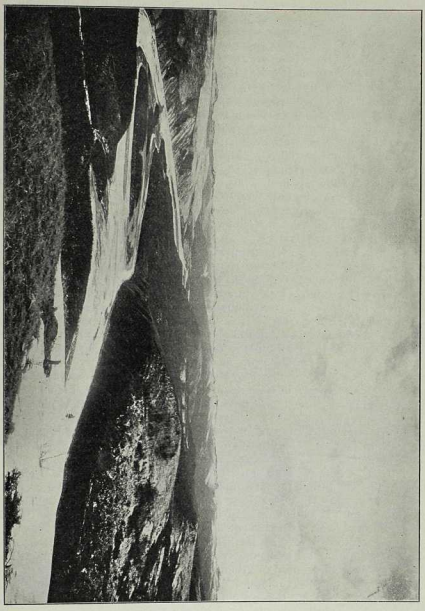
On her "up" runs the following averages have been made, McPherson to Good Hope forty hours, Good Hope to Norman thirty-four hours, Norman to Wrigley thirty-nine hours, Wrigley to Simpson nineteen hours, Simpson to Providence about twenty-eight and a half hours, Providence to Fort Rae, not certain, appears to be about thirteen hours, Providence to Resolution about twenty hours, Resolution to Smith about thirty-five hours, Resolution to Rae about fifteen hours and return about the same, as it is all lake water. The duration of these runs varied somewhat by the force and direction of the wind. The total running time from McPherson to Smith, as shown above, is 215½ hours, which gives a rate of 5.9 miles per hour. The mean of the up and down rates is a fraction over eight miles per hour, which is said to be her normal speed.

I have given the distance between those posts in my report of 1889, but for convenience of reference will here recapitulete them going down stream:

	Miles.
Chipewyan to Smith	102.5
Smith to Resolution	190.5
Resolution to Providence	167.0
Providence to Simpson	157.5
Simpson to Wrigley	134.0
Wrigley to Norman	180.3
Norman to Good Hope	169.5
Good Hope to McPherson	274.7
Total	1,376.0

From Fort McPherson, on Peel River, the ordinary route is over the portage, about 80 miles long, to Le Pierre's House on the Bell River.

This portage traverses a bad country for summer travel, being both mountainous and swampy. The Hudson Bay Company used it during winter for the trans-



From Photo. by W. Ogilvie.

Looking up Yukon Valley from Mountain Top East of Dawson. Mouth of Klondike in Left Foreground.

port of supplies and furs to and from Rampart House and Le Pierre's House, while those posts were in existence (I understand they are now abandoned). Over this portage during summer the mosquitoes swarm in myriads during warm days, but often it is cool enough to subdue their troublesome propensities.

If we are fortunate enough to find Indians at McPherson to help over the portage our time of transit is proportionately abridged, but that we will do so depends much on the time we get there. Should we reach there during the fishing season they will be loth to accompany us; and even if we found them disengaged, several days may be wasted inducing them to go.

To avoid this portage we may go up a stream, called Trout, Poplar or Rat River, flowing from the watershed of the Yukon into Peel River, some 14 mile below McPherson. For about 20 miles this is tranquil and easy of ascent.

There is a lake about 18 miles up which is such a maze of islands, that unless we have a good guide much time may be lost in finding the river on the other side. Going up keep the right-hand or northerly channel. A few miles above the lake we reach the base of the mountains in which this stream rises, and through which we have to go about 24 miles to McDougall Pass. In this last distance the river falls between 1,100 and 1,200 feet, and is consequently very rough. Except in spring freshet it is very shallow and is also very rocky. The best way to get up this, in fact, it might be said the only way (in parts, at least), is to wade in the water and haul our boat along by hand.

McDougall Pass is a broad, flat valley, joining the valley of the Trout, or Poplar, and the valley of Bell River. Two creeks run in it, one flowing into Trout and the other into Bell River. One cannot very well mistake the pass, on account of its width and flatness, and the fact that the creek joining Trout River flows into it through a narrow gate-like gorge in the rocks. Over the pass to Bell River is 8 miles, and it is probable everything will have to be carried across it. The creeks are all too small to take a loaded boat through except in high water.

Down Bell River to La Pierre's House is about 40 miles of easy water, deep enough for such boats as we are likely to take with us. From La Pierre's House down Bell River to the Porcupine is between 30 and 40 miles, and down the Porcupine to the Yukon is 225 miles in an air line, and probably 350 by the river. In 1873, Mr. James McDougall of the Hudson Bay Company made soundings in those two rivers to determine if steamboats could go up to La Pierre's House. The water was unusually low at the time, and he found five shallow places between La Pierre's House and the Yukon. The first of those from La Pierre's House, known as Sinclair Rapids, a short distance below the house, gave in the shallowest place, three feet six inches. Next, a short distance below Bell River, in the Porcupine, he found only two feet eight inches, but he considers this easy of improvement, being a barrier of soft sand-stone rock only about 150 yards across. The other three places are between the boundary and the Yukon, and are in the order of descent three feet ten inches, three feet six inches, and three feet four inches. At one of those points there is an island, and he naturally took the widest channel for the deepest, but afterwards was informed that the narrowest channel was quite deep.

I may say that it was by the Trout River and McDougall Pass that Harper and his associates made their way from Peel River to Bell River, and he informed me the only way they could get their boat along in the upper part of Trout River was to wade up the stream and haul it after them, often dragging it over rocks and shallow places where there was not sufficient water to float it. This was about July 1st, 1873. They reached Yukon on the 15th.

I came through this route on my way from Bell River to Peel River in June, 1888, and found much ice and snow in McDougall Pass at that time. Several small lakes in the pass were still covered with solid ice on the 15th of that month. On my way down the rough part of Trout River I generally sat astride the stern of the canoe, my feet hanging in the water, and they often touched bottom. I did this to find the shallow places, and check the rate of the canoe in going over them.

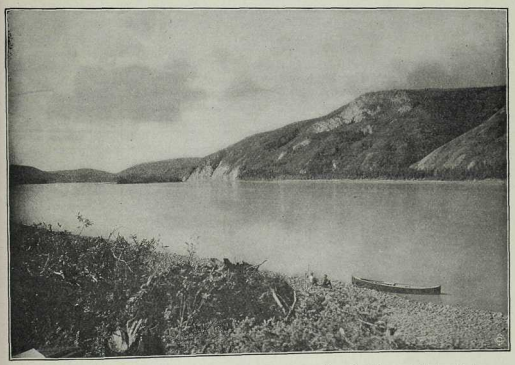
I may here mention that very bad places may be gone down in this way, or, still better, if we have poles, by putting them on the bottom and arresting the speed of the boat, we can, with a little experience, keep it under perfect control and put it just where we want to. Of course in deep water this does not apply, but in deep water we do not run risk of breaking our boat, though she may be swamped.

From the mouth of the Porcupine, up the Yukon to Dawson is about 300 miles, and if we are fortunate enough to find a steamer at Fort Yukon, this will be passed in about a week, but if we have to make our own way up, it will take at least three weeks, or it may be a month, much depending on the weather and stage of the water, also much on the kind of boat we have.

When we take into consideration the fact that the ice remains on Great Slave Lake until about the first of July, unless we pass that body of water by sleighs it will be seen that we cannot reach Dawson much earlier than the middle of August. If we secure passage down the Mackenzie by one or other of the small steamers plying on that river we will probably shorten the time of our journey 8 or 10 days; but it is well to bear in mind that these boats were not intended to make regular trips, nor do they. They are run in the interest and for the convenience of the owners, the Hudson Bay Company and Roman Catholic Mission.

On the Yukon River it is pretty safe to assume we shall not have long to wait for a steamer next summer, there will be so many running between St. Michael's and Dawson; but it can hardly be asserted that any one line of boats will make regular trips, for their time of arrival and departure at and from St. Michael's, the ocean port near the mouth of the river, is subject to much interference by winds and tides.

Another proposed route from Edmonton follows the road to Athabasca Landing as already referred to, thence up the Athabasca River about 69 miles to Lesser Slave River, up that river about 60 miles, the lower 20 miles of which is all rapids and in low water difficult of ascent. Along Lesser Slave Lake some 65 or 70 miles to Lesser Slave Lake Post, at the head of the lake.



Looking up Yukon River from 3 Miles below Fortymile.—Cudahy and Fortymile in Distance, Rock Point on Right 1,300 Feet above Water.

Another part of this route, and the part which appears to have been adopted by the people in the vicinity of Edmonton, runs north westward from Edmonton to Lesser Slave Lake Post at the west end of Lesser Slave Lake. This distance is about 200 miles, of which about 50 brings us to the crossing of the Pembina River, an inconsiderable stream about 70 yards wide, and not difficult to cross; about 26 more brings us to the Athabasca River, which is about 200 yards wide and generally deep enough for a boat drawing 2 or 3 feet of water. The first 20 or 30 miles of the distance from Edmonton is over fine prairie country, and a few miles farther on we strike the great northern forest. The part between the Athabasca and Lesser Slave Lake is reported somewhat hilly, which is verified by its appearance from Lesser Slave Lake, but doubtless a way suitable for a road of any kind can be found over it. Years ago the Hudson Bay Company had a pack trail from Edmonton to Lesser Slave Lake Post, by nearly the same route as the proposed one, but it has been abandoned for the river route many years.

Sufficient lumber of suitable quality will be found along this route for its needs.

The surface is described as ridgy and swampy alternately.

A road is now in progress over this country.

For a more detailed account of this part of the North West see report of Dr. G. M. Dawson, Appendix 1, in the Geological Survey Report for 1879-80.

I will just cite it to say that gold is found in paying quantities on the Upper Athabasca.

From Lesser Slave Lake Post we have a fair cart road, cut out some years ago by the Hudson Bay Company to Peace River, a distance of about 86 miles, through a well-wooded country with some patches of prairie and swampy meadow in it, and from Peace River westward to Fort Dunvegan, a distance of about 60 miles, we pass over a magnificent piece of park-like country, but at Dunvegan we again strike the edge of the great northern forests, and from there to the Liard River the country is somewhat hilly, intersected by very deep gulches and valleys and all densely wooded, alternating ridges covered with fair timber and swamp covered with moss and scrub. From Dunvegan to Dawson in an air line is about 900 miles, and from Dunvegan to Pelly Lake on the head of the Pelly River in an air line is about 600 miles, and at present there is no available continuous route.

Examination of the intervening country will presumably be soon made. To follow up the valley of the Peace, as I believe it is proposed, and cross the mountains into British Columbia, will lengthen the route to Pelly Lake materially, making it 700 miles or more, but it will deflect it into an old gold mining district—the head waters of the Peace—where good pay may yet be found.

A few years ago some miners were working on the Peace in the vicinity of Fort St. John, and it will be remembered that it was from the head of Peace River that Harper and his associates started in 1872. The first two or three hundred miles of either of these routes will not be very difficult, but the remaining portion will likely prove more mountainous and difficult, and probably similar, in surface characteristics at least, to the north-western portion of Canada, and Alaska—that is, mountain ridges alternating with deep valleys and swamps, which will much increase the length of any route constructed through it.

CARIBOO AND CASSAIR ROUTE.

A route is being proposed from some point on the Canadian Pacific Railway in the interior of British Columbia, through what is called the Cariboo or Cassair District. Time will no doubt develop the necessity for such a route as this, as the country all along it will be found generally good from the mineralogist's point of view, and in the future will no doubt be part of a continuous railway system from the boundary line northwards to the Yukon.

From some point on the Canadian Pacific Railway, about midway across British Columbia to the Stikine River at or near Telegraph Creek, is about 500 miles in an air line, and presumably this does not offer any more serious obstacles to the construction of a road than a like distance in any other part of the Province.

Looking N. E. from Mouth of Cliff Creek, near Fortymile; Site of an Extensive Coal Vein in Middle Foreground.

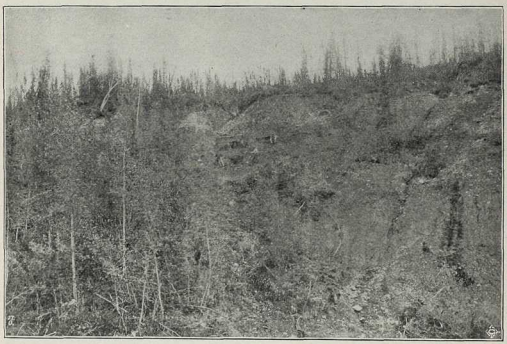
The remaining routes to be mentioned all leave some point on the coast, and we make our way northward by ship to whatever point we wish to make our departure from for the interior.

STIKINE ROUTE.

First, we will glance at the proposed Stikine route. From Victoria to Port Simpson, the most northern port in British Columbia, a distance of upwards of 600 miles, sailing is easy, through continuous inland tidal waters. If we have to make our way entirely in British vessels we can take a river steamer at Port Simpson, and watching for a favourable opportunity to cross Dixon Entrance, (some 60 miles across), 170 miles brings us to the mouth of the Stikine River. Up this river about 150 miles brings us to a point where it is hoped in a few months we will have a good road, if not a railway, giving communication with the head of Teslin Lake. From the river to the head of the lake is about 150 miles. Down this lake about 65 miles, and down the river of the same name—or, as it is known by the miners, the Hootalinqua—about 135 miles to the Lewis River. A track survey of this lake and river was recently made by Mr. Arthur St. Cyr, D.L.S., for the Canadian Government, and the distances given are his. He says the lake and river are easily navigable for ordinary river boats. He went down in October when the water was 10 to 12 feet lower than high water mark, from which we may safely assume that it is safely navigable all the way. He got into shallow water two or three times, but only where there was more than one channel, and he took the wrong one. Trial found the other channel deep enough for ordinary river boats. From the mouth of the Hootalinqua to Dawson is about 330 miles, with only one hindrance to continuous easy navigation, that is, the Five Fingers. These are not long, consisting of simply a dip which is caused by barriers of rock standing in the channel, backing the water up so that the water above the rocks is a foot or two higher than that immediately below. Almost everyone runs these; many however, in descending, ship

water, but I fancy this is due to the fact that they hurry their boat through, making her cut into the swell below instead of raising on it as she would do if allowed to drift through. In 1895, on my way down, I ran down the left side of the river at this point and found good, smooth water all the way through. The channel was somewhat crooked, but not enough so to cause any difficulty or anxiety in keeping the boat in the right place. The channel generally run is on the right-hand side, and here there is quite a dip and a large swell at the foot. It may be found, however, that at another stage of the water the channel on the left side would be impassable. When I went there in 1895 the river was some five feet higher than the average at the same date, and this may account for the easy passage on that side. From there to Dawson there is nothing in the way, except we wish to run over a ripple some six miles below the Five Fingers, called Rink Rapids. At this point a rocky barrier extends about half way across the stream, and on the left-hand side there is some rough water, but the right-hand is perfectly smooth and affords a channel of six feet in depth almost anywhere. The overland trip to Teslin Lake is over a hilly, undulating country, which offers no serious obstacle to the construction of a railway; in fact, it might be said a railway could be constructed over it almost as quickly as a wagon road. It is expected that next summer there will be easy means of ingress by this route. It is reported that a company is now engaged putting horses and sleighs on it, forming a continuous through line from the mouth of the Stikine to Teslin Lake.

The Hudson Bay Company's steamer "Caledonia" made two trips from Port Simpson to the Stikine River, and up it to Telegraph Creek, in 1896, and two in 1897. Her running time from Simpson to Wrangel, at the mouth of the Stikine, averaged about 16 hours. She draws when loaded 4 feet, and only on the tidal flats at the mouth of the river was she bothered by shallow water. At some points short bends with a swift current required the aid of a line to surmount, but this was more to keep her in the channel than to help up.



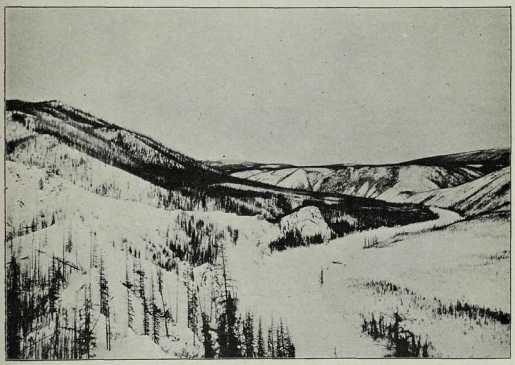
Coal Veins on Coal Creek, 12 Miles from Fortymile, 2 Layers, Man on Left Standing at Bottom of Lower one, Pole Lying at Top of Upper.

Sudden rises in the river also bring down lots of driftwood, which compel tying up until it abates.

Her average time of ascent was about 37 hours, exclusive of the time lost wooding up. Her average time of descent was about 14 hours, including time wooding up and all stops. This boat is 150 feet long, 24 feet 4 inch beam, two engines, cylinders 16-inch bore and 6 feet stroke; steam pressure allowed 130 lbs; average used 90. Wheel makes ordinarily 24 revolutions per minute in dead water, but ascending swift current as many as 35 are made. Her average rate in dead water is about 10¼ miles per hour. Her rate up the Stikine is about 4 miles per hour and down about 12½.

TAKU ROUTE.

The next route in order northward is the proposed Taku route. From Fort Wrangel, at the mouth of the Stikine, to the mouth of the Taku Inlet, is about 160



Looking Down Fortymile River from above Boundary Line.

miles, or nearly 800 miles from Victoria or Vancouver. This inlet is about 18 miles in depth, and near its upper end the Taku River discharges its waters. During June, July and part of August the stage of water will permit the use of good-sized boats, and it is claimed for it that steamboats drawing three or four feet of water can ascend it some 60 miles during this term. This remains to be proved, however; but there is no doubt that we can ascend it to The Forks in a fair-sized boat carrying two or three tons. From The Forks, some nine miles up, to the confluence of the Slocoh and Nakinah, we can continue in fair stages of water, but from there everything has to be packed. The Indian route from this point to the head of Teslin Lake passes over a mountainous country, with, in some places, very steep climbing, for a distance of eight or nine miles, when we reach an elevated plateau, as it may be termed, over which travel is easier, to the head of the lake. Several miners attempted entry by this route, and some came out, but all unite in con-

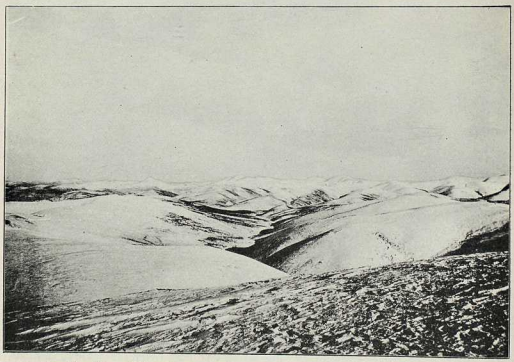
demning it as a pack trail. It may be that a road will be constructed through this way, as one is now in contemplation, but for a convenient present route, for unaided individual effort, it need not be considered. The head of Taku Inlet is generally pretty well filled with ice from the Taku glacier discharging a couple of miles above the mouth of the Taku River, which in summer renders it a somewhat risky harbour, and in winter this ice sometimes freezes together and blocks the whole head of the inlet.

The navigability of the river is also very uncertain. No attempt has yet been made, and while it is admitted it might be navigable two or three months, it is not stated as a general fact. From the head of Teslin Lake we have already described in connection with the Stickine route.

WHITE PASS.

Some 100 miles further up the coast we come to the White Pass and Dyea Pass. The first of these starts at the mouth of the Skaguay River, some two miles from the head of Dyea Inlet. For about four miles the route goes over an alluvial flat covered with fair timber, and from this point to the summit, about 11 miles, it follows along the hillside bordering the valley, ascending and descending over rough, broken, rocky surface, crossing and recrossing the little river several times, until at the summit, although we are only 2,600 feet above the sea, (the summit on the travelled trail is 200 or 300 higher) we aggregate possibly 5,000 feet actual climbing. As this route has been travelled considerably there will be no difficulty in finding one's way on it, but it may be of interest to give the following details.

From the wharf at Skaguay for 3½ miles we have easy travelling over an alluvial flat rising about 140 feet. Here we leave the flat and go up a gulch to Black Lake, about 1½ miles, and rise about 400 feet. We continue along the



Looking Down Miller Creek to Valley of Sixtymile River. Mount Hart seen in Distance Down the Valley.

Two Miles below Boundary on Yukon River, Showing Frozen Surface of River, November 22nd, 1895. Note.—This is much Smoother than the General Surface.

hillside up and down to the summit of Porcupine Hill, about 1,000 feet above Black Lake, and 3¾ miles distant from it. From here we descend about 500 feet in one mile, when we cross the Skaguay River, and from there ascend about 300 feet in 2⅓ miles, crossing the creek again, and ascending the hillside 1,000 feet in about 1⅓ miles, which we keep along about one mile on a high level to the foot of the steep summit slope, going down about 100 feet to it. Up it we go about 900 feet to the summit on the trail. The surface travelled over is very irregular and rough; most of the way we are continually going up and down hill over knolls and gulches on the hillside. From the summit to the head of Lake Bennett, about 24 miles, the route winds through a rocky, glaciated country, much broken by valleys, so that we aggregate much more climbing in this last part. However, during the months of February, March and April—and May, it may also be claimed—much of this will be filled with snow, the surface smoother and less difficult to travel over, and it may be found that this is the better route of the two.

THE DYEA OR CHILCOOT PASS ROUTE.

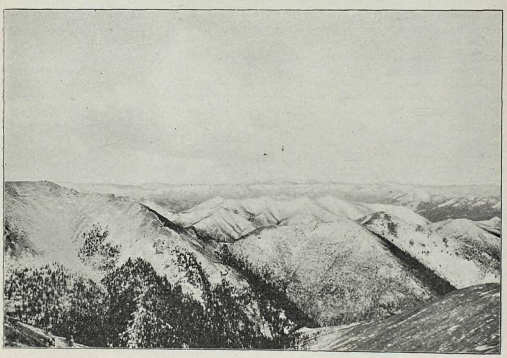
The Dyea Pass leaves the head of Dyea Inlet and for the first eight miles from tide water up to the foot of the cañon the route is easy; nothing worse than a few rocks which were left in the terminal moraine of a glacier have to be encountered, and this only for a short distance here and there. The rise in this is about 300 feet. From the foot of the cañon the route winds along the hillside, and a few steep, short climbs have to be made as we go along, until we come to the second crossing of the creek. This is the worst part of this trail, for it is all heavily wooded and the surface rough and covered with decayed vegetable matter which in spots is worked into deep mud by the animals passing over it. The worst spots have been crosslaid.

At the lower end of the cañon we cross the creek to the left or east side.

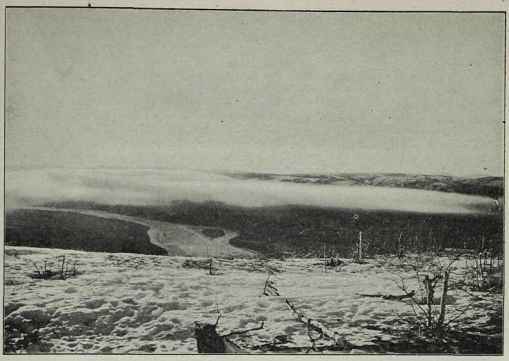
Unless in very high water this is not difficult, as the water is only a couple of feet deep, but the current is strong and the water icy cold. The width is only 30 or 40 yards. About 10½ miles from tide water we cross the creek on a bridge at the head of the cañon, which is about 700 feet above the sea. In the intervening distance the highest point is about 800 feet above sea level. We keep up the right or west side of the creek about 1½ miles to Sheep Camp, when we again cross the creek to the east side; in this last distance we rise about 300 feet. From there to Stone House, about ¾ of a mile, we rise nearly 600 feet and pass over a rough surface covered with immense rocks which by some convulsion of nature have been detached from the mountain side and rolled down to the bank of the creek. Through and over these we have to clamber a considerable portion of this distance. From Stone House the surface is more even and the travelling easier, as we have risen above the timber and scrub,and out of the mud which is found on the timbered ground. About half a mile from Stone House we ascend a sharp hill on the right or west side of the creek, the top of which is about 600 feet above Stone House. From this point we have easier travelling and rise about 900 feet over an easy grade to a place named "Scales." From this there is a sharp ascent to the summit of nearly 500 feet over a surface thickly covered with broken rocks which makes very difficult travelling, more especially when there is not enough snow to thoroughly cover all the surface; with a little freshly fallen snow here this part is difficult, and in spots dangerous.

After the snow has covered all the rocks the route follows the bed of the creek and is a more uniform slope, easy, in fact, until we reach the foot of the steep slope at the summit. After the warm weather sets in in the spring the snow from Sheep Camp up gets soft, and on a warm or rainy day it is very difficult to travel through. When it turns cold the surface gets hard and we may have to cut steps in the steep places to get up.

Messrs. Healey & Wilson, traders at Dyea, some years ago cut a pack trail from



Looking Eastward from East Side of Yukon River, near Boundary Line.



Looking N. W. from Boundary, Showing Fog Bank Hanging over Yukon River in November, 1895.

their post to Sheep Camp. This is now in a fair state for that country. What rights they claim on it I do not know, but I have not heard of their interfering with the public use of it, at least as far as miners are concerned.

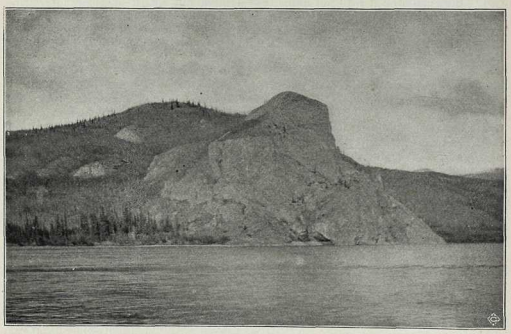
A wire rope tramway is in course of erection to take freight from Stone House to and over the summit, and it may be that this will obviate much difficulty and hardship.

From the summit to Lake Lyndeman, a distance of about 8½ or 9 miles, there is a descent of about 1,300 feet, but at only one point is it steep, and that for a very short distance. It is just at Crater Lake, and is only a couple of hundred feet in all. The trail the Indians used to travel keeps along the hillside and avoids this sharp descent, not reaching the level of the lake till nearly a mile farther on. Now the trail goes right down to the lake and a ferry over it saves about a mile of packing. A short portage brings us to another lake over which a ferry will take us about a mile more if we choose, and again another portage of a few rods brings us to another lake which may be ferried over, thus taking about 3 miles out of our 8 or 9. These lakes are not open before the middle of June or first of July, and remain open until November.

Horses have been driven over the pass to Lake Lyndeman, but there is very little for them to eat on the north side of the summit, or on the south side for that matter, and all contemplating taking those animals should take plenty of fodder with them. The carcasses of a good number of them are now lying along this trail, brought about by a neglect of this precaution. From the landing at Lake Lyndeman we have to go down this lake about 5 miles, and from the lower end a portage of about ¾ of a mile over a high sandy ridge brings us to navigable water on Lake Bennett, to which the White Pass trail also brings us, and from here on the route is common to both. The wire tramways mentioned will probably, if successful, be carried over the summit and may be down to Lake Lyndeman.

Once down to the lakes our only detention will arise from fierce winds which often blow on them for days at a time, which, when with us, often render it too rough for small boats, and when against us effectually stop all travel.

Lake Bennett is about 25½ miles long, and for the first 11 or 12 miles is about ½ a mile in width, and the remainder from one to three. It is probable that the coming season will see several steamboats in those lakes, which will much obviate delay by winds. Lake Nares is about 2½, and Tagish about 17. Six or seven miles from the head of Tagish Lake what is known as Windy Arm rises from the south. Down this arm strong winds are almost constantly sweeping, which render navigation for small boats very often unsafe. This often causes delay for days. From the foot of Tagish Lake to the head of Marsh Lake, a distance of about five miles, the river is deep and smooth. On this stretch is situated the Canadian Customs Office and detachment of Mounted Police. Marsh Lake is nearly 20 miles in length, and from the foot of it to the cañon, about 25 miles, we have nothing to dread. The cañon may be run through with a fair-sized boat not too heavily loaded. The only things to be avoided are the three swells right at the foot. These we may avoid by deflecting our course a little to the left, but all the rest of the distance, to be safe, we should keep exactly in the centre of the channel on top of the rushing water which piles up in the middle. It is well at this point to portage some provisions past so that in case of accident we may have something to fall back upon. Many boats are injured in their passage through the cañon, but this has happened chiefly through want of sufficient power to keep steerway on them. In this case they drift off the main body of the water, catch in the side eddies, are whirled round and dashed against the rocks on the sides. Where there are a number of boats together this may be avoided by the crews clubbing together, putting out with plenty of oars and running each boat through separately. A few hundred yards below the cañon we strike a rapid which is somewhat rough, but with ordinary care not dangerous. A short interval of smooth water brings us to a sharp turn to the left, which, in a



From Photo. by W. Ogilvie.

Cave Rock, Yukon River—About 11 Miles Above the Boundary.

Looking up Yukon Valley from Mountain near Boundary.

couple of hundred yards, brings us to an equally sharp turn to the right. This is the head of White Horse Rapid. Now, this has been gone through by many, but at present I think it can be positively stated that about thirty men have lost their lives in attempting to run it. During the summer of 1895, 13 deaths were traced at this point through boats being swamped; besides this, the majority of boats which ran through took more or less water, and in many cases the contents of the boats were lost, the crews escaping with their lives. I would urge all to portage past this. There is a good portage on the left side of the river, and it is only a little over three-eighths of a mile in length. The boat can be lowered by ropes, reloaded at the foot, and we pass on in safety. From there to Lake Lebarge, a distance of about 24 miles, the river is smooth and deep. Lake Lebarge is about 31½ miles in length, and here, too, as at the upper lakes, we may be wind-bound for days at a time. From the foot of the lake to the mouth of the Hootalinqua is about 31 miles, most of which is very strong current, with a few rocks in the river channel. These reveal their position by the roar which the current makes in passing over them, and there is no difficulty in avoiding them. From the mouth of the Hootalinqua down has been already described.

The following table of distances from the head of Lake Bennett to the Boundary Line is quoted from my report of 1889:

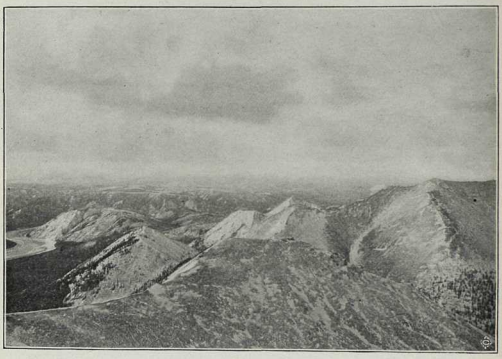
	MILES.		MILES.
Northern Boundary, British Columbia	10.00	Teslin River	187.8
Foot of Lake Bennett	25.7	Big Salmon	221.2
Foot of Carriboo Crossing	28.3	Little Salmon	257.4
Foot of Tagish Lake	45.2	Five Finger Rapids	316.7
Head of Marsh Lake	50.0	Pelly River	375.2
Foot of Marsh Lake	69.1	White River	471.0
Head of Cañon	94.8	Stewart River	480.8
Foot of White Horse Rapids	97.2	Dawson	549.0
Takhina River	111.8	Fortymile	599.0
Lake Labarge	125.0	Boundary Line	639.3
Foot of Lake Labarge	156.1		

DALTON ROUTE.

The next route is known as the Dalton route. To traverse this we leave Chilkat at the head of the westerly arm of Lynn Canal.

Mr. J. J. McArthur, D.L.S., made a *reconnaissance* survey of this route last summer for the Dominion Government, and a short report by him on it is inserted:

"During the winter months, after the Chilkat River is frozen, Haine's Mission is the better landing place, but at other times Pyramid Harbour is the more convenient. To Kluwan—a good-sized Klinkit village—there are two trails. One leaves Pyramid Harbour and follows the river flat, mostly to the left of the stream, and the other, from Haine's Mission, follows the side hill to the right. Except during extreme high water the first mentioned is the better. There are hay marshes along the valley. In March last, Dalton delivered 15 tons of supplies at his "Cache" at the end of the Klaheena flats, a distance of forty miles, his four-horse

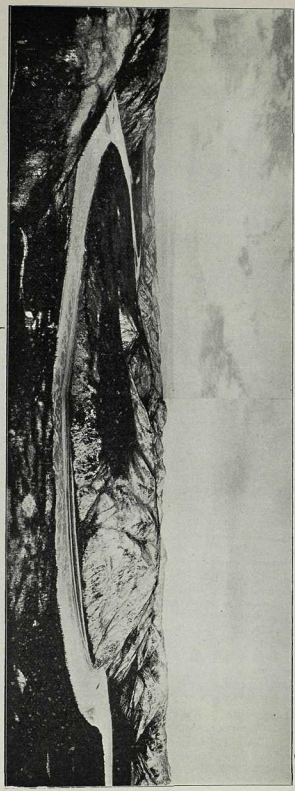


Looking West from Mountain Top near Boundary.—Yukon at Boundary on Left of View.

team drawing eighty hundred in one sleigh load, and he has frequently ridden the distance in one day. As the trail is at present, in the summer time, an ordinary saddle horse can make Dalton's trading-post, about 90 miles from salt water, in three days.

"The Minister asked me to suggest a site for a customs house. Dalton's Cache is a beautiful spot and well situated on the travelled route. This point is, I think, well within our territory. The Coast Indians have hunting trails up Boulder Creek and the tributaries of the Chilkat, and they do considerable trading with the interior Indians. Should smuggling be attempted on those routes, the customs house might be moved up to the height of land. The distance is about seventy miles from salt water, and there is no timber within several miles.

"From Rainy Hollow to Glacier Camp, a stretch of about fifteen miles, would be the most difficult part of the route in winter, as there is no wood, and the snow



ALASKA. CANADA.
International Boundary Across the Yukon River—Looking North.

From Photo. by Wm. Ogilvie.

would be much deeper than further north. There is very little swamp land between Pyramid Harbour and Dalton's, and animals never get mired. The Indian village Weskutaheen is a mile and a half west of the post. They are Sticks and a very docile people. On the trail, fifteen miles north of Dalton's, is Kluksku Lake, about three miles in length, which is connected by a creek about a mile and a half long with Lake Dezadeash. This is a large body of water, and the trail follows it for twenty-five miles. It could be used for winter travel. In fact, between salt water and Five Fingers, one hundred miles of a winter trail would be on ice. From Dalton's to Hutshi village (three houses and a graveyard) a distance of about seventy miles, the trail is hard except in one or two places, and at very slight expense could be made into a first-class bridle path; as it is, a saddle horse can make forty miles in a day. Fish abound in the Klukshu, Dezadeash and Hutshi Lakes, and the Alsek is one of the greatest salmon streams I have met with. From Hutshi to Five Fingers the trail is hard, and is the best portion of the route. From Dalton's north there is an abundance of dry wood, and hay marshes are numerous. The trail from Hutshi to Selkirk, broken by Dalton and me this summer, crosses several high, moss-covered ranges, and could never be made a quick trail. On this trip, when about sixty miles south from Selkirk, we crossed the Tahte River, which is a good-sized stream, flowing west through a broad valley, which depression continues to the east as far as Nordenskiold. I am not certain whether it is a branch of the White River. I regret that, owing to my caches having been lifted by mistake, it was impossible for me to explore it to the west, as it may furnish an easy railway or wagon route to the mouth of White River, or some point below Selkirk."

JAMES AND HUDSON BAY ROUTE.

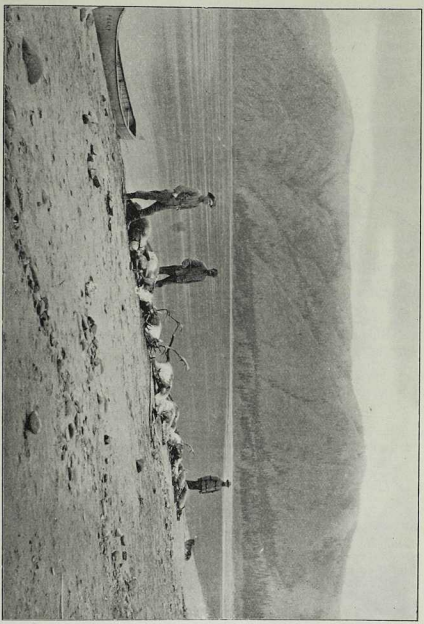
We will now examine the so-called Hudson Bay route, which leaves the Canadian Pacific Railway at Mattawa, about 200 miles up the Ottawa River from Ottawa city. Thence up the Ottawa River to Lake Temiscamingue, some 36 miles, and up that lake some 70 miles to its head. Part of this distance is now covered by a branch of the Canadian Pacific Railway. From the head of Lake Temiscamingue to James Bay, a distance of nearly 500 miles, a route once much travelled by the Hudson Bay Company's employees. From Mattawa to the foot of Lake Temiscamingue, some 36 miles, the Canadian Pacific Railway will take us in an hour or two, and up the lake we can go by steamer, there being several on it. From Mattawa to the head of the lake, about 100 miles, we ought to go in a day; from there on we have no modern facilities for travel, and will find the rate much slower. The following extract from my report of 1890 gives in detail, from the head of the lake to Moose Factory, the nature of the route.

"We leave the head of the Lake Temiscamingue by a part of the Ottawa River, locally known as the Quinze River, from the fact that fifteen portages have to be made on it to get to the lake at its head, known as Quinze Lake.

"All this is now avoided by a waggon road from Baie dePère, on Lake Temiscamingue, to a bay on Quinze Lake. The length of this road is said to be about 20 miles. I was unable to get my canoes and all my supplies through by this route, and had to go by the Quinze River. This caused two and a half days of very heavy work.

"A few notes on this part of the journey will not be out of place.

"The first portage going up the river is on the south side, and about 120 yards long; the second, on the same side, about 250 yards long; the third, on the north side, about half a mile long, and over some rough ground. These three are all within sight of each other. Above the third there are about three miles of slack current to the fourth portage, which is on the north side of the river, and more than two miles long. In the ordinary height of water this is broken into three shorter ones by crossing the river, but my guides thought the current too strong and the water too rough to do this with my canoes. About a mile above this the fifth port-



From Photo. by W. Ogilvie.

Near the Boundary.—One-half of the Previous Day's Bag.—Alaska, Canada.

age occurs on the north side of the river; it is only 100 yards long, but is over a sharp hill. Two hundred yards or so above this is the sixth portage, on the north side of the island; it is about 150 yards long. In coming down stream with medium height of water, both of these can be safely run past in ordinary canoes. Three-fourths of a mile above this is the seventh portage, on the south side of the river. It is over a very rough, rocky surface and leads us from the river to a small lake, over which we sail about half a mile to another portage, over rough, rocky ground to the river again. The first of these is about 300 yards long, the other about 400; but in high water the latter is reduced about half. These two portages cut off a sharp bend in the river, in which there is said to be some very rough water. A mile or so of easy water in the river brings us to the ninth portage. It is on the north side of the river, is upwards of 1,000 yards long, and passes over rough ground. In low water this is cut into two or three by crossing the river.

"The next portage is also on the north side, is 650 yards long, and on tolerably good ground. There is about three-fourths of a mile between it and the last. A mile or so above this, on the north side, is the eleventh and last portage we had to make on this part of the river. It is 450 yards long and is on level ground.

"A mile above this puts us into Quinze Lake, up the north arm of which we go on a nearly north course about thirteen miles. The upper three or four miles is shallow. We leave this lake by a small river called Rivière Barrier, of an average width of 100 to 150 yards, and a slack current, up which we go about 2¾ miles to a portage 300 yards long, which passes a series of shallow, rocky rapids. At the head of this portage we enter Lac Barrier, up which we go on a course nearly north-west about 15 miles to the mouth of a small river, called Lonely River, on the west side of the lake. This is the first stream of any noticeable size entering on this side. Beyond it there is a large island in the lake, which has the appearance of being the end of the lake. Just past this island the lake narrows, and then bifurcates—one arm running nearly west, the other nearly east. The westerly arm extends about six miles, and I do not know how far the other reaches. This lake is in no place that I saw much more than a mile wide. Its lower end is shallow and weedy.

"The route follows Lonely River, up which we go about eight miles to Long Lake. The river is about 100 yards in average width, and has a moderate current. At one point it is only 2½ to 3 feet deep for a distance of 100 yards, but all the rest seemed to be upwards of five feet deep in low water. It is serpentine in its course, and the distance between the two lakes (Lake Barrier and Long Lake) I would not estimate at more than five miles in a direct line.

"The arm of Long Lake, which we enter from Lonely River, is about a mile wide, 2½ long, and is generally shallow and weedy. The course up it is a little south of west. The main body of the lake, where this arm joins it, lies nearly north-west and south-east. South-east it extends six or eight miles, and is surrounded by high, rocky hills. North-west we go about 3¼ miles to a narrow part of the lake, about 60 yards wide and 100 long, in which there is quite a stiff current during high water. This and above it is known as the Narrows.

"These narrows continue for more than a mile, when the lake again widens. About ten miles above the narrows a deep bay extends from the south-westerly shore for several miles in a south-westerly direction. Looking down this bay, many hills can be seen. Prominent among these is one named "Shew-me-ness," which is said to be the highest hill in that part of the country; its top is bare of timber. I was told the natives formerly (and to some extent still) considered it a holy hill, and it was customary for their medicine men to occasionally retire to its summit to fast and meditate. Two miles and a half or so past this bay, on the south-westerly shore, and soon after passing a couple of small, rocky islands, we reach the mouth of a creek. Here there is a portage of about 300 yards to a small lake nearly a mile long and one-fourth wide. A sail over this south-westerly to its extremity brings us to the east end of the height of land portage, over which we

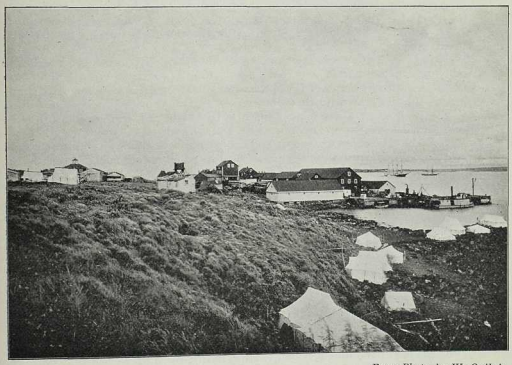
go in a westerly direction about half a mile to a small lake, the waters of which flow by the Abitibi River northwards to James Bay. In high water it flows both to the Abitibi and Ottawa, and, it is said, the channel giving vent to the Ottawa is yearly growing deeper.

"We cross this lake in a north-westerly direction about 1⅓ miles, and leave it by a small crooked creek, known as Snake Creek, which passes through a grassy marsh. This creek is upwards of a mile long, but in a straight line it cannot be more than one-fourth of that distance from the last mentioned lake (or what we may call Summit Lake), to a very irregularly-shaped lake called Island Lake, north about eight miles, passing numberless and beautiful islands which are ever presenting new aspects of beauty, and revealing views of the distant hills around the lake, which, though not grand, are serenely beautiful.

"Here we enter a deep, narrow bay, which trends eastward, and on about a mile and a half further we enter the river which discharges the water of the lake. Down this for about a mile we come to a portage to pass a rapid in the stream. This rapid is about 140 yards long, with a fall of six feet or so. Three hundred yards below this again there is a third rapid and portage 170 yards long, with a fall of seven or eight feet; about 300 yards below this there is another rapid and portage 170 yards long, with a fall of ten feet. These three places are known as the 'Three Carrying Places.'

"Below this the course of the river is a little east of north, and somewhat serpentine for a distance of about seven miles, at the end of which is another rapid and portage 40 yards long, with a fall of about five feet in low water, but hardly any fall in high water. Below this, for about 3½ miles, the course is about north-east and serpentine. In this twelve miles of river the current is nowhere swift (except in the rapids).

"Here we enter a lake called Upper Lake, and keeping close to the west shore we pass between some rock islands and enter a deep bay extending southward.



St. Michaels from the East. *From Photo. by W. Ogilvie*

We cross this on a north-westerly course about 1½ miles, then continue along the westerly shore about half a mile, when we cross the mouth of another deep bay on a nearly north-west course, about two miles, to the northerly shore of the lake. Skirting the shore a little over half a mile we enter a small stream, which in a few yards expands into a small lake, and running along the west shore of this we find an outlet to the river, of which there are several channels, which, however, unite just below here.

"Upper Lake is very irregularly shaped; islands are as numerous in it as in Island Lake, and the scenery as beautiful. These lakes will compare for beauty with any places I have ever seen; and I feel confident, were they easily accessible, they would soon become places of resort in the tourist season.

"About 2½ miles from this lake, in a generally north-easterly direction, there is a cataract in the river, and a portage of 40 yards to pass it. Here the stream narrows from 200 yards and upwards to less than a tenth of that, and falls through an opening resembling a gateway, in a ridge of granitic rock, a height of about twelve feet. Below this the course of the river is nearly north for 5 miles to Lake Abitibi, and from the mouth of the river to the Hudson Bay Company's trading post on the lake is about 2¾ miles in a north-easterly direction.

"The post is situated on a long flat point projecting into the lake, at its extreme east end. Formerly all the supplies for this post were brought from Moose up the Abitibi River, but for some years past they have been taken from Mattawa over the route I have just described, which considerably reduces the labour and expense of furnishing the post.

"LAKE ABITIBI.

"Like all the other lakes along this route, this lake is irregularly shaped. It varies in width from a couple of miles to fourteen or fifteen. There are very many bays and numerous islands, most of which are rocky and many of them of considerable extent.

"The route generally traveled from the post down the lake lies along the south shore for about 17½ miles, and then crosses to a point on the north shore on a nearly west course. The distance on this course is about 3½ miles, but the lake here is only a couple of miles wide.

"Skirting the south shore for a distance of nearly five miles we reach the 'Narrows,' which are about two miles long, and in parts not more than 300 yards wide. At the west end of the 'Narrows' a large island makes two channels of exit—the one to the north avoids a portage across a long peninsula, which projects from the south shore many miles northward. By this route, however, there is a large expanse of open water to be crossed, which in windy weather becomes too rough for ordinary canoes, and causes much delay. The south channel passes through a bay with numerous islands in it, which afford such shelter that it can be crossed almost at any time. The course is generally between south-west and west for about 5½ miles, when we reach the peninsula already mentioned. At this point we make a portage of about one-fifth of a mile on a westerly course to a small lake about 300 yards across, from which another portage of about 150 yards brings us again to Lake Abitibi. Here we can in moderate winds cross straight to the head of Abitibi river, which, as seen from the portage, is just south of a small rocky island about two miles out, and nearly due west. The distance across is about 5½ or 6 miles. In windy weather, with a southerly or westerly wind, we can skirt the south and west shore of the lake to the same point, but with a northerly or north-westerly wind the water is too rough for an ordinary canoe.

"ABITIBI RIVER.

"At its head this river averages about 150 yards wide, with a moderate current. For the first five miles it runs generally south-westerly to the first portage, which is on the south side, and we pass a fall and rapids. The fall I should say

is about twenty-eight feet high, and the total difference of level thirty-five feet. The portage is about a quarter of a mile long, and is not rough.

"The course of the river is now for some distance nearly west. About two miles below the first fall there is a swift rush through a very narrow passage in a ridge of rock. Here the water is rough, but can be safely run in a good-sized canoe. Beyond this the water is smooth, with an easy current for about ten miles to a short rapid, easily run; then there is a mile of smooth water, and then about a mile of swift, rough water, which only requires watchfulness in keeping off the rocks to be safely run in any canoe.

"About a mile below this a considerable stream comes in on the north side. My guide told me it was called 'Mis-ta-ago-sipi,' but he had not command of enough English to tell me what it meant, nor did I afterwards learn. Two miles or so below this there is a small rapid, easy of descent, and about 4½ miles further a fall of four or five feet and a portage on the south side 100 yards long. Two hundred yards below this there is another fall of seven or eight feet, and a portage on the south side also about 100 yards long. For about the next four miles the river runs between south and south-west to a river which enters from the south. I understood the guide to say that this stream has its head near the Rivière Blanche, which flows into Lake Temiscamingue close to the Quinze River, and that Indians sometimes go through to Lake Temincamingue that way. This stream is 60 to 70 yards wide at the mouth.

"Here the river turns to a northerly direction, and about five miles from the last stream we come to a fall of about fourteen feet, which, I understand, is called 'Iroquois Falls.' It is said it derived this name from an adventure of some Iroquois Indians, many years ago, who were raiding the country, and compelled two native women to act as their guides. The women, to save their own people, lulled the suspicions of the raiders when they heard the noise of the fall, by assuring them that the noise they heard was caused by the entrance of an affluent stream over a high fall, believing which they went on to their destruction.

From Photo. by W. Ogilvie.

Alaska Commercial Co's Wharf, St. Michaels.

"Another version of this story which I heard was that the enforced guides were men who assured their captors that the rapids could be easily run by keeping in a certain part of the channel, and to prove their sincerity took the lead in a canoe, but so acted that all their enemies went over the falls, while they, from their local knowledge, were able to escape.

"The first version seems to be a stock story, and is told of several other cataracts; and to speak for myself, I do not think either version very probable, as Indians, as a rule, are not apt to run much risk, certainly not in a strange country.

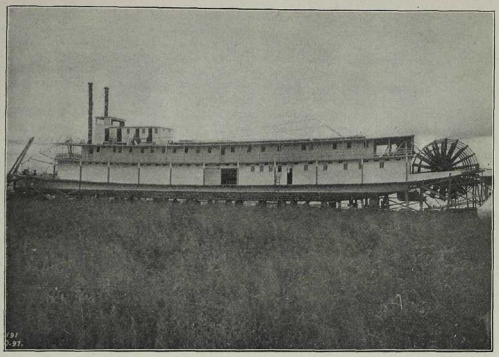
"The portage past this is on the south side, and is about 140 yards long. The course of the river is serpentine, and ranges from about north-west to north-east, and about 9½ miles below Iroquois Falls we come to a rapid half-a-mile or so in length, with a fall of four or five feet. The only danger in this is from rocks, of which there are many, and it requires a sharp outlook to avoid a collision with them, especially in low water. The general direction of the river below this rapid is a little west of north, and the current is smooth and easy for about 18½ miles, when there is a small ripple 40 or 50 yards long. After passing this the general direction is the same for nearly seven miles, when it turns sharply to the west, and we immediately enter the Long Sault Rapids. The first three miles of this is only a very swift current, which ends at a barrier of granitic rock, through a narrow opening in which the river tumbles down about seven feet. The portage here is about 40 yards long, and is on the south side. Below this there is about three-eighths of a mile of rough water, with very large rocks in it, when the water again takes a plunge of about five feet. The portage here is on the south side, and is 100 yards in length. This is succeeded by over half-a-mile of bad rapids, rough and stony.

"Below this for two or three miles there is swift and shallow, but not dangerous, water. In all this rapid I would estimate a fall of about 40 feet.

"In the bad part, the course of the river turns from west to generally north, and continues so for about 7½ miles, when it again turns sharply to the south-west. Just at the turn a stream 50 to 60 yards wide enters on the northside. As my guide was gone I could not learn anything concerning it. About 5½ miles from this stream there is a short rapid, midway in which is an island. Fair-sized canoes can safely descend this rapid, but there is a portage on the island about 60 yards long. Continuing on a south-westerly course about 3¾ miles brings us to the next rapid and portage. The portage is on the southerly shore, and is 100 yards long. Like several of the falls already mentioned, this one is only a contraction of the river by a ridge of granite rock, the water-way through it being only one-sixth or one-eighth of the average width of the river. The fall is only about three feet, but it is much too rough for any canoe to pass through.

"The river here begins to change from its south-westerly direction and gradually curves around to a course nearly north. About a mile below this rapid a river, quite as large as the Abitibi, joins it from the south. It is known as Frederick House River, and is said to have its source in a lake not far from the head of Montreal River, which flows into Lake Temiscamingue.

"The course of the river from here down for about eighteen or nineteen miles is a little west of north, when it again takes a short turn to the west and passes through another granite ridge, forming two very bad rapids. To pass these there are two portages on the north side of the river—the first 170 yards long, the second 190. The fall in the first is about ten feet, in the second four or five; between them there is a pond about 200 yards across. After passing these the course is again northerly, and for a mile or two the current is smooth and easy, but after that the presence of many granitic islands in the river renders it swift, but not rough. About two miles of this brings us to another rapid, where again the course changes from northerly to westerly, and we pass through a granite ridge. The first portage is on the westerly shore, about 100 yards long, and over level ground. The next is across an island in the river, and is about 100 yards long, and is known as



From Photo. by W. Ogilvie.

The North American Transportation and Trading Co's Steamer "Charles H. Hamilton" on the Blocks a few days before Launching.

the Island Portage. The distance between them is 50 or 60 yards. I ran past the first one in my canoe. It is easy to run down, but somewhat difficult to stop at the island before you are swept into the next rapid, which would quickly engulf a canoe. The fall in this rapid is seven or eight feet. The course of the river is again northerly; the current is very easy and the width about 200 yards. About fourteen miles from Island Portage a small river joins from the west, known as Red Whitefish River. Three miles further down, the river again turns westerly, and passes over a succession of rapids, of which I got the following description from an employe of the Hudson Bay Company: Two miles below the turn is the first rapid, which is a very bad one. The portage past it is on the easterly side of the river, is about half a mile in length, with level, good roadway, and is called the Lobstick Portage. The next one is a little more than half a mile below this, on the westerly side of the river, and is known as the Burnt Wood Portage. It is about 300 yards long and over a very rough, rocky surface. The rapids are very bad. This is succeeded by about a mile of calm water to the next portage, on the westerly shore, about 100 yards long, and over a rock. It is called the Clay Falls. It is along the face of a clay slope, and is close to the water's edge in high water; it is about 200 yards long. Next comes the Birch Portage, about 100 yards below the Clay Falls. It is on the easterly side of the river, about 300 yards long, and over good ground. Close to this is the Oil Portage on the same side, also over good ground.

"In high water it is dangerous to cross from Lobstick to the Burnt Wood, and on this account another route is often travelled. This is known as the Little Lakes Road. It leaves the river on the east side just where the river turns westerly, and 300 or 400 yards above a large rock standing on the east side of the river, close to where a small creek enters. Once the end of it is found there is no trouble in following it, as it is a well-beaten pathway. First there is a portage upwards of a

mile and a half to a small lake, about 600 yards across; then a portage of about 400 yards to another lake, 700 yards or so across, in a westerly direction, where the next portage is about 400 yards long, but as it is very crooked it might easily be shortened to about half that. The next lake is only about 200 yards wide. It is crossed in a north-westerly direction to another portage, 700 yards long, to a pond 250 yards across, at the extreme westerly end of which we find a portage 2,700 yards, or a mile and a half long, which brings us again to the river 100 yards or so below the Oil Portage. This last portage is the greater part of its length in the valley of a creek, and is very rough and difficult to travel over.

"The aggregate distance portaged over on this way is upwards of 8,000 yards, or nearly five miles; while by the river route it is only about 2,000 yards, or less than a mile and a quarter. Notwithstanding this, the lake route is much travelled —I suppose because most of the canoes in the vicinity are small, and five miles of hard travel and a certainty of life at the end are pleasanter than one and a quarter without that certainty.

"Below the Oil Portage there is a pond-like expanse in the river before it plunges down the cañon. This is a veritable cañon, being not more than 20 to 30 yards wide, with perpendicular banks, generally much higher than the channel is wide. It is upwards of two miles in length, and, as I only saw the end of it, I cannot say much in description of it. I was informed that parts of it cannot be seen from the bank, owing to their height and steepness, and as no one would care to pass through it simply to possess the privilege of describing it, it is likely to remain unpictured for some time. As scenery it is grand and impressive when viewed from either end. The portage past it is on the east side, and is over two miles long and somewhat difficult, on account of four or five bad hills on it. Below the cañon there is another pond-like expanse in the river, which is succeeded by a rapid 400 or 500 yards long, and safe enough for ordinary canoes to run, but requiring alertness at the foot, as it is shallow and stony. The current is now smooth and easy; course between north and north-east for six miles, which brings us to the Hudsons Bay Company's trading post on this river, named New Post.

"From New Post, down for about sixteen miles, the Abitibi preserves a generally uniform width (150 yards), with smooth, easy current, and general direction a little west of north, when its navigability is again interrupted by a succession of rapids, which necessitate a portage (on the east side) of fully two miles, with two bad hills at the north end. This portage is sometimes divided into two (one about a mile, the other less than a quarter), but it does not appear that the difference is considered of much advantage.

"About a mile below this portage is another, also on the east side, 900 yards long. The rapid here is not very rough, and can be run in light canoes, but mine were too heavily laden. Below this portage there is about a quarter of a mile of swift, rough water to run before we get into smooth water again, which, however, only continues about two miles, when there is another portage, also on the east side, and about 900 yards long. Parties going up sometimes ascend this and the preceding rapid in their canoes by keeping in shore and poling.

"Five miles below the last mentioned rapid we come to the head of a long one, in which the river widens to about 600 yards, or about three times its average width, and is correspondingly shallow. This rapid is not very rough, but is somewhat dangerous, by reason of its shallowness and the numerous rocks in it. The first part is about three miles long, after which it gets smooth, but is still swift and shallow for about 2½ miles, when it again becomes a rapid resembling the upper part, and continues so for about 3½ miles. This rapid is sometimes called Long Rapid, but oftener the 'Pudding,' from the resemblance some islands standing in it bear to a plum pudding. In this the course of the river is about north, but below it it swerves a little eastward.

"A river called by the Indians 'Abitibi Shi-sipi,' or 'Little Abitibi River,' flows in from the east about four miles below this. It is upwards of 100 yards

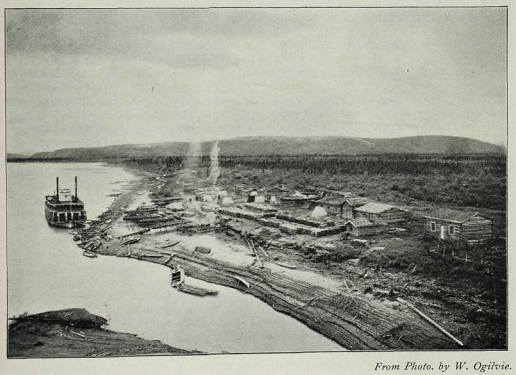
wide at the mouth, but is shallow. Continuing the same course about seven miles brings us to a shallow rapid of no especial importance, called Blacksmith's Rapids. One party told me it was so named because a drunken blacksmith was drowned here some years ago, but others gave as the origin of the name the existence of a bed of lignite coal, which latter derivation I suppose to be the true one.

"About a mile below this a river enters from the east, 20 yards or so wide; and about 2½ miles from this another river, about 40 yards wide at the mouth, enters from the west. My guide called it 'O-nak-o-whan-i-Sipi,' but could not, owing to his ignorance of English, tell me what that meant. About a mile below this, what appeared to be a small river was seen on the east side.

"The general course of the river here is nearly north-east for many miles back; but its character changes, in that there are now numerous islands in it, and it is wider and often shallow, with some swift currents in the shallow places. The same course and character continue for about 29 miles below O-nak-o-whan-i-Sipi, when it spreads into three or four branches and passes down shallow rapids to the Moose, or, as the Indians there call it, the 'Mi-tag-ami' River. One of these branches can be run in canoes when the water is high enough, but in low water it is too shallow. I passed down the westerly shore, the water barely floating the canoe, though it only drew ten or eleven inches. This continues for nearly a mile, where just above a rocky point, which throws the water outwards and makes a bad swell (and on account of rocks, a passage can hardly be made anywhere else) there is a portage of about 500 yards. Below this there are still about 300 yards of rapid, which must be descended carefully and slowly on account of shallowness and rocks. Just below this we enter Moose River.

MOOSE RIVER.

"From its confluence with the Abitibi the course of the stream is about north-east. It is about a mile wide, and is, as a rule, shallow. The greater part of the



From Photo. by W. Ogilvie.

Nulato, Lower Yukon, Alaska.—Steamer "J. J. Healey" at the Beach.

channel, for some miles near and below the Abitibi, is not more than two to four feet deep, with many gravel bars, and two or three small rapids.

"From the mouth of the Abitibi to Moose Factory, the Hudson Bay Company's trading post, is about twenty miles. A history of this place would hardly serve any useful purpose in a report such as this, and I will only remark that the post has been in existence about two centuries, and has been for many years, and is now, the port of entry for the whole of James Bay district.

"Moose is situated on the east side of an island, the surface of which rises about twenty feet above high tide. The top soil is generally a mixture of silt and vegetable mould. The island is about half a mile in width, and about two miles long. Owing to its position, the many islands in the river here, and the fact that the deep water is in the westerly channel, strangers would very likely pass on to the bay without noticing the factory. To write down a description of the route to be followed would be somewhat tedious. The only way to do it comprehensively would be by courses and distances, which I am not in a position to give exactly.

"It is said the channel on the easterly side of the islands, although shallow, will float a canoe well enough, and by that route it would hardly be possible to pass the factory without seeing it. From the easterly side of Moose Island to the east shore of the river, at right angles to the general course, is 81 chains (1,782 yards), but in this distance there are two extensive sand bars. Between Moose Island and the westerly shore there are several islands, and the westerly channel, exclusive of them, appears to me to be as wide as that east of Moose Island; so altogether, the river here must be considerably over two miles from shore to shore.

"The easterly, or South Channel, as it is locally termed, is the one by which all the traffic is carried on.

"From Moose Factory to where the shore line of James Bay turns sharply eastward is 12½ miles. This part of the river is between two and three miles wide, with many timbered islands and sand bars."

The following extracts from the Hudson Bay Company's Journal at New Post show the duration of the navigable season for a period of 13 years:

1878—River here clear of ice 20th April; first snow 18th October; river set 11th December.

1879—River clear of ice 2nd May; first snow 18th October; river set 1st December.

1880—River clear 8th May; first snow 12th November; river set 22nd November.

1881—River clear of ice 30th April; first snow 15th October; river set 5th December.

1882—River clear 11th May; first snow 30th October; river set 3rd December.

1883—River clear 12th May; first snow 1st November; river set 16th November.

1884—River clear (date not stated, but appears to have been about 1st May); first snow 18th October; river set 7th December.

1885—River clear 4th May; first snow 20th October; river set 24th November.

1886—River clear 20th April; first snow 15th October; river set (not stated).

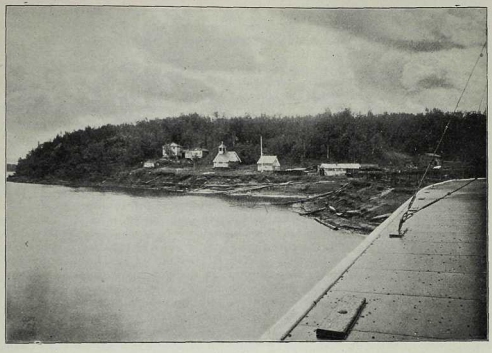
1887—River clear 3rd May; first snow 24th October; river set (not stated).

1888—River clear 11th May; first snow 19th October; river set 20th November.

1889—River clear 27th April; first snow 23rd October; river set 16th November.

1890—River clear 9th May.

I passed New Post on 20th October, and the temperature of the water was 46°. I may here state that the temperature of the river water was taken every day up to Lake Abitibi, where, on the 28th October, it was 42°; but that day and night a strong, cold north-west wind blew, which lowered it to 30° in twenty-four hours, and at Abitibi post it was the same on the morning of the 30th. In Upper and



From Photo. by W. Ogilvie.

Presbyterian Mission, Anvick, Lower Yukon, Alaska.

Island Lakes it was from 44° to 46°, according to the depth of the water. In the little lake at the summit it was 45°, although quite a lot of snow had fallen during the day. The first snow-fall I saw during the time I was in the field was 11th October, 1890 (the day I left Moose), and the weather all the way to Mattawa was continuously rainy with occasional showers of snow. The temperature of the lakes this side of the watershed was from 44° to 48° between the 1st and 18th November —the latter temperature being in the deep part of Lake Temiscamingue, which generally does not freeze up until late in December.

Another part of the proposed route starts from Missinaibi on the C.P.R., thence down the Missinaibi River to James Bay at Moose Factory, some 400 miles. Arriving at Moose Factory on the south end of James Bay, we now have a distance of nearly 900 miles across Hudson Bay, which is only open about half of the year; thence up Chesterfield Inlet and Baker's Lake, a distance of about 200 miles; thence over an unknown and barren country, between 300 and 400 miles to the end of Great Slave Lake, which is frozen from early in December until very late in June, the ice attaining a thickness of from four to six feet. This lake is about 350 miles in length, and in some places as much as 40 miles in width, so that the wind sweeping down it or up it lengthwise gets up quite a rough sea. This route might be amended and made more of an all-water route by making Montreal or other seaport the point of departure and going round by the Atlantic Ocean and Hudson Straits, and thence across Hudson Bay to Chesterfield Inlet, and from there on as above. At the lower end of the lake we enter Mackenzie River, which has been described in connection with the Edmonton route; and the remarks there apply equally to this one.

OCEAN AND RIVER ROUTE.

The last route to be referred to is the Ocean and River route.

Starting from Victoria or Vancouver, or some port in the United States, we make our way by an ocean steamer to St. Michaels, a distance of about 2,700

miles from Victoria or Vancouver. The steamer approaches St. Michaels a greater or less distance as she draws more or less water. A boat drawing 12 feet of water or less may come within a mile of it—one of greater draught has to anchor further out. The cargo is discharged on "lighters," towed by small steamers to the warehouses of the several companies. From here up to Dawson or other points on the Yukon, passage is made on stern-wheel steamers, of which there are at present seven or eight. Four belong to one of the trading companies, three to the other, and one or two to other parties. The time taken in ascending the river from St. Michaels to Dawson, supposing we have fair weather continuously, is from 14 to 18 days. The steamer has to fight its way up this long stream against a stiff current, with, in low water, shallow places at several points, also there is much time lost procuring wood. Much of the fuel at present used is cut by Indians, and piled up along the banks. For the first 500 miles upwards the fuel consists entirely of driftwood, as there is no timber in the vicinity of the river large enough to be utilized for that purpose. Above this point timber is plentiful, but green. The boat is tied up to the beach, all hands available sent ashore, trees cut down, generally carried on board in long lengths, and sawn into proper lengths for furnace use on board. Much of this is entirely green, as what little dry wood was scattered along the bank of the river has been pretty well used up. In the future much delay will be caused to steamers on this account, as the wood gets further and further from the river. Heretofore, there were only three or four steamers plying on the river. Next summer there will probably be 25 or 30. Now these will use up in a single trip all the wood cut, as the steamers now on the river use from 16 or 18 cords per day to 24 or 30.

Through the kindness of Capt. Kennedy of the Alaska Commercial Company's steamer "Alice," I am able to give her dimensions and the log of one of her trips.

Capt. Barr of the North American Transportation and Trading Company kindly gave me from his logs the distances from point to point along the river as he deduced them from the travelling rate of the steamer. I am inclined to think his distances are overestimated and that a survey of the river will prove it shorter than he puts it.

Dimensions of steamer "Alice":

Length 165 feet; beam 32 feet; depth 8 feet.

Compound tandem engines, but no condenser, high pressure cylinder, 14 inch bore, low pressure, 22 inch. Length of stroke 6 feet. Steam pressure 150 to 180 pounds, consumption of wood per day 16 to 18 cords. She can carry about 500 tons, but when so loaded draws too much water for the river (about 5½ feet). In 1896 she made a trip from St. Michaels to Fortymile as follows; the distances are by Captain Barr.

St. Michaels to mouth of Yukon, 72 miles, 9 hours 40 minutes.

Mouth of Yukon to Nulato, 576 miles, 81 hours 30 minutes.

Nulato to mouth of Tanana, 249 miles, 36 hours 30 minutes.

Mouth of Tanana to Fort Yukon, 456 miles, 60 hours 25 minutes.

Fort Yukon to Circle City, 88 miles, 21 hours 10 minutes.

Circle City to Fortymile, 156 miles, 47 hours 40 minutes.

Fortymile to Sixtymile, 97 miles, 19 hours 15 minutes.

This makes the total running time from St. Michaels to Fortymile 255 hours and 25 minutes, or ten (10) days 15 hours 25 minutes, the distance being 1,597 miles. In addition she must have lost 4 to 6 hours at least per day cutting wood and loading it.

In the same summer, some weeks later, the same steamer loaded with about 400 tons, and towing a barge with nearly as much, went over the same course, as follows:

Mouth of river to Nulato, 102 hours 55 minutes.

Nulato to Tanana, 37 hours 20 minutes.

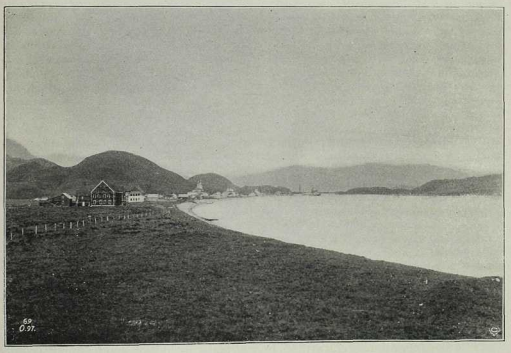
Tanana to Yukon, 69 hours 50 minutes.

Yukon to Circle City, 31 hours 20 minutes. At Circle City she left the barge

and came up to Fortymile in 47 hours and 40 minutes. Going down, her running time from Sixtymile to Fortymile was 4 hours and 10 minutes. Fortymile to Circle City, 13 hours, and her actual time from Sixtymile to St. Michaels was 4 days 10 hours.

Nearly all future trips will have to be made on wood cut by the crews—green at that.

After we get up the river some 1,300 miles we strike what is known as the Yukon Flats. These flats were no doubt the site of a lake ages ago, now filled up with numberless islands and channels, most of which are too shallow, crooked and narrow for steamboat passage. The sand and mud drifts about in them, changing the course of the steamboat channel, and every year appears to be getting more and more difficult of navigation. In the summer of 1895 water remained high until well into September; the result was that one of the Alaska Commercial Company's steamers, the "Arctic," made five passages from the mouth of the river to Fortymile. This is the record season, it has never been repeated since. The fastest round trip on record, from and to St. Michaels, was made by the same Company's steamboat "Alice," in 1897. It took less than 22 days. As a rule, the trip occupies a month. We may generally count on several days detention at St. Michaels. There high winds render it impossible for river steamers to make their way over Behring Sea to the mouth of the river. The same detention may be caused on the return trip, and the steamer may have to lie in the mouth of the river for days. Then, again, the channel at the mouth is shallow and crooked, and as it is only open for 3 or 3½ months in the year it is impossible to mark it, and even if we could do so it is not permanent, for the ice drifting about in the shallow water in Behring Sea often ploughs up the mud in ridges, making barriers across places which were heretofore good, deep water. On one occasion, in 1896, a boat ran on to a barrier near the mouth of the river and lay there for 14 days before the wind and tides combined raised the water high enough to enable her to



Unalaska from West End. *From Photo. by W. Ogilvie*

float. To enter the country by this route we need not contemplate arrival at Dawson much earlier than the middle of July. The ice in the river breaks about the middle of May, but Behring Sea, as a rule, is not open until the last ten days of June,—indeed, in 1896 it was not until the 7th of July that the ocean steamer could approach St. Michaels.

For further details concerning expenses in entering by this route I would refer to the Alaska Commercial Company, 310 Sanson St., San Francisco, or the North American Transportation and Trading Company, of Chicago. The Canadian Pacific Coast Navigation Company—offices at Victoria and Vancouver—I understand, are putting steamers on this route, both ocean and river, also the Canadian Pacific Railway. By addressing queries to them I have no doubt parties will obtain the fullest information at their command as to their facilities and terms. This route of course involves no personal hardship, other than what may be due to ten or twelve days' sail on the ocean, but it reduces the working season available there by about two months. Going in by the south, one can reach Dawson about the middle of May, going in this way about the middle of July. As soon as access is convenient and sufficient over some one or more of the passes in the south, so that freight can be taken down stream, it is easy to see that this route must be abandoned to a very great extent.

FOOD SUPPLIES, ETC.

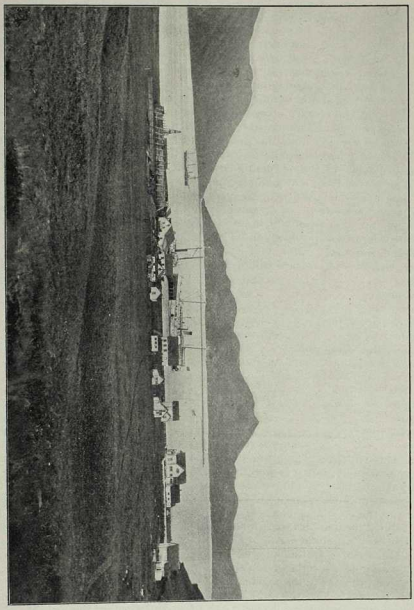
For the information of those who have never been in that country I give some notes on the amount of provisions required, first stating that you will require at least 50 per cent. more in that region than you would in a more southern latitude. The cold suffered (often intense) for at least seven months in the year conduces to a vigorous appetite. This is a provision of nature, for in order to keep warm the human system has to pile on fuel just as much as any other apparatus where heat is required.

All supplies required for the Yukon by persons going in on the Pacific side can be obtained at the cities of Victoria or Vancouver. The merchants at these places have had many years experience in outfitting miners and prospectors, and know exactly what a man should take with him, according to the conditions under which he is going to travel or work, and know from many years testing, and from the experience of northern explorers who frequent the B. C. cities, what class of goods are most desirable and useful, and those best calculated to complete a traveller's outfit. Many things that are excellent for more southern districts, and which are sometimes sold to inexperienced explorers, are not fitted for the more northern districts of what was once Hudson Bay Company's territory.

The merchants of these coast cities have studied and are thoroughly familiar with the requirements of the country, for many parts of which, including the Kootenay, Cassiar mines, and other districts, they have outfitted exploring parties for many years past; by purchasing in either of those two cities for the Pacific journey, a considerable percentage of cost is saved in freight duties, etc. The Canadian customs duties on goods purchased out of the Dominion range from 25 to 30 per cent. alone, so that aside from the question of paying freight on extra baggage, it is obvious that a considerable saving is made by purchasing necessary outfit in Canada and at the nearest point to the Yukon Territory where such supplies can be procured. Those who go into the mountains or into the Yukon from the east side of the Rocky Mountains, across the plains via Calgary and Edmonton, will find the same conditions to apply. The merchants at the principal points have had a wide experience in outfitting people for the mountains. During the past season many have chosen this route, and purchased necessary supplies at Calgary and Edmonton, at both of which towns there are large outfitting establishments. As between the two cities of Calgary and Edmonton a traveller can choose for himself. The cost of the several articles he will require will probably be found, freight included, to be about the same. It will be well to remember, therefore, that it is

better that Yukon outfits should be purchased at Victoria, or Vancouver, if the purchaser is going in on the Pacific side, and at Calgary or Edmonton, or other Canadian point, if he is proceeding by the plains route. The articles that should be taken are :

Of flour we require at least 450 pounds for a year's consumption. This should be of fairly good grade. It need not necessarily be fine flour, but should be



Dutch Harbour, Unalaska Island—H. M. S. Pheasant at Anchor in the Bay ; Str. Humboldt at Wharf and Str. Excelsior alongside.

From Photo. by W. Ogilvie.

good medium. Oatmeal or rolled oats, 50 pounds ; cornmeal, 25 pounds. This latter I do not consider so necessary as oatmeal, as oatmeal is a warming food. Bacon (good fat), 250 pounds ; hams, 50 pounds ; evaporated dried apples, 25 pounds ; dried peaches, 25 pounds, and if you have a fancy for any other kind of dried fruits you can take them along, or substitute them for one or other of the

above. Good black tea, 25 pounds. In that country you will find a cup of good, hot, black tea after a long, cold tramp, very invigorating—in fact, it proves "the cup that cheers but not inebriates." Coffee, 10 pounds; sugar (good granulated), 100 pounds. If you take the ordinary brown sugar in the winter it freezes into a hard lump and is very difficult to manipulate. Not so with granulated; it remaining dry, of course remains powdered. Beans, 120 pounds. There are several kinds of beans of which you may make choice according to your taste, but the ordinary bean sold there is the brown bean, about twice the size of the small white one. Pot barley, 10 pounds; rice, 15 pounds; extract of beef, two dozen four ounce tins. I have found Johnson's Fluid Beef to be very good. Baking powder, 12 or 15 pounds; salt, 30 pounds; pepper, one pound; mustard, one pound; compressed vegetables, 10 or 12 pounds, depending upon the kind you take. Canned fruits may or may not be taken, but they are bulky and heavy, consequently inconvenient and in winter a source of trouble in that country, as the contents freeze solid and require a very long time to thaw. You should also take 10 or 15 or more pounds of baking soda, as you may think necessary. In case of scurvy one might provide lime juice, more or less as their taste suggests, but the dried fruits already named are antiscorbutic in their action and if we wish to make further provision in that direction we might take two or three dozen tins of good orange marmalade, and a similar quantity of strawberry or raspberry jam. These, as put up by some firms, are very good. Dried potatoes are put up in several forms and are good. 25 or 30 pounds of these should be taken. Other vegetables are put up also from which you may select as you fancy, but you should take the above quantity of potatoes and 8 or 10 pounds of dried onions. Take along also a few dozen yeast cakes, you may have a chance to use them once in awhile, and their weight and cost are trifling. For convenience I recapitulate, in list form:—

Flour	450	pounds.	Extract Beef, say	6	pounds.
Oatmeal	50	"	Baking powder	12	"
Cornmeal	25	"	Salt	30	"
Bacon (Good, fat)	250	"	Pepper	1	"
Hams	50	"	Mustard	1	"
Evaporated dried apples	25	"	Compressed vegetables	12	"
Dried peaches	25	"	Canned fruits, say	30	"
Tea	25	"	Jams in tins, 1 lb. each	24	"
Coffee	10	"	Baking soda	10	"
Sugar	100	"	Potatoes and Onions	35	"
Beans	120	"			
Barley (pot)	10	"	Total weight	1,319	pounds.
Rice	15	"			

This will prove ample and to spare for any healthy, vigorous man, work as hard as he may, but it is well to have a little too much rather than too little. It is well also to bear in mind that there is much waste connected with the ordinary transport and use of provisions under the conditions generally attending prospecting and the cooking incidental to it. It will be noticed that the above list contains no canned meats. These are sometimes convenient when making a journey, and their use is largely a matter of taste. Some relish them, while others have "no use" for them. In this line, as in some other matters, each will consult his own tastes and means. Packed in tins as they are, they are somewhat inconvenient to pack, and the tin adds considerably to the weight. For preservation it is absolutely necessary that the stuff be hermetically sealed. It is a pity some more convenient mode of putting up were not adopted, lessening the weight, while not risking spoiling by contact with the air. The cost of this outfit will, of course, vary considerably, according to time and place of purchase, but in any of the cities or towns where you are likely to purchase all your requirements will likely cost no more than $200.00, and may be less. At the prices ruling on the Yukon it will be more than double that; $450.00 is rated as a fair "grub stake," that is your requirement for one year.

The following list and prices are furnished by an Edmonton firm, subject, of course, to fluctuations in the ruling prices elsewhere, which will not, however, affect the gross amount very much. Taken as a whole the amount will not differ much from the same list at other points.

4 Sacks flour, 98 lbs. each,	$10 00
20lbs. Corn meal	70
40lbs. Rolled oats	1 30
25lbs. I. Rice	1 75
100lbs. Beans	4 50
75lbs. G. Sugar	4 87
75lbs. Evap. apricots, peaches, and apples	10 25
6 Pkgs. Yeast cakes	50
20lbs. Candles	3 00
150lbs. Bacon	16 50
25lbs. Butter	3 75
10lbs. Baking powder	2 50
3 Pkgs. Soda	30
20lbs. Salt	40
1lb. Pepper	25
½lb. Mustard	25
½lb. G. Ginger	25
10 Pkgs. Evap. Vegetables	2 00
2 Doz. Cond. Milk	4 50
10lbs. Tea	4 00
25lbs. Coffee	10 00
½ Doz. Abbey's effervsc't. salt	3 60
Laundry soap	1 00
Matches	80
Evap. Potatoes and onions	4 00
2 Pair Heavy blankets	14 00
2 Suits underwear	5 00
2 Cottonade shirts	1 50
2 Sweaters	3 00
1 Heavy suit	7 50
1 Pair pants	2 00
1 Pair overalls	1 25
1 Mackinaw suit	10 00
2 Pair Arctic sox	1 50
6 Pair wool sox	1 50
2 Pair mitts	1 00
2 Pair moccasins	3 00
3 Towels	75
1 Pair rubber boots, hip	5 00
1 Pair laced boots, miner's	5 00
Mosquito net	50
	$153 07

Brought forward	$153 07
Buttons, needles and thread	25
1 Camp cook stove	5 00
1 Gold pan	75
1 Knife and fork	15
2 Spoons	5
1 Large granite spoon	15
1 Large fork	10
1 Granite cup	15
1 Granite plate	15
1 Whet stone	10
1 Pick and handle	1 25
1 Hatchet and handle	75
1 Axe and handle	1 25
1 Whip saw	9 00
1 X Cut saw	3 50
1 Hand saw	1 00
1 L. H. Shovel	1 00
20lb. nails	1 00
2 Files	40
1 Draw knife	75
1 Plane	90
Brace and bits	2 00
3 Chisels	75
1 Butcher knife	25
1 Compass	50
Rope	1 50
1 Fry pan	25
1 Hammer	50
1 Auger	65
1 Bake kettle	1 50
1 Best copper kettle	6 00
1 Steel pail	75
1 Granite wash basin	40
1 Candle lantern	35
1 lb. Quicksilver	90
1 Pair Goggles	25
1 Caulking iron	75
10lbs. Pitch	1 00
15lbs. Oakum	2 00
Sundries	2 18
	$203 20

A few words on packing, or putting up the goods for transport may be of use to many. Flour should be put in a good cotton sack, 50 pounds in a sack; two of those are then put into a good strong gunny sack. For ordinary transport this is not more than enough, and for prospecting tours one of the 50 pound sacks inside the gunny sack will be found quite sufficient. Sugar, beans, rice, barley meal and bacon may be packed in the same way, with advantage.

I would not recommend oiled cotton for covering, the oiling seems to rot the cotton fibre and render it easily torn, besides in cold weather it is as brittle as glass. and the result is we have no covering at all in a few days.

The gunny cloth, if good and heavy, will exclude quite a lot of rain. In the case of flour a thin layer of it will get wet and form a dough which excludes water almost perfectly; that amount of flour is, of course, lost, but that is provided for in the amount above given. In wet weather sugar will have to be carefully looked after, as once wet the action seems to continue until the whole is converted into syrup if the temperature permits, and if it does not it is frozen into a mass as hard as rock. These remarks may be in a good degree applied to salt, and I would say emphatically look after your sugar and salt. Compressed tea offers the advantage of less bulk, and if it is not taken, get tea put up in pound tins as some of it used to be. This is convenient in use, as only a small quantity of it is opened at one time, and we obviate deterioration of a large amount of it through exposure.

The other articles may be packed in cases for transport into the country, and then put up to suit convenience. Care should be exercised that none of the cases weigh much over one hundred pounds until we have better transport facilities than at present exist. That is about all the ordinary untrained man wants to handle, and for some months to come there will be much manual labour in connection with transport there.

Bedding and other things of that kind one will have to provide as suits his peculiar needs.

In the way of clothing, the principal difference between that country and this is that one requires much heavier underclothing. The ordinary woollen garments, such as worn by lumbermen and others in this climate, are sufficiently heavy for that, except when travelling on the open or on the rivers, in which case some sort of fur is necessary, more especially if it is blowing. Ordinary woollen coats will not keep out the winds, and when the thermometer is 40 or 50 below zero, and a 20 to 30 mile wind blowing, one is not very long exposed before considerable suffering ensues. Good heavy woollen mitts, with a pair of deerskin mitts over them, is all that is required. In the way of bedding a good heavy fur blanket is almost indispensable; ordinary woollen blankets, no matter how many one has, will not keep warm. But in this there is a wide latitude, depending on differences of physical constitution. I have seen two men in the same tent at the same time with the same amount of bedding, one sleepless from cold and the other comfortable, hence, as I said before, each will have to determine for himself as suits his temperament; of course the less one can do with the more convenient it is.

Blankets have been made in that country of fox, lynx, wolf and bearskin. They are very expensive, costing from $60 to $120, depending upon the nature of the fur and the size of the blanket. In the future, however, they are absolutely out of the question, for the supply of fur there is constantly diminishing, and it is only a question of a year or two until none will be found in the vicinity of the diggings, nor anywhere near them. These should be procured, if possible, here. Lynx makes a very durable, light, warm blanket, and I would recommend it above all others on account of its lightness and warmth. Fox is good, but not so durable as lynx. Wolf is also good, but heavier, and not so warm as lynx, and the same may be said of bearskin. I have no doubt that necessity will induce manufacturers to devise some cheap substitute for fur. Sleeping bags are made which will be useful and comfortable. Of these I would say choose the one that gives you the most thickness between you and the ground, of course not neglecting the covering. Often in winter, when camping out, more cold is felt from below than above. Waterproof clothing is not suitable for that country in the winter. The intense frosts so harden it that it cracks, and soon breaks into pieces. A good, large raccoon skin overcoat is very desirable. It is cheap and durable. While travelling in cold winter weather your knees will give you more trouble than any other part of the body. I have found a fur covering for them resembling a section

of the leg of a pants, about one foot long, and fastened to your under garment so as to cover the knee, is all that is required. Whatever material is used it should be wind-proof and thick. The other things that one may require will have to suggest themselves to each one for himself, but too much need not be taken. Do not load yourself down with extras. Rubber boots are indispensable during the spring, summer and fall months. These can be procured in the country at from $10 to $14 per pair, that is, miners' boots, which come up the full length of the leg. Shorter ones cost less, of course. These may be taken as they can be procured cheaper, but there is nearly always a good assortment on hand at the trading points.

In the way of hardware one requires a couple of good chopping axes. Axes are sold with a double bit—that is, a double edged axe of which one may be kept in fair order for chopping and the other used for rougher work. A brace and set of bits is indispensable, ranging from ¼ to 1½ inches in size. Hammer and wire nails, different sizes, are also indispensable; the more you can take of these the better, but of course the quantity will have to be regulated by your transport facilities. A small hand-saw is absolutely necessary, with an assortment of screw nails of different sizes, and suitable screw drivers, and a 1 or 1¼ inch auger will prove very useful. A miners' pick is also indispensable, and a miners' shovel. Of rope we require 25 or 30 pounds of assorted sizes, from one-quarter inch up to one inch, and if we contemplate building a boat for ourselves, a whipsaw, oakum and pitch. Of the latter, 10 to 20 pounds may be taken and 5 to 10 of the oakum. The other articles of hardware, such as dishes, knives, forks, spoons, kettles, etc., each one will have to select for himself. His supply should be based on his prospecting intentions and the length of time he expects to be absent from points of trade.

A rifle and shotgun may prove useful and are a sort of necessity, but as a rule they prove of very little use, as game is seldom met with, and what little there is, one has no time to follow. Hunting is an art which requires long experience to develop. Occasionally one obtains a shot at a moose or cariboo, but these are often accidental, and your gun may be carried for years without benefiting you one dollar. Still, by all means take them along. You may require them, you never know when, and when you do require them you require them in earnest. Fishing hooks and lines may be taken, but of these it may be said as of the guns.

Needles, thread, and yarn and cloth for mending and patching, are required, of course, and each one will have to determine for himself the amount he needs. You cannot make a mistake by taking more than you actually contemplate using, as the weight and bulk is unimportant. A small medicine chest is imperative. For contents of this I would suggest medical advice. What would suit one, another would not require, and each will have to have determined for himself and for his peculiar case just what he should take. Paper, envelopes, pens, ink and pencils are necessary, as you should never neglect to write whenever possible; by all means keep up the connection with home. If you can procure powders for making ink take them, as most of the inks sold are injured by frost, besides the liability to break your bottle when it does freeze.

A pocket compass is useful, and if you take one take a good one, with a needle not less than an inch and a-half to two inches in length, and when selecting take the needle which takes the longest time to settle after being put oscillating. The one which settles quickly is useless. It may be stated generally that the magnetic needle points east of true north from 32½ degrees at Lake Lyndeman to 36° at the boundary.

In moving about the country a boat is absolutely necessary. There are no regular lines of steamers on the main river at present, though possibly there may be the coming season, and if there are they will only take us along the main stream from one of the minor streams to another, as we may desire. Landed at the mouth of a small stream, we require some sort of a boat to make progress in. Now boats

made there are necessarily heavy and imperfect in construction, also of bad form. I would advise taking some light, easily portable boat from here or elsewhere, as one may procure it easiest and best. In my opinion the best boat for general use in that country is of the canoe form, many of which are built in the Province of Ontario and elsewhere. The pattern I would suggest is commonly known as the Peterborough, or Rice Lake canoe, of which many kinds are made. Bass wood is the best wood for all round use. I give the dimensions of some of them.

A 17 foot canoe, 41 inches wide and 17 inches deep, will weigh about 130 or 140 pounds when dry. This canoe will carry twelve or fourteen hundredweight, and two or three men. Of course this will load it pretty well, and if our load is bulky it requires some experience to stow it away in a boat of that size. Practice soon overcomes this.

An 18 foot canoe, 43 inches wide and 18 inches deep, will weigh a little more, and carry a hundred or two hundred more pounds easily.

A 19 foot canoe, 46 or 47 inches wide and 18 inches deep, will weigh when dry about 175 or 180 pounds, and will easily and safely carry eighteen or twenty hundredweight and two or three men.

Larger ones are made of which I give some figures.

Length.	Width.	Depth.	Weight.	Capacity.	Price.
21 feet	49 inches	18 inches	135 lbs.	2200 lbs.	$51.00 to $57.00
22 "	50 "	18 "	140 "	2500 "	54.00 to 60.00
23 "	51 "	18 "	145 "	2700 "	57.00 to 63.00
24 "	52 "	18 "	150 "	2900 "	60.00 to 66.00
			another make		
23 "	50 "	24 "	275 "	2850 at 12" draft 5120 at 20" draft	cost $58.00.
25 "	50 "	24 "	300 "	3200 at 12" draft 5600 at 20" draft	cost $60.00.
30 "	50 "	24 "	350 "	3800 at 12" draft 6500 at 20" draft	cost $75.00.

The above weights were furnished me by the makers. The weights in the paragraphs preceding the list are from my own observation after the canoe had been used awhile. In actual use the water the wood absorbs will increase it 10 to 20 pounds.

The freight rates on those canoes from where they are made in Ontario to Vancouver, is about $2.65 per 100 pounds space weight, with a minimum weight charge of 800 pounds, or, in other words, you are charged for the space the boat occupies. Now, by nesting them, that is, taking several of the different sizes, the smaller ones inside the larger ones, say a 22 foot, 21 foot, 19 foot, and 18 foot, space weight, crate and all, about the limit—800 pounds—costs $21.20, or about $5.30 each. If you wish to pay for actual weight the charge is about $10.50 per hundred pounds. Nesting is by far the best way to send them, and large parties going can have their canoes put up that way with lessened risk in transport, and less cost than if sent singly. This I would advise to be done. In ordering a canoe, order with an 18 or 19 foot canoe 5 or 6 good, specially heavy paddles, not less than 5 feet 9 inches long. If any of the makers manufacture poles for poling, I would advise those to be taken along too. They should be made of good, straight-grained white ash or other light, strong wood, from 8 to 10 feet in length, about 1½ inches thick at the lower end or point, tapering to about 1¼ or 1⅛ at the top on which a round knob should be left, say 1½ inches in diameter. The point should have a socket steel point put on over the wood and fastened to it with a screw, so as to be easily taken off. These will prove convenient on our journeys for other uses than poling, and much more durable and handy than any we may get in the country. Also procure a canvas cover of sufficient size to cover the canoe completely, so made that it can be fastened down when necessary

and prevent wind blowing it away. This may be ordered from the makers with advantage, they having the benefit of their own and others' experience. It will prove very useful, and often save us unloading our boat during a rainy period. Down stream in one of these boats is easy work. In making our way up stream we have to resort generally to poling or tracking, as the current is generally too swift to be surmounted by paddling. Poles can be got in the country, but if they can be procured at the makers, as above stated, by all means take them. Unless they are iron-shod they soon what is called "brush" at the point, that is, the soft wood bruises and get brushy. This has to be cut off from time to time, and the pole is soon reduced in length by this constant wearing. By all means get them iron pointed, or steel is still better. Several kinds of points are made, but a good blacksmith will easily and quickly turn out a half-dozen or more socket points to be fastened on with a screw or nail at very little expense, and any kind, so long as it covers the end of the pole, and is capable of being securely fastened to it, is good enough.

In poling the boat or canoe, the poler stands up, puts the end of his pole to the bottom and shoves on it, the man in the stern steering the canoe as may be desired while still shoving. To the uninitiated this is a very difficult and laborious work, but a little practice soon gets one into the knack of it, and it is wonderful how a boat can be propelled by two or three men who are accustomed to this work. As much as 30 or 35 miles per day has been done, but the unaccustomed would probably tire themselves out in one-third of that. Where the water is deep, that is, more than three feet, which is a fair depth, or where the bottom is too soft for poling, as in mud the pole sinks into it and is difficult to withdraw; in fact, the withdrawal often nullifies the effect of the push and the boat stands stlll, and the beach is suitable for walking on, we resort to tracking,—that is, a small, strong line is attached to the side of the boat some three to six feet from the bow; another line, called a bridle, is fastened to the bow and to the hauling line four or more feet forward from where it is attached to the boat. If this line is properly attached the boat will steer itself. The hauling line being attached to the side of the boat tends to draw the bow out so that she will run across stream, but the bridle counteracts this, and with proper adjustment the result is that the boat follows along a few feet out from the shore. It requires very little attention from the man steering—in fact, the only attention he bestows on it is to see that it avoids rocks, trees and other obstacles along the beach, and in rounding points he has to manipulate the boat to keep her away from the point. This is by far the easier mode of taking a boat up stream. Two men hauling on a line on a fair beach will walk from 2½ to 3 miles per hour, if they so desire, and haul the boat up bad places with comparative ease. I have seen a boat taken up a pretty steep rapids in this way at a good smart rate. After the pair on the line have kept up this gait for half-an-hour or an hour they become warm and somewhat tired. With a party of four the two in the boat change places with those on the line, taking a similar spell as it is called, and those on the line take their places in the boat. When the last two become tired and warm they take a spell in the boat again, and so on. Thus between hauling and resting, they can keep up a good smart gait without fatiguing themselves very much. Four lively, good men, along a fair beach, will generally be able to haul a boat or canoe, such as I have described, 25 or 30 miles per day, and at the end not feel nearly so fatigued as paddling or poling would make them. A greater number, of course, will have an easier time, and less a harder time, but two men can do a good day's work in this way. Myself and a man have made 24 miles up stream in a day in this way, and made a survey while doing it. The line should be light and very strong. To haul an 18 or 19 foot canoe of 45 or 48 inch beam, with 10 or 12 hundredweight and two men, the line should not be more than one-eighth of an inch in thickness. Of course, its quality should be first-class. There are lines made which suit this purpose admirably, known as cod-lines. I cannot give the numbers of the various sizes, but simply

say a line one-eighth of an inch thick is sufficient to haul a boat of that size with a load anywhere that a boat can be taken. Of course, a heavier boat requires a somewhat heavier line, but I have seen boats 40 to 45 feet long and 9 feet beam, loaded with 8 or 10 tons, drawing two feet of water, hauled up strong currents by a line not more than one-fourth of an inch in thickness. The objection to a heavier line is that its weight sags it, and unless the current is very strong it is continually sinking into the water, which increases its weight. This renders it liable to catch on sticks, tree tops, rocks or other things which are generally found plentifully strewn along the river banks. The men on shore will soon acquire the knack of flinging the line over any obstacle of that kind providing it is not too heavy. A sharp, upward jerk will hoist it feet above anything we desire to avoid if given at the right time. To do this the bow of the canoe should be turned across current just before the line is thrown up. This holds the canoe out against the effect of the pull on the line, often a high tree top or other obstacle can be passed easily by turning the boat out into the current; this runs her up and out, so that if the obstacle is close to shore it is passed without any attention from the men hauling.

Care should be taken when the boat is running up in an eddy below a point with a swift current rushing past it, to enter the boat or canoe into the current as nearly as possible bow on, and not across the current; by entering this way into the current gradually, no time is lost and no risk is run. I have known several boats to be swamped by running them up the eddy as far as possible, and suddenly turning them into the swift current; the result being the water boiled over the side of the boat and filled her. Had the men given way on the hauling line in time this would not have happened, or had the line parted as a light line would have done, all would have been well. I call particular attention to this and its attendant risks. A little practice will soon enable one to do this. Take plenty of line for that purpose, but do not take it too heavy. As a rule, not less than 60 feet of line should be out even under the best conditions, and in rough water, or along a bad shore, more is required. Not less than 120 feet should be ready for use when required, so fastened that whenever required it can be let out quickly and free from knots and twists. There are several ways of doing this. One is to have the line wound around a reel or bit of board at the front end, which the hauling man can pay out as he deems necessary, and wind in again when he sees fit. Cotton line is unsuitable. The water has a bad effect on it. It soon cuts and rots, and is not so strong as good jute line.

TENTS.

Of course each one has his own idea of a tent, but experience has taught me that the simpler the tent is in construction the better. I would suggest a bell tent not less than 10 feet in diameter, with a 10 ounce duck roof, and an eight ounce duck wall. The wall to be 2½ or 3 feet in height, with a foot or more of sod cloth. The pitch of the tent should be pretty sharp to throw off the rain. I would not have it less than 9 or 10 feet in height. Better than this, a square tent, called the "Egyptian" tent, 10 feet on each side, with a 10 ounce roof and 8 ounce wall, as in the bell tent. Of course a smaller tent may be ordered, but this will prove a good serviceable size, and will not be too heavy to pack around, and will accommodate three or four men conveniently. The square, or Egyptian tent, will accommodate four men and quite an amount of outfit. One man can hoist one of these tents readily by driving in four stakes in the form of a square at the proper distance apart, fastening four of his guy lines on them, inserting his pole and raising the tent. Afterwards he can adjust the other guy lines and fasten them as required. A pole can always be got; it is needless to carry them. I would advise a large party taking several of these tents instead of one large one. They are easier to carry about and the party can separate, break itself into units, so to speak, for prospecting purposes. For a party of two a smaller tent will do. Tents should be provided before entry. Material for their construction is expensive, and the supply limited

in that country. The cost of making them is also much more than here. If possible have the door made mosquito-proof. This is easily done by attaching a piece of cotton gauze or very light cotton cloth to each side of the door, which can be folded together and tied up with tape fastened to the walls to support it. This will prove a great comfort. To exclude them effectually we must load down our sod cloth well, or they will make entry that way. They will get in in most surprising ways and places.

In conclusion, I would say, make your outfit as simple and serviceable as possible. Do not meddle with notions, designed to overcome this, that or the other difficulty, as they very often create more trouble than that we take them to obviate. Metallic boats I would specially warn against. They may be light, capacious and useful, but they are easily fractured and difficult to mend, while a wooden boat can be mended at almost any time and place, and breaks and fractures may be confidently looked forward to. If bass wood canoes are taken, some pieces of the planking should be taken along for mending with. Some rough lengths, which would not be of much service in the construction of a boat or canoe, can easily be carried in the bottom. When a break is made in a canoe, if the parts are not too much fractured, they may be coated with white lead on the broken edges, pushed back to their original positions, a piece of the planking cut to overlap the fracture, coated with white lead, put over it on the inside and nailed and clinched tight to it. This makes it as strong as ever. Should the break be too bad to do this with, the fractured parts should be cut out neatly with a bevel on the cut edge; a piece of planking cut bevelled edge to fit this hole is put into it, after coating the edge with white lead, and another piece put over it on the inside, as before, so as to lap over the cut joint, and nailed and clinched, will make the boat as sound as new, and it is only the work of an hour or less.

REGULATIONS

GOVERNING PLACER MINING IN THE PROVISIONAL DISTRICT OF YUKON, NORTH-WEST TERRITORIES.

(Approved by Order in Council of 18th January, 1898.)

INTERPRETATION.

"Free Miner" shall mean a male or female over the age of eighteen but not under that age, or joint stock company, named in, and lawfully possessed of, a valid existing free miner's certificate, and no other.

"Legal post" shall mean a stake standing not less than four feet above the ground and flatted on two sides for at least one foot from the top. Both sides so flatted shall measure at least four inches across the face. It shall also mean any stump or tree cut off and flatted or faced to the above height and size.

"Close season" shall mean the period of the year during which placer mining is generally suspended. The period to be fixed by the Mining Recorder in whose district the claim is situated.

"Mineral" shall include all minerals whatsoever other than coal.

"Joint Stock Company" shall mean any company incorporated for mining purposes under a Canadian charter or licensed by the Government of Canada.

"Mining Recorder" shall mean the official appointed by the Gold Commissioner to record applications and grant entries for claims in the Mining Divisions into which the Commissioner may divide the Yukon District.

FREE MINERS AND THEIR PRIVILEGES.

1. Every person over, but not under eighteen years of age, and every joint stock company, shall be entitled to all the rights and privileges of a free miner, under these regulations and under the regulations governing quartz mining, and shall be considered a free miner upon taking out a free miner's certificate. A free miner's certificate issued to a joint stock company shall be issued in its corporate name. A free miner's certificate shall not be transferable.

2. A free miner's certificate may be granted for one year to run from the date thereof or from the expiration of the applicant's then existing certificate, upon the payment therefor of the sum of $10.00, unless the certificate is to be issued in favour of a joint stock company, in which case the fee shall be fifty dollars for a company having a nominal capital of $100,000 or less, and for a company having a nominal capital exceeding $100,000, the fee shall be one hundred dollars. Only one person or joint stock company shall be named in the certificate.

3. A free miner's certificate shall be on the following form:

DOMINION OF CANADA.

FREE MINER'S CERTIFICATE.

(Non-transferable.)

Date..... No.....

Valid for one year only.

This is to certify that..... of.....has paid me this day the sum of.....and is entitled to all the rights and privileges of a free miner, under any mining regulations of the Government of Canada, for one year from the.....day of.....18....

This certificate shall also grant to the holder thereof the privilege of fishing and shooting, subject to the provisions of any Act which has been passed, or which may hereafter be passed for the protection of game and fish; also the privilege of cutting timber for actual necessities, for building houses, boats, and for general mining operations; such timber, however, to be for the exclusive use of the miner himself, but such permission shall not extend to timber which may have been heretofore or which may hereafter be granted to other persons or corporations.

4. Free miner's certificates may be obtained by applicants in person at the Department of the interior, Ottawa, or from the agents of Dominion Lands at Winnipeg, Manitoba; Calgary, Edmonton, Prince Albert, in the North-west Territories; Kamloops and New Westminster, in the Province of British Columbia; at Dawson City in the Yukon District; also from agents of the Government at Vancouver and Victoria, B.C., and at other places which may from time to time be named by the Minister of the Interior.

5. If any person or joint stock company shall apply for a free miner's certificate at the agent's office during his absence, and shall leave the fee required by these regulations with the officer or other person in charge of said office, he or it shall be entitled to have such certificate from the date of such application; and any free miner shall at any time be entitled to obtain a free miner's certificate commencing to run from the expiration of his then existing free miner's certificate, provided that when he applies for such certificate he shall produce to the agent, or in

case of his absence shall leave with the officer or other person in charge of the agent's office, such existing certificate.

6. If any free miner's certificate be accidentally destroyed or lost, the owner thereof may, on payment of a fee of two dollars, have a true copy of it, signed by the agent, or other person by whom or out of whose office the original was issued, Every such copy shall be marked "Substituted Certificate"; and unless some material irregularity be shown in respect thereof, every original or substituted free miner's certificate shall be evidence of all matters therein contained.

7. No person or joint stock company will be recognized as having any right or interest in or to any placer claim, quartz claim, mining lease, bed-rock flume grant, or any minerals in any ground comprised therein, or in or to any water right, mining ditch, drain, tunnel, or flume, unless he or it and every person in his or its employment shall have a free miner's certificate unexpired. And on the expiration of a free miner's certificate the owner thereof shall absolutely forfeit all his rights and interest in or to any placer claim, mining lease, bed-rock flume grant, and any minerals in any ground comprised therein, and in or to any and every water right, mining ditch, drain, tunnel, or flume, which may be held or claimed by such owner of such expired free miner's certificate, unless such owner shall, on or before the day following the expiration of such certificate, obtain a new free miner's certificate. Provided, nevertheless, that should any co-owner fail to keep up his free miner's certificate, such failure shall not cause a forfeiture or act as an abandonment of the claim, but the interest of the co-owner who shall fail to keep up his free miner's certificate shall, *ipso facto*, be and become vested in his co-owners, *pro rata*, according to their former interests; provided, nevertherless, that a shareholder in a joint stock company need not be a free miner, and, though not a free miner, shall be entitled to buy, sell, hold, or dispose of any shares therein.

8. Every free miner shall, during the continuance of his certificate, but not longer, have the right to enter, locate, prospect, and mine for gold and other minerals upon any lands in the Yukon District, whether vested in the Crown or otherwise, except upon Government reservations for town sites, land which is occupied by any building, and any land falling within the curtilage of any dwelling house, and any land lawfully occupied for placer mining purposes, and also Indian reservations.

9. Previous to any entry being made upon lands lawfully occupied, such free miner shall give adequate security, to the satisfaction of the Mining Recorder, for any loss or damage which may be caused by such entry; and after such entry he shall make full compensation to the occupant or owner of such lands for any loss or damage which may be caused by reason of such entry; such compensation, in case of dispute, to be determined by a court having jurisdiction in mining disputes, with or without a jury.

NATURE AND SIZE OF CLAIMS.

10. A creek or gulch claim shall be 250 feet long measured in the general direction of the creek or gulch. The boundaries of the claim which run in the general direction of the creek or gulch shall be lines along bed or rim rock three feet higher than the rim or edge of the creek, or the lowest general level of the gulch within the claim, so drawn or marked as to be at every point three feet above the rim or edge of the creek or the lowest general level of the gulch, opposite to it at right angles to the general direction of the claim for its length, but such boundaries shall not in any case exceed 1,000 feet on each side of the centre of the stream or gulch. (See Diagram No. 1).

11. If the boundaries be less than one hundred feet apart horizontally, they shall be lines traced along bed or rim rock one hundred feet apart horizontally, following as nearly as practicable the direction of the valley for the length of the claim. (See Diagram No. 2).

12. A river claim shall be situated only on one side of the river, and shall not exceed 250 feet in length, measured in the general direction of the river. The other boundary of the claim which runs in the general direction of the river shall be lines along bed or rim rock three feet higher than the rim or edge of the river within the claim so drawn or marked as to be at every point three feet above the rim or edge of the river opposite to it at right angles to the general direction of the claim for its length, but such boundaries shall not in any case be less than 250 feet, or exceed a distance of 1,000 feet from low water mark of the river. (See Diagram No. 3).

13. A "hill claim" shall not exceed 250 feet in length, drawn parallel to the main direction of the stream or ravine on which it fronts. Parallel lines drawn from each end of the base line at right angles thereto, and running to the summit of the hill (provided the distance does not exceed 1,000 feet), shall constitute the end boundaries of the claim.

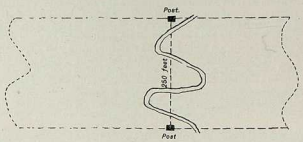
14. All other placer claims shall be 250 feet square.

15. Every placer claim shall be as nearly as possible rectangular in form, and marked by two legal posts firmly fixed in the ground in the manner shown in diagram No. 4. The line between the two posts shall be well cut out so that one post may, if the nature of the surface will permit, be seen from the other. The flatted side of each post shall face the claim, and on each post shall be written on the side facing the claim, a legible notice stating the name or number of the claim, or both if possible, its length in feet, the date when staked, and the full Christian and surname of the locator.

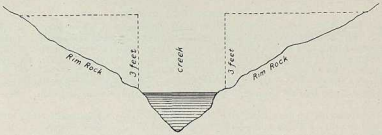
16. Every alternate ten claims shall be reserved for the Government of Canada. That is to say, when a claim is located, the discoverer's claim and nine additional claims adjoining each other, and numbered consecutively, will be open for registration. Then the next ten claims of 250 feet each will be reserved for the Government, and so on. The alternate group of claims

DIAGRAM No. I.

PLAN OF CREEK OR GULCH CLAIM.



SECTIONAL PLAN OF A CREEK CLAIM.



SECTIONAL PLAN OF A GULCH CLAIM.

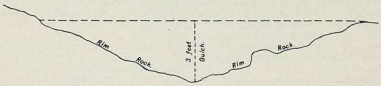


DIAGRAM No. 2.

PLAN SHEWING SIDE BOUNDARIES LESS THAN 100 FEET APART.

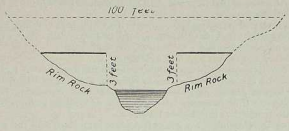


DIAGRAM No. 3.

SECTIONAL PLAN OF A RIVER CLAIM.

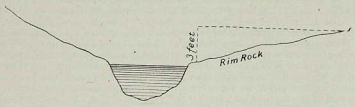
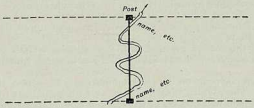


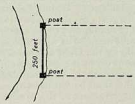
DIAGRAM No. 4.

SHOWING HOW CLAIMS ARE TO BE STAKED.

PLAN OF A CREEK OR GULCH CLAIM.



PLAN OF A RIVER CLAIM.



reserved for the Crown shall be disposed of in such manner as may be decided by the Minister o the Interior.

17. The penalty for trespassing upon a claim reserved for the Crown shall be immediate cancellation by the Mining Recorder of any entry or entries which the person trespassing may have obtained, whether by original entry or purchase, for a mining claim, and the refusal by the Mining Recorder of the acceptance of any application which the person trespassing may at any time make for a claim. In addition to such penalty, the Mounted Police, upon a requisition from the Mining Recorder to that effect, shall take the necessary steps to eject the trespasser.

18. In defining the size of claims, they shall be measured horizontally, irrespective of inequalities on the surface of the ground.

19. If any free miner or party of free miners discover a new mine, and such discovery shall be established to the satisfaction of the Mining Recorder, creek, river, or hill, claims of the following size shall be allowed, namely :—

To one discoverer, one claim, 500 feet in length.

To a party of two discoverers, two claims, amounting together to 1,000 feet in length.

To each member of a party beyond two in number, a claim of the ordinary size only.

20. A new stratum of auriferous earth or gravel situated in a locality where the claims have been abandoned shall for this purpose be deemed a new mine, although the same locality shall have been previously worked at a different level.

21. The forms of application for a grant for placer mining, and the grant of the same, shall be those contained in Forms "H" and "I" in the schedule hereto.

22. A claim shall be recorded with the Mining Recorder in whose district it is situated, within ten days after the location thereof, if it is located within ten miles of the Mining Recorder's office. One extra day shall be allowed for every additional ten miles or fraction thereof.

23. In the event of the claim being more than one hundred miles from a Recorder's office, and situated where other claims are being located, the free miners, not less than five in number, are authorized to meet and appoint one of their number a "Free Miners' Recorder," who shall act in that capacity until a Mining Recorder is appointed by the Gold Commissioner.

24. The "Free Miners' Recorder" shall, at the earliest possible date after his appointment, notify the nearest Government Mining Recorder thereof, and upon the arrival of the Government Mining Recorder, he shall deliver to him his records and the fees received for recording the claims. The Government Mining Recorder shall then grant to each free miner whose name appears in the records, an entry for his claim on form "I" of these regulations, provided an application has been made by him in accordance with form "H" thereof. The entry to date from the time the "Free Miners' Recorder" recorded the application.

25. If the "Free Miners' Recorder" fails within three months to notify the nearest Government Mining Recorder of his appointment, the claims which he may have recorded will be cancelled.

26. During the absence of the Mining Recorder from his office, the entry for a claim may be granted by any person whom he may appoint to perform his duties in his absence.

27. Entry shall not be granted for a claim which has not been staked by the applicant in person in the manner specified in these regulations. An affidavit that the claim was staked out by the applicant shall be embodied in form "H" in the schedule hereto.

28. An entry fee of fifteen dollars shall be charged the first year, and an annual fee of fifteen dollars for each of the following years. This provision shall apply to claims for which entries have already been granted.

29. A statement of the entries granted and fees collected shall be rendered by the Mining Recorder to the Gold Commissioner at least every three months, which shall be accompanied by the amount collected.

30. A royalty of ten per cent. on the gold mined shall be levied and collected on the gross output of each claim. The royalty may be paid at banking offices to be established under the auspices of the Government of Canada, or to the Gold Commissioner, or to any Mining Recorder authorized by him. The sum of $2,500.00 shall be deducted from the gross annual output of a claim when estimating the amount upon which royalty is to be calculated, but this exemption shall not be allowed unless the royalty is paid at a banking office or to the Gold Commissioner or Mining Recorder. When the royalty is paid monthly or at longer periods, the deduction shall be made ratable on the basis of $2,500.00 per annum for the claim. If not paid to the bank, Gold Commissioner or Mining Recorder, it shall be collected by the customs officials or police officers ohen the miner passes the posts established at the boundary of a district. Such royalty to form part of the consolidated revenue, and to be accounted for by the officers who collect the same in due course. The time and manner in which such royalty shall be collected shall be provided for by regulations to be made by the Gold Commissioner.

31. Default in payment of such royalty, if continued for ten days after notice has been posted on the claim in respect of which it is demanded, or in the vicinity of such claim, by the Gold Commissioner or his agent, shall be followed by cancellation of the claim. Any attempt to defraud the Crown by withholding any part of the revenue thus provided for, by making false statements of the amount taken out, shall be punished by cancellation of the claim in respect of which fraud or false statements have been committed or made. In respect to the facts as to such fraud or false statements or non-payment of royalty, the decision of the Gold Commissioner shall be final.

32. After the recording of a claim the removal of any post by the holder thereof, or by any person acting in his behalf for the purpose of changing the boundaries of his claim, shall act as a forfeiture of the claim.

33. The entry of every holder of a grant for placer mining must be renewed and his receipt relinquished and replaced every year, the entry fee being paid each time.

34. The holder of a creek, gulch or river claim may, within sixty days after staking out the claim, obtain an entry for a hill claim adjoining it, by paying to the Mining Recorder the sum of one hundred dollars. This permission shall also be given to the holder of a creek, gulch or river claim obtained under former regulations, provided that the hill claim is available at the time an application is made therefor.

35. No miner shall receive a grant of more than one mining claim in a mining district, the boundaries of which shall be defined by the Mining Recorder, but the same miner may also hold a hill claim, acquired by him under these regulations in connection with a creek, gulch or river claim, and any number of claims by purchase; and any number of miners may unite to work their claims in common, upon such terms as they may arrange, provided such agreement is registered with the Mining Recorder and a fee of five dollars paid for each registration.

36. Any free miner or miners may sell, mortgage, or dispose of his or their claims, provided such disposal be registered with, and a fee of two dollars paid to the Mining Recorder, who shall thereupon give the assignee a certificate in the form "I" in the schedule hereto.

37. Every free miner shall, during the continuance of his grant, have the exclusive right of entry upon his own claim for the miner-like working thereof, and the construction of a residence thereon, and shall be entitled exclusively to all the proceeds realized thereform, upon which, however, the royalty prescribed by these regulations shall be payable; provided that the Mining Recorder may grant to the holders of other claims such right of entry thereon as may be absolutely necessary for the working of their claims, upon such terms as may to him seem reasonable. He may also grant permits to miners to cut timber thereon for their own use.

38. Every free miner shall be entitled to the use of so much of the water naturally flowing through or past his claim, and not already lawfully appropriated, as shall, in the opinion of the Mining Recorder, be necessary for the due working thereof, and shall be entitled to drain his own claim free of charge.

39. A claim shall be deemed to be abandoned and open to occupation and entry by any person when the same shall have remained unworked on working days, excepting during the close season, by the grantee thereof or by some person on his behalf for the space of *seventy-two hours, unless sickness or other reasonable cause be shown to the satisfaction of the Mining Recorder, or unless the grantee is absent on leave given by the Mining Recorder, and the Mining Recorder, upon obtaining evidence satisfactory to himself, that this provision is not being complied with, may cancel the entry given for a claim.

40. If any cases arise for which no provision is made in these regulations, the provisions of the regulations governing the disposal of mineral lands other than coal lands, approved by His Excellency the Governor in Council on the 9th of November, 1889, or such other regulations as may be substituted therefor, shall apply.

FORM H.—APPLICATION FOR GRANT FOR PLACER MINING, AND AFFIDAVIT OF APPLICANT.

I (or we).....of.....hereby apply, under the Yukon Placer Mining Regulations, for a grant of a claim for placer mining as defined in the said regulations, in (here describe locality) and I (or we) solemnly swear:—

1. That from indications I (or we) have observed on the claim applied for, I (or we) have reason to believe that there is therein a deposit of gold.

2. That I (or we) am (or are) to the best of my (or our) knowledge and belief the first to observe such indications, or:—

3. That the said claim was previously granted to (here name the last grantee) but has remained unworked by the said grantee for not less than.....

4. That I (or we) am (or are) unaware that the land is other than vacant Dominion Lands.

5. That I (or we) did on the.....day of.....mark out on the ground, in accordance in every particular with the provisions of the mining regulations for the Yukon District, the claim for which I (or we) make this application, and in so doing I (or we) did not encroach on any other claim or mining location previously laid out by any other person.

6. That the length of the said claim, as nearly as I (or we) could measure is.....feet, and that the description of this date hereto attached, signed by me (or us) sets (or set) forth in detail, to the best of my (or our) knowledge and ability, its position.

7. That I (or we) make this application in good faith, to acquire the claim for the sole purpose of mining to be prosecuted by myself (or us) or by myself and associates, or by my (or our) assigns.

Sworn before me at.....
this.....day
of.....18...

(Signature)

*72 hours means three consecutive days of 24 hours each.

FORM I.—GRANT FOR PLACER MINING.

No.....

Department of the Interior,

Agency .....18.....

In consideration of the payment of the fee of fifteen dollars prescribed by clause 28 of the mining regulations for the Yukon District, by.....(A. B.).....of..... accompanying his (or their) application No.....dated.....18 , for a mining claim in .....(here insert description of locality).

The Minister of Interior hereby grants to the said.....(A. B.).....for the term of one year from the date hereof, the exclusive right of entry upon the claim ..... (here describe in detail the claim granted) for the miner-like working thereof, and the construction of a residence thereon, and the exclusive right to all the proceeds realized therefrom, upon which, however, the royalty prescribed by the regulations shall be paid.

The said.....(A. B.).....shall be entitled to the use of so much of the water naturally flowing through or past his (or their) claim, and not already lawfully appropriated, as shall be necessary for the due working thereof, and to drain his (or their) claim, free of charge.

This grant does not convey to the said .....(A. B.).....any right of ownership in the soil covered by the said claim, and the said grant shall lapse and be forfeited unless the claim is continuously and in good faith worked by the said ..... (A. B.) .....or his (or their) associates.

The rights hereby granted are those laid down in the aforesaid mining regulations, and no more, and are subject to all the provisions of the said regulations, whether the same are expressed herein or not.

.....

Mining Recorder.

FORM J.—CERTIFICATE OF THE ASSIGNMENT OF A PLACER MINING CLAIM.

No.....

Department of the Interior,

Agency.....18....

This is to certify that..... (B. C.).....of.....has (or have) filed an assignment in due form dated.....18 , and accompanied by a registration fee of two dollars, of the grant to..... (A. B.) ..... of..... of the right to mine in....(here insert description of claim)....for one year from the .....18.....

This certificate entitles the said..... (B. C.) .....to all the rights and privileges of the said..... (A. B.) .....in respect to the claim assigned, that is to say, to the exclusive right of entry upon the said claim for the miner-like working thereof and the construction of a residence thereon, and the exclusive right to all the proceeds realized therefrom (upon which, however, the royalty prescribed by the regulations shall be paid) for the remaining portion of the year for which the said claim was granted to the said ..... (A. B.) ..... that is to say, until the.....day of..... , 18....

The said..... (B. C.).....shall be entitled to the use of so much of the water naturally flowing through or past his (or their) claim and not already lawfully appropriated, as shall be necessary for the due working thereof and to drain his claim, free of charge.

This grant does not convey to the said ..... (B.C.) ..... any right of ownership in the soil covered by the said claim, and the said grant shall lapse and be forfeited unless the claim is continuously and in good faith worked by the said ..... (B.C.) .....or his (or their) associates.

The rights hereby granted are those laid down in the Yukon Placer Mining Regulations, and no more, and are subject to all the provisions of the said regulations, whether the same are expressed herein or not.

.....

Mining Recorder.

REGULATIONS

GOVERNING THE ISSUE OF LEASES TO DREDGE FOR MINERALS IN THE BEDS OF RIVERS IN THE PROVISIONAL DISTRICT OF YUKON, NORTH-WEST TERRITORIES.

(Approved of by Order in Council No. 125, of the 18th January, 1898.)

The following regulations are adopted for the issue of leases to persons or companies who have obtained a free miner's certificate in accordance with the provisions of the regulations governing placer mining in the Provisional District of Yukon, to dredge for minerals other than coal in the submerged beds or bars of rivers in the Provisional District of Yukon, in the North-west Territories :—

1. The lessee shall be given the exclusive right to subaqueous mining and dredging for all minerals with the except ionof coal in and along an unbroken extent of five miles of a river following its sinuosities, to be measured down the middle thereof, and to be described by the lessee in such manner as to be easily traced on the ground; and although the lessee may also obtain as many as five other leases, each for an unbroken extent of five miles of a river, so measured and described, no more than six such leases will be issued in favour of an individual or company, so that the maximum extent of river in and along which any individual or company shall be given the exclusive right above mentioned, shall under no circumstances exceed thirty miles. The lease shall provide for the survey of the leasehold under instructions from the Surveyor General, and for the filing of the returns of survey in the Department of the Interior within one year from the date of the lease.

2. The lease shall be for a term of twenty years, at the end of which time all rights vested in or which may be claimed by the lessee under his lease, are to cease and determine. The lease may be renewable, however, from time to time thereafter in the discretion of the Minister of the Interior.

3. The lessee's right of mining and dredging shall be confined to the submerged beds or bars in the river below water mark, that boundary to be fixed by its position on the first day of August in the year of the date of the lease.

4. The lease shall be subject to the rights of all persons who have received or who may receive entries for claims under the Placer Mining Regulations.

5. The lessee shall have at least one dredge in operation upon the five miles of river leased to him, within two seasons from the date of his lease, and if, during one season when operations can be carried on, he fails to efficiently work the same to the satisfaction of the Minister of the Interior, the lease shall become null and void unless the Minister of the Interior shall otherwise decide. Provided that when any company or individual has obtained more than one lease, one dredge for each fifteen miles or portion thereof shall be held to be compliance with this regulation.

6. The lessee shall pay a rental of $100.00 per annum for each mile of river so leased to him. The lessee shall also pay to the Crown a royalty of ten per centum on the output in excess of $15,000.00, as shown by sworn returns to be furnished monthly by the lessee to the Gold Commissioner during the period that dredging operations are being carried on; such royalty, if any, to be paid with each return.

7. The lessee who is the holder of more than one lease shall be entitled to the exemption as to royalty provided for by the next preceding regulation to the extent of $15,000.00 for each five miles of river for which he is the holder of a lease; but the lessee under one lease shall not be entitled to the exemption as to royalty provided by the next two preceding regulations, where the dredge or dredges used by him have been used in dredging by another lessee, or in any case in respect of more than thirty miles.

8. The lessee shall be permitted to cut free of all dues, on any land belonging to the Crown, such timber as may be necessary for the purposes of his lease, but such permission shall not extend to timber which may have been heretofore or may hereafter be granted to other persons or corporations.

9. The lessee shall not interfere in any way with the general right of the public to use the river in which he may be permitted to dredge, for navigation or other purposes; the free navigation of the river shall not be impeded by the deposit of tailings in such manner as to form bars or banks in the channel thereof, and the current or stream shall not be obstructed in any material degree by the accumulation of such deposits.

10. The lease shall provide that any person who has received or may receive entry under the Placer Mining Regulations shall be entitled to run tailings into the river at any point thereon, and to construct all works which may be necessary for properly operating and working his claim. Provided that it shall not be lawful for such person to construct a wing-dam within one thousand feet from the place where any dredge is being operated, nor to obstruct or interfere in any way with the operation of any dredge.

11. The lease shall reserve all roads, ways, bridges, drains and other public works, and all improvements now existing, or which may hereafter be made, in, upon or under auy part of the river, and the power to enter and construct the same, and shall provide that the lessee shall not damage or obstruct any public ways, drains, bridges, works and improvements now or hereafter to be made upon, in, over, through or under the river; and that he will substantially bridge or cover and protect all the cuts, flumes, ditches and sluices, and all pits and dangerous places at all points where they may be crossed by a public highway or frequented path or trail, to the satisfaction of the Minister of the Interior.

12. That the lessee, his executors, administrators or assigns shall not nor will assign, transfer or sublet the demised premises, or any part thereof, without the consent in writing of the Minister first had and obtained.

Miners and Prospectors' Supplies

CLOTHING, Sleeping Bags, Dunnage Bags, Carrying Sleds, Rifles, Revolvers, Cartridges, Powder, Shot, Gold Belts, etc.

Plates, Knives, Forks, Spoons, Butcher Knives.

Pans, Rope, Steel, Drills, Drilling Hammers, Sledges, Picks, Mortars, Axes, Saws, Grindstones, Bellows, Forges, Crowbars, Oakum, Pitch, Axe, Pick and Hammer Handles, etc., etc.

RICE LEWIS & SON

(LIMITED)

COR. KING AND VICTORIA STS. TORONTO

.. CANADA ..

GRAND TRUNK RAILWAY SYSTEM

The Grand Trunk Railway System

Is the Quickest, Most Direct and Popular Route to the

KLONDIKE

AND

YUKON GOLD FIELDS

FROM the Eastern part of Canada and the Eastern States travellers pass through the principal cities and towns in Canada, and from New York and Pennsylvania States Passengers are carried, via Niagara Falls, over the New Single Arch Double Track Steel Bridge which spans the Niagara River and from which a full view of the Falls is obtained from the train. All trains westbound pass through the thickly populated part of Canada, entering the United States at Port Huron, traversing the states of Michigan, Indiana, and part of Illinois, bringing the traveller to Chicago, the great commercial metropolis of the Western States, thence via their connecting lines through a panoramic splendor of scenery to the North Pacific Coast (Victoria, B.C., Seattle, Wash., etc.), and by steamer from there to Fort Wrangel, Dyea, etc.

Klondike pamphlets and maps, containing exhaustive descriptive matter as to the Yukon district, and all information furnished upon application to any Grand Trunk Agent, or to

T. WYNNE, Travelling Passenger Agent, 191 Washington St., Boston, Mass.
J. D. McDONALD, City Passenger and Ticket Agent, 285 Main St., Buffalo, N.Y.
R. BUSHBY, Travelling Passenger Agent, Cortland, N.Y.
F. P. DWYER, Eastern Passenger Agent, 273 Broadway, New York, N.Y.
D. G. PEASE, District Passenger Agent, Montreal.
M. C. DICKSON, District Passenger Agent, Toronto.

CHAS. M. HAYS,
General Manager,
MONTREAL.

GEO. B. REEVE,
General Traffic Manager,
MONTREAL.

W. E. DAVIS,
Gen. Pass. and Tkt. Agt.
MONTREAL.

GEO. T. BELL,
Asst. Gen. Pass. and Tkt. Agt.
MONTREAL.

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Asst. Gen. Pass. and Tkt. Agt.
CHICAGO.

--YUKON SUPPLIES--

SUCH AS....

Evaporated Potatoes
Sliced Potatoes
Granulated Potatoes
Evaporated Onions
Evaporated Vegetables
Compressed Soups
Beef Bouillion, Etc.
Condensed Cream
Condensed Milk
Condensed Coffee
Condensed Cocoa
Concentrated Vinegar

PACKED EXPRESSLY TO WITHSTAND ADVERSE CLIMATIC CONDITIONS. QUALITY——THE BEST.

PUT UP IN HERMETICALLY SEALED TINS and CONVENIENTLY PORTABLE PACKAGES.

We are Importers and Packers of unquestionably the finest Tea in Canada. Black or Mixed. **KURMA TEA**

PACKED ONLY IN AIR TIGHT LEAD PACKETS.

We can also quote on all lines of General Groceries as required by Expeditionary parties.

WRITE US....

THE DAVIDSON & HAY LTD.

WHOLESALE GROCERS AND IMPORTERS

36 Yonge Street - - - TORONTO, ONT.

The citrates, tartrates, etc., extracted from pure fruits, act on the system with the same beneficial results as the salt contained in the juices of fresh fruits. These salts are the foundation of ABBEY'S EFFERVESCENT SALT. The scarcity of fresh fruits in winter time makes Abbey's Effervescent Salt all the more necessary to the health.

All druggists sell this standard English preparation at 60c a large bottle; trial size, 25c.

There are many potent reasons why you should bring an ample supply of Abbey's Effervescent Salt with you to the Klondike. Abbey's Effervescent Salt is a regulator of health. Its use anywhere is beneficial. Its use in the Klondike will prevent Scurvy and Constipation. Scurvy is due to the use of salt meat, bad water and imperfect hygienic conditions, and especially to the want of fresh vegetables or fruits. All these causes and conditions exist in the Klondike. The constituents of Abbey's Effervescent Salt are such that its constant use will prevent this dreaded disease. The necessity for keeping the system clear is also especially to be considered in a region such as the Klondike, where peculiar conditions exist which will bring about Constipation, by reason of the diet and the enforced irregularity of living in that section. Abbey's Effervescent Salt is absolutely without equal as a remedy and preventive of Constipation. You should carry at least a half-dozen bottles (large size) with you for these reasons, as well on account of its excellence, as for the reason that a bottle contains from 40 to 50 doses, and its contents are in the most compact granular form.

Two selections from numerous Canadian endorsations:

The Canada Lancet: "This preparation deserves every good word which is being said of it. There is no doubt but that the daily use of Abbey's Effervescent Salt will be a great preventive and aid in warding off attacks of disease."

J. A. S. Brunelle, M.D., C.M., Montreal, Professor of Surgery, Laval University Medical Faculty; Surgeon to the Hotel Dieu, etc., says: "I have found it particularly beneficial in the treatment of derangements of the liver and of the digestive organs, and consider that the regular use of a preparation of this nature has a decided tendency to prolong life. I am using it in my hospital practice."

Don't kill the goose that lays the golden egg. Your future wealth depends upon your present health. Take care of it in your own interests. ABBEY'S EFFERVESCENT SALT is the best known regulator of health. It's daily use will keep your spirits bright and your health good—keep you in a money-making mood. All druggists sell this standard English preparation at 60c a large bottle; trial size, 25c.

Klondike Outfits

MANUFACTURED BY

JOHN LECKIE

76 WELLINGTON ST. WEST,

AND GRANVILLE ST., VANCOUVER, B.C. TORONTO

WATERPROOF DUCK SLEEPING BAGS
WINDPROOF DUCK SLEEPING BAGS } all styles and sizes.

PURE WOOL BLANKETS,
Grey, 10 and 12 lbs.; also Arctic Stockings.

WINDPROOF DUCK TENTS,
best quality, any size or style made to order.

WATERPROOF CANVAS BAGS,
to hold provisions, etc., any size made.

WATERPROOF CANVAS COVERS,
with or without tie ropes, to protect goods on board boats, waggons, sleighs, etc., any size.

DUNNAGE BAGS AND KNAPSACKS,
waterproof, to pack clothing, blankets, etc., best styles.

WATERPROOF SHEETS, OILED WATERPROOF CLOTHING,
yellow or black, best in the market.

CANVAS WATER BUCKETS,
mounted, with rope, etc.

CANVAS FEED BAGS FOR HORSES, patent.

BOAT SAILS AND RIGGING, ROWLOCKS, etc.

MANILLA AND TARRED ROPES, best quality, TACKLE BLOCKS, all sizes.

GUM BOOTS,
hip and knee, duck foundation, snag-proof, with and without leather soles and heels, with hob nails, made specially for miners.

FISHING NETS,
mounted, ready for use, any length.

FISHING LINES, TROLLING LINES, HOOKS, SPOON BAIT, ETC., ETC.

CAULKING COTTON, OAKUM, SEWING TWINES, NEEDLES, ETC., ETC.

N.B.--All canvas goods above specified as waterproof are guaranteed to be ABSOLUTELY WATERPROOF, and will neither mildew nor rot, as these goods will not absorb moisture under any conditions and the most intense cold will not cause them to crack.

Keep in stock Cotton Ducks from 14 inches to 72 inches wide, in various weights and best qualities only.

... SEND FOR PRICE LISTS ...

Canadian Goods for Canada's

... Klondike ...

And there are none better than

LYTLE'S *Sterling* BRANDS

Mixed Pickles
Mustard Pickles
Chillie Sauce
Royal Club Sauce
Tomato Catsup

QUALITY FIRST AND ALWAYS

Jams and Jellies
Marmalade
Mince Meat
Maple Syrup
Maple Sugar

Raspberry Vinegar

Lytle's Standard Vinegars

ENGLISH AND CANADIAN MALT
WHITE WINE AND CIDER

Are Unsurpassed

All goods carefully prepared for Klondike shipment.
Insist on your grocer supplying these goods and

TAKE NO OTHERS

T. A. LYTLE & CO.

MANUFACTURERS

TORONTO, ONT.

Miners' Supplies. : :

The Largest Stock of Hardware in Canada, Including the Following Requisite Articles, Endorsed by this Official Guide:

Repeating Rifles.
Winchester Rifles.
Winchester Cartridges.
Klondike Picks.
Prospecting Picks.
Chisels.
Oakum.
Gold Pans.
Poll Picks.
Axes.
Shovels.
Pocket Knives.
Dirks.
Gold Miners' Scales.
Miners' Loops or Magnifying Glasses.
Web Belts.
Money Belts.
Pack Straps.
Shot Guns.
Smith & Wesson Revolvers.
Iver Johnson Revolvers.
U.M.C. Loaded Shells.
Drifting Picks.
Pocket Compasses.
Cutting Chisels.
Klondike Boat Caulking Irons.
Hammers.
Handsaws.
Rowlocks.
Planes.
Augers.
Butcher Knives.
Table Cutlery.
Sheaths and Belts.
Whipsaws.
Tiller and Box.

Packed, Ready for Carrying, in Small Boxes.

Caverhill, Learmont & Co., 89 St. Peter St., MONTREAL.

THIS ADVERTISEMENT is specially directed to all persons going to the

Klondike

IT is a well known fact that the climate there is more severe in every way than our own, and any person going there insufficiently protected from the cold and bitter winds is a **FOOL** and only goes to suffer untold hardships of which the ordinary mortal has little conception. At this point our Company comes to the front with our world-renowned **Fibre Chamois,** which we claim is the only positive protection that has or can be offered to the traveller going to that region of ice and snow. We claim that it is impossible for the cold winds to penetrate clothing lined with **Fibre Chamois,** and the same properties prevent the heat of your body from escaping, thus keeping you warm and comfortable. **Our Fibre Chamois Blankets** are the acme of perfection for that trip. Why pay transportation on an extra 8 or 10 lb. blanket when you can get more solid protection and heat from our blanket weighing 1½ lbs., thus saving about 8 lbs. straight. Take your pencil and figure what it will cost you to take 8 lbs. of extra, useless freight to the Klondike; enquire the cost of a Fibre Chamois Blanket and see what you are saving.

YOU CAN GET these goods in the celebrated Rigby Waterproofed make if you want it, at about same price. See that our Star Label is on each blanket, and, if your dealer has not the blankets, buy two yards of the genuine Fibre Chamois and make them yourself in about ten minutes.

For Sale at all Leading Dry Goods Stores
Price 25 cents per yard

Wabash Railroad

If you are contemplating a trip to the

Klondike. or any point in **.Alaska**

please consider the merits of the great Wabash Railway. The short and true route via Detroit and Chicago, to all the Gold Fields in the Far North.

The Wabash with its superb and magnificent train service is now acknowledged to be the most perfect railway system in America; the only line in Canada running the celebrated free chair car. All trains run solid from Buffalo to Chicago, passing through St. Catharines, Hamilton, Woodstock, London and Chatham.

Time Tables, Maps and all information cheerfully furnished on application to Wabash Railroad Office, North East Corner King and Yonge Street, Toronto.

C. S. CRANE
General Passenger and Ticket Agent

H. V. P. TAYLOR
Assistant General Passenger and Ticket Agent
St. Louis, Mo.

J. A. RICHARDSON
Canadian Passenger Agent
N.E, Cor. King and Yonge Sts.
Toronto, Ont.

Vimbos

(Ox-Strength in a Tea Cup)

FLUID BEEF

Klondike Expeditions Need That

The ideal package for this purpose is our **16 oz. Tin with Penny-lever Top,** which can be opened and closed without injury to the tin or contents.

The most convenient and economical package; makes **60 cups** of Fluid Beef.

Best For Strength and Flavor

Vimbos Fluid Beef is prepared in Edinburgh, Scotland, and is guaranteed to be of prime quality.

It will pay you to write for quotations before laying in supplies.

The Vimbos Fluid Beef Co., Limited, of Edinburgh and London

CANADIAN OFFICE:

HENRY WOODLEY, Manager. 53 St. Francois Xavier St., MONTREAL.

E. G. PRIOR & CO.

LIMITED LIABILITY

VICTORIA === BRITISH COLUMBIA

ESTABLISHED 1859

IRON, HARDWARE, WAGONS, SLEIGHS

Miners' Outfits a Specialty

WE CARRY A VERY HEAVY STOCK OF ALL KINDS OF

AXES	GRANITE WARE	ROCKER IRONS
AUGERS	HAMMERS	ROPE
CHISELS	HATCHETS	ROWLOCKS
COOKING UTENSILS	ICE CREEPERS	SAWS
COMPASSES	KNIVES	SHOVELS
EYE PROTECTORS	NAILS	SLEIGHS
FILES	OAKUM	STEEL
FRY PANS	PITCH	STOVES
GOLD PANS	PICKS	TALLOW
GOLD SCALES	PLANES	ETC., ETC., ETC.

.....We have been outfitting miners for the Cariboo, Cassiar and Yukon Gold Fields for the last 30 odd years, and therefore know exactly what style of goods are required and how they should be packed.

Buy from us and Save 30 per Cent. Duty

which you will have to pay on your outfits if you buy in Seattle or San Francisco. We make no charge for packing, and we furnish free of charge all Custom House Papers which are necessary for passing into the Yukon.

We call miners' attention specially to our "MASCOT" SLEIGH, which is the only Sleigh endorsed by experienced Yukon Miners.

CALL AND INSPECT OUR GOODS AT

Cor. Government and Johnston Sts., Victoria, B.C.

THE STROHMAYR
..PATENT SLEEPING BAG..

MANUFACTURED BY

GILLESPIE, ANSLEY & DIXON, Toronto, Can.

A practical and proper sleeping bag has never been offered in Canada until we submitted the "Strohmayr Patent Sleeping Bag."

The fault of sleeping bags has been the difficulty in keeping them sweet and clean. When blankets are used, it has been possible to pull them inside out, but most all are too bulky, especially when a fur lining has been used.

In the "Strohmayr Bag" you pull a few buttons, and you no longer have a sleeping bag, but in its place you have a large fur rug, with new uses for camp comfort. This sleeping bag has to be seen to be appreciated, for nothing so good, so clean, or so warm has been produced before. It is made up with outside cover of waterproof, also wind-proof duck, lined with Dog, a fur perfectly adapted for the purpose, being short and strong.

We are also showing a very complete line of Klondike supplies at best possible prices, as follows :—

Yukon Bag, regulation shape, with any lining, laced up front with Hood.

Wolf Robe, 8 x 9 feet, as used by Mounted Police.

Natural Black Dog Coat, with Capot.

Coon Coat, with Capot.

Duck Pea Coat, lined with Spotted Dog, Natural Black Dog or Sheep Skin.

Wolf or Muskrat Band, Duck Top Klondike Cap.

All Muskrat Klondike Caps.

Cloth Caps, plain or with patent Eye Protectors.

Mattassana Buffalo Moccasins, waterproof, and will never get hard.

Mattassana Buffalo Short and Long Mitts.

We have purchased the right to manufacture this Bag from the patentee, consequently are the only house showing them.

TESTIMONIAL

25th Jan., 1898.

I have examined the *Sleeping Bag* made by *Gillespie, Ansley & Dixon* of Toronto, and consider it a convenient, serviceable article for travelling in the northern parts of this continent.

WM. OGILVIE.

GILLESPIE, ANSLEY & DIXON

Nos. 54 and 56 Wellington Street West

TORONTO, Can.

SHOWING STROHMAYER BAG SPREAD OUT. 6 FEET WIDE, 9 FEET LONG.

Klondike : Complete : Outfit

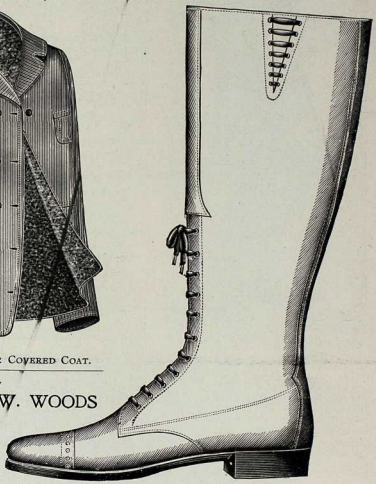
COMPRISING

"ALASKA BRAND" EIDERDOWN SLEEPING BAGS
(WATERPROOF)

DUCK AND MACINAW CLOTHING

Such as we supplied to Canadian Government exploring parties, including Hon. Mr. Sifton and Major Walsh's, and Northwest Mounted Police for the Yukon.

FUR LINED, LEATHER COVERED COAT.



PROSPECTOR'S WATERPROOF RAWHIDE BOOT, LACED ON SIDE

Manufactured Wholesale by

JAMES W. WOODS

...75 Queen Street..
OTTAWA, Ont...

Lumbermen's Supplies

HOOD AND SLEEPING BAG—14 LBS.

SEND FOR CATALOGUE

TORONTO OFFICE - 85 King Street West
(DR. JAEGERS)

MONTREAL OFFICE - - - 290 Guy Street

VANCOUVER, B.C. OFFICE - 536 Hastings St.
J. F. CARRUTHERS, Agent

C. P. Navigation Co. Time Table No. 33

Takes effect Feb. 1st, 1898

LIMITED

VANCOUVER ROUTE.

Victoria to Vancouver—Daily, except Monday, at 1 o'clock.
Vancouver to Victoria—Daily, except Monday, at 13.15 o'clock, or on arrival of C.P.R. No. 1 train.

NEW WESTMINSTER ROUTE.

Leave Victoria for New Westminster, Ladner's and Lulu Island—Sunday at 23 o'clock; Wednesday and Friday at 7 o'clock. Sunday's steamer to New Westminster connects with C.P.R. train No. 2 going East Monday.
For Plumper Pass—Wednesday and Friday at 7 o'clock.
For Moresby and Pender Islands—Friday at 7 o'clock.
Leave New Westminster for Victoria—Monday at 13.15 o'clock; Thursday and Saturday at 7 o'clock.
For Plumper Pass—Thursday and Saturday at 7 o'clock.
For Pender and Moresby Islands—Thursday at 7 o'clock.

NORTHERN ROUTE.

Steamships of this Company will leave for Fort Simpson and intermediate ports, via Vancouver, the 1st and 15th of each month at 8 o'clock. And for Skidegate on first of each month.

BARCLAY SOUND ROUTE.

Steamer Tees leaves Victoria for Alberni and Sound Ports the 10th, 20th and 30th of each month.

KLONDIKE ROUTE.

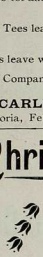
Steamers leave weekly for Wrangel, Juneau, Dyea and Skagway.

The Company reserves the right of changing this Time Table at any time without notification.

JOHN IRVING, Manager.

G. A. CARLETON, General Agent.
Victoria, Feb. 1st.

Christie's Klondike Biscuits



Are put up in twenty-five pound tin-lined cases only. They are the most suitable biscuits for prospectors or campers ever made.

CHRISTIE, BROWN & CO.

Price Reasonable
We are the only makers

BISCUIT MANUFACTURERS
TORONTO, CANADA

Canadian Mining Stocks and Properties

Investments Made or Investigated.

Any Information Desired will be Cheerfully and Promptly Furnished by the Undersigned.

SECRETARY OF
THE DIAMOND JUBILEE MINERAL DEVELOPMENT COMPANY, Limited
Cable Address—"REVELYN"

E. STRACHAN COX
STOCK AND SHARE BROKER
9 Toronto Street - - - Toronto, Ont.
Codes Used—BEDFORD-McNEIL and MOREING & NEAL

Wellington Coal . . . .

The Best Household Coal
on the Pacific Coast.
Mined only by

HEAD OFFICE;
VICTORIA, B.C.

R. DUNSMUIR & SONS,
WELLINGTON, B.C.

COMAX COAL

The Best Steam Coal on the Pacific Coast

MINED ONLY BY

The Union Colliery Co. of B.C.
LIMITED LIABILITY

Head Office—VICTORIA, B.C.

COMAX, B C.

COMAX COKE

The only Coke manufactured in British Columbia

MANUFACTURED BY

The Union Colliery Co., Comax, B.C.

HEAD OFFICE, VICTORIA, B.C.

CONCENTRATED FOODS

PREPARED BY

BOVRIL LIMITED

These Goods are Indispensable in a **KLONDIKE EXPLORER'S OUTFIT.**

They are all Health Preserving and Strength Producing Foods, the best in existence for men who require great physical endurance.

BOVRIL IN TINS

Is simply Pure Beef in its most concentrated form, and ready for immediate use.

CARTRIDGE RATIONS

Packed in Tins, with Rounded Ends, and Opener Attached.

BLUE.

Length - - - - 7 in.
Gross Weight - 14¼ oz.
Net - - - - - - 11 oz.

RED.

Length - - - - 5½ in.
Gross Weight - - 11 oz.
Net - - - - - 8 oz.

As supplied for the use of the Troops in the late Ashanti and Benin Expeditions. Also to the Independent State of the Congo, etc., etc.

BLUE OR RED RATION

Containing in one compartment same as in the Cartridge Ration, and a Concentrated Cocoa preparation in another compartment.

RED.

Length - - - - - 4½ in.
Gross Weight - - - 10 oz.
Net - - - - - - - - 6 oz.

BLUE.

Length - - - - - 5¼ in.
Gross Weight - - - 12 oz.
Net - - - - - - - - 8 oz.

As supplied for the use of the Troops in the Ashanti and Benin Expeditions.

BACON RATION

Made from Pure Irish Bacon, weighing tin and all, 9 ozs.

Equal to 16 ozs. of the best Cured Bacon.

In addition to the above specialties the Company manufacture the following other foods:

DRIED VEGETABLES - - DRIED POTATOES
DRIED ONIONS - DRIED TURNIPS, Etc.

With all their Original Flavor Retained, and packed in Self-opening Tins.

JOHNSTON'S FLUID BEEF in Tins, and the Effectual Preventative to Scurvy.

Lime Juice Nodules

In the packaging of these goods the minimum in bulk and weight has been secured, and they are therefore the most convenient of all food supplies for **Prospectors, Explorers or Surveyors**

THEY ARE MANUFACTURED ONLY BY

BOVRIL LIMITED

30 Farringdon Street
LONDON, ENGLAND

27 St. Peter Street
MONTREAL, CANADA

The Merchants Bank of Halifax

INCORPORATED 1869

Capital Paid Up, $1,500,000.00 **Rest, $1,175,000.00**

HEAD OFFICE - - - HALIFAX, NOVA SCOTIA

THOS. E. KENNY, President D. H. DUNCAN, Cashier

Branches in the Province of Nova Scotia, New Brunswick, Prince Edward Island, Quebec and British Columbia, and at St. Johns, Nfld.

BANKERS AND CORRESPONDENTS

London	Bank of Scotland	San Francisco	Hong Kong and Shanghai Bkg. Cor'pn
Paris	Credit Lyonnais	Boston	National Hide and Leather Bank
Bermuda	Bank of Bermuda	Chicago	American Exchange National Bank
New York	Chase National Bank	China and Japan	Hong Kong and Shanghai Bkg. Corp.

A General Banking Business Transacted.
Sterling Bills of Exchange Bought and Sold.
Letters of Credit, etc., Negotiated.

Money Deposited with the Bank of Scotland, Bishopsgate Street, London, can be Transferred by Draft, Letter of Credit or Cable to any Branch of this Bank.

BRANCHES IN BRITISH COLUMBIA

VANCOUVER - - NELSON - - - ROSSLAND

Lockerby Bros.

TEA IMPORTERS AND WHOLESALE GROCERS

.Klondike Supplies a Specialty.

Full Line of Evaporated and Desiccated Vegetables.

Canned Meats, Fruits and Vegetables.

Nos. 77 and 79 ST. PETER STREET
and 51 and 53 ST. SACRAMENT STREET

==== **Montreal, P.Q.** ====

Special Klondike Clothing

"ROOSTER BRAND"

Rubberized Duck Coats ..and Pants

Lined With Mackinaw.....Rain and Wind Proof.
Light, Warm and Durable.
The Best Possible Klondike Suit.

Mackinaw Jackets, Pants, Drawers, etc.

Specially Made for Klondike.

Extra Comfortable Shirts of Every Kind and Description.

Extra Strong Riveted Overalls and Jumpers
Specially Made for Miners.

Every **"ROOSTER BRAND"** Garment is the Best of the Kind.

MANUFACTURED BY

Robert C. Wilkins

198 McGill Street, MONTREAL

OUTFITTER FOR THE KLONDIKE

Klondike Goods

Beal Bros.

—MAKE—

HAIR LINED BOOTS, MOCCASINS, LARRIGANS, SHOEPACKS AND LEGGINGS.

OIL TANNED MOCCASINS, LARRIGANS, BOOTS AND LEGGINGS.

MINERS' BOOTS OF ALL KINDS.
LUMBERMEN'S BOOTS OF ALL KINDS.

IN FACT, ANYTHING REQUIRED IN FOOTWEAR FOR

.... KLONDIKE, MINERS' OR LUMBERMEN'S TRADE ....

BEAL BROS.

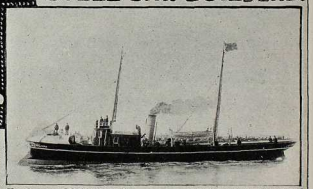
TANNERS AND LEATHER MERCHANTS

52 Wellington Street East..... .....Toronto, Ontario

THE
POLSON IRON WORKS.

TORONTO.
CANADA.

MANUFACTURERS OF
ENGINES AND BOILERS
FOR EVERY SERVICE.
STEEL SHIPBUILDERS.



THE CRUISER **CONSTANCE** BUILT FOR THE **DOMINION GOVERNMENT**.
THE **PETREL** AND **CURLEW** WERE ALSO BUILT AT THESE WORKS.

A Liberal and a Conservative Policy for Canada

SUCH IS THE FREE ACCUMULATION
POLICY OF THE

..Royal=Victoria..

Life Insurance Company

Head Office - - - MONTREAL **Capital - - - $1,000,000**

A Liberal Policy Under Conservative Management

The Best for the Insured and Best for the Company

LIBERAL ADVANTAGES OF THE FREE ACCUMULATION POLICY

1st. Freedom of occupation including military or naval service in the defence of Canada.
2nd. Freedom of residence (excepting in the tropics).
3rd. Freedom of travel (excepting in the tropics).
4th. Incontestable with above exceptions.
5th. Indisputable if premiums paid and age admitted.
6th. Incorrect AGE DOES NOT forfeit the policy.
7th. Paid up Insurance after three years.
8th. Loans on the policy after three years at 6 per cent. interest.
9th. 30 days grace for payment of premiums, policy continued in force during grace.
10th. Re-instatement of policy within six months.
11th. Immediate payment of death claims on satisfactory proofs of death.
12th. Policy payable in Canada in the currency of Canada.

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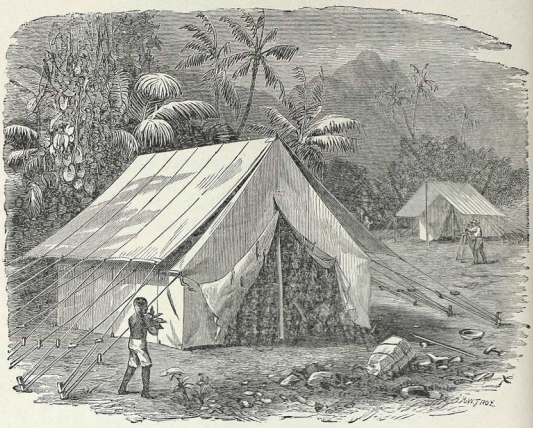
For Agencies or Information concerning Life Policies or Annuities apply to the HEAD OFFICE, MONTREAL.

Miners' KLONDIKE Outfits

When in Montreal Visit our Warerooms



Sleeping Bags, Dunnage Bags, Oiled Clothing, Waterproof Sheets, Klondike Boots, Fishing Tackle, Canvas, Rope, Blocks, Kit-Bags, Knapsacks, Belts, Packstraps, Rubber Goods, Hammocks.

Eider-down Sleeping Bags and Hoods. (These are the best for cold weather).

We have fitted out a great number bound for the Gold Fields, and our goods have been used by the most prominent expeditions and have given entire satisfaction.

We have the largest and most varied stock in Canada.

TENTS—(Our own special make), double or single as required. Finished specially for hard usage.

MINERS' TOOLS—The latest on the market.

FOLDING STOVES (with cooking utensils of all kinds).

Shot Guns, Revolvers, Rifles—See our latest, Rifle and Shot Gun combined.

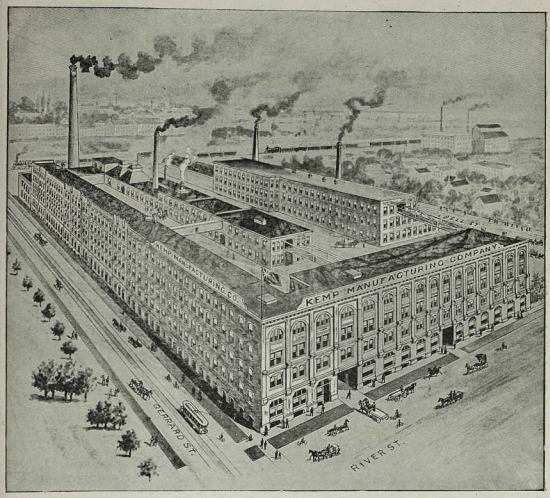
Ask for our $12.00 OUTFIT. **Tent, Stove, Stool, Cooking Utensils and Waterproof Sheet. Complete outfit for one man.**

Headquarters—34 and 36 Victoria Square

MONTREAL, CANADA.

The "Sonne" Awning, Tent and Tarpaulin Co.

MANUFACTURERS AND IMPORTERS.



KEMP'S KOOTENAY KLONDIKE .Supplies

Granite, Steel or Tin Cooking Utensils, Gold Pans, Etc.

Kemp Manufacturing Company

Enameled Sheet Metal Ware, Stamped Steel Ware,
Steel Kitchen Sinks, Stamped Tin Ware, Household Goods, Galvanizers
Copper Goods, Machine Oilers, Etc.

TORONTO, CANADA

KLONDIKE

How to Go! When to Go! What to Take! Where to Outfit!

For advice on all these important matters, and for purchasing supplies of best quality at lowest prices, with suitable packing for the journey, go to the Pioneer Outfitters of British Columbia.

OPPENHEIMER BROS., Ld. Lby.

IMPORTERS, WHOLESALE GROCERS AND MINERS' OUTFITTERS

100 and 102 Powell St. Vancouver, B.C.

Who have had 35 years' practical experience in outfitting miners and survey parties. The most reliable information cheerfully afforded. Get our circular and give us the address of your friends to whom we will mail it free of charge. Remember that goods purchased in Canada are admitted into the Klondike free of duty. American goods must pay duty.

M. R. SMITH & CO.

BISCUIT MANUFACTURERS

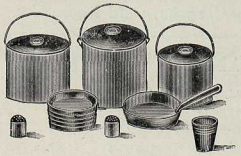
Established 1858. VICTORIA, B.C.

We make a SPECIAL BISCUIT for the KLONDIKE, carefully prepared with finest vegetables in a condensed form and packed in tins. This is an excellent food for mining camps and those taking long journeys. Our DOG BISCUITS are the cheapest and best in the market. Try them.

☞ This is the largest biscuit factory in Western Canada.

Awarded Three Gold Medals and Six Silver Medals at B.C. Exhibitions. Awarded Medal and Diploma at Colonial and Indian Exhibition, London, England, 1896. Contractors to H.M. Navy, the Dominion Government, etc.

ALUMINUM CAMP COOKING OUTFITS



Any experienced miner will tell you **Aluminum** is the **cheapest goods** to take to the **Klondike**. Almost four times lighter than ironware. Saves materially in freight. Pure, healthful, clean and non-corrosive, never gets out of order and will last a lifetime.

Utensils for three and six persons all nest in largest pan —10x6½ in.

No intelligent person would go to the gold fields without our Aluminum Camp Sets.

Write for Illustrated Catalogue.

We furnish Gold Washing Pans in Aluminum and Black and Polished Steel.

All leading outfitters in B.C. carry our goods.

We manufacture all kinds of Aluminum Wares.

C. T. CHRISTIE & CO., 365 ST JAMES ST. MONTREAL

NEW - Latest Great Scientific Discovery

..AIR

Harnessed and Compressed

Scientists Puzzled.
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Proved Practical.
155 H.P. Plant Installed.
Cheap Installation.
Last a Life-time.
No Repairs.
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Constant Pressure.
Air 5 Times Drier Than Atmosphere.
Can be Transmitted Many Miles at Small Loss.

Send for Particulars to The

Taylor Hydraulic Air Compressing Company Limited

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or **The Taylor Air Compressing Company** Limited

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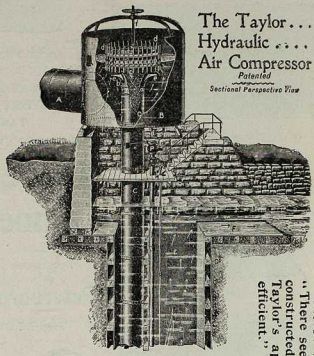
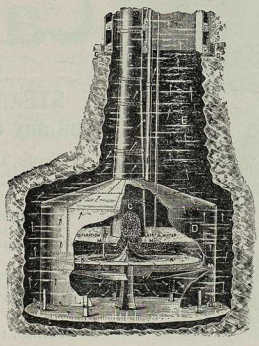
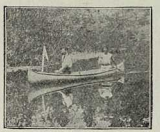




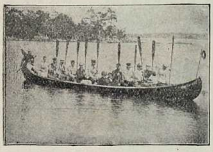
PROF. W. C. UNWIN, London, Eng., in his report says:—"There seems no reason why the apparatus should not be constructed on a very large scale." "As a Compressor, Mr. Taylor's apparatus appears to me entirely successful and efficient."

MR. OGILVIE'S "NELSON" CANOE

19 FT. CANOE, SHOWING CARRYING CAPACITY



LIGHT CANOE

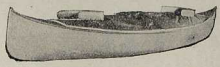


30 FT. CANOE

HUNTING CANOE

25 FT. CANOE

KLONDIKE CANOES



MR. OGILVIE'S CANOE WITH COVER

OUR CATALOGUE COVERS
EVERYTHING THAT FLOATS
TAKE A DIP INTO IT

The Peterborough Canoe Company

Limited

SUCCESSORS TO THE ONTARIO CANOE CO.

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THE LEADING MANUFACTURERS
OF ALL KINDS

Canoes

....SKIFFS....
STEAM LAUNCHES
And any Craft that Floats

Tents, Camp Furniture and Camp Equipage

We have been building Canoes for Mr. W. Ogilvie and other Government Explorers since 1884.

Send for our CATALOGUE, and send in your Order.

W. H. HILL, President
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Outfit and start from VANCOUVER because

1. **Vancouver** is the nearest port to Alaska.

2. **Vancouver** goods are the Cheapest and Best on the Coast.

3. **Vancouver** goods pay no Customs Duties, being Canadian make, and the Klondike being in Canada.

4. **Vancouver** Merchants have long experience of the Northern Trade, and, having gone through the Cassiar and Cariboo rushes, know how to outfit and pack their goods.

5. **Vancouver** runs its own Steamers, and all north-going Steamers as well call at VANCOUVER.

6. **Vancouver** is the only Canadian Port where Passengers can step direct from Train into Steamer.

7. **Vancouver** Freight is last on board, and first disembarked. Practical men know the value of this pointer.

8. **Vancouver** is a place of issue of Miners' Licenses. Those who pass VANCOUVER without a Miner's License cannot get one till they reach Dawson City.

Maps and Information Free from

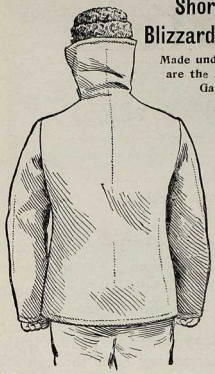
W. GODFREY,

President Board of Trade,

VANCOUVER, BRITISH COLUMBIA.

Shorey's Patent Blizzard Resister Suits

Made under Patent No. 1062 are the Most Comfortable Garments Sold.



Shorey's Miners' Suit

Made in all Shades of Mackinaw, Warmly Lined, With or Without Capot, Also in Khaki Duck.

These Goods can be Purchased at

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Victoria "
Kamloops "
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Shorey's Arctic Suit

Made in all Shades of Heavy Mackinaw, With or Without Capot.

These Goods can be Purchased at

Edmonton, N.W.T.
Calgary "
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and all Eastern Towns.

..See that Shorey's Guarantee Card is in the Pocket of Every Garment..

Cook's Friend Baking Powder

Equal in Purity to the Purest.
All Ingredients Perfectly Healthful.
Regular Grade put up in Cartoons.

Extra Quality.

Highest Leavening Power Attainable

In Tin Cans Only.

UNIFORMLY EXCELLENT QUALITY FOR OVER THIRTY YEARS HAS ENABLED THE COOK'S FRIEND TO MAINTAIN THE HIGHEST POSITION IN THE ESTIMATION OF CONSUMERS.

NO BETTER BAKING POWDER CAN BE MADE.

PREPARED ONLY BY

W. D. McLAREN, Montreal

PROPRIETOR OF THE TRADE MARK.

On Sale by the Trade everywhere.

Klondike Outfitters Take Notice.

Complete Outfits.

Groceries and Provisions for Mining and Exploring Expeditions

Packed in 50 lb. bags or packages, and compressed to the smallest possible compass. (See Mr. Ogilvie's Report.)

Our Specialty is Evaporated Vegetables and Fruits absolutely free from moisture, and warranted to retain their natural flavor and properties in any climate, including :

Potatoes
Onions
Leeks
Cabbage
Celery
Carrots
Etc., Etc.

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Also....
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Condensed and Solidified Soups, Bouillons, Beef Extracts and Fluid Beef, Etc. Every description Canned Fruit, Vegetables, Meat, Fish, Beans, Pork, Flour, Honey, Etc.

Buy at Headquarters and SAVE MONEY.

WARREN BROS. & CO.,

Wholesale Grocers and Importers, - 35 & 37 Front St. E., TORONTO, CANADA.

Kumfortable Klondike Klothing

Is the appropriate name of the numerous lines made specially for

THE KLONDIKE TRADE

BY

Hudson Bay Knitting Company of Montreal

WE are manufacturers of a number of PATENT lines which are especially adapted for that trade, as well as heavy Duck and Mackinaw Clothing, Leather, Corduroy and Moleskin Jackets, with heavy fur lining, and including everything required for

Complete Clothing Outfits

Those intending to seek their fortunes in Klondike should see our lines before making purchases elsewhere.

OTTAWA AGENT—J. W. WOODS

THE ALASKA EIDERDOWN SLEEPING BAG is 'way ahead of all others—the only perfect bag on the market for Klondike climate. Controlled by J. W. Woods and ourselves.

SATISFACTION GUARANTEED

HUDSON BAY KNITTING CO.

... MONTREAL ...

Incorporated by Letters Patent for the Dominion of Canada

The Yukon Company

HON. JAS. J. GUERIN
PRESIDENT

Of MONTREAL, Limited

Capital, (subject to increase) $40,000.00
Shares, $10.00 Each

This Company has sent ten men into the Yukon District to take up and to work placer mining claims.

It has secured the concession to dredge for gold in twenty-five miles of the North Saskatchewan River.

It has also secured quartz mining privileges in the Yukon District.

The Company has made contracts with its envoyees, dated August 8th, 1897, and with its promoters dated January 31st, 1898.

A limited amount of stock will be sold.

Apply to the President, **909 Dorchester Street, MONTREAL.**

Every citizen in Canada should make an effort to secure a portion of the golden inheritance of which this country has become possessed within the last year.

If he cannot go himself, he should invest some money with some company to send now, and take up claims in the Yukon District.

Intending shareholders may send for Prospectus.

...Scurvy in the Klondike!!!

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MONTSERRAT Lime Fruit Juice.

It is a universally acknowledged fact that

MONTSERRAT Lime Fruit Juice

is the only pure article of its kind on the market, it is also the ONLY kind of Lime Juice supplied to the

British Army and Royal Navy.

MONTSERRAT LIME FRUIT JUICE is a certain preventive of that fatal and most dreaded of all diseases, SCURVY, and no wise man ought to go to the Klondike without a good supply of

Montserrat Lime Fruit Juice

AND .....

Montserrat Lime Fruit Tablets

SOLE CONSIGNEES:

Evans & Sons, Limited, Wholesale Druggists

Jean Baptiste Street, - MONTREAL, } CANADA.
23 Front Street West, - TORONTO, }
137 Pearl Street, - - BOSTON, MASS.

CANOES AND BOATS

FOR

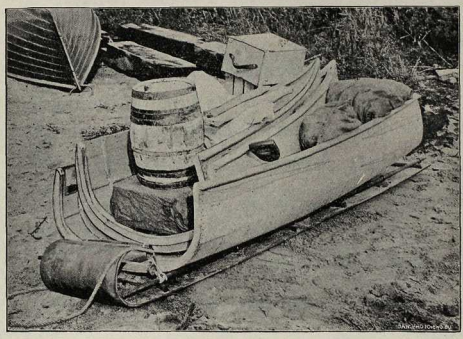
SURVEYORS AND PROSPECTORS

Capacity 800 to 6,000 pounds.
12 to 25 feet long.

Dean's Sectional Canoes

Saves 75 per cent. Freight Charges.
Occupies One-third the Space.

GUARANTEED PERFECTLY WATER-TIGHT.



These Canoes are STRONGER than the Ordinary.

Read Mr. Ogilvie's Testimony of Canoe shipped to him.

FEBRUARY 1st, 1898.

MR. WALTER DEAN, 1751 Queen St. West.

DEAR SIR,—I have examined your Sectional Canoe, and consider it convenient and serviceable for those travelling to the Klondike.

Yours truly, W. OGILVIE.

WALTER DEAN, 1751 Queen St. W., TORONTO, CAN.

Send for Catalogue. Telephone 5436.

The C. Turnbull Company

Of GALT, Limited

MANUFACTURERS OF

Men's Full Fashioned Lambs' Wool Underclothing

Special Lines for the Klondike

3 ply Extra Heavy Shirts and Drawers .....

3 ply Extra Heavy Sweaters in Colors .....

2 ply Shetland and Natural Shirts and Drawers.

Made in all sizes up to 50 inches.

All our goods have Woven Label

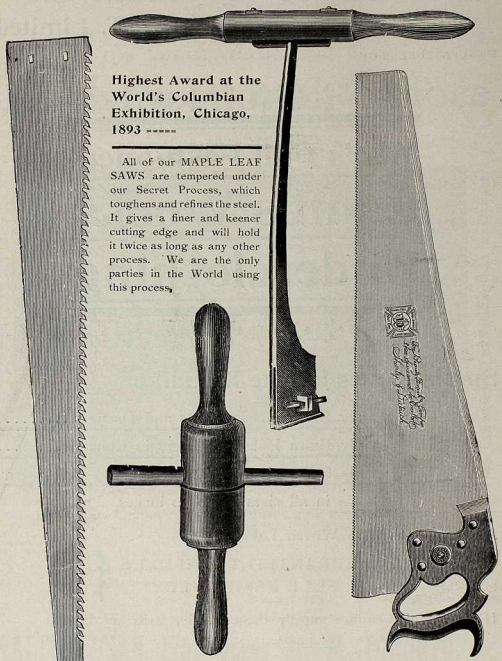
WARRANTED TURNBULL'S FULL FASHIONED.

If your dealer cannot supply these goods, write us direct.

THE C. TURNBULL CO., Limited GALT, ONT.

MAPLE LEAF SAW WORKS

GALT, ONTARIO, CANADA



Highest Award at the World's Columbian Exhibition, Chicago, 1893 =====

All of our MAPLE LEAF SAWS are tempered under our Secret Process, which toughens and refines the steel. It gives a finer and keener cutting edge and will hold it twice as long as any other process. We are the only parties in the World using this process.

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Successor to the late F. H. REYNOLDS

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At home by using a

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Ask any of the **140,000 users**

What leaks they stop
What mistakes they prevent
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THE D. PIKE MFG. CO. LIMITED

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SPECIALTIES:

Miners' and Prospectors' Outfits

Parties going to the Yukon should call and see provisions needed for both water and overland routes, with Dunnage Bags, Sleeping Bags, in fact everything in duck and canvas requirements.

123 KING ST. EAST
TORONTO, CANADA

Special Safes

for the mining districts—to meet the special requirements of miners and mining companies.

J. & J. Taylor

Toronto Safe Works

Head Office—Toronto, Ont.
Warerooms at Montreal, Que.
Winnipeg, Man.
Vancouver, B.C.

IN THE KLONDIKE

You want warmth without weight.
Our system of clothing provides it.

NANSEN was fitted out by "Jaeger" Co. and tested their woollen clothing in late North Pole Expedition. See his verdict in "Farthest North." We can supply you with same garments.

Send for Illustrated Price List to

WREYFORD & CO., WHOLESALE and RETAIL.

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JAEGER DEPOT
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The "Slater Mining Boot"

for Prospectors, Miners, Explorers, Hunters. Weight 24 ozs., wears like wire.

Made of Rawhide, mineral tanned to resist water, never hardens nor cracks.

Laced clear to 15 in. top, with waterproof bellows tongue, waterproof Horsehide Sole, cone hob nailed. Extra strong Goodyear Welt.

Takes place of rubbers for all wear.

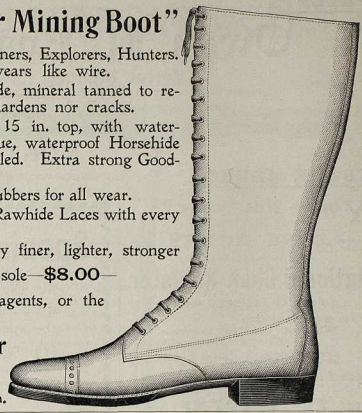
Two pairs of Rawhide Laces with every pair of boots.

Money can't buy finer, lighter, stronger Boots. Stamped on sole—**$8.00**—

Sold by Slater agents, or the makers,

Geo. T. Slater & Sons

MONTREAL, Can.



KLONDIKE--YUKON.

"TELFORD SYNDICATE."

This Company is under the personal management of Mr. E. M. Telford, whose two years' experience in Dawson City makes him particularly adapted to prospect and mine in this country. Mr. Telford, with party fully equipped, leaves for the Klondike early in March. No stock will be offered to the public till claims have been acquired and reported on. Intending investors will do well to keep the **"Telford Syndicate"** in mind, as no party starts under more promising conditions.

Further particulars apply

GEO. PARKER, Sec.-Treas. Telford Syndicate, TORONTO, - CANADA.

OR,

SCRUTTON & SON, Old Broad St., LONDON, E.C., - ENGLAND.

IF YOU GO

There are certain of our specialties you must have. We are headquarters for Klondike Groceries, and have some prospectors supplies that cannot be had elsewhere.

.....Evaporated Vegetables, in packages, 1 doz. assorted packages in each sealed tin. Vegetable Soups. Bouillon in Capsules. Pea Soup in Casings. Evaporated Carrots, Potatoes, Cabbage, Celery, Onions, Apples, Prunes, and Apricots, at closest wholesale prices.

We have two Klondike Lists. List No. 1 includes bare necessities; List No. 2 has a few convenient additions. If you intend to make the trip, arrange with us for your grocery supplies.

The Grange Wholesale Supply Co., Limited, 126 King Street East, .. TORONTO. ..

Take the Best

Such is the advice given by MR. WM. OGILVIE in his report on Klondike Supplies.

Miners who follow the above advice will buy the

- Canada Fibre Company -

LIMITED

SLEEPING BAGS

For there is no doubt of its SUPERIORITY OVER ALL OTHERS.

The Bag is made of **Strong Waterproof Duck, well Padded with Eiderdown, and has two interlinings of warm material,** besides a Heavy Wool Kersey sewn on as inside lining. Weight, 15 lbs. Size, 6 ft. 9 ins. It is not bulky and can be easily turned inside out.

All Government expeditions have been provided with Eiderdown Bags, and are at present using them. The one we now offer is an improvement on all others in use, and therefore is in great demand.

Ask your Outfitter for our Bag and take no other and if you cannot get one from him write us direct.

None Genuine Without Our Name Inside.

CANADA FIBRE COMPANY, Limited

MANUFACTURERS OF

DOWN, COTTON AND WOOL COMFORTERS

Office and Works—582 William Street MONTREAL P.Q.

Klondike . . . Sleeping Bags

We manufacture **a hand-made woollen sleeping bag** with **water proof** cover which envelops a man from head to foot, and is constructed especially for the Yukon district. **It is light weight** and absolutely wind and water proof, is strong and well made throughout, being rivetted and stayed with leather gussets. Extra clothing and several days' provisions for short trips may be packed in it.

It has a great advantage over fur and feather bags, provision being made for ventilation, thereby preventing the clothing from becoming damp from perspiration. Nansen discarded his furs on that account.

The miner or prospector having one of these bags does not need to carry either blankets or bedding.

Purchasers will save money by buying our bags, there being a **duty of 35 per cent.** on the retail price of all **American bags** imported into Canada.

Samples may be seen at our offices

Millichamp, Coyle & Co.

13 St. Helen St., Montreal, Que. **45 Bay St., Toronto, Ont.**

MINING PROPERTIES managed, sold, purchased or worked on shares. Outfits and Guides furnished at short notice.

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Special Attention Given to the Outfitting and Transportation of Miners for the Klondike

Authorized Capital, $500,000 in $5 Shares

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Limited

VICTORIA, BRITISH COLUMBIA, CANADA

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Code used—BEDFORD McNEILL'S

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BRANCHES: Vancouver, B.C., Can.; Seattle, Wash., U.S.A.

Contractors for all kinds of Mining Work, Machinery and Supplies

Forwarders, Shipping and Commission Merchants

CHARLES F. JONES,

General Manager

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Klondike Outfitting

We are showing large ranges of suitable Clothing for the

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Comprising the most practical and approved ideas of travellers in the North.

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In Hoods, Coats, Shirts, Drawers and Pants, in plain and fancy.

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THEY SHOULD BE

Of proper stock, and of the best manufacture, and capable of resisting the extreme weather of the Arctic Region.

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When making your purchases ask for the Slingsby Manufacturing Company's Blankets, and you will then have the best. We are the largest manufacturers of Blankets in the Dominion of Canada, and have given particular attention to the heavy special goods required for the Yukon trade, and the experience we have gained in manufacturing these goods has perfected our methods and made our Blankets to excel.

We make all weights, sizes and colors—

White Blankets up to 15 lbs. per pair.

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All our Blankets have the quality, finish and style of border to give satisfaction to the user, and to suit the taste of the connoisseur.

We sell only to the wholesale trade.

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Made with Patent Leather Insole.
Patented, July 29th, 1893.

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"TESLIN" Folding Stove

28 x 22 x 13 inches, folds into a package 28 x 22 x 4 inches.

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No. 20.—20 x 12½ x 12½ inches, folded 20 x 12½ x 2¾ inches.
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Five Lengths of Stove Pipe telescope into one. We make every variety of Tin Ware, Enamelled Ware, Steel Fry Pans, Gold Pans, Etc., Etc.

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Here illustrated. Send for Klondike List.

Also the following very prompt-selling requisites for Klondike or other Camping or Prospecting Parties: Storm Hoods, Kit Bags, Toboggans, Alaska Sleeping Bags, Waterproof Moccasins, Strong Snow Shoes, Pack Straps, Air Pillows, Patent Snow Shoe Straps, Folding Beds, Waterproof Blankets, Mosquito Nets, Mosquito Salves, Mosquito Netting, Men's Hip Rubber Boots, Aluminum Camp Sets, the best of everything in the Line of Fishing Tackle, Tents, etc.

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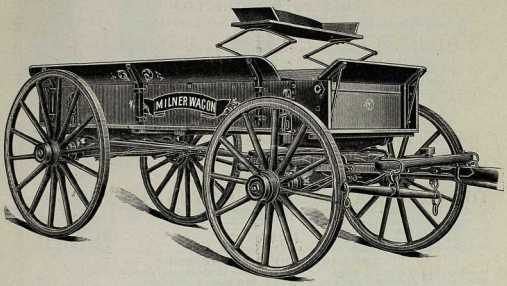

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In all its various kinds and styles suitable for farm and team use. Having introduced all the latest improved machinery for the purpose of facilitating the production of such vehicles . . . . . .

We Can Justly Claim Superiority

in carrying capacity, ease of running and durability. General and local agencies are or will be established in all parts of the Dominion.

ASSESSMENT SYSTEM.

We insure men going even to the Klondike, so you can stay at home or go North, young man, and still be under the protection of the

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A Candidate for initiation into an existing Court, and taking $1,000 of Mortuary Benefit, must pay the following fees :—

1.—The Deposit fee, which must accompany his Application for Membership	$1.00
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3.—The Registration Fee, which is 50 cents for each $500 of Mortuary Benefit taken	1.00
4.—The Certificate Fee, which pays for the Certificate of Membership	1.00
5.—The Medical Examination Fee, which is	1.50
	$6.50
If taking $2,000 Mortuary Benefit, the cost would be	8.00
If taking $3,000 Mortuary Benefit, the cost would be	9.00
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THE BEST FRATERNAL SOCIETY IN THE WORLD.

THE MAGNIFICENT BENEFITS PAID.

Benefits paid last year (1896)	$ 820,941 91
Benefits paid last five years	2,754,039 14
Benefits paid last ten years	3,462,142 79
Benefits paid from organization to 31st October, 1897	4,925,244 12

THE GROWTH OF THE MEMBERSHIP.

Membership 1st July, 1881	369	Date of Re-organization	
Membership 31st Dec., 1881	1,019	Increase, 6 months	650
Membership 31st Dec., 1886	5,804	Increase, 5 years	4,785
Membership 31st Dec., 1891	32,303	Increase, 5 years	26,499
Membership 31st Dec., 1896	102,838	Increase, 5 years	70,535

THE INCREASES DURING 1896.

Increase in Benefits Paid	$ 135,941 73
Increase in Assessment Income	228,932 00
Increase in Total Income	347,901 19
Increase in Net Assets	438,114 34
Increase in Surplus Funds	455,110 92
Increase in Assurance in Force	20,763,500 00

THE MEMBERS AND THEIR ASSURANCE AT 31ST DECEMBER EACH YEAR.

Year.	Total Membership.	Assurance Carried.	Total Surplus.	Surplus per Capita.	Death Rate per 1000
1881	1,019	$ 1,140,000	$ 4,368 55	$ 4 48	4.50
1882	1,134	1,276,000	2,967 93	2 61	11.00
1883	2,210	2,490,000	10,857 65	4 91	4.73
1884	2,558	2,923,000	23,061 85	9 02	4.23
1885	3,642	4,285,000	29,802 42	8 18	7.76
1886	5,804	6,764,000	53,981 28	9 30	4.85
1887	7,811	9,120,000	81,384 41	10 41	5.78
1888	11,800	13,714,000	117,821 96	9 98	6.43
1889	17,349	20,078,000	183,130 36	10 84	5.85
1890	24,604	28,456,000	285,967 20	11 54	5.18
1891	32,303	39,395,000	408,798 20	12 65	6.40
1892	43,024	53,243,000	580,997 85	13 49	6.25
1893	54,484	67,781,000	838,857 89	15 76	5.47
1894	70,055	86,896,500	1,187,225 11	16 94	5.47
1895	86,521	108,027,500	1,560,373 46	18 03	5.67
1896	102,838	128,791,000	2,015,484 38	19 60	5.50
1897	124,685	154,510,000	2,558,834 78	20 52	5.56

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W. Kahnert's Klondike Outfit

The cuts represent an outfit especially designed for Prospectors, Miners, Lumbermen, etc., traveling and working in colder climes.

It consists of Sleeping Bag, Coat, Cap and Boots.

The material used is Canadian Hair Seal or guaranteed best Waterproof Duck for the outside, and selected close but light Sheepskin for the lining.

The **Bag** can be closed over the head and contains a special apartment for keeping clothing, etc.

The coat is 30x32 inches long, with fur collar, the sleeves and mitts, also fur-lined, are **all in one.** This is of great importance, so as to keep the wrists warm and mitts from getting lost.

Our Coat is the only one in the market of this kind.

The **Cap** when turned down will protect the face and neck entirely.

The **Boots** we only make in Canadian Hair Seal.

--- PRICES ---

Sleeping Bag,	Can. Hair Seal,	$30,	Waterproof Duck,			$15.00
Coat - -	"	"	25	"	"	12.00
Cap - -	"	"	5	"	"	2.50
Boots - -	"	"	15			

A discount of 10 per cent. allowed to the trade or parties.

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We build the Safety Water Tube Boiler, the Square Fire Box with return tubes, the Scotch Water Back Return Flue, the "Clyde" Baffle or Dry Back Returu Flue; the Direct Draft Round Fire Box, and the Standard Locomotive direct draft.

Both Engines and Boilers are built under inspection of Dominion Government Steamboat Inspector for work called for by specification, and passed, stamped and certified by them before shipment.

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Single, Steple Compound, and Fore and Aft Compound Engines and Boilers for all classes of machinery.

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BRANTFORD, CANADA

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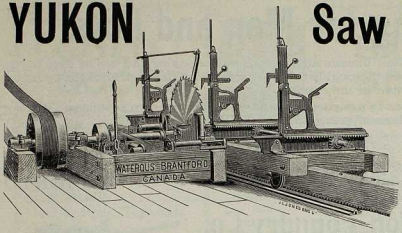

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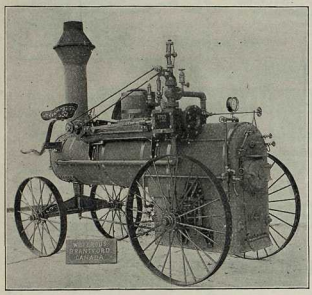
COMPLETE

14 h.p. capacity. 500 feet per hour. Standard Mill Engine and Boiler on wheels; 10,600 lbs.

Supplied without woodwork when desired, and with very light cable feed in place of rack.

For the Chilcoot and White Passes we supply a Sectional Water-tube Boiler, weighing about 1,500 lbs. for 15 h.p., and 3,500 lbs. for 60 h.p. Also an Upright Engine on steel posts. Can be packed in 150 lb. parcels, and smaller fly wheels in four parts. Log seats, being girder steel, are light but unbreakable.



14 H.P. YUKON ENGINE ON WHEELS.
Weight, 5,300 lbs. Boiler alone, on wheels, 2,900 lbs.

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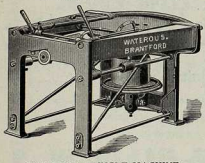
Portable Saw Mills

for mule-back transportation for years, and can outfit you better than anyone in Canada or the States.

We are making special provision for the YUKON trade, and although our orders to date (1st February, 1898) are large, we shall be able to make prompt shipments.



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Lightest combined planer built, 1,900 lbs. Can be packed in small weights.

Established 1844.
Employ over 300 men.
New Works opened, 1896

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Clothing for Men and Boys

Our productions include all the fashionable styles and are of that handsome, durable, and thoroughly reliable garments which appeal to the common sense of every man in the country.

Every garment is designed, cut and made on our own premises. We are the largest retailers of men's and boys' clothing in Canada.

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Outfitter for Men and Boys "Head to Foot"

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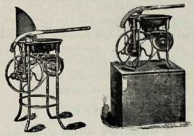

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Both in Canada and the United States

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Gold Rings,
Gold Chains,
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Gold Medals,
Gold Buttons, Thimbles,
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Gold Emblems, Seals,
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and all other Gold Goods.

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Sterling Silver and Cut Glass Goods,
Sterling Silver Watch Cases,
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Sterling Silver Trophies,
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This Trade Mark is a Guarantee of Quality.

THE TRADE ONLY SUPPLIED.

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Hold us Responsible for the Quality of all Goods Bearing this Trade Mark.

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DIAMONDS,
EMERALDS,
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PEARLS, OPALS.

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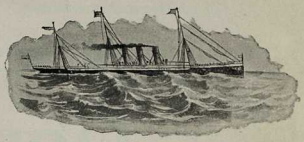

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