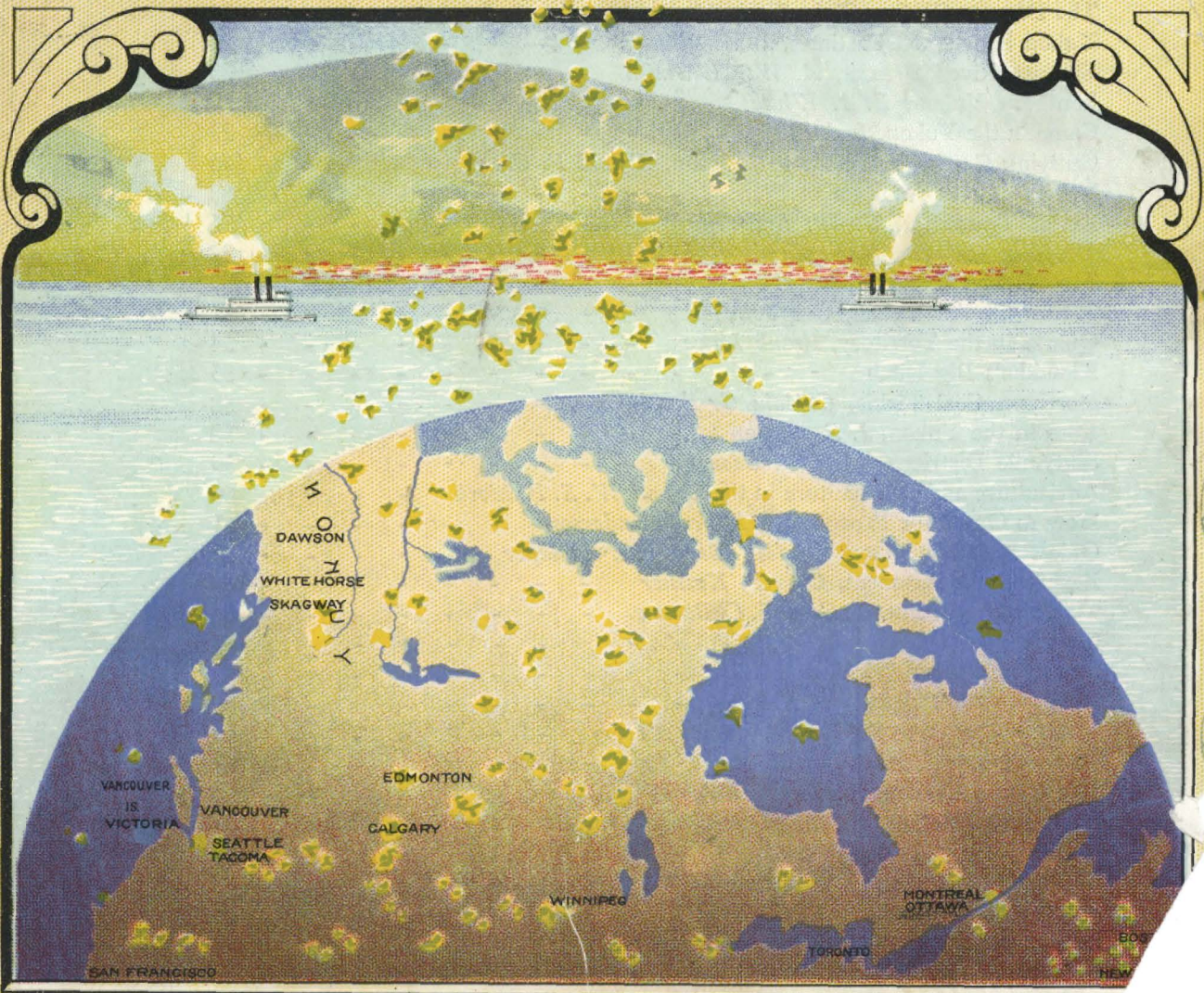


DAWSON DAILY NEWS



CANADA'S YUKON POKE POURS GOLD FOR ALL THE WORLD
OUTPUT TO DATE \$150,000,000.00.



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Dawson Daily News

DAWSON
YUKON TERRITORY
JULY 21, 1909



DAWSON CITY, YUKON TERRITORY.

DAWSON

(Written Specially for the Dawson News.)

(By ROBERT W. SERVICE, Author of Songs of a Sourdough and Ballads of a Cheechaco.)

FROM the heart of the Frozen Twilight the strong land spake
her sons:

"Long are my valleys silent—seek them, ye fearless ones;
Haste, oh men of my measure! Richly the treasure runs."

Then up river and valley streamed the host of the brave;
Then with on-rush and rally flooded the human wave.
Never-a-one was weakling; fiercely they took and gave.

Ripped they the creeks asunder, routed hardship and pain;
Then down-laden with plunder, weary from stress and strain,
Sick to death of the battle, came into camp again.

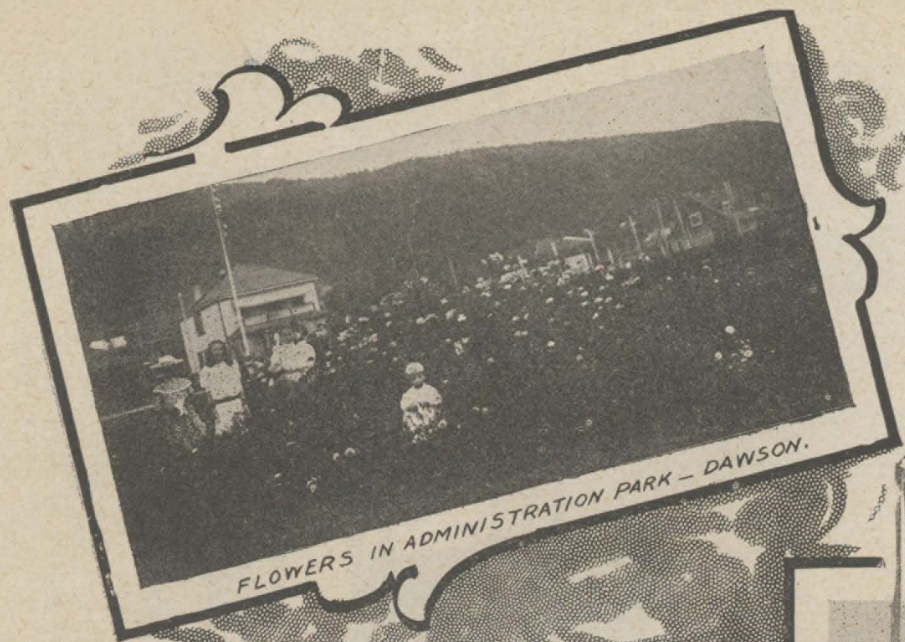
Yea, though the stress be over, the Land hath its treasure still.
Dream of it, world-wide rover, the old town under the hill;
Blue at its feet the river, skies opalescent above,
Homes and gardens and children, peace and plenty and love.

There on the flat by the Yukon, ringed by inviolate snows,
Care-free and comely to look on, gold-born the city arose,
City of homes and hearth-fires the heart of the Northman knows.

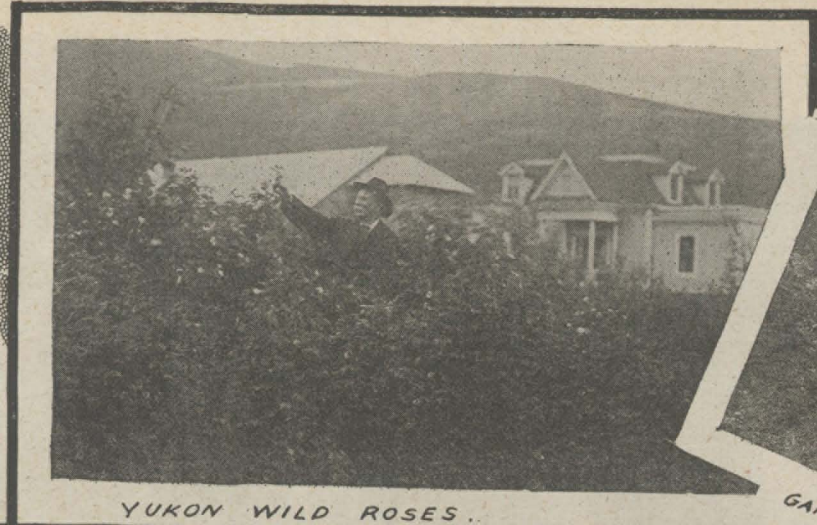
He spends of the valley's treasure in all the ports o' the sea;
Far in the chase of pleasure he ranges eager and free:
Yet aye to the Gold-born City the love of his heart must be.

City the sun rejoices, skies of midnight aglow,
Babble of childish voices, gardens where poppies blow,
Cabins with curtained windows, snugly nestling low,





FLOWERS IN ADMINISTRATION PARK - DAWSON.



YUKON WILD ROSES.



GARDENING IN THE YUKON.



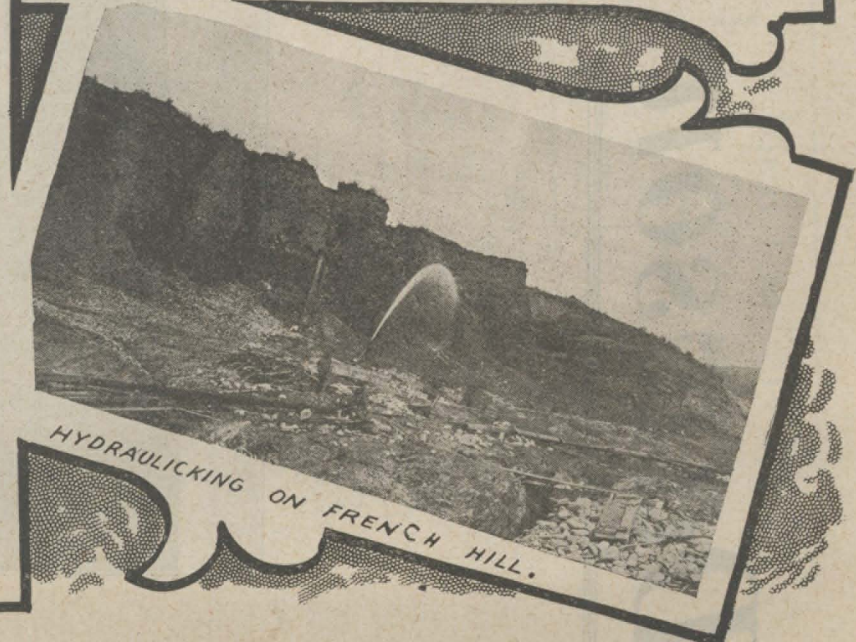
BABY EAGLES POSING FOR THEIR PHOTOGRAPH.



HOME GROWN SUNFLOWERS & HOME GROWN KLONDIKER IN DAWSON YARD.



HAULING WOOD FOR THE DAWSON.



HYDRAULICKING ON FRENCH HILL.

Mining Possibilities in the Yukon

By HON. WM. TEMPLEMAN, Minister of Mines

AS a result of his exploration in the Canadian Yukon Dr. George M. Dawson, late director of the Geological Survey, was able in 1888 to state that "when means of access are improved important bar-mining will take place along all these main rivers and there is every reason to anticipate that the result of the examination in detail of the smaller streams will be found and worked quartz mining will doubtless follow and the prospects for the utilization of this great mining field in the near future appear to be very promising. It is not likely that this great inland country will long want some easy means of connection between the coast and the great navigable lake and river waters, and when this is afforded there is every reason to believe that it will support a considerable mining population." Dawson's optimism has been fully justified, his predictions are in large part already realized or about to be fulfilled.

Transportation has been provided, towns have sprung up, a large mining population has been supported, and more than \$125,000,000 in gold has been produced. The "examination in detail" is still in progress and while new creeks are being staked each season rich auriferous alluviums still await discovery.

On the older creeks the individual miner is being replaced by the large company with its hydraulic and dredging plants, so that a continued large production of placer gold may be expected for many years to come. Quartz mining has already commenced, is growing rapidly and it is believed that a great future lies in store for this class of mining in the Yukon. Shipments have been made from the Whitehorse copper deposits to Pacific coast smelters, and these deposits will probably in the near future support a local copper smelter. Copper ores appear to be widespread. Valu-

able gold and silver properties are also being developed on Windy Arm, on the Watson and Wheaton rivers, and elsewhere in the district.

Large areas of lignite, bituminous and anthracite coals have been found in different parts of the Yukon, and coal is now being produced. The climatic conditions especially in the Southern Yukon have been found to be adapted not only to mining of all kinds but to agriculture and stock raising as well. Without being fed, horses generally winter safely in the valleys. The vegetation of the Nordenskiöld valley has been found to be very similar to the highly favored Edmonton and Prince Albert districts.

With present knowledge concerning the conditions in the Yukon and with the demonstrations of its wealth of resources furnished by the last decade's development not only in the fabulously rich Klondike but throughout the Yukon country, Dr. Dawson's

optimism regarding its future rests on firmer ground, and men with less prophetic vision can now foresee for this district an era of broad and successful development. Cost of transportation still hampers the rapid progress of mining but I look forward to improvements in this respect in the near future. With this accomplished a stimulus will be given to the industry that will result in increased activity in the creeks and substantial advances in lode mining for which the Yukon offers a wide field.

The spirit which met the fancied terrors of what was thought to be sub-Arctic waste and transformed it into one of the foremost mining camps of the Dominion may be counted upon to carry forward the complete development of its natural resources. In this great work the Yukon may count on my interest and support and that of the Department which I have the honor to represent.

Yukon Constitution and Government

By ALEXANDER HENDERSON, K.C., Commissioner of Yukon Territory

THE Yukon Territory act, passed by the parliament of Canada, provides for the appointment of a chief executive officer to be styled and known as the commissioner of the Yukon Territory. An administrator may also be appointed to execute the office and functions of the commissioner during his absence or illness or other inability. The commissioner shall administer the government under instructions from time to time given him by the governor general of Canada in council or the minister of the interior.

The Yukon Council is composed of ten members elected to represent the electoral districts in the territory, of which there are five, and two members are elected for each district. Any person who is qualified to vote is eligible for election as a member of the council. All natural born or naturalized British subjects or the full age of 21 years and who have resided in the territory twelve months prior to the date of the election shall be entitled to vote. Formerly the commissioner sat as speaker of the council, but a recent amendment provides that the council shall sit separately from the commissioner and shall elect a speaker. All bills passed by the council shall be presented to the commissioner for his assent and he may approve or disapprove of any of such bills or reserve them for the assent of the governor in council.

Every council shall continue for three years from the date of the return of the writs for the general election, but the commissioner may dissolve the council and cause a new one to be elected. The council shall be convened at least once in every year after the first session thereof. The indemnity to each member of the council shall not exceed \$600.00.

The commissioner may divide or change the boundaries of mining districts by proclamation. The gold commissioner shall have jurisdiction within such mining districts as the commissioner directs. Mining recorders shall be appointed in each mining

district and shall possess all the powers and authority of a mining inspector, who shall also have jurisdiction within such mining districts as the

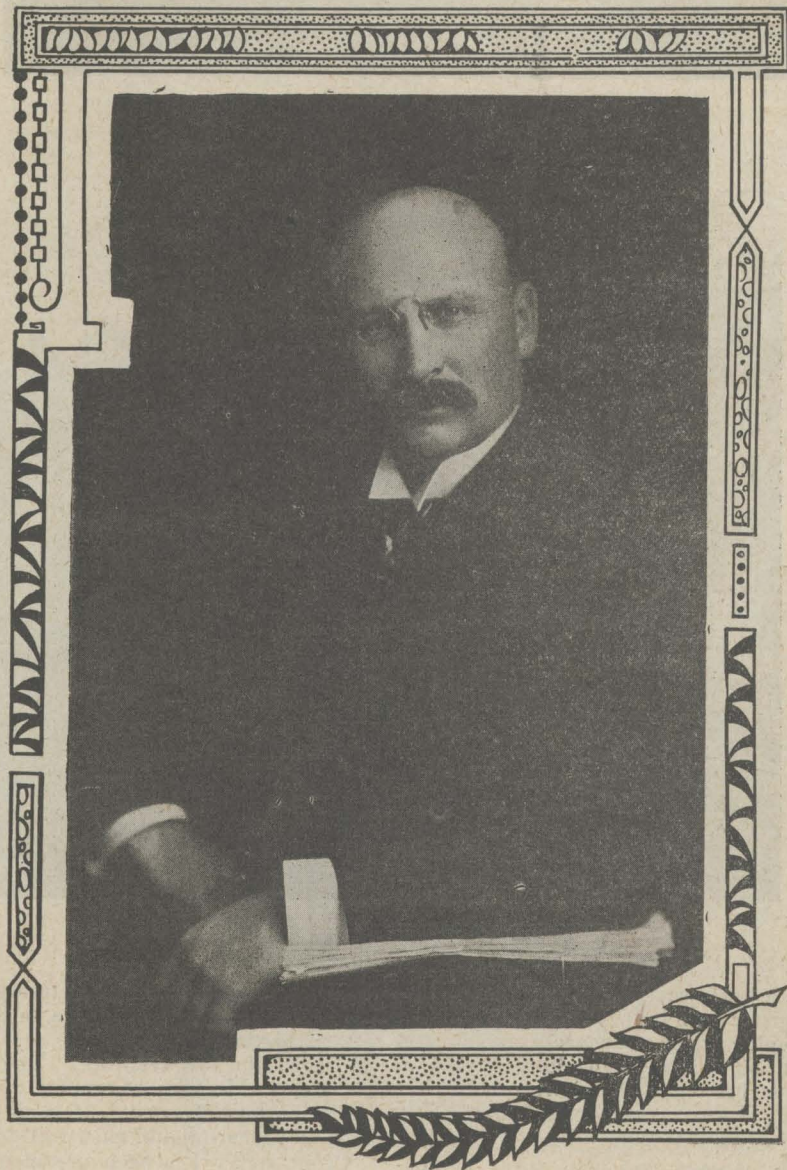
commissioner directs.

Provision is made for the appointment of boards of arbitrators to settle disputes between owners of claims

with respect to (a) the distribution of water; (b) boundaries of claims; (c) dumping privileges, and (d) overflow of water upon adjoining property. The board of arbitrators is appointed as follows: One arbitrator to be appointed by each of such owners, and in the event of the total number of arbitrators so appointed being an even number, then an additional arbitrator to be selected and appointed by all of such arbitrators appointed by the owners. In the event of the arbitrators appointed by the owners being an even number and being unable to agree upon the additional arbitrator, the gold commissioner, upon being requested so to do by such arbitrators, or by any one of the interested owners, shall appoint the additional arbitrator. The judgment of the board shall be final as to facts, but may be appealed from to the territorial court on any question of law.

The supreme court of record is the territorial court, which is presided over by a senior judge and two other judges. It has appellate, civil and criminal jurisdiction. The territorial court en banc has appellate jurisdiction in appeals from the judgment of a police magistrate given under section 785 of the Criminal Code, 1892. In relation to mining disputes an appeal lies from the decision of the territorial court en banc to the supreme court of Canada. For the purposes of Part LII., criminal code and amendments, an appeal lies from the judgment of the territorial court to the supreme court of Canada, unless the judges of the territorial court are unanimous, when there shall be no appeal.

The commissioner, members of council and judges of the territorial court, and every commissioned officer of the Royal North West Mounted Police, may exercise in the Yukon Territory all the powers of one or two justices of the peace, under any laws or ordinances, civil or criminal, in the territory. All persons possessing the powers of two justices of the peace may act as coroners.



Alexander Henderson, Commissioner of Yukon.

LAW AND ORDER IN THE YUKON

By MAJOR Z. T. WOOD, Assistant Commissioner of the Royal Northwest Mounted Police of Canada, in charge of Yukon Force

THE enforcement of law and order in the Yukon is in the hands of the Royal North West Mounted Police, a semi-military organization whose members have the powers of peace officers. The force in the Yukon is kept up to the required strength by drafts from the headquarters at Regina, Saskatchewan. Two divisions, or troops, are stationed in the territory with barracks at Dawson and Whitehorse. The commanding officers of these divisions are responsible for the efficient policing of their respective districts, one of which extends from the British Columbia boundary to Minto, and the other from that point to the United States boundary below Fortymile.

An assistant commissioner, commanding the whole Yukon force, is stationed at Dawson, and is answerable for law enforcement and law observance in the territory generally. Each division has several detachments consisting of one or more non-commissioned officers or constables stationed at the centers of population in the outlying districts. "H" division has now five detachments in the Whitehorse district, namely, Carcross, Champagne Landing, Livingstone Creek, Hootalinqua and Tantalus. "B" division has six outposts, namely, Grand Forks, Quartz Creek, Granville, Selkirk, Fortymile and Stewart River.

The non-commissioned officer or constable in charge of a detachment patrols his sub-district, reports any breach of the law, making an arrest if necessary, and telephones, writes or wires his divisional headquarters for a magistrate to deal with the offender. Each commissioned officer of the force has the powers of two justices of the peace, and can deal summarily with any petty crime. In more serious cases the police officer must, if the evidence suffice, commit to a higher court for trial. The officers of the force are also ex-officio coroners, and hold either enquiries or inquests into all cases of death from unknown causes, from violence or from accident. The police guard rooms are penitentiaries and common jails, and members of the force perform the duties of wardens, jailers and guards. They are also charged with the care of the insane from the time of arrest until sent to the asylum at New Westminster, or cured.

In former years the duties of members of the force were so numerous that a large number of men were required. In addition to acting as peace officers the police have, at various times, performed the duties of mail carriers, agents to mining recorders and to Dominion land agent, postmasters, customs officers and telegraph line repairers. Of late extraneous work has been gradually stopped, as the force has been reduced in numbers. The members of only two detachments now act as agents to the mining recorder, and only one acts as customs outpost.

All persons leaving the territory, either via Fortymile or Whitehorse, are searched by the police for gold on which royalty has not been paid. The immigration officers at both ports of entry are assisted in their efforts to keep undesirables out of the territory. A register is kept of all boats and scows leaving Whitehorse for Dawson, and the names of the occupants. Copies are forwarded the police in Dawson, who check up the arrivals as

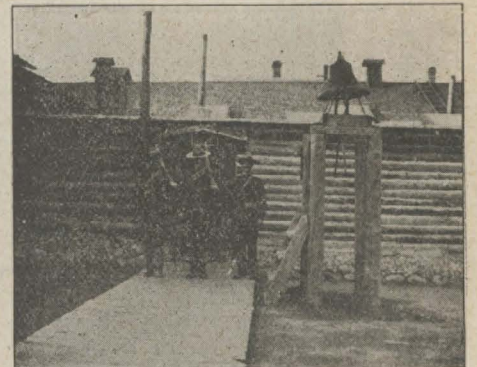
ments, to outlying districts, and the whole territory policed as far as possible with the few men remaining. Fort Macpherson, on the Peel river, is visited by one of the patrols every winter. The trip takes about thirty days each way, with dog teams, over a trackless stretch of country. The headwaters of the Pelly, Stewart and Hootalinqua are visited in summer by steamer and canoes.

One of the chief duties of the police

the Yukon. When the first detachment of police arrived in 1894, and established themselves at Fortymile, they found the population, though far from civilization, law abiding, and the principal duties of the force were to collect the revenue. At that time the strength numbered twenty of all ranks. In 1897, shortly after the discovery of gold on Bonanza, twenty more were added, and as the population increased in numbers so did the police, until in 1900 upwards of three hundred officers, non-commissioned officers and constables were stationed in the territory. Today there are but seventy-five of all ranks, including specials. The cost of keeping the latter number in the Yukon is \$112,500.00 per year.



Members of the Royal Northwest Mounted Police.



Bell in Barracks Square, Dawson.

As before stated, the population always has been law abiding notwithstanding the heterogenous mixture of the multitude of gold seekers in the rush of 1897 and 1898. There have been twelve murders committed in a period of thirteen years, all the murderers being convicted and hanged but one, who died before the day set for his execution.

In the early days, from 1897 to 1901, Dawson was a "wide open town." Gambling was carried on in public places, and dance halls were numerous, in fact it was typical of mining camps the world over except that it was never lawless. In 1902 the bar was put on gambling, and slowly but surely the character of the town changed, until today it is as quiet, orderly and respectable a place as the most exacting could wish to see. The dance halls no longer exist and open gambling has ceased.

We have had remarkably few hold-ups and gun-plays, and it has always been claimed that the streets of Whitehorse and Dawson are as safe



Hootchiku Police Station.

each boat reaches its destination. This register has been of great service in keeping track of suspects, and in preventing crime on the long stretch of river between Whitehorse and Dawson.

Patrols are made from Dawson and Whitehorse, and also from detach-

is to stop the sale or bartering of liquor to Indians, to provide medical attendance and medicines to the sick and food for the destitute. The natives, as a rule, give no trouble except in the vicinity of towns. If at all possible to procure liquor they will do so. Crime never has been prevalent in

for pedestrians at all hours as those of Ottawa, Montreal or Toronto. As for the alleged immorality in the Yukon, of which so much has been heard outside, I have no hesitation in stating that the people here are as moral as those of any city, town or province in Canada.

Brief History of the Yukon

By CLEMENT B. BURNS
Territorial Secretary

THE first record of any white man visiting that portion of Canada now known as Yukon Territory is that of Robert Campbell, who went down the Yukon river in 1838. He was an employee of "The Ancient and Honorable Company of Adventurers trading into Hudson's Bay" now known as the "Hudson's Bay Company," which was organized in Great Britain in 1698 and carried on its operations in the North and North-western portions of Canada, extending down as far as the present States of Washington and Oregon. From this date on, various parties of white men visited the territory. They were almost invariably servants of the same company.

In 1842 the Russians came in by the Lower Yukon and proceeded up as far as the present Canadian border, establishing missions and trading posts.

It was not until 1873 that any gold discoveries were made in the territory. Since that year a great number of prospectors, in small groups,

of 1896, when hordes of people came from every quarter of the globe, additional forces of police were brought in, together with a large number of permanent troops. The police officers acted as magistrates, and a supreme court judge was transferred from the North West Territories to try the more serious offences.

In 1897 the first commissioner (or governor) of the Yukon arrived, in the person of Major Walsh. He was succeeded shortly afterwards by William Ogilvie, a pioneer of the government survey staff, who first visited the country in 1887, when he accompanied Dr. Dawson—after whom Dawson City is named—on an exploration expedition. Mr. Ogilvie ap-

pointed an advisory staff, or council, of the chief officials of the government service. In 1900 two elective members of this council were granted to the people. This number was increased to five in 1903, which, with five appointed members, gave the commissioner, who presided at the council, the controlling power. However, a great agitation had existed for many years for a wholly elective council and finally in 1908 the government authorized this further concession. The first election under the new order of things takes place this summer. This wholly elective council will hold office for three years. So far as federal representation is concerned, the territory also has been

treated liberally. In 1902 the first member of parliament for the Yukon was elected in the person of James Hamilton Ross, now a federal senator. The member for the Yukon, unlike the federal delegate from Alaska to Congress, has all the powers and privileges of the other members of the federal house.

The judiciary of the territory originally consisted of a single judge, with an appeal to the supreme court of British Columbia. In the year 1902 an appeal court of three judges was established to hear all appeals from the decision of a single judge. Since this date all judicial matters have proceeded exactly as in the various provinces of Canada.

The Yukon As a Field for the Prospector

By GUY A. R. LEWINGTON, Mining Engineer for the N. A. T. & T. Co.

OUTSIDE, one frequently hears the statement that the Yukon is a country of immense difficulties. From the viewpoint of the prospector, this is far from true. The idea resulted from the many hardships attending the opening up of the country, at the time of the big rush over Chilcoot Pass in 1897. At that time the public press was filled with weird tales of privation, hardships and even death.

Scarcely any of the difficulties experienced in those early days have to be overcome at the present time. Then there were no supplies here, and every man had to bring with him whatever he needed, and had literally to pack his outfit on his back in his search for the hidden treasure. Now all is changed, roads have been built in all directions, transportation facilities have been developed to such an extent, that one can without unusual difficulty travel to within striking distance of any part of the territory. Trading posts capable of supplying the ordinary wants of the prospector are scattered throughout the country. In short the prospector who really means business need no longer fear that he will not be able to reach any desired section, or that it will be impossible for him to get his outfit to his place of work.

The troubles experienced by the early day prospector in overcoming the conditions of a frozen country have also been dispelled, this has been

brought about by the development of methods suitable to the economic working of the gold bearing gravels of the North. These methods readily can be picked up by the prospector, and in a very short time he finds himself in possession of all that it has taken many years, much money, and no end of hard work to develop.

So with the difficulties of the first days disappearing, the prospector may now feel, that he can come and go, do his work and get results with no more hardship than he would have to face in any mining locality situated where climatic conditions are supposed to be nearly perfect.

The Yukon Territory offers to the energetic and intelligent prospector a field of immense area, the possibilities of which can only be guessed at.

Up to the present time we have been busy working our placers and have given little thought to the more permanent and valuable mineral deposits that assuredly exist within our borders. It is safe to say that in years to come, many valuable quartz mines will be turning a stream of wealth southward, just as our placers have done in the past.

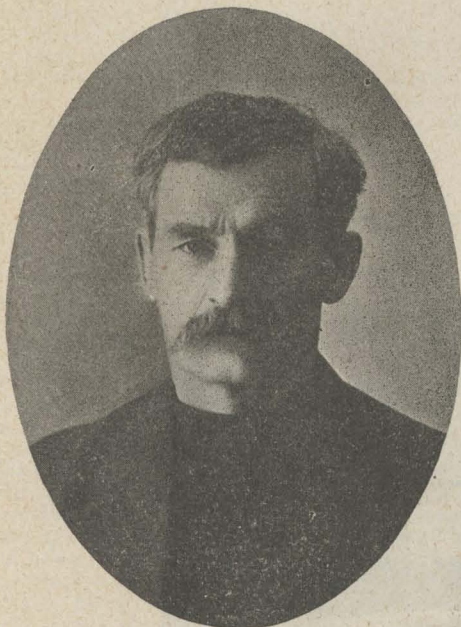
There could be no better time for the intelligent prospector to come North than right now. The field is new and practically untouched. His opportunities are great, and there is developing in the camp a healthy interest in quartz mining and all that goes with it.

The prospector who comes to this

country should be a man of ability and determination, for he will find many conditions that are foreign to him, his patience at first will be sorely tried, he may even be inclined to throw up his hands in disgust, but let him persevere and become acclimatized, let him see the ice come and go, and thereby earn the time honored title of "Sour Dough" and he will begin to see things differently—gradually he will get his bearings, and that confidence in himself and the country that is essential to the success of any undertaking. The Yukon needs this class of men greatly for there is no doubt that intelligent prospecting will develop many valuable mines.

Let the prospector come here and bring his family with him. He will find this country a pleasant place in which to live. He can send his children to as good schools here as can be found anywhere. He can have a home as comfortable as in any mining camp on earth. He will find a government ready to help and protect him, and a community anxious to have him here, and willing to help in any honest endeavour. A country rich in mineral lies open to him for exploration, a country that today is recognized by some of our best engineers and financiers as a good place for investment.

It is hard to conceive of a country offering better inducements to the prospector of the right sort than the Yukon Territory.



"Bob" Henderson.

and singly, have operated to a greater or less extent in various parts of the Yukon. Some ascended the Stewart river, a tributary of the Yukon entering about 70 miles south of Dawson, and prospected the bars, with considerable success. The most important camp was situated in the Forty-mile country, in close proximity to the international boundary between Alaska and the Yukon.

In 1894 Robert Henderson prospected at the mouth of the Pelly river and got good values. He also interested several parties to go up the present Hunker creek, which is a tributary of the Klondike river and to locate. On August 16, 1896, some of these parties who were hunting on the present Bonanza creek, near its junction with Eldorado, made the famous discovery which electrified the world and caused the stampede to this country, which has been unrivalled in history. Although this discovery of George Carmack is usually regarded as the beginning of Klondike placer mining, yet many others consider Henderson as entitled to the honor of being the real discoverer. Since Carmack's discovery, no less than \$125,000,000 has been taken out of this country, in gold.

Almost simultaneously with the advent of these early pioneers came the representatives of law and order. The Royal North West Mounted Police were first sent in about 1893 to the Forty Mile country, chiefly to act as customs officers. After the discovery



White Pass Summit—Last Days of Rush in '98.

Evolution of Yukon Mining Methods

By A. J. BEAUDETTE, Territorial Mining Engineer

GENERALLY speaking, there is a greater fluctuation of conditions in placer mining camps than in districts where other classes of mining are carried on. There are very few discoveries in alluvials in comparison with other classes of discoveries of mineral "in situ," and the length of time between the former class of discoveries is so great that the methods employed have not had a chance to develop themselves in the same proportion as those employed in other classes of mining which are of a permanent nature. It is true that valuable information is invariably obtained as a result of the experiences in every placer camp, but the conditions change so very materially that many of the methods employed at one place cannot be employed at another and for that reason the recovery of gold from the alluvials by the gravel mining methods of the present day, are comparatively recent.

With the exception of Siberia, the Yukon is the only territory where perpetually frozen gravels have been encountered in placer diggings. Similar conditions had not been encountered in any of the secondary deposits, which had previously been discovered on this continent, and consequently from an economic standpoint the experiences of the past were of little avail.

All the methods that have been employed in this territory to recover gold from the alluvials are still

During the initial stage of development in any locality the conditions are studied and each method is improved upon from year to year until the tenor of the gravels will justify no further excavation by manual labor. It is at this point that the methods change entirely in respect of operation and cost. I have classified the first stage as "The Ordinary Placer Mining Methods," and the last as "The Gravel Mining Methods."

The ordinary placer mining methods have, from the very beginning improved every year but it has not been possible, according to the present scale of wages, to reduce the cost lower than \$2 per cubic yard. In some districts the cost has been as high as \$5 per cubic yard but in the more developed ones, where transportation is easy and the conditions are most favorable, the minimum cost to remove a cubic yard of material by manual labor is \$2.

The mechanical methods have also improved very much but as each method requires certain existing conditions, totally independent of one another, the cost fluctuates every year.

CLASSIFICATION OF PERIODS.

First—The first expeditions in the Yukon Territory, commencing in the year 1837 and extending to the year 1884.

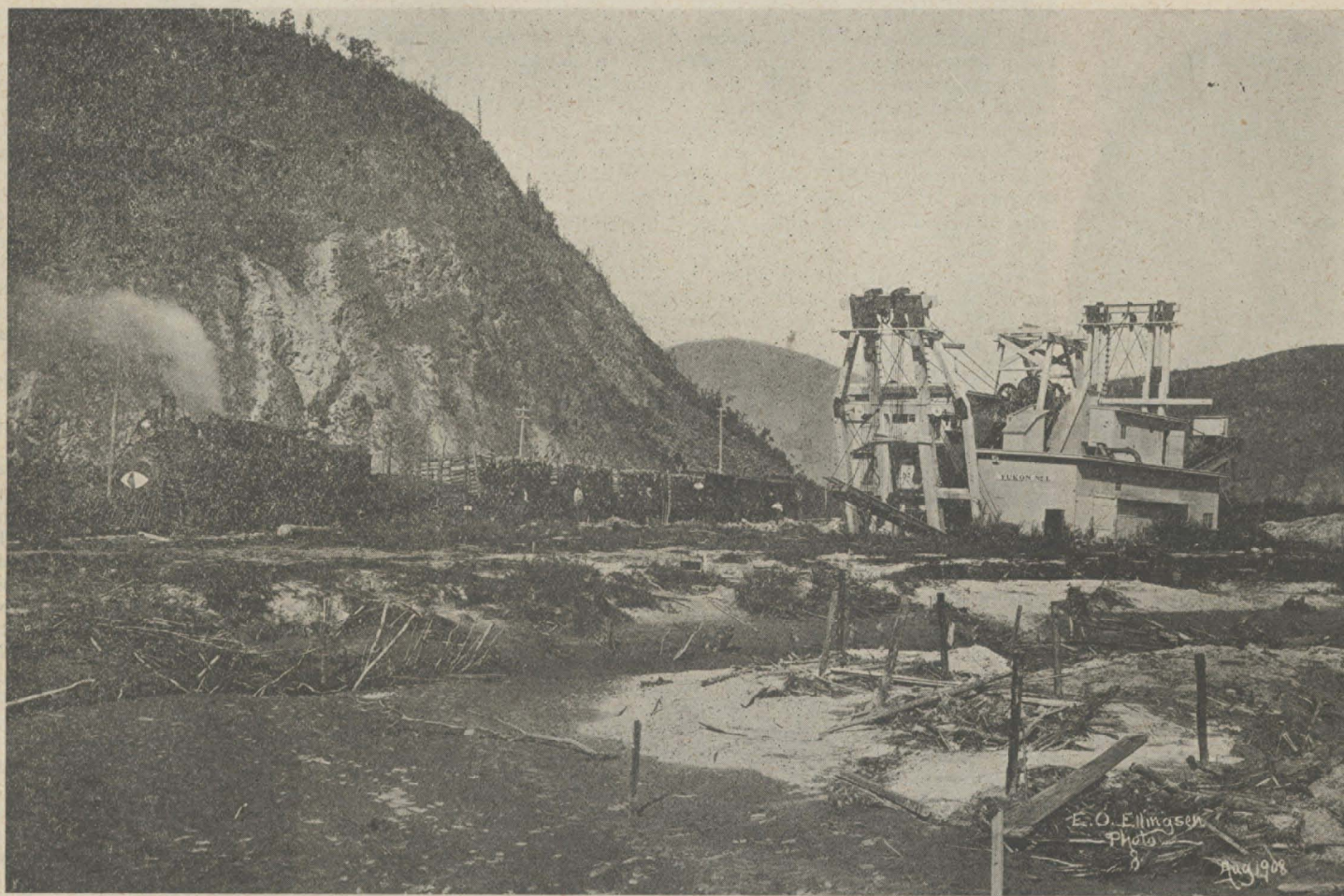
Second—The first bar-diggings operated on the Fortymile and Stewart rivers in the year 1884 and the first coarse gold found in 1886.

Yukon prospecting on the Mackenzie, the Peel, the Liard, the Yukon and its tributaries.

Second—the first bar-diggings were found in the year 1885 on the Stewart river, and in the following year Cassiar bar on the Lewes was discovered and actively worked the same summer.

At this time the Alaska Commercial company was trading along the Yukon river, and with the discovery of gold the North American Transportation and Trading company also established posts on the river. These companies carried into the country the supplies required by the miners, and dealt in fur trade. In the year 1886 coarse gold was discovered on the Fortymile river, and it was estimated that during the following year 200 miners were working on the bars of the Fortymile and Stewart rivers.

Third—Although many small streams were explored and successfully worked for many years in both the Fortymile and Klondike districts it was not until the year 1896 that the big discovery on Bonanza creek was made. Several miners were prospecting on Gold Bottom and Quartz creeks, situated in the Klondike district, prior to 1896, but the pay found was nothing unusual—at least not more than had already been discovered in the Fortymile district. In the month of August, 1896, George Carmacks located a discovery claim on Rabbit creek, now known as Bonanza creek, a tributary



On Line of Klondike Mines Railroad, 90B Bonanza.

in use but the essence of this paper is to show what methods were employed to cope with the conditions as they changed from one period to another from the first day the gold was discovered until the present time. It must not be understood that, where the ground is being operated by a dredge or some other large scale method at the present day, that it could not have been operated by the same method in the early days of the camp or by other methods of mining already in use. The conditions, quality and extent of the ground available are the factors which determine the method to be employed.

In general a gold discovery will cause a stampede with the ultimate result that a pay streak is divided into hundreds of claims held by separate individuals, who will work these claims to the limit of profit that can be obtained by manual labor.

This mode of operation will last about five years and the amount of gold remaining in such a small area will not justify an expensive plant.

The claim is then designated as being in a "transition stage" a period peculiar to all placer camps. Until an individual or company acquire a sufficient number of claims that have reached this stage, to justify the installation of a mechanical plant, property of this nature must of necessity be non-productive.

Third—The discovery of the Klondike gold fields on the 16th of August, 1896.

First—In common with the discovery and opening up of every unexplored territory, the first expedition into what is known as the Yukon was undertaken by private enterprise and for commercial purposes. The Hudson's Bay company leased from Russia in 1837, the "coast strip" which now belongs to the United States—conducted its operations from the coast stations at Wrangle and Fort Simpson on the west and from its trading posts on the Mackenzie on the east. In 1839, Robert Campbell, an officer of the company, entered the Liard and Finlayson rivers and three years later established a trading post at the Pelly banks. Fort Selkirk was established by Campbell in 1848 at the confluence of Pelly and Lewes. Instead of prospecting, however, Campbell seems to have directed his energies to the prosecution of the fur trade, and up to this period there is practically no record of any prospecting having been carried on. It was not until 1869 that "minute" specks of gold were reported to have been found by some of the employees of the company on the gravel bars of the Yukon.

Shortly after the discovery of the Cassiar gold fields and between 1873 and 1884, numerous small parties of prospectors made their way into the

of the Klondike river, at a point about ten miles from its mouth.

He at once went to Fortymile Post, where the recording office was situated, to record his claim and incidentally gave out the news of the discovery. This information created quite a stampede and in a few months all Bonanza creek and its tributaries were staked from one end to the other. Following this discovery, during the same year and the following, all the neighboring creeks were located. It was not, however, until two years later that the hills and benches were located.

CLASSIFICATION OF THE PLACERS.

Creek Placers—Alluvial deposits situated in the beds of valleys of small streams known as creeks or gulches, which seldom exceed 1000 feet in width.

Hill Placers—Alluvial deposits situated at high levels and adjoining the creek placers.

Bench Placers—Alluvial deposits situated on plateaux and adjoining the hillside placers.

Bar Placers—Accumulation of gravels in the beds of rivers which are entirely covered at high water but exposed at low water.

Creek Gravels—Detritus from a few feet to 125

feet in thickness composed of moss, frozen decomposed vegetable matter and gravels.

Hill Placers—Detritus from 50 to 300 feet in thickness composed of a little silt and gravels.

Bench Placers—Detritus similar to those on hillsides.

Bar Placers—Washed gravels in which the pay seldom exceeds a depth of 25 feet.

CLASSIFICATION OF PLACERS AND THE METHODS OF WORKING THEM, ACCORDING TO EVOLUTION.

Bar Placers, Open Cutting—Thawing with stones, hauling with wheelbarrow and rocking. Thawing with wood, hauling with wheelbarrow and rocking. Thawing with wood, hauling with wheelbarrow and dredging. Ground sluicing. Dredging.

Creek Placers, Drifting—Thawing with wood, hoisting with windlass and rocking. Thawing with wood, hoisting with windlass and sluicing. Thawing with steam, hoisting with windlass and sluicing. Thawing with steam, hoisting with self-dumper sluicing.

Hill Placers, Open Cutting—Stripping by ground sluicing, shoveling-in into sluices. Stripping muck by ground sluicing, waste by steam scrapers, shoveling into wheelbarrows, hoisting with self-dumper. Stripping by ground sluicing, waste by horse scrapers, scraping pay into sluices. Steam-shoveling with separate washing plant. Steam-shoveling with washing plant on the shovel. Steam-shoveling and dumping into sluices. Dredging without thawing, motive power steam. Dredging, thawing ahead with steam, motive power steam. Dredging, thawing ahead with steam, motive power electricity. Elevators, stripping by ground sluicing and hydraulicing in sump-hole.

Hill Placers, Drifting—Thawing with wood, hoisting with windlass, rocking. Thawing with wood, hoisting with windlass, sluicing. Thawing with steam, hoisting with windlass, sluicing. Thawing with steam, hoisting with self-dumper, sluicing. Adit level, wheeling to sluices.

Hill Placers, Open Cutting—Ground sluicing into sluices. Ground sluicing overburden, shoveling-in. Hydraulicing with gravity water. Hydraulicing with pumped water.

Bench Placers—The methods employed in bench and hill placers are the same.

EVOLUTION OF THE METHODS.

First—Bar Placers—As the discovery of gold in alluvial deposits is mostly made by prospectors or men of limited means it is obvious that the first method employed is of a primitive nature which does not require any more than a pick, a shovel and a few other tools to enable a man to recover gold from shallow diggings. This was the case with the first operations conducted on the bars of the Fortymile and Stewart rivers during the first years of mining in the Yukon Territory.

The prospectors were from divers parts of the world in which alluvial deposits had been found and operated; such as in California, British Columbia, Australia, Mexico and South America, but none of them had ever been confronted with the great stumbling block known as "the frost."

Many, no doubt, had seen frost before but it was in all cases only local and could be disposed of in the early spring of the year. In this territory the frost reaches bed rock, no matter how deep, and it cannot be disposed of unless the overburden is removed and the gravels exposed to the sun or some artificial means are applied to substitute the sun's heat.

As a rule bar-placers are covered at high water and nothing can be done until the water recedes and gets low enough to permit excavation.

On the Stewart river the bars are above high water mark and it was possible to operate all through the year but as those situated on the Fortymile river are covered at high water nothing was done during the summer months. Before the water became low enough to permit any excavation a certain amount of ice was formed on top of these bars. The only initiative, therefore, was to devise some method whereby the material could be taken out during the winter months. In this case the method employed to recover the gold from these bars was as follows:

An area of 50 feet square was cleared of ice with the pick and shovel. A space 20 feet in length and 6 feet in width was thawed at a time, being an area just large enough for one man to excavate before it could again be attacked by the frost. To thaw this, kindlings were made and placed, for the width of one foot for the whole length of the 20 feet, then a layer of dry spruce wood was placed on top of these for the whole width of 6 feet and the length of 20 feet; on top of this another layer of dry wood was placed, cross-wise, and then a third layer of green spruce and the whole covered with rocks, tin or sheet iron. The green wood kept the fire burning as long as possible and the tin or sheet iron confined the heat within the area to be thawed. The kindlings were placed in the middle of the wood pile for the whole length of the 20 feet for the purpose of conducting the fire through the whole mass. The fire would continue to smoulder for 14 or 16 hours and thaw to a depth of 18 inches or about 6.5 cubic yards.

After the material is thawed it is excavated with the pick and shovel into a wheelbarrow and placed on the shore of the river in the shape of a dump ready to be washed when the water is liberated. In

many instances the material is washed at once in a rocker instead of sluices.

At points on Stewart river where the bars are situated above the high water mark and not frozen there is no thawing required and work can go on during the summer months. The method employed to work these bars was very original and deserves some mention being made.

The first operations on these bars consisted of open-cut work, the material was excavated and conveyed by wheelbarrows to the rocker, every load being washed before another was excavated. By this method the output was so small that some means had to be devised to handle more.

As no water could be obtained under pressure and pumps were out of the question, the water was elevated to the bar in the following manner:

A paddle wheel, of about 15 feet in diameter, to which was attached small tin cans at intervals of about two feet around its circumference, was set into the current of the stream. As the wheel was made to revolve by the current these small cans would fill and empty themselves automatically into a trough or box connected with a hose high enough above the surface of the bar to give pressure. This water was used to ground sluice the material into the sluices or to furnish enough water to sluice material which was excavated and shoveled-in.

The two operations above described were the first employed in this territory. You will notice that they were on the most primitive scale neither one requiring capital to enable to recover gold.

These operations went on for quite a few years until coarse gold was found on some of the small streams tributaries of the Fortymile river. It appears that the miners stampeded these small streams and bar digging grew less every year while creek digging came into prominence more and more until the year 1896, when the Klondike gold fields were discovered and bar digging operations became extinct. The importance of these bars was not re-

the frost was a distinct advantage because there was neither seepage water to contend with nor had the miners to timber the drifts.

Up to this time, 1896, the methods employed to operate the alluvials were the open-cut, ground sluicing and drifting; thawing was done with wood and the hoisting was done with the windlass.

All the methods above mentioned were introduced in the Klondike mining district but as the conditions were somewhat different in respect to the depth of the ground, the gradient of the stream and the water supply only the drifting method was employed.

During the year 1897 steam thawing was introduced but as there was no iron available with which to make pipes, over 300 rifle barrels were used instead of pipes and actually employed for thawing the gravels.

With the introduction of steam the number and the scale of operations increased to such a degree that the windlass, which was the only hoisting apparatus at that time, was entirely inadequate to hoist the quantity of dirt which, with a more suitable apparatus, it was found could be handled. To meet these conditions cages were introduced but these were soon discarded as they required too much labor.

Amongst the many miners in the territory at that time some were acquainted with alluvial iron or coal mining methods in connection with which self-dumping devices were used. Some experiments were made with the idea of employing the same to hoist the material, from either a shaft or an open-cut, into sluices. The apparatus was devised but the manner of tripping the bucket automatically required considerable thought. This was finally accomplished and the first self-dumper was manufactured in Dawson in the year 1900 at the McDonald iron works.

About this time the thawing with wood was replaced by steam and the hoisting with the windlass was replaced by the self-dumper. All these



Drifting and Hoisting by Machinery.

cognized until the year 1901 when the first dredge was installed on Bonanza creek. Many foresaw the possibilities of operating them with a dredge and it was only a short time afterwards that all the gold bearing streams were covered by dredging leases.

CREEK PLACERS.

It was not long after the discovery of bar gold that coarse gold was found in some of the tributaries of the Fortymile river. As far as the records show it appears that the first coarse gold was found on a tributary known as Franklin creek entering the river at a point 80 miles from its mouth.

As this was the first coarse gold that had been found it was proposed to allow every man to locate a claim. As this stream was short, only 300-foot claims could be obtained, this scheme did not prove successful as the congestion of claims prevented each man from doing the work he wanted to do as the tailings from the operation of one claim would interfere with the operations of an adjoining claim and compelled each one to either drift or open-cut by hand.

With the discovery of Franklin creek it encouraged prospectors to look for other streams and it was not long afterwards that Davis, Miller and Glacier creeks were discovered.

Ground sluicing and open-cutting were the methods in use at this time, but these methods could only be employed in shallow ground of not more than 10 or 12 feet in depth. In many instances the ground was too deep to be profitably worked by the open-cut method and the gradient of the stream was too low to allow ground sluicing. It was therefore necessary to remove the pay without disturbing the overburden; this is known as the drifting method. It was contended that much trouble would be experienced with the frost but it was soon found that

improvements in thawing and hoisting were considered ample to keep up with any excavation that could be done with the pick and shovel and the evolution of the method of drifting was, therefore, considered completed.

MODERN DRIFTING METHOD.

It is very interesting to the layman to know how the primitive methods of mining in this territory were conducted but it is equally interesting to the technical man how the modern methods of today are being conducted and for that reason I shall give two examples taken from actual operations; one when the windlass is employed to hoist and the other when the self-dumper is installed.

Much information is necessary to determine if the ground in question should be drifted rather than to employ another method. It is necessary to know the thickness of the "muck"; the thickness of fine sand and barren material; the thickness of the pay and the condition of the bed rock. If the ground is found to be less than 20 feet in depth to bed rock one should consider the advisability of employing the open-cut method. If there is a large quantity of muck and barren material and the pay is shallow, drifting is cheaper than any method whereby the overburden is removed. This information is gathered by prospecting; either by sinking shafts or drill holes.

As the biggest cost in all placer mining operations is the transportation of the pay material from the shaft to the sluices it is of prime importance to consider the scale upon which the operations are to be conducted; whether by the windlass or the self-dumper.

Generally the quantity of ground and the size of the pay streak will determine the position of the shaft or shafts, as the case may be, and the scale of the work. If the pay streak is found to be

200 feet in width one shaft will serve to mine 40,000 square feet of bed rock and that will justify the installation of a steam hoist. If, on the other hand, the pay streak is only 100 feet in width, two shafts will be necessary to mine a similar area and again, if the pay streak is still narrower more shafts will be necessary for the same area or the laborers will have to wheel the gravels a long distance to the shaft. In the latter case windlass hoisting should be carefully considered. It is apparent that the lack of area adds to the cost of mining in sinking shafts, handling barren material and the setting up of the hoisting rigging everytime a shaft is sunk. In this latter case the average area drifted out of a shaft is 20,000 square feet.

DEAD WORK.

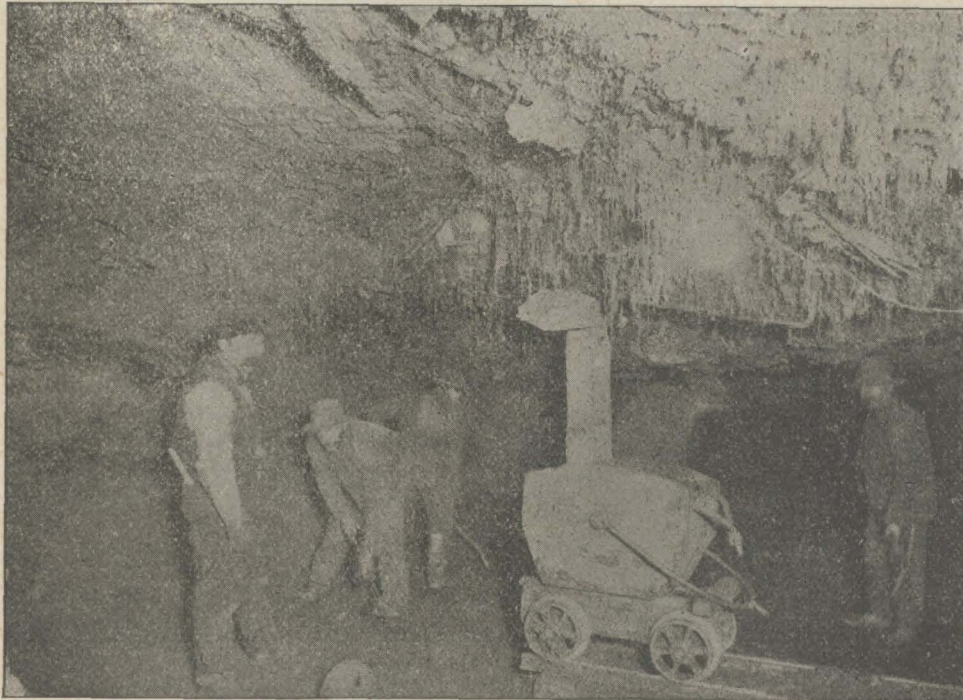
This term is commonly employed by the miners of this territory to mean work which is necessary to be done from which no revenue is expected; in other words it is considered preparatory work for whatever operations are to be conducted. This work consists of prospecting, building cabins, clearing the ground and erecting the plant.

SINKING SHAFTS.

There are many methods employed to sink shafts; each one chiefly depends on the condition of the ground and the finances of the operator. When one undertakes to sink a shaft he must expect to find the following material:

1. From the surface to a depth of from 6 to 15 feet, moss and muck in a frozen condition.
2. The next layer underneath consists of gravels from 3 to 8 feet thick and all frozen.
3. Bed rock material, frozen, about 4 feet thick containing the best pay.

The muck consists chiefly of decomposed vegetable matter and ice, while in other localities it is mixed with sand. The gravels are fine; the largest boulder does not exceed 24 inches in diameter and does not, therefore, impede mining by any method.



Drifting Method Underground on No. 1 Below Hunker.

COST OF SINKING SHAFTS.

The size of a shaft to work the alluvials depends on its particular use and varies from 4 by 5 to 7 by 8 feet respectively. Prospecting shafts are generally 4 by 5 feet while the working ones are 6 by 7 feet. The muck, which forms a part of the overburden, is generally picked by one man at the rate of two feet in three days.

When the shaft gets too deep for a man to shovel the dirt out by hand, the windlass is set up and another man is required to hoist the material out. When the gravel or bed rock is reached the steam points are employed.

The gravel is usually of sufficient depth to require two thaws; even if the first thaw penetrates the bed rock, a second thaw will be necessary to open the bottom of the shaft. Shafts are not timbered unless they are kept for working purposes.

A shaft 4 by 6 can be sunk at the rate of 4 to 5 feet in a day. Taking ordinary labor at \$6 per day, mechanics at \$7 per day and cost of wood at \$10 per cord the cost of sinking shafts of different dimensions is as follows:

A shaft 4 by 6 feet for a depth of 30 feet costs \$3.11 per running foot.

A shaft 4 by 5 feet for a depth of 30 feet costs \$2.80 per running foot.

A shaft 6 by 6 feet for a depth of 30 feet costs \$4.40 per running foot.

When it is necessary to sink two shafts on the same claim it is better to sink them at the same time, as the man at the windlass can hoist from both shafts, thus avoiding the cost of one man at the time of sinking.

When windlass operations are contemplated, it is

better to have two shafts, as the material is being thawed in one while the material is being hoisted out of the other. On the other hand if there is only one shaft available the men have nothing to do when the thawing goes on.

THAWING IN DRIFTING OPERATIONS.

In all modern plants only steam is being used to thaw the gravels; although wood and hot water are both employed they are not, by any means, universally used. The wood is used in small operations where transportation is difficult and hot water is used in certain localities where the composition of the gravels permits it.

THE POINTS.

The points used to thaw the gravels are mostly 6 feet in length, made of extra hydraulic pipe and have a bore of 1½ to 3-8-inch diameter. They have solid standard heads which will stand the blows of a 6 or 8 pound hammer. These points are connected into batteries of 4, each having a separate steam hose, usually ½ inch steam valve and each battery is connected with the main line ¾ inch steam hose and valve.

To do efficient work each point requires steam equal to 1½ h.p. boiler capacity. Much time is saved when the boiler capacity is equal to 1½ times the number of points used, i.e. it would require a 30 h.p. boiler to supply steam to 20 points. If a smaller boiler is employed much trouble will be experienced in keeping it supplied with water and fuel.

DUTY OF A POINT.

Owing to the different conditions of the gravels it is difficult to state exactly the amount of steam required per point or the average amount of ground each point will thaw. The conditions of the gravels, both on the same stream and on the same claim, are so different that accurate results or estimates, to apply to all cases, are almost impossible to be obtained. The best results of thawing, however, are accomplished when the muck reaches to within 5

The cost above given must not be confounded with the cost of thawing gravels when other methods are employed. In open cuts and dredging the points used are much longer, there is more room to work and there is less care taken in point setting, therefore the duty of each point would be greater and the cost, per cubic yard, a great deal less.

MODE OF DRIFTING.

After the shaft is sunk to bed rock a drift is run up or down stream to the end boundary of the claim, then a crosscut is run at right angles, then the ground is blocked out ready for excavation. The steam points are set-in for about 10 hours to thaw the gravels after which they are shoveled into wheelbarrows and dumped into the bucket, situated at the bottom of the shaft, ready to be hoisted. The excavation of the material commences at the end of the claim and proceeds towards the shaft so as to leave all danger of "cave-ins" behind the laborers. Considerable management is necessary to see that the laborers do not interfere with one another when dumping into the self-dumper bucket; each man should make a wheelbarrow to every second bucket and do his share of handling the waste material.

CAPACITY OF MAN IN DRIFT.

The work of a miner in a drift consists of picking and shoveling the thawed gravels into a wheelbarrow and wheeling the same to a bucket situated at the bottom of the shaft. Under the most favorable conditions one man will pick and shovel and deliver the same ready to be hoisted about 337½ cubic feet of material; but the output of the laborer varies with the distance he has to wheel the material to the shaft. In localities where the pay streak is narrow and there is a shortage of ground to work, the conditions are less workable and the output of the laborer will not average more than 270 cu. ft. The capacity of a miner underground varies with so many conditions that a general average, only, can here be given.

CAPACITY OF A PLANT.

A modern plant has a capacity of 150 cubic yards per 24 hours. It is, however, only advisable to install a self-dumper plant when there are six shovelers or over underground as the expenditure above ground is too great to cope with the output of the men in the hole. A modern plant of this kind consists of a 35 h.p. boiler, a steam hoist and a 48-pan bucket traveling on a ¾-inch cable. The boiler is larger than is needed to hoist, the extra capacity being to furnish steam to the points in the drift. Each point requires 1½ h.p. or a trifle less and the hoisting requires 8 h.p. If the shovelers can supply the plant it is possible to hoist, up a shaft 30 feet in depth, one bucket a minute.

COST OF DRIFTING.

I here give concise data as to the cost, including the dead work and the upkeep of the plant, of drifting an area of 20,000 square feet when the pay averages 4½ feet in thickness.

One shaft, 30 feet in depth.....	\$ 130.00
Timbering shaft and some distance in drift	170.00
Fuel, 112 cords of wood at \$10 per cord	1120.00
Labor, 10 men.....	3696.00
Cost of dead work and upkeep....	1534.80
Number of days in operation.....	56
Daily capacity of plant.....	60 cu. yds.
Cost per cubic yard.....	2.00
Cost per sq. ft. of bed rock.....	.3325

This is cost of excavating the material and placing on the surface in the shape of "dump," ready to be washed when the water is liberated. From 60 cents to \$1 per cubic yard must be added to cover the washing.

WINDLASS PLANT.

A windlass plant consists of a windlass, a rope and a small 8-pan bucket and a small boiler to furnish steam to thaw the gravels. In many instances the gravels are thawed with wood.

All these operations are generally conducted by men of limited means, in pairs, one at the windlass and the other in the hole. When the pay is thin both men, for the most of the time, work in the hole as there is much waste to be disposed of.

CAPACITY OF PLANT.

The capacity of a windlass plant depends on the thickness of the pay. On a pay streak of two feet in thickness not more than 120 buckets, or about 7 cubic yards, can be hoisted per shift. On a 3½ foot face the average will be about 200 buckets which is equal to 67½ square feet of bed rock or 235 cubic feet of gravels per day. As it is not advisable, in all windlass operations, to carry the dirt more than 60 feet, shafts are sunk every 100 feet or less.

COST OF WINDLASS DRIFTING.

I herewith give concise data as to the cost of drifting a piece of ground 30,000 square feet area, when the pay averages a depth of 4½ feet.	
4 shafts, each 30 feet in depth....	\$ 380.00
Timbering	120.00
Labor, 12 men at \$78 per day for 112 days	8736.00
Fuel, 1½ cords per day at \$10 for 112 days	1680.00
Dead work	1637.00
Daily output	270 sq. ft.
Cost per square foot of bed rock..	.418
Cost per cubic foot119
Cost per cubic yard	3.22

The cost above given is for the actual work necessary to place the material into a dump ready to be sluiced as soon as the water is liberated in the spring time. The cost of washing this material adds from 60 cents to \$1 per cubic yard.

MODE OF SLUICING.

The washing of the gold commences about the latter part of April and continues until the 15th of October of each year.

In many localities the only water available to wash the material is seepage and snow water, which last not more than two weeks, it is of prime importance that all preparations should be made to receive the water as soon as it is liberated. In this case the sluices are placed in position and covered with small battens and the excavated material is dumped thereon in the shape of a dump. A few days before the opening of the season this material is thawed with steam points after which the battens are removed one by one and the material drops into the sluices by gravity and aided by picks and shovels. In some localities the material is hydrauliced into the sluices by means of a small hose, the water being furnished by a small pressure pump. In other localities, when the condition will allow it, the material is scraped into the sluices with steam or horse scrapers.

The method of washing is dependent on the scale of the operations, the water supply and the dumping ground for the disposal of the tailings.

OPEN CUT METHOD.

The open cut method, which consists of recovering the pay by means of removing the overburden, is not only the oldest method employed in this camp but one which has received the most attention in the Territory. It has caused many failures, but that cannot be compared with its successes and the incalculable value it has been to the camp in solving a means of operating the poorer gravels of the Territory.

There are many open-cut methods in use, each one being employed to conform to the existing conditions, and I have divided them into two great classes, based on the manner and the cost of operation, as follows:—

First,—All the open cut methods in which the excavation of the material is by manual labor is known as ordinary placer mining methods or primitive methods.

Second,—All open cut methods in which the excavation of the material is done by mechanical means are known as modern methods or gravel mining methods.

In the following, hereunder, you will find the several methods in use, subdivided and belonging to class 1 or 2, as the case may be.

First,—Ordinary Placer Mining Methods—

Ground sluicing.

Stripping by ground sluicing, shovelling the pay into the sluices.

Stripping, with either steam or horse scraper, or both, shovelling into wheelbarrows, wheeling to bucket and hoisting to sluices.

Second,—Gravel Mining Method—

Hydraulicing with pumped water.

Hydraulicing with gravity water.

Steam shovelling.

Dredging.

Elevators.

OPEN CUTTING BY ORDINARY PLACER MINING METHODS.

Ground Sluicing.—This method is employed to recover the pay in certain localities where the water supply is ample; where the gravels are shallow and where the gradient of the stream is sufficiently high to move the material. It consists of concentrating the stream as much as possible on the gravels which are moved by the water without pressure. In every instance laborers are employed to pick the gravels into the stream.

When the whole material from the surface to bedrock is removed in this manner, the method is known as "ground sluicing"; when it is only employed to move the overburden it is known as "stripping."

STRIPPING BY GROUND SLUICING.

In many cases when the gradient of the stream will not permit the whole of the material, from top to bottom, to be removed by ground sluicing, only the overburden is removed and the pay is shovelled into sluice-boxes. This, however, can only be done in moderately shallow diggings when there is no barren material between what is possible to be removed by ground sluicing, and the pay. If there is, besides the moss and muck, some barren material to be removed before the pay is exposed, it becomes necessary to strip it with either a steam or a horse scraper.

STRIPPING, PICKING AND HOISTING.

The method of open cutting a piece of ground of not over 20 feet in depth consists of three distinct operations: (1) stripping the overburden by ground sluicing, (2) stripping the waste material by means of a steam or horse scraper, and (3) the pay is shovelled into wheelbarrows, conveyed to the self-dumper bucket and then hoisted to the sluice.

COST OF OPEN CUTTING.

The cost of mining by this method varies in every locality in accordance with the conditions. At places there is a good water supply, plenty of grade for stripping and the water is diverted from a nearby stream for sluicing purposes, while in other cases much scraping must be done and the sluice

water must be pumped up; therefore, only an average cost can here be given.

The stripping of the overburden by ground-sludging costs between 15 and 25 cents per cubic yard; the cost of scraping the "waste" by steam costs between 50 and 60 cents per cubic yard, and by horse scraper from 60 to 75 cents per cubic yard. The cost of shovelling the pay into the bucket and hoist it on to the sluices costs in the neighborhood of \$1.75 per cubic yard. Taking the average on a number of operations I have found the cost of open cutting to be \$2.25 per cubic yard washed.

OPEN-CUTTING BY MODERN GRAVEL MINING METHODS.

Hydraulic.

This hydraulic method consists of directing a stream of water under pressure against a natural bank.

During the early days of this camp the population included many miners from British Columbia and California who were well acquainted with the method, but on account of the perpetual frost in the gravels many were of the opinion that it could not be employed. After the conditions were investigated it was soon found that the frost was not the objection, but it was the lack of water and dumping ground. Another objection was that the area of an individual claim did not justify the installation of a plant of any magnitude.

The method of hydraulicing requires an abundant water supply, plenty of grade and sufficient dumping ground for the disposal of the tailings, without any one of these three conditions hydraulicing is impossible. It was not until the best pay was worked out of the placer claims that the method was introduced and it required a larger tract than the area of one claim to justify any expense in that line.

In the years of 1899 and 1900 many groups of

operate the whole season. The cost of the removal of a cubic yard of material is increased by whatever expenditure is incurred during the dry season when there is no work going on.

When there is an abundant supply of water the cost of the removal of a cubic yard of material has been as low as 14½ cents. The quantity of water available was 200 inches, the height of the bank 40 feet and the duty of the miner's inch 5 cubic yards in 24 hours. This is the actual cost only and does not include the interest on the money invested.

The same work, done under the same conditions, with a pumping plant costs upwards of 25 cents per cubic yard.

MANNER OF HYDRAULIC.

It was first thought that the frost in the gravels would be a severe disadvantage to accomplish hydraulic operations. This, however, was not the case as the sun's heat supplied as much thawed material as the water could handle.

The method of procedure consisted of exposing as large as possible a face of the gravel bank to the sun and to place the monitor at a point whereby the stream can be directed onto any part of it for a length of 200 feet. One portion is being operated while the other is being thawed by the sun. When the face of the bank is too large for one monitor, two are installed, but only one is used at a time if the gravels do not thaw quickly.

In all cases, if only the frost is considered, the method is a thorough success.

STEAM SHOVELING.

The steam shovel has been very little used in this Territory. In no instance have I known of any plant of this kind being successful. An experiment of this method was made on a moderate scale and is, therefore, of little importance. I have no data as to costs.



Six-inch Giant Under 450 Feet Head on Potato Patch Group.

claims were formed and ditches, from near-by tributaries, were constructed; but as the water supply was so meagre and the seasons so short, very little headway was made. At the time the method was introduced there was such a congestion of claims, both on hillsides and creek beds, that only a small quantity of water could be diverted by the ditches, the water being required by the individual miners in the creek bed. The next obstruction was the lack of dumping ground and to overcome this difficulty the tailings were cribbed on the side hills in order to avoid encroaching upon the adjoining claims in washing the deposit into the creek bed.

To overcome all these difficulties it was proposed to install pumping plants in the creek bed to pump the water for hydraulicing purposes. In this manner the water was returned to the stream above the point of diversion of the pumping plant and thereby causing no friction between the hydraulic and individual mining operators. On account of the cost of fuel this method was not successful and was abandoned.

The decrease in the number of individual mining operations in the creek bed permitted the diversion of a larger quantity of water and in consequence larger ditches were constructed, and large groups of claims were formed, including many creek claims, the latter being used to dump tailings resulting from the operations on the hillsides. The scale of these operations has been increasing every year since 1904.

COST OF HYDRAULICING.

The cost of hydraulicing depends on the quantity of water available, the duty of a miner's inch and the dumping for the disposal of the tailings. The pressure with which the water is being used is also a great factor.

Up to the present time no hydraulic company has been able to obtain a sufficient water supply to

DREDGING.

The first dredge in the Territory was installed on Creek Claim No. 42 below discovery on Bonanza Creek. It was a Risdon close connected bucket dredge of 2½ cubic feet capacity, of the old type with steam as motive power.

The ground was cleared and stripped of moss and muck and a pond was made in which to place the boat, and operations were conducted without any artificial thawing. It was, however, soon found out that there was too much frost and the bed rock could not be reached. The experience derived by the work of this dredge convinced the management that the method would be a success, even if conducted under the same conditions, with the advantage of the experience gained.

It was found that thawing was absolutely necessary before digging could commence. To do this a separate plant was installed to furnish steam to points. This plant consisted of two 50 horse power boilers and 65 points. Thawing began one month ahead of the digging so that the thawing plant could supply the dredge for the remainder of the season.

The tenor of the gravels at this point was sufficiently high to justify this work. It was a matter of economising in fuel and increasing the duty of each point.

The records show that the cost of thawing ahead of a dredge was 30 cents per cubic yard and the actual cost of digging was about the same. This dredge is still operating on Bonanza Creek, but with greater efficiency than before.

The most expensive part of the operations is the thawing ahead of the dredge. This cost has been decreased very materially since the work has been done on a large scale. The chief cause of the decrease being cheaper fuel and improvements in the method of point-setting.

Since electric power, generated by water, has

been introduced the cost of digging has been greatly reduced. It is now nearly assured that the actual cost of digging will not be over 10 cents a cubic yard. There is, however, one drawback to the hydro-electric transmission in that the point of diversion of the water to generate the power is much

type; capacity, 5 and 6 cubic feet.
Lewis River D. Company, Bonanza Creek, Risdon type; capacity, 2½ cubic feet.
Yukon Gold Company, Hunker Creek, Bucyrus type; capacity, 5 and 6 cubic feet.
Canadian K. G. M. Company, Klondike River,

All the dredges of the Yukon Gold Company, 7 in number, excavated 1,500,000 cubic yards during the season of 1908. The other dredges, being one in each case, averaged between 100,000 and 150,000 cubic yards each.

ELEVATORS.

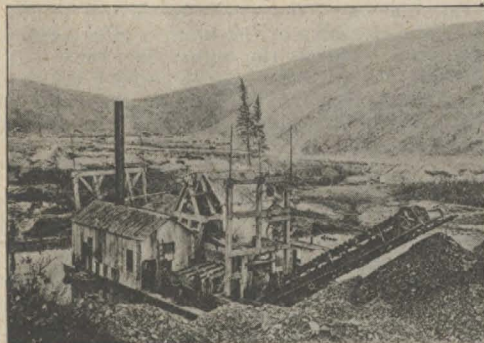
At points where the gravels are shallow, the bed rock is hard, cracked and slabby and there is not enough grade in the creek bed for the removal of the material, or the gold cannot be recovered by a dredge, a new method, known as "electric elevators" is in use. This method can be classified as a hydraulic method in which the grade is substituted by the elevators. A short description of the method is as follows:—

A sump hole is made, about 30 feet in depth, over which is placed an upright. Within this upright is placed, at each end, two tumblers, similar to those employed on dredges, over which an endless chain of buckets revolve. These buckets are made to reach the bottom of the sump hole and elevate the material which has been hydrauliced in. The buckets have a capacity of 3 cubic feet and revolve with a velocity of over 20 per minute.

These elevators have been installed on Bonanza Creek by the Yukon Gold Company after a design made by the general manager, O. B. Perry.

The cost of the operations have not yet been ascertained but I am of opinion that it will compare well with that of the dredge.

There are three installed, two of which have already been operated. About 66,000 cubic yards of material have been treated with these machines.



Dredging Method.



Open-cut Method.

colder than the point at which the operations are being conducted. If the power were generated by steam it would lengthen the season about one month.

There are 12 dredges operating in the Yukon Territory, as follows:—

Yukon Gold Company, Bonanza Creek, Bucyrus

Marion Shovel type; capacity, 6½ cubic feet.
Bonanza Basin G. D. Co., Klondike River, Allis Chalmers type; capacity 6½ cubic feet.
Yukon Basin G. D. Co., Stewart River, Risdon type; capacity, 2½ cubic feet.
Davison Bros., Forty-mile River; Allis Chalmers type; capacity, 6½ cubic feet.

OPPORTUNITIES OF YUKON

By FRANK J. NOLAN, Manager of the N. A. T. & T. Co.

THE Yukon offers opportunities for the amassing of wealth to men of all stations in life, to the individual miner and prospector, and to the capitalist interested in the development of the mining industry. It offers inducements unequalled in any country in the world. There is no better field for untold wealth to the faithful prospector who is possessed of the necessary pluck and determination to persevere. Thousands of acres of placer ground are still available for the individual miner and prospector. Some of this ground has been sufficiently prospected to ascertain the presence of gold in paying quantities, but the larger portion however has never had a prospect hole put down upon it, and consequently its value is as yet unknown to the world. Hundreds of claims are held by miners who offer splendid inducements to the individual, that is the miner of small capital, to be worked under the "Lay" system. Most of these properties have been prospected and the pay streak defined, but owing to the lack of sufficient means the owners are not able to operate their properties. Under the lay system the owner of the property practically leases his property to the miner on a percentage basis. The lessee receives the entire output of the mine out of which he pays all operating expenses and the percentage to which the owner of the property is entitled under the "Lay." The balance remaining represents the profits of the laymen in the operation of the claim. Frequently these lays have been found very profitable to the laymen and the greater percentage of them pay better than wages.

Remuneration for work, or wages, is figured at a much higher rate than is paid for the same work in mining centres that are located in closer proximity to the markets of the world. The farther from the market in which the miner obtains his supplies and the more remote from civilization, the higher the wages. We find, therefore, that the rate of wages varies according to the district in which the miner and layman is working and that it is rated from \$4 a day and board to \$12 a day and board and in some instances to \$15 a day and board. The usual rate of wages, however, paid to the miner working at placer mining in the Yukon is \$4 a day and

board. Owing to the great possibilities of the country and the vast opportunities it offers, the man coming into the country at the present time, possessed of the qualities necessary to become a prospector and who has the grit to persevere has every chance in his favor of making, if not a fortune, at least a more comfortable competence than his confrere on the out-



Frank J. Nolan, Manager N. A. T. & T. Co. —Photo by Duclos.

side. Many men have not only done well but have left the country in absolute independence.

In order for the prospector to decrease his chances of failure and to render success more certain, it is necessary in addition to the qualities

heretofore enumerate for him to possess sufficient means to provide himself with a suitable outfit or grubstake to last at least one year. This can be procured at an average cost of \$500 a man per year, and there should never be less than at least two men, working as partners, on a lay or prospecting venture.

There is an enormous territory available containing vast deposits of placer gravels which will yield handsome returns to the capitalist and heavy investor. These properties must be worked on a large scale by modern and improved methods in order to be profitable. Much capital has been induced to invest in the Yukon during the last few years and there is every indication that when the returns on their investments begin to come in there will be an eagerness on the part of capital to increase their holdings.

The fuel industry gives employment to a large number of men. An enormous quantity of wood is consumed in this country, out of proportion to the population if compared with similar districts outside. The mines demand their quota, and a large quantity is demanded for household use. At present there is a sufficient number of men interested in this industry but the opportunities in this line will doubtless improve with renewed and increased mining activity.

The roads and trails of the Yukon are as good as can be found in any mining country elsewhere. The Canadian government cannot be given too much credit for the excellent work it has done. Hundreds of thousands of dollars have been expended in perfecting the system of roads and trails and it has ever been the policy of

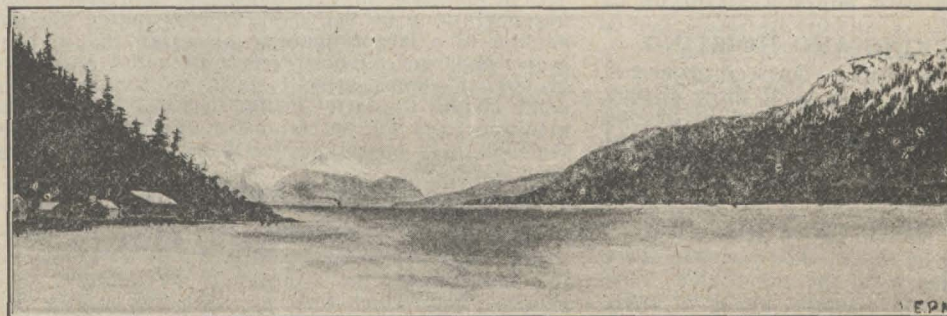
the government to follow up the prospector and trail blazer and provide roads wherever found necessary.

The commercial conditions of the territory at the present time do not warrant the encouragement of a single individual; every line of business is represented and in fact many are overdone. This condition, however, will doubtless improve with the increase of investment of capital in placer mining and the development of quartz and the renewed activity of the prospector.

It might be of interest to those contemplating a change of residence to know that in the City of Dawson churches of all denominations are represented and that the school system is of a very high order. The city also has two well equipped hospitals which would do credit to outside cities of much greater importance.

Telegraphic communication is to be had with the outside, via Canadian and American lines and also with aid of the wireless system with many parts of Alaska. Mails are received regularly by steamer during the open season of navigation and by stage during the winter months. This latter is a tri-weekly service. Mail service is also maintained between Dawson and Alaskan points.

In conclusion the Klondike gold fields offer inducements to the sturdy prospector who has the means to provide himself with a suitable outfit that cannot be surpassed in another spot on the globe and it also offers inducements for investment to the capitalist that will prove as remunerative as investments of a similar character in the other mining centers of the world.



Yukon River.

Liberality and Safety of Mining Laws in the Yukon

By F. X. GOSSELIN, Gold Commissioner of Yukon Territory

THE mining laws in force in the Yukon Territory are of three kinds:

First. Those regarding placer mining, which are embodied in an act of the parliament of Canada passed in 1906, entitled the "Yukon Placer Mining Act," and in several amendments.

Second. Those regarding quartz mining, which are embodied in an order of the governor general in council, dated August 13, 1908, which came into force September 26, 1908.

Third. Those regarding dredging, which are embodied in an order of the governor general in council, passed on May 14, 1907, which came into force on June 22, 1907.

Under the said Yukon placer mining act and its amendments, any person over, but not under, eighteen years of age, whether a British subject or not, may acquire, by staking and applying, placer mining claims of the size described therein, namely, "Any person or party of persons locating the first claim on any creek, hill, bench, bar or plain, or locating a claim on any creek, hill, bench, bar or plain upon which there is no recorded claim, is entitled to a claim or claims respectively of the following sizes: One

Any number of claims adjoining or not adjoining may be grouped together for similar purposes, if it is shown to the satisfaction of the commissioner of the Yukon Territory that the interests of the locality in which these claims are situated will be materially benefitted thereby.

Under the quartz mining regulations, any person over, but not under eighteen years of age, whether British subject or not, who discovers rock in place, is entitled to stake a claim measuring 1,500 feet in length by 1,500 feet in width, and to receive a record for the same, on making application within the time specified in these regulations; but he may not locate more than one claim on the same vein or lode, or within a distance of one-half mile.

Quartz claims, not exceeding eight in number, which are adjoining one another, may be grouped together for the purpose of doing the required amount of assessment work called for by the said regulations, namely, one hundred dollars worth per annum per claim.

The records which are issued for quartz claims entitle the holders thereof to obtain crown grants for

As regards dredging mining regulations: Leases to dredge for minerals in the beds of rivers in the Yukon Territory are issued for periods of fifteen years for stretches of river, not exceeding ten miles in length, and those leases are renewable from time to time, at the discretion of the minister of the interior, provided it is shown to his satisfaction that the leasehold has not been fully mined, and that the lessee has, during the term of his lease, efficiently operated the leasehold, and that he has otherwise fully complied with the provisions of the regulations in that behalf.

The rentals called for by these dredging regulations are one hundred dollars a mile, for the first year, and

ten dollars a mile for each additional year.

The lessees under said leases are required to instal on their leaseholds and put in operation, within three years from the dates of said leases, at least one dredge, and to keep such dredge in operation for not less than forty days, of ten hours each, in every year, after the third year from the date of the lease.

The foregoing synopsis will satisfy any one who is acquainted with the mining laws of other countries, that the mining laws in force in the Yukon Territory are more liberal and safe, if not safer, than any other mining laws.

MINING TITLE IN YUKON

By E. C. SENKLER, K. C., Legal Adviser, Former Gold Commissioner.

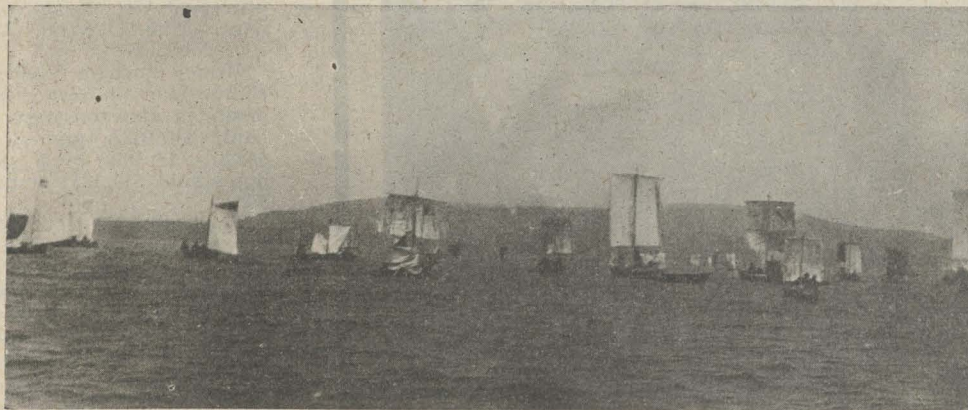
FROM the discovery of gold on Bonanza in August, 1896, until the summer of 1898, creek claims only had been staked, and although there

veeyed, giving precisely the position of each creek claim.

In Yukon Territory, as in all other placer countries, the locator of a placer claim always is in danger of attack up to the time he has completed the advertising of a survey of the claim. This, owing to the difficulty of finding and fixing precisely the location posts of other locators, is unavoidable, and a knowledge of the exact position of adjoining claims can be obtained only by a proper survey.

A mining recorder's office, especially as regards placer mining, must necessarily be somewhat different from the ordinary registering office, and must be perfected gradually by the experience of those who have its conduct. From 1897 until 1900, when the great rush was at its height in staking and recording, the recording office was at a great disadvantage, especially in the fore part of that period, in not being properly equipped in regard to space and material. There are many cases in the record of the early days where bills of sale of valuable property were written on wrapping paper. Since the new administration building was completed, in the summer of 1901, no fault can be found with the gold commissioner's office or the supply of material.

The placer mining act, under which placer mining is administered at pres-



The Race for Fortune—Lake Lebarge in 1898.

locator, one claim 1,500 feet in length; a party of two locators, two claims, each of 1,250 feet in length; a party of more than two locators, two claims, each of 1,000 feet in length; and for each member of the party beyond two, a claim of the ordinary size only, namely, 500 feet in length. Creek claims are two thousand feet in width, and all other claims are one thousand feet in width.

Any person having recorded a claim (creek, hill, bench, bar or plain) within a valley or basin, has the right to locate another claim within the said valley or basin within sixty days of the date on which he has located the said claim.

The grants which are issued for placer mining claims are only good for one year from the date of issue; but they are absolutely renewable from year to year, provided the grantees thereunder, or their assigns, do or cause to be done thereon at least two hundred dollars worth of work during each year of the said period, in accordance with a schedule prepared by the gold commissioner and approved by the commissioner, and file within a prescribed time with the mining recorder, or his agent, an affidavit stating that such work has been done, and setting out a detailed statement thereof, and pay the required renewal fee.

Placer mining claims adjoining one another, not exceeding ten in number, may be grouped together by the mining recorders, for the purpose of performing on any one or more of such claims all the work required to entitle the owners of same to renewal grants therefor.

these claims, upon performing at least one hundred dollars worth of work per annum for five consecutive years, or five hundred dollars worth of work during one or two years, or more, and having a survey made thereof and properly advertised and posted, and paying the surface rights at the rate of one dollar an acre.

There is not the slightest danger of the holders of such records losing the claims covered thereby, if they perform, or cause to be performed, the required amount of work, and file with the mining recorder, within the specified delays, proper affidavits giving an itemized account of such work.

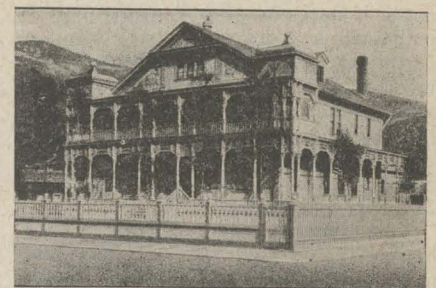
There is not the slightest danger of the holders of such records being refused crown grants, if the provisions of the regulations are complied with.

Both as regards placer mining and quartz mining, if any person satisfies the mining recorder that he is about to undertake a bona fide prospecting trip, he may receive written permission from the mining recorder, allowing him to record a claim within his mining district at any time within a period not exceeding six months from the date of his staking such claim; and if any person satisfies the mining recorder that he is about to undertake a bona fide prospecting trip, and files with the mining recorder a power of attorney from any number of persons, not exceeding two, authorizing him to stake claims for them, in consideration of their having enabled him to take the trip, he may stake one claim in the name of each such person upon any creek on which he makes a discovery.

was no means of perfecting title to a placer claim during that period, there is not a case where a bona fide prior locator who complied with the regulations was deprived of his ground.

The greatest trouble arose at the time of the big rush from the outside in the summer of 1898, as it was found about that time that the benches of Bonanza, Eldorado, Dominion and Hunker contained gold. Owing to the large number of locators, and the difficulty of describing precisely the position of claims, there was much overlapping that brought about litigation which could not be disposed of for more than three years. This litigation caused considerable dissatisfaction, and, in some cases, miners suffered injustice.

Until March 31, 1900, the holder of a grant to a claim was always subject to attack by holders of previous locations and it always was necessary that claim holders should be in a position to satisfactorily prove the precise position of his location posts. On the date mentioned a regulation came into force whereby a claim holder could have his claim surveyed, and on advertising the survey three weeks, if no protest were entered, the survey would mark absolutely the boundary of the claim. On a man taking advantage of this amendment, his duties were reduced to seeing that the representation work was done and that the claim was renewed each year. The government also gave general assistance in this regard by having all the principal creeks—Bonanza, Eldorado, Hunker, Dominion and Sulphur—sur-



Governor's Residence, Dawson

ent, became law in August, 1906. The act was compiled largely from regulations formerly in force, but includes a number of changes that were adopted by the commissioner of the Yukon council appointed for the purpose after consultation with the miners at a number of meetings held for the purpose of discussing proposed changes. A few amendments were added in 1908, and today we have as secure and as workable a compilation of laws as can be found in any community.

Treatment and Marketing of Gold Dust

By F. STANLEY LONG, of the Bank of British North America

TO husband the resources of a country and convey its industrial commodities from their place of production into channels of usefulness is the work of a complicated mercantile system. The centralization and distribution—the marketing—of any specific product in cases where such product is the paramount industry of a community obviously involves the entire economic mechanism of that community. Facility in production is invariably commensurate with the means of distribution, and where these are well organized the benefits accrue directly to the producer. Thus industry is stimulated when distribution is established upon a sound economic basis.

The actual conveyance of the gold of the Klondike from its mines to the refinery or mint has been conducted almost entirely through the medium of the Dawson banks. Each bank has its trained gold buyers who, by dint of constant handling, acquire a precise and accurate knowledge of the values of the various grades of dust, and are able to differentiate the gold from the different creeks by the peculiarities of its formation, size, color and lustre. The banks' currency is always available to meet the demands of the industry.

The gold dust of the Klondike district varies in value not only on the different creeks and on different parts of the same creek, but frequently on different parts of the same claim. Such variation is caused by alloy with varying proportions of silver. The proportion of base metals—iron and copper—is almost inappreciable. In certain districts the dust is coated with a deposit of iron sulphide, a result of volcanic action. In this condition it has not metallic lustre. It is quite black in color, and in the process of melting the loss is generally much in excess of that of gold of a natural color.

Gold is brought to the local banks by the owner or his representative in the form of dust, or—in cases where quick-silver has been used in the process of "cleaning up"—dry amalgam. In the former case the dust is thoroughly blown and cleansed of any black sand which may be present. It is then weighed in the presence of the vendor and either purchased outright at a rate established by previous assay, or left for assay, in which case a receipt for the weight is given and an advance approximating the value made if desired. Final adjustment is made when assay value has been ascertained. The Dawson value is arrived at by deducting from the full assay value the government export tax of two and one-half per cent. (37½ cents per ounce), and the bank's charge, which is approximately 26 to 28 cents per ounce.

The dust is then melted in the bank's assay office, and the base metals—iron and copper—are fluxed off in the process. It is poured into moulds of the required size, allowed to cool and thoroughly cleansed of all slag. The bar is then weighed and the difference between the original weight of the dust and the bar weight represents the loss in melting. The average loss in the case of clean, bright dust is about 2 per cent. The bar is then chipped or bored, the chips or borings being taken from both top and bottom of bar at diagonally opposite corners, and assayed. The results are reported in points of fineness—1,000 fine representing pure gold at \$20.67 per ounce. Gold is the only metal which is not subject to variations of price with market fluctuations.

An allowance of ten points in one thousand is made for base metal. By way of illustration: When the result of an assay of 100 ounces yields gold at a fineness of 800, silver, being the only other metal in the alloy, with the exception of the 10-1000 of base already referred to, will constitute the difference between the gold fineness and the 1,000 points representing pure gold. Thus the fineness of the silver will be 190—base metal (nominal) 10—making the total of 1,000 points. Gold at a fineness of 800 is worth \$16.54 an ounce, silver at a fineness of 190 (supposing the market valuation per standard ounce to be 50 cents) is worth 9½ cents an ounce. Hence, in the case in point, we have 100 ounces gold at \$16.54 per ounce, and 100 ounces of silver at 9½ cents per ounce. A certificate is made up accordingly, giving all particulars of the assay, and the deductions from assay value, and is handed to the party at

tion of gold and silver by the East India Company, which in the year 1600 obtained permission to ship annually coin or bullion to the extent of thirty thousand pounds, subject to stringent conditions, was the occasion of much conclusive testimony against a system wholly antiquated and impracticable. In the evolution of the science of economics gold bullion has taken its place among the articles of merchandise. Gold shipments between nations are controlled by rates of exchange, which in turn are governed by the balance of trade; gold, valued as

bullion, being the only medium for payment of international balances. Rates of interest on loans also exert a powerful influence on the movement of gold, as money always moves to the point where it can be most profitably employed. A large exportation of gold is still regarded by many as a loss of national wealth, whereas it is but one or a multitude of exchanges of commodities which are constantly taking place between countries. Dwellers in a remote mining country can at least appreciate the necessity for such exchanges.

MAILS OF THE YUKON

By I. J. HARTMAN, Postmaster at Dawson

ALTHOUGH the remotest point of any considerable population in the Dominion, Dawson is supplied

For a time the Dawson office was the first in rank in the world in the amount of money handled through any one office. That was caused by the great sales of money orders to those making homestakes and sending them out of the country. With the changed conditions, Dawson still makes a splendid showing, and the office here ranks among the leading offices of Canada in volume of business. The Dawson summary for 1907 follows:

Money orders sold, \$337,625.95; commission on same \$2,575.51; deposits in Dawson post office savings bank, \$109,627; money orders paid, \$48,879.71; box rent, \$2298; postal notes sold \$11,325; stamps sold, \$12,398.

The following is a list of the post offices in Yukon Territory, together with the postmaster of each, and the indication of what service is given at each office, it being understood that postal savings bank, money order or postal note service is given only where stated:

Dawson—Postmaster I. J. Hartman; money order, savings bank, postal notes.

Last Chance—Postmistress Miss Kate Kennedy.

Dominion Post Office at mouth of Caribou Gulch—C. Sandquist.

Paris at No. 7 below lower discovery on Dominion—Frank Brock.

Lower Dominion post office, at 33 below lower—George Murray.

Granville, 244 below lower discovery on Dominion—J. N. Spence; money order and postal note.

Hunker post office at mouth of Gold Bottom creek; J. A. Peppard.

Kluane—Phil Holliday.

Radford, on Quartz creek—A. D. Ross.

Sulphur post office, at No. 2 below discovery—John Rourke.

Bonanza post office, at Grand Forks of Eldorado and Bonanza—A. J. Peck; money order.

Stewart River post office, at mouth of Stewart river—Mrs. W. H. Smythe.

Pelly post office, town of Selkirk, at mouth of the Pelly river—Joseph Horsfall.

Carmack's, near Tantalus coal mines.

Whitehorse—Dr. Fred Cane; money order and postal notes.

Carcross—Mrs. N. Chambers.

Conrad—James M. Murray.

Log Cabin—T. Tugwell; postal notes and money order.

Fortymile—J. W. Wilkinson.

Atlin—John Williams.

Note—Atlin and Log Cabin are in British Columbia, but in the Yukon watershed. Glacier, Klauke, Big Salmon are supplied with mail occasionally by special arrangement from time to time.

Livingstone, in the Little Salmon country, has a summer office only.

The complete postal staff at Dawson follows: I. J. Hartman, postmaster; G. D. Edwards, assistant postmaster; Ben Craig, Joe Wilson, Fred Hartman, N. C. Caron and Walter Hamilton.



Three Tons of Gold Bricks in Dawson Bank.

whose request the assay was made.

Almost the entire output of the Klondike gold fields has been shipped directly to the assay offices and refineries of the United States, where, after refining, it has either been placed on the market as an article of merchandise or has found its way to the vaults of the treasury of the United States.

In earlier stages of civilization, in fact down to the sixteenth century, the exportation of the precious metals was frequently prohibited by the laws of different countries as being contrary to the first principles of political economy. For a state to part with the "common denominator" was to impoverish itself in exact ratio. The controversy aroused by the exporta-

with a regular and frequent mail service the year round, and the other portions of the territory are given a good service in proportion to their population and distance from the main route of travel.

In the first few months of the history of Dawson after the great rush to this region, mails were handled without adequate provision and everyone in the country had to come to Dawson to get mail. But the force and the facilities soon became adequate, and everything was straightened out, and today Dawson has one of the best systematized post offices in the Dominion and miners or others from a distance are given the unusual accommodation of delivery of their mail at the office any time day or night that the general delivery may be closed.

Encouragement of the Prospector

By ALFRED THOMPSON, M.D., Ex-Member of Parliament for Yukon

IT is safe to assume that there have been very few mining camps established which have not been made possible by the pre-arrival of the prospector.

The prospector is a specimen of the genus homo whose habitat is anywhere on the surface of this globe where gold, silver or precious stones are likely to be found. His home is in the wilds, a tent, cabin or even the forest primeval sheltering him in his hours or rest. He is buoyed up and led on by hope—hope that he will strike it rich; and he often does, but rarely reaps the benefits of his discovery. As a rule he is not a good business man, and he suffers for his lack of knowledge of the ways of the business world. His business is to find. Others develop. But he is a man without whom it is almost impossible for a new country to develop, for he is the great, lone philosophical persevering pioneer.

Many mining countries recognize his worth and their need of the prospector by offering inducements to this empire builder in the way of free claims, exemption from taxes, increased area for a discovery, and in some cases a cash bonus. Why? Because they know of the benefits which follow in his train. He makes a find, stakes a claim; others follow, and soon a stampede is on. Towns spring up, new routes of transportation are opened, a new territory is exploited, people pour in, commerce is given a new impulse, old centers of supply get more trade and new ones are created where none were before. The government receives revenues from a new source, and a place that was barren has been made to blossom like the rose.

Dana, in his "Two Years Before the Mast" was in the harbor of San Francisco, trading for hides with the Spaniards 20 years before gold was discovered, when California was practically a waste. The discovery of gold in the '40's brought the prospector and civilization. Other discoveries on the Pacific slope followed, notably Cariboo and Cassiar, with the result that in 60 years over seven millions of people make their home on this side of the Rocky mountains.

Robert Henderson discovered gold in the Klondike in 1896 and as the result of his and other prospectors' work, this territory has produced near 150 millions of gold since.

What then can be done to encourage this important individual, the prospector, to make new finds, perhaps discover new Klondikes?

First make the inducement big enough to get him out in the hills by giving him a large claim for a discovery if he makes one. In the Yukon he gets 1,500 feet for one locator, and 2,500 feet if there are two in the party.

Then, make his title to the ground secure. Our new mining code has done this. As soon as his ground has been proven, cut a trail to the location so that he can get his supplies to the scene of operations at low cost. Make him a partner of the government by giving him a percentage of the renewal fees after the second year. The first year the creek may be stamped but the owners will not renew their claims unless values are found. The prospector has made it possible for the government to get any revenue from this ground, and it is not unreasonable to ask the government to share with the man who created this asset—this in lieu of a cash bonus.

As soon as possible after a new

find is made and proven, have his claim surveyed free; send a geologist to make a geological examination of the country in the vicinity, and have a reliable map made showing where gold is likely to be found, and where not. Have a contour survey made by a topographical surveyor showing altitudes, water supply and timber available. If the prospector has located a quartz claim, have a free assay office where he can get reliable assaying done. Put the machinery needed for milling quartz on the free list, and if necessary pay a portion of the cost to have a mill test made. I hope soon to see a hydrographic survey made in this territory showing the rainfall in the different sections, the quantity of water in the different streams at different times of the year, and also the power to be generated from some of the well known water powers.

There are in this territory great opportunities for the prospector. We are right in that belt of gold producing ground which stretches from California to Cape Nome. Our mining laws are sound and the area of a claim ample. To the placer prospector we give 1500 feet up and down stream by 2000 feet wide for a discovery claim; to the quartz prospector we give a claim 1500 feet square

and a Canadian winter acts as a tonic on people who are not afraid to move about and take open air exercise—even during our coldest weather.

Wild berries grow in profusion, game is plentiful, and the streams supply whitefish, greyling and salmon. Fuel is plentiful in the valleys, and the timber line is between three and four thousand feet above sea level. Above this the hills are bare except for the shrubs, mosses and wild flowers, which make a Yukon landscape a

panorama of beautiful colors when the wild flowers bloom. We have, then, in the Yukon ideal conditions for prospecting—climate, pasture, water, fuel, game, fish and fruits, a territory that although it has produced about 150 millions in gold is practically untouched—good laws, sound title and a country where life and property are safe. What more can a prospector ask.

Health in Yukon Territory

By W. T. BARRETT, Medical Health Officer for Yukon Territory.

LIKE many of the interesting features of this country, the question of health and the relation of health to the extremes of temperature never have been sufficiently investigated and published so as to impress favorably the intending prospector, farmer or capitalist, who wishes to exploit the mineral or agricultural resources of the Yukon.

Canadians know that extreme cold at intervals during the winter is inconvenient and annoying, but not injurious to health, provided of course the necessary precautions are taken to protect the body with suitable clothing. On the contrary, we know that

stitutional and zymotic diseases.

Scurvy, the disease dreaded by the early pioneer and prospector—due to an impoverished condition of the system, for want of vegetable food—has disappeared from our hospitals completely.

Better and quicker methods of transportation, and home gardening, supply all the vegetable food necessary at the present time for our population.

One of the greatest surprises I experienced during a recent visit to the British Isles, with several other Klondike friends, was the real astonishment displayed by many people there



St. Mary's Hospital, Dawson.

covering over 50 acres of ground, and after he has done a certain amount of work on it we give him a crown grant to the ground, so that he owns it in fee simple.

For the quartz prospector there is here practically a virgin field, a field that is attractive because of the uncertain origin of the placer gold in which the country abounds. For the prospector of copper there are vast ledges of this mineral still unexplored. These abound in that section which lies between the boundary between the Yukon Territory and British Columbia and the head waters of the White river, and are said to contain every variety from pure native copper to gray copper. As a proof of this, enormous slabs of native copper can be seen in Dawson and Whitehorse, and many varieties of copper ore are annually brought down from the copper region.

The climate here is most salubrious and for six months in summer cannot be excelled in any part of the world for prospecting. The days are long with very little rainfall; the nights cool but not cold. There is an abun-

at the healthy appearance of our party—coming as we did from a country whose very name is synonymous with hardships and privations of the most startling kind. I was very glad to inform them that there were many more at home like us, and that if they wished to get the best this world can produce—a good, sound, healthy constitution—the Yukon climate possesses all the elements essential; all, in fact, that is necessary to the production of a strong vigorous race.

The people in this territory who seem to suffer most from the extreme cold, are, generally speaking, those who remain in overheated, poorly-ventilated homes for days at a time, because the thermometer registers between 30 degrees and 60 degrees below zero, Fahrenheit.

The climatic conditions here during the spring, summer and fall are ideal for perfect health. We have the maximum of sunshine with the minimum of variations in temperature.

Labrador is fast becoming famous for the beneficial effects phthisical patients experience after spending a summer there. Much more favorable for consumptives are the climatic conditions in this territory. We have practically three months of continuous sunshine, a more equable temperature throughout the season, and less moisture in the atmosphere.

The official health records for the Yukon during the last decade, show a remarkable freedom from all con-

The hospitals of the territory are three in number—one at the town of Whitehorse and two in Dawson City. All these institutions are liberally assisted by the local government and I think they can boast of giving as good service to their patients, as any similar institutions anywhere throughout the world.

The native Indians of this northern country are sharing the fate of their southern brothers, only in a lesser degree. Tuberculosis is making notable inroads into the various tribes and it will not be long before the North American Indian will be as rare as the buffalo.

Yukon's Gold Yield \$150,000,000.⁰⁰

By GEORGE F. JOHNSON, Treasurer of Yukon Miners' and Merchants' Association

Most of this magnificent showing made the last ten years—Low tide has been reached and output again swelling—New methods and modern mining appliances bring low grade placers to the front—Great virgin fields heretofore impossible to work brought into the sphere of extensive and profitable operation by capital and progressive genius.

ONE hundred and fifty million dollars—such in round numbers is the yield in pure gold by Yukon Territory and the smaller neighboring camps closely affiliated with this territory.

Within a radius of one hundred miles of Dawson the magnificent sum of one hundred and twenty-five millions or more has been produced, and

the other minerals now in sight, mean that the Yukon has a bright future in mineral.

The hundred and fifty millions mentioned as produced to date has come chiefly from Bonanza, Eldorado, Hunter, Dominion, Sulphur, Gold Run, Quartz and other such well known creeks and tributaries within 50 miles of Dawson. In striking this total about \$25,000,000 is allowed for at the conclusion of the statistical total to cover the random creeks of the Forty-mile, Eagle, Woodchopper and Circle and such streams which in early day were opened by men toiling in this region and who are part of the backbone of this region today, and who have exploited this field as a whole from

was a dollar under the real average value.

Returns given in the statistical year book of Canada, and taken from the reports of the mining section of the Dominion geological department of Canada, and figures from other equally reliable sources are given herewith in showing the aggregate summary of the yield so far as there is any record obtainable respecting the yield of Yukon Territory:

Year.	Amount.
1885, 1886	\$ 100,000
1887	70,000
1888	40,000
1889	175,000
1890	175,000

The sum entered in the foregoing under "Supplementary" is the sum referred to before in this article as from other camps outlying in this district. Many there are who are thoroughly convinced that the methods of royalty collection prevailing in early days did not begin to cover the aggregate produced, and that great sums were smuggled out of the country unknown to agents of the Canadian or American governments. It was required in those days by the American government that all persons shipping gold through the strip of American territory which it was necessary to cross to leave this territory should report to the American consul the quantity of gold carried, but it is known that often times gold went out which evaded this requirement. The next best authority after that was the returns compiled at the United States mints, where the gold for many years was sent to be minted. These returns have been referred to in compiling the statistical information in this article, and were collected and revised through official Canadian channels.

Now that the investment of millions by capitalists of Canada, the United States and Great Britain in dredging, hydraulic and other mining methods has been initiated for the opening of the low grade placers of this territory, there is no reason why fully as much gold as already produced should not be taken from the Klondike camp proper, lying within a radius of 50 miles of Dawson, and fully as much as has been produced in the Forty-mile, the Eagle, the Circle and other such camps should be produced there by the new methods.

The placer gold exists also in encouraging quantities on the Pelly river, as the Big Salmon, in the Kluane and other districts not so well known, but where immense bodies of low grade auriferous deposits have enticed prospectors for years. In those regions it is certain great yields will be made. Also notable among the big gold fields which have contributed in the past and are rapidly coming to the front under the new methods are those of the Stewart river valley, which should not only yield as much as in primitive ways, but many times as much. In fact this should be the case with many of the larger streams known to carry dredging values, heretofore touched scarcely more than for grubstakes. The territory is so vast, and so little prospected it would not be surprising to hear any time of the uncovering in remote quarters of virgin placers as rich and probably as extensive as those immediately about Dawson.

At any rate, the new era is here. It has dawned in Yukon immediately on the exit of the old era. The old methods became too expensive for profitable operation beyond a comparatively few claims. The indications that the gold yield, as shown in the foregoing table, turned last year to grow larger, is the indication of time. The fleet of large gold ships and the other extensive apparatus will force the results. Then, the promise of quartz and of copper and silver in various parts of the territory swells the promise for Yukon, and the outlook is encouraging for Yukon to become as steady a producer of all kinds of minerals and in as large sums annually as Colorado, California or Montana.



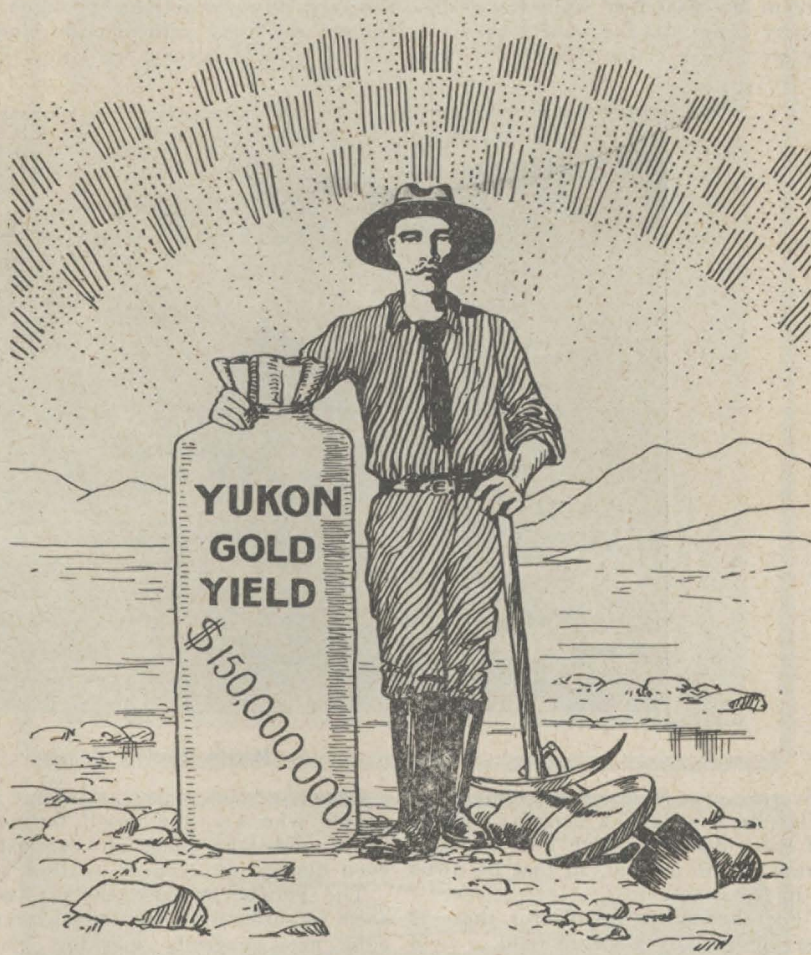
George F. Johnson.
—Photo by Duclos.

within fifty miles of Dawson more than 90 per cent. of that sum has been recovered.

The showing made to date is trifling compared to the future mineral yields which will stand to the credit of this region when the many enterprises already being inaugurated for the thorough opening of the region in ways of transportation and development of resources are consummated.

Already has the tide turned even in the Klondike placers, and the lowest ebb in gold production near Dawson, which was reached last year, is becoming lost to view in the returning large output. The early production was due to the energy of the prospectors who came and wrested the gold from its ancient beds by crudest processes. They took the cream, and it was left to the ingenuity of engineering men and the expert hydraulic and dredge miners to get the remaining gold.

Government geologists sent to Dawson under special commission to survey and estimate the sum total to be derived from the gold of the immediate Klondike camp, calculate that there are in the gravels fully as much gold as has been taken out. One concern alone has spent ten million dollars preparing to open a portion of the creeks, and will spend seven to ten more. It started operations last year, and by the fall of 1910 hopes to be going at a lively clip, and a year later to be running at full capacity, alone taking out millions annually. Several other concerns of magnitude also are opening extensive hydraulic and dredging properties, which by that time should be producing extensively. The showing of these properties, with the opening of quartz and copper and



Circle City to Whitehorse. Aside from this general summary the handsome round sum of one hundred and twenty-five millions has been produced within the borders of the Yukon Territory proper—that is the British Yukon—and the greater part has been turned out within the last ten years. Even this is a magnificent showing, and the aggregate wealth is sufficient to build a fleet of a score of Dreadnoughts.

The official figures of the returns secured for the British Yukon are based chiefly on the royalty returns, which were collected in early days by crude methods, and dependent largely on the affidavits of claim owners as to their yield. Even then the gold was estimated at the low valuation of \$15 an ounce, which probably

1891	40,000
1892	87,500
1893	176,000
1894	125,000
1895	250,000
1896	300,000
1897	2,500,000
1898	10,000,000
1899	16,000,000
1900	22,275,000
1901	18,000,000
1902	14,500,000
1903	12,250,000
1904	9,413,074
1905	7,162,438
1906	5,258,874
1907	2,896,173
1908	3,282,684
Supplementary	24,923,257
Total	\$150,000,000

Transportation in Yukon

By WILLIAM TAYLOR
General Agent for the White
Pass and Yukon Company

TO the stranger, whose knowledge of the country is gleaned from newspaper and magazine articles, describing the perils and hardships of travel during the early days of the great Klondike rush, a trip to the Yukon at the present time would be a revelation indeed.

Nature has generously provided the territory with a magnificent waterway, the mighty Yukon river, which, bisecting the country from its southern boundary to the Alaska line and flowing onward to Bering sea, acts as a connecting link with the outside world, and, with its many navigable tributaries, provides unlimited means of interior or local travel.

At the present time, Dawson, the commercial centre of the Yukon territory, no doubt enjoys unequalled transportation facilities, compared with any mining camp of the world, of its size and located so remote from the centres of trade.

From Puget Sound and British Columbia ports, the choice of two routes is offered, known respectively as the Upper river and the Lower river routes.

type and sailing between Seattle, Victoria, Vancouver and Skagway, Alaska. This portion of the route is through the famous "Inside Passage" of Alaska, a distance of 1,000 miles,

with the famous Hudson river steamers. For light draft boats they have exceptionally large freight carrying capacity.

Barges are also largely used in the

during the current season of navigation, thus insuring a stability and uniformity of freight and passenger rates. Practically a daily service is given to and from the coast cities.

During the closed season of navigation on the Yukon river, which extends from November until May, a relay stage line is operated over a government constructed road, 330 miles long, from Whitehorse to Dawson, on a tri-weekly schedule, connecting at Whitehorse with the railway line and at Skagway with the ocean lines operating all the year round. This is said to be the best equipped winter stage line in the world. Large stages are used carrying 17 passengers and mail and express. The rigs are drawn by four to six horses with changes every twenty miles. At these relay stations comfortable hotels are maintained for the comfort of the passengers.

Freight rigs are run by the stage company, and during the last winter single pieces of machinery weighing six to seven tons each were transported from Whitehorse to Dawson without the least mishap.



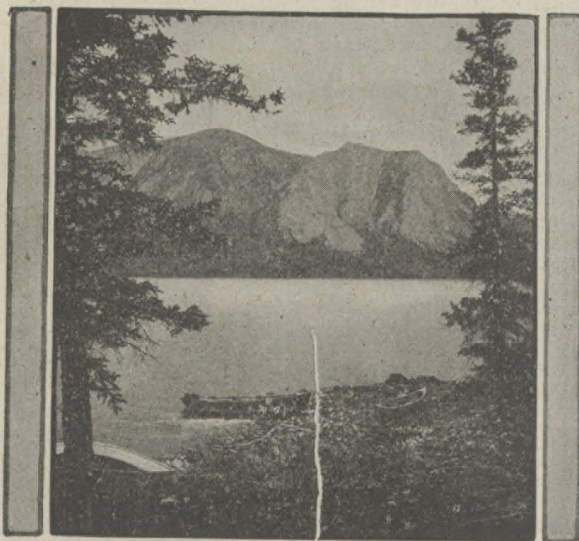
Summit White Pass.

and for many years has enjoyed an enviable reputation as one of the most delightful tourist trips of the world.

At Skagway connection is made with the White Pass & Yukon route, operating a railway line 110 miles in length, to Whitehorse, the head of navigation of the Yukon river. This railway, which crosses the Coast

freight traffic between Whitehorse and Dawson. Powerful towboats handle cargoes varying from 300 to 500 tons according to the stage of water.

At the ports of Skagway, Whitehorse and Dawson, large wharves and freight sheds have been erected to facilitate the handling of cargoes and



Windy Arm.

The Lower river route is covered by various steamship companies operating splendid ocean liners from 3,000 to 6,000 tons burden, between Seattle and St. Michaels, Alaska, a distance of 2,487 miles. The boats connect at St. Michael with a fleet of well equipped stern wheel steamers, operated by the Northern Navigation company and the North American Transportation & Trading company, and running to St. Michaels, Fairbanks and Dawson.

The type of steamer operating on the Lower river is identified with the better class of boats and packets found on the Mississippi river, having superior passenger accommodations and large freight carrying capacity.

Barges are also employed in the freight traffic; large powerful towboats, conveying several barges, frequently move cargoes aggregating 2,000 tons.

A pleasure trip from Dawson to St. Michaels, a distance of 1,601 miles on one of the superb Lower river packets, is the event of a lifetime and one to be long remembered.

The Upper river route, on account of the shorter distance, is more largely used for freight and passenger traffic and is reached by the Alaska Steamship company, the Pacific Coast Steamship company and the Canadian Pacific railway's coast service. These lines operate fast and commodious coasting vessels of 2,000 to 3,000 tons burden and of the most up-to-date

Range through the famous White Pass, is considered one of the great engineering feats of the day. The line passes through some of the grandest mountain scenery imaginable.

From Whitehorse to Dawson, a distance of 460 miles, the journey is completed on one of the fleet of light draft river steamers operated by the railway company, the type of steamer used on the Upper Yukon is similar to that employed in the Canadian Pacific railway service on the Arrow and Kootenay lakes. They are 170 feet in length, splendidly equipped and furnished and the passenger accommodations compare favorably

in addition immense cranes have been installed to handle the big shipments of dredge and hydraulic mining machinery. The ease and dispatch with which thousands of tons of this class of freight have been handled during the past three years, would prove an object lesson to many transportation lines operating in older and more thickly settled communities.

Via either route, through bills of lading are issued from Puget Sound and British Columbia ports to Dawson, which is the distributing point for the outlying mining camps.

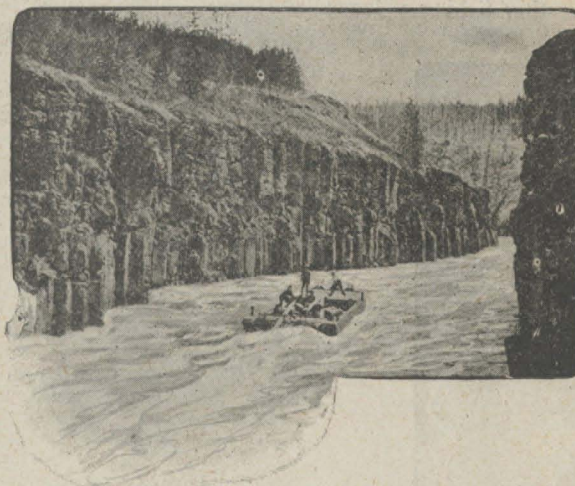
At the opening of navigation each year, through joint tariffs are issued by the various companies operating over each route. These tariffs apply

So much for trunk lines connecting the country with the outside but fully as important and equally adequate are the facilities for handling the interior traffic and distributing supplies within the borders of the territory. Small light draft steamers operating on the Yukon river and its tributaries, the Stewart, Pelly and Hootalinqua rivers, afford transportation facilities over upwards of 1,000 miles of navigable water, reaching a vast extent of outlying territory.

The Yukon also has 33 miles of railway extending to the creeks used solely for local traffic, or distributing purposes, within the borders of the Klondike camp, as well as over hundreds of miles of splendidly constructed government wagon roads radiating from Dawson in all directions.

The transportation lines now in operation, both through and local, are entirely adequate for all traffic at this writing and their equipment can readily be increased, on short notice, to take care of three or four times the present volume of business.

However, with the rapid development of the mineral resources of the country, which is expected in the near future, direct railway connection with the outside may be looked forward to with a reasonable degree of certainty. In fact farseeing promoters are already laying their plans with this end in view.



Shooting Miles Canyon in Days of '98.



Steamer Gleaner 3 a. m. at Taku.

Scenic Wonders of North

Ideal Itinerary Into A Halcyon Land

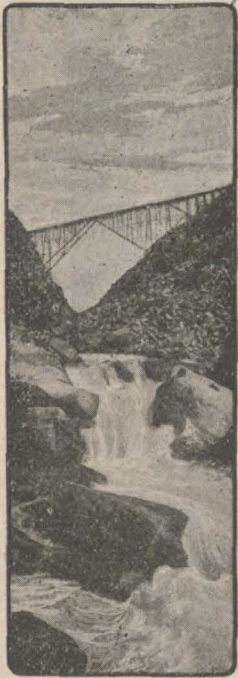
Trip among the Fjords of Southern Alaska and British Columbia and over the White Pass Route to the heart of the Yukon most exhilarating in the world—Nothing to equal this for summer outing—Grandeur of Chilkoot Mountains and Upper Yukon lakes and rivers superb—Health for all—Splendid steamer and rail accommodations to the heart of the gold fields.

CURIOSITY no longer leads the recreation and health-seeking world to face the torrid countries. Nature has kindly afforded more pleasant and healthful paths. The wonders of the northern countries with their mild summers have caught a great tide of European and American spenders. But to see the Yukon is a far more delicious treat, with no greater effort, and with far more real profit to those who travel.

Those seeking the Yukon in summer escape not only the sweltering summers of the so-called temperate zone, but enjoy in the present and for all time in memory the delightful sea breezes of the north coast archipelago, and the soft and equable conditions of the Yukon valley—a region as green and charming for months as are the spring days of California or Florida.

Sailing through the many vernal islands of the stretch of thousand miles up the British Columbia and Alaskan coast, passing the endless scenes of mountain jutting into the sea, the traveller beholds forest clad areas tumbling in tumultuous charm on every hand.

Passing interesting fishing villages, mining towns and other quaint towns,



Cantilever Bridge.

then riding delightfully in the open observation cars or the modern day coaches over the White Pass Railway, with the same soft coast breezes ever playing, one finds oneself in the heart of the upper Yukon valley only 10 hours after leaving the shores of the Pacific. And here in this strange, great valley, with a river that runs 2,000 miles to reach the Bering Sea, it is found that the midnight sun is so constant, yet so free from the downright perpendicular pour of heat that all nature for those 2,000 miles smiles under the beneficent effect for weeks and weeks while, during the same period in the older provinces and states of the continent, scorching winds and a merciless downpour of heat prostrate the populace. Almost as steady as the earth's rotation itself is the even climate of the Yukon in summer, and this is why the route over the White Pass is becoming so famous. Here the vegetation and the foliage of the trees is green until ripened late in the Indian summer, and then nature hallows the whole with that ruddy glow and magnificence of color which quickens every soul to deep meditation and constant enjoyment.

The tourist, the big game hunter,

the geologist, the scientist, the seeker of restored health, the lover of glimpses of pioneer life or virgin nature, with here and there modern and metropolitan attributes to the remote cities will here find the conditions ideal. Those who desire investment in a new country, such a



Whitehorse, Yukon Territory.

country as affords ground floor opportunity, which yields the greatest profits from natural advancement, likewise find here an ideal field.

A thousand miles from the Puget Sound or British Columbia centres of to-day takes the traveller to Skagway. It is the trip par excellence of the American or any other continent. Travellers, who have visited all parts of the world and have admired scenery rendered immortal by poetic genius, have freely admitted that the scenery along this unparalleled inland voyage not only equals but excels even the beautiful fjords of Norway and the wondrous beauties of the isles of Greece. Provincial Bulletin No. 10 describes the trip along the coast of British Columbia as follows:

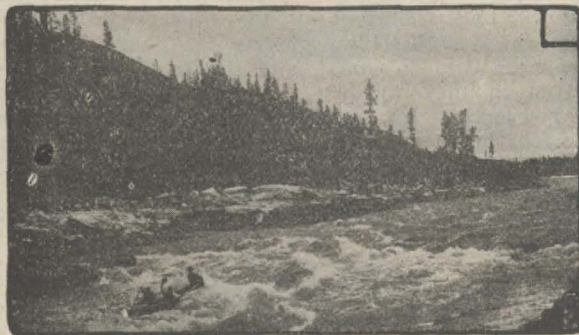
"Free from the cares and conventionalities of every-day life, and breathing the very air of heaven itself, you burst, like the ancient mariner, into an unknown sea filled with untold beauties, and sail over a bosom of waters unruffled as glass; among myriads of islands; through deep, rugged, rock-walled channels; past ancient Indian villages, mediaeval glaciers, dark, solemn, pine-clothed shores, snow-capped peaks, dashing cataracts, yawning mountain gorges, spouting monsters and sea-whelps—away to the north a thousand miles almost, to mix with the icebergs that

in almost inextricable confusion there is now a well laid out city and commodious wharfs. When the trains arrive from the north or the steamers from the south, hotel porters jostle each other in their noisy attempt to attract passengers. Busses are in readiness, and passengers are rapid-

ly driven to some of the well-equipped hotels in the city.

The passenger train leaves Skagway at 9.30 a. m., and arrives at Whitehorse at 4.30 p. m. The journey across the White pass is one of unique scenic grandeur. Quickly passing from the railway yards at Skagway, the railroad follows the Skagway river, passing through the canyon, and then commences the ascent across the famous White pass. The distance from the bottom of the pass to the summit is 21 miles, and the altitude is 2952 feet. Clinging to the rocks the railway winds its way up the precipitous mountain sides; on one side a sheer wall of rock, on the other a yawning chasm through which rushes a mountain torrent. Across a high cantilever bridge, which was substituted for a switchback, and through several tunnels in this mountain fastness, the timber line is passed and the summit is reached. At several points on the road a splendid view is obtained of the Skagway valley, and on either side of the pass are serried and jagged rocky peaks, which stand out in bold defiance like the battlements of some ancient fortress. From the summit there is a gradual descent to the north and the scenery changes. Professor John Macoun, describing this part of the route, says:

"Here we were above the tree line,



Whitehorse Rapids.

once floated under the sovereignty of the Czar of the Russias, but now drop peacefully from ancient glaciers over which the American eagle holds watchful guard—a continuous panorama in which the purest, the rarest, the wildest, the most beautiful and the grandest forms of nature are revealed.

On the flats of Dyea and Skagway, which is reached in three or four days, the multitude of gold-seekers landed during the great rush. Where shiploads of supplies were piled up

and bare mountain slopes, broken rocks, pools of water and a truly Arctic or high mountain vegetation showed the climate to be cold, while the stunted or broken trees lower down indicated the immense snowfall, which is characteristic of the whole coast region.

"As we descended towards Lake Bennett the vegetation rapidly changed, and stunted firs gave place to small spruce and the high mountain shrubs and herbaceous plants began to be replaced by forest species.

"At Caribou crossing, twenty-four miles from Bennett, without descending one foot, the whole vegetation had changed and everything indicated a genial climate."

Describing the tract of country between Log Cabin and Bennett, a writer in 1899, says: "Here the valleys narrow and here they widen out. We begin to find the bogs; which in the fall of '97 destroyed 1700 horses engaged in packing to the lakes. Though years have passed since then, the winding trail is passed every now and again, and it has the appearance of having been used yesterday. Sticking out of the bottomless mud we see forelegs and hindlegs, with occasionally the still bloated body of some poor beast who died in the service of man over a route which it was contended would never be crossed in any other way—a time when any talk of a proposed railroad was scoffed at and regarded as a good trail joke."

The railway follows the east side of Lake Bennett to Carcross, at the foot of the lake. From this point steamers run to Conrad, on Windy Arm, where there are valuable quartz mines from which large quantities of ore have already been shipped. There is very little change in the character of



Rocky Point.

the country between Caribou crossing and Whitehorse.

From Caribou crossing, the side trip can be made to the beautiful Atlin district, where placer mining in its primitive and all its most modern forms can be seen. Along the route some of the most extensive quartz camps in the Yukon will be passed. The ride from Caribou crossing to Atlin City is a voyage of wondrous beauty through an ever charming series of lakes, in whose clear, blue waters is mirrored the snow-clad peaks and the pine clad hills. Many remain on deck all night to drink in the beauties of this enchanted land, so magnificently resplendent under the midnight sun. One portage is made before reaching Atlin City. Splendid fishing for Arctic trout is afforded on Takou inlet, and at Atlin too. Six miles from Atlin City the tourist will reach the big hydraulic, dredge and other placer mining scenes. The side trip to Atlin and back to Caribou crossing requires but two days, and is a treat of a lifetime.

Resuming the trip by rail toward Dawson, Whitehorse is next reached, and there steamers taken for the remainder of the journey.

Whitehorse, a modern town, more fully described elsewhere in this pub-

lication, is on the left bank of the Lewes river, at an elevation of 2090 feet and is the terminus of the White Pass and Yukon railway. It is also the head of navigation on the Yukon river, and the terminus of the winter stage route from Dawson. Miles canyon and Whitehorse rapids are only a short distance from Whitehorse and are the scenes of many a wreck in the early days. Many lives were lost in shooting this turbulent portion of the Lewes, which is well worth a visit.

"The distance from the head to the foot of the canyon 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 canyon 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."

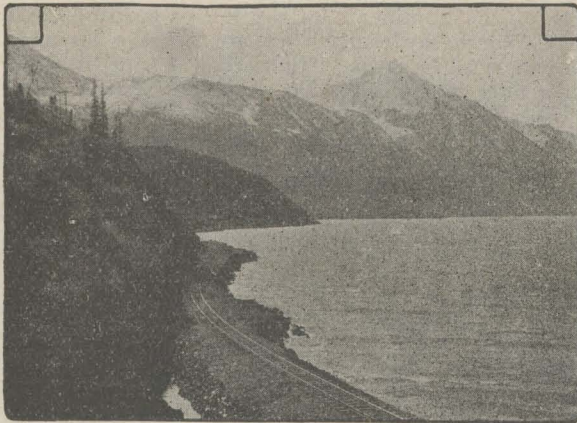
"The Whitehorse rapids are about three-eighths of a mile long. They are the most dangerous rapids on the river and are confined by low basaltic banks, which at the foot suddenly close in and make the channel about thirty yards wide. It is here the danger lies, as there is a sudden drop and the water rushes through at a tremendous rate, leaping and seething like a cataract." (Ogilvie.)

The tourist who does not desire to enter the field of sport, will come direct from Whitehorse to Dawson.

There is splendid scenery all along the river, and many picturesque and grand views; high benches, gravel terraces, partially bare rounded hills, bluffs of rock and bold rampart-like cliffs. Between Selkirk and Dawson the Yukon valley cuts through a high undulating plateau. From the

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 had been a fall here in past ages.

"Six miles below these rapids are what are known as 'Rink rapids.'



Lake Bennett.

mouth of the Stewart to White river the Yukon averages about a mile in width, and is filled with many beautiful islands.

"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,

This is simply a barrier of rocks, which extends from the westerly side of the river about half-way across."

Tourists and others who have visited Dawson are agreeably surprised on seeing for the first time the Golden Metropolis of the North. As the steamer swings around in the

stream, and gracefully steams alongside the wharf, the visitor is at once impressed by the long line of wharfs and large warehouses. Merchandise is being unloaded from steamers, which may just have arrived from St. Michaels, on Bering sea, 1800 miles from Dawson, or from Whitehorse. Here, then, is Dawson, the enchanted, the great gold center, the city of infinite and multiplied charm, more fully described elsewhere in this edition.

From Dawson it is but 15 minutes' walk to the nearest mining scenes, and beyond that one can travel with stage, automobile, cycle, or by train to nearly every large gold producing creek of the famous Klondike camp. The Klondike Mines railway runs daily trains to King Solomon's Dome, where stops are made allowing opportunities to get a bird's eye view from the high elevation of the entire region. Far distant are the pearly snow-clad Rockies, a decided contrast to the endless sweep of green verdure everywhere prevailing in the Yukon valley in summer. The temperature is ideal, and in shirt sleeves and with soft breezes playing, the visitor cannot but enjoy the trip. Splendid wagon roads, hundreds of miles in aggregate, run through the camp.

The hotels of Dawson afford fine accommodation, with every modern convenience, and visitors are seized with keen regrets that they must leave the Klondike as they take the splendid steamers to plow back up the Yukon, homeward bound.

British Columbia's Quartz Lesson to Yukon

By JOHN GRANT, Member of Yukon Council, Former Mayor of Victoria, B.C.

IT is astonishing how much truth there is in the aphorism "History Repeats Itself." In British Columbia placer gold was discovered in 1857, which induced a great rush from California in the spring of the following year, culminating in the finding of

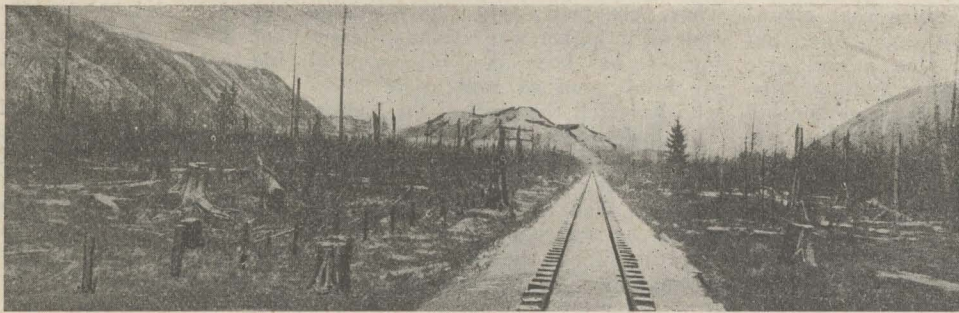
Kootenay quartz mines was the salvation of Spokane by virtue of the large amount of supplies that were furnished from that point, besides the millions in cash that many of its citizens received on account of being owners in a number of the best pro-

Star." Byron White, now interested in Southern Yukon copper, and brother were the principal owners. The other claims included "Noble Five," and the "Payne," which produced a \$100,000 dividend a month for quite a long time, as well as

that bound the Fraser on the east. In that part of the province is located the largest smelter which is operated in Canada, its importance can be appreciated when it is stated that the profits derived during the year before last through its operation exceeded \$1,940,000. The value of the minerals produced in British Columbia from quartz, yearly, is many times that which was gotten from placers in the palmy days of the province.

Having resided in British Columbia over thirty-eight years, and having traveled over the most of it, I am firmly of the opinion that the conditions existing in the Yukon Territory are as favorable for many great quartz camps as any portion of British Columbia. What is needed in the Yukon to establish quartz values is money, money. Three or four decades ago, one could sell a quartz prospect for a large sum. Not so these days. One must show a capitalist that quantity as well as values are in sight before he will part with his cash.

The very rich gravel mines found in this territory called the attention of miners away from quartz, but just as sure as a quartz era was brought into existence in British Columbia will

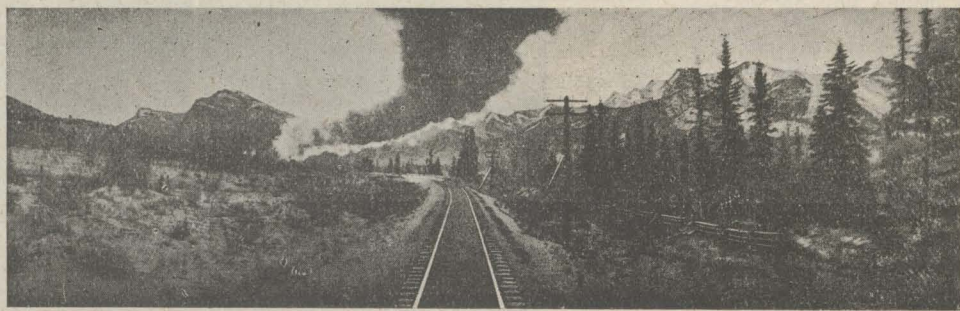


very rich ground on William creek, Cariboo. The output of gold for the men employed during the next few years was immense. Among the men were miners who had experience in mining quartz properties and who believed that in a country where there was so much placer gold, that there must be quartz ledges which would be profitably worked. The country had at the same time an army of pessimists who asserted that no quartz that would be profitable to be handled would be found north of the international boundary line. But fortunately there were in British Columbia at that time a modicum of optimists. I am pleased to state that I was one. The optimists were satisfied that the province had a great future in hard rock production. It is true however, that it was not until the middle '80's that it was established that British Columbia possessed vast possibilities in the way of profitable quartz mining. About that time the writer and others invested many tens of thousands of dollars in quartz properties in the Kootenay district of British Columbia. That district since has produced many millions of dollars, and is still continuing to do so. The production of the

properties. For instance, Col. Peyton, Col. Turner and Senator Turner made vast fortunes out of the celebrated "Le Roi" which was sold for over six millions of dollars. In 1894 the writer met Col. Peyton at Trail. The colonel had with him a satchel full of Le Roi ore which he was taking to Spokane. Peyton, with his associates, were the third parties who had taken

many other properties that could be named.

We have here with us several men who were instrumental in the development of Kootenay. Among the early ones who packed on their backs a blanket and grub is W. J. Elliot, who in 1889 discovered several valuable quartz mines in the Slocan country and who is engaged in the same



a bond on the property, as the other parties had given up their bonds. At that time, one dollar shares could have been bought at ten cents. Then there was the Halls mines on Toad mountain, the very valuable "Slocan

line in this territory. Then, there is the great boundary country, immediately north of the international boundary and lying between the mountains that skirt the Columbia river on the west and those

history repeat itself in the British Yukon, and in the near future the latent mineral bearing veins and ledges of this territory will again spread its fame to every corner of the globe.

A Word About the Yukon People

By REV. A. G. SINCLAIR, D.D., Ph.D., Pastor of St. Andrew's Presbyterian Church, Dawson

THE editor of the Dawson News thinks that the good people of the "Outside," as the Yukoner expressively designates all the rest of the world, entertain some very queer and curious ideas about the life and character of the citizens of the Yukon. And so he has asked the writer to state fairly and candidly his impressions of their moral, intellectual and social calibre.

The "outside" reader may, perhaps, be pardoned these strange ideas. It is quite natural to think of the folk who inhabit an out-of-the-way place as out-of-the-way people. And the ideas that most of the world still has about the Yukon and its people have been gathered from pictures drawn by the newspapers in the early days of the Klondike rush. It is forgotten what a great change a dozen years may make in a new country. The writer has more than once been asked by intelligent people with whom he corresponds, to describe the kind of people among whom he lives, just as if they belonged to some strange and peculiar race. And sometimes, indeed, he has been asked to send some snap-shots of them so that it might be seen what kind of animals they really are. He must confess that he had these same ideas until he came in and saw for himself. He expected to knock up against the rawest kind of life. He thought that a sweater would be of infinitely more service than a white-shirt, to say nothing of a dress suit; and that the last traces of culture and refinement would be left behind when he was out of sight of Vancouver. And as for the Yukoner himself, he thought of him as a man who, not content with the ordinary vices of civilization, had invented several of his own.

But the visitor from the "Outside" soon finds that the people of the Yukon are not so very different from what they are anywhere else, and that they live along in the same old way. As far as their outward life is concerned, he finds this out at once. He soon begins to feel that the little town of Dawson lying up near the Arctic Circle, yet with all the conveniences of a large city, is one of the most wonderful places in the world. He finds that he can purchase almost all the luxuries of life as well as its necessities in the handsome shops of the town. He finds that a Dawson home, though it may be somewhat smaller on the average than outside homes, has its electric light, its telephone, its city water, and in short conveniences which few, if any towns of its size in the rest of America can boast. And should it be his good fortune to be entertained in some of these homes, he would find them tastefully and often almost luxuriously furnished, and he would find everything managed with a grace and an elegance that would surprise him. He would be still more surprised, perhaps, to find many comfortable little homes out on the creeks where the mining is carried on. And when he learned to know the people he would find that they not only dressed as well as folk in any well-to-do place but that they were above the average in education and intelligence. In short, the life of Dawson would prove far more interesting and lively than that of an ordinary American town of far larger population, and more like that of a city on a small scale.

Comparisons are odious, and the habit of making them none of the best; so the writer will not try to

draw any elaborate comparisons between the people of the Yukon and those of the rest of the continent. But he would just like to say that, taking the Yukon people all in all, he has never known a finer lot of folk. There is a kindliness and an open-hearted generosity about them that wins your heart. The gold of the Klondike has brought them in here but there is no sordid love of money in their make-up. "It isn't the gold



Rev. A. G. Sinclair.

they are after so much as just finding the gold." Nor are they, on the average, a wealthy people, for nuggets are not to be picked up by the way-side even in the Yukon, and those who have struck it very rich are few and far between. But they are the most generous people in the world with what they have. They are a practical people, and they must be assured that any cause that claims their support is a good one; but once convinced of this, they give their money cheerfully and liberally. They will give you a five dollar bill while an Easterner would hesitate whether to give you five cents or a quarter.

And about the women of the Yukon. There are a goodly number of them here to-day. Some of them came in in the early days, sharing all

the hardships of the trail with their husbands; others have come in since at the call of husband or sweetheart. They are a brave lot and have the "right kind of stuff" in their make-up. To them the Yukon owes a great debt. They have refined and humanised the rough life of pioneer days and elevated and purified the social tone of the country. To know some of them and to be welcomed in their homes has kept many a young man, far away from home, clean and straight. They are women of whom any land might well be proud. If the test of any people is the respect paid to womanhood, Dawson and the rest of the Yukon need not be ashamed. It is saying little to say that a woman may traverse the streets of Dawson by night or day without even the suspicion of insult.

There are to-day a large number of children in the Yukon. The climate agrees with them, and they may be seen out on the coldest day in the winter. They like the country and if they are taken outside for a visit, they never forget to tell you how glad they are to get back again. They are unusually bright, active and healthy. The mortality among them is extremely low. Winter and summer they are made happy by the fine outdoor sports of the country, and their education is looked after in the finest of public schools. They are, as a rule, frank and well-spoken, with attractive manners, and lacking in self-consciousness or rudeness. They tell a story of a high standard of home life.

Intellectually, the people of the Yukon need fear comparison with none. The average inhabitant of Dawson, and the average miner on the creeks is a man of force and of intelligence and of good education. There are many who have taken courses in higher institutions of learning. It has been as a rule men of vigor of mind as well as of body, who have felt the spell of the Yukon. The little town of Dawson, for instance, has within it men and women of unusual talent. It might be thought that a winter in Dawson would be unusually long and dull. But this is not the case. Beside the fascination of our winter sports and

numerous social functions, we have many concerts and whole series of lectures by local talent which are unusually well attended and are of a high standard. In the wide amount of good talent that may be drawn upon for such purposes the writer believes that Dawson is quite unique.

While a Dawson audience dearly loves to be amused, and in this it is not unique, it also shows a real thirst for anything in the way of culture and information. This is why they will turn out to lectures, one after another, in such goodly numbers. And they will give a speaker who has anything to say worth listening to as attentive and appreciative a hearing as he can get in any town in the world. The people, too, both in town and on the creeks, are voracious readers. The handsome Carnegie library of Dawson with its well-stocked shelves is well patronised. And though, as elsewhere, the great majority of the books read are fiction, these are generally of the best class. But the library reports also show that the books on science, literature, sociology, etc., have a very wide number of readers.

The writer might have mentioned many other good qualities of the people of the Yukon. He might have told how they rarely ever lock their doors, for they are a very honest people; of their courage and enterprise, for these are moral qualities too. And, if he were in a less kindly mood, he might have said something about their vices. But he will only mention in passing that they have some faults. For he does not want to give the "Outside" the impression that the Yukon is Heaven, and that its people have already succeeded in growing wings. If they had the writer would not be living among them. For one thing, he might not feel at home; and for another there would be nothing in his line for him to do. There are many things in Dawson and in the Yukon that he would like to see changed. And, like a good citizen, he hopes to live for the honor of his city, and do some little thing to make it better. But take them all in all, as poor mortals go in this imperfect world, he never expects to work among a kinder, better, braver people.



The Dawson Cabin Home.

Forestry and Coal Areas of the Yukon Territory

By D. D. CAIRNES, B.Sc., M.E.

(By permission of the Director of the Geological Survey Branch of the Department of Mines of Canada.)

SO much has, of late, been said and written concerning the preservation of our forests, and the rapidly approaching time when all the known deposits of coal will have become exhausted, that in treating of the forestry and coal areas of the Yukon, it will not be necessary to emphasize the vital importance of these natural resources for the welfare of the district; as they are quite as essential factors in the industrial advance of these northern and somewhat sparsely settled districts as they are of the more populous portions of the continent.

As extensive portions of the Yukon Territory, which embraces 207,076 sq. miles, are as yet but slightly, or altogether, unexplored, our knowledge concerning its timber is very imperfect, but as far as is known, the district is generally wooded and the forest consists of eleven species which attain the dimensions of trees. These are white spruce (*Picea alba*), black spruce (*Picea nigra*), balsam fir (*Abies subalpina*), black pine (*Pinus Murrjana*), balsam poplar (*Populus balsamifera*), aspen (*Populus tremuloides*), three species of birch, and some species of willows (*Salix*).

The white spruce is the most widely distributed and most useful tree in the Yukon and is found of fair, to good, quality in all the valleys and lowlands. It makes a fair grade of lumber and is well suited for purposes of construction generally. It is seen at its best on the islands and alluvial flats of the main rivers where it forms fine groves of easily accessible merchantable timber. The groves are small, as a rule, but the aggregate amount of good spruce timber which they contain is considerable. Here trees measuring one to two feet in diameter occur in most places and, in a few localities, individuals have been noted which measured three feet, and logs 60 ft. long with a diameter of one foot at the smaller end can be obtained. Up the slopes of the valleys, the white spruce, under favorable conditions, continues to be a fine forest tree, but decreases in size toward the heads of the rivers, where it generally does not exceed 8 inches in diameter. In the Klondike district timber only extends to 3500 ft. above sea-level, but in some other portions of the Yukon it reaches as high as 4700 ft.

Balsam fir which is, in places, as large as 18 inches in diameter is next in importance to the white spruce and occurs only in high valley bottoms and on mountain slopes, and appears to thrive best at about 1200 ft. above the main valleys, decreasing in size above and below this elevation.

Black pine is fairly abundant in certain localities in the southern Yukon and occurs chiefly in swampy portions of the valleys, on moss covered slopes facing the north, and, in thin groves, upon dry benches bordering the rivers at 40 to 300 ft. above the water. However, it is not an important forest tree, being generally only 4 to 6 inches, and seldom over 9 inches, in diameter.

The poplar grows on islands and alluvial flats of the main rivers and is seen in all stages of growth from a small shrub to a considerable forest tree. The aspen are found over a large portion of the Yukon Territory and are especially characteristic of the dry, open, grassy hillsides. Three varieties of birch have also been noted, two of which are in most places only poles, but the third (*Betula resinifera*) is sometimes 8 inches in diameter and has supplied a considerable portion of the fuel consumed in the

Dawson mines. It is never tall, however, seldom giving a trunk that will produce two 16 ft. lengths for firewood.

The most widely distributed shrub is the dwarf birch (*Betula glandulosa*) which occurs chiefly on the higher hills and ridges above timber line. Along the river banks alder, willows, and briar-rose are abundant.

So it will be seen that the timber of the Yukon is limited, but there is, however, considerable, practically everywhere, except in a few localities where there has been a heavy drain upon it, such as in the vicinity of Dawson and along the river banks from Whitehorse to Dawson. But nowhere are the forests of the dense nature encountered to the south as in British Columbia and in Eastern Canada. The thin growth is probably due to the permanently frozen ground just below the forest floor in most parts of the territory.

Concerning the mineral resources of this immense territory our information is of a very fragmentary nature, and this is particularly true regarding coal, which naturally has received much less attention at the hands of prospectors than the precious metals. However, anthracitic and bituminous coals and lignites have been found in the Jura-Cretaceous and Tertiary rocks of the Yukon Territory at numerous points along the Lewes and Yukon rivers and their tributaries, particularly the Nordenskiold, Klondike and Indian rivers and Coal creek and three mines have been opened up, and a certain amount of work has been performed in other places. However, the known occurrences of coal are nearly all along the waterways, where the more detailed investigations have been made. In fact very little prospecting has been conducted away from the main lakes and rivers so that, in all probability, further exploration will show a considerable extension of the coal-bearing horizon.

The Sour Dough mine is situated 12 miles up Coal creek from where it joins the Yukon river, 50 miles below Dawson. Here are a number of good workable seams of lignite, up to 12 feet thick, which have been worked to some extent, during the past few years and from which a few thousand tons have been shipped to Dawson. There is also a 6 foot seam of good lignite about 20 miles from Dawson on a branch of Rock creek, a tributary of the Klondike. Also some seams of coal have recently been reported to have been discovered on Indian river. These are all believed to occur in rocks of Tertiary Age which have an extensive development to the west and southwest of the above mentioned localities.

The Tantalus mine is situated on the left limit of the Lewes river, 190 miles downstream from Whitehorse and about midway between the latter and Dawson. At this mine, three seams of bituminous, coking coal have been developed, averaging perhaps, 7 feet 6 inches, 6 feet 6 inches, and 3 feet in thickness, which have been mined for several years and from which in 1907 nearly 10,000 tons of coal was shipped. Across the river from here the same measures outcrop on Tantalus Butte where seams of good, clean coal 8 feet 10 inches, 9 feet 10 inches and 7 feet have been prospected to some extent. These same measures which are of Jura-Cretaceous Age were found outcropping for several miles to the north and south of Tantalus Butte and Tantalus, respectively, and are believed to be extensively developed to the south and

southwest of the latter. From the Five Fingers mine on the right limit of the Lewes river, 16 miles below Tantalus, considerable coal was shipped some years ago, but since then the company has been chiefly engaged in prospecting and developing the property. The widest seam here is about 4 feet thick and is a good bituminous cooking coal.

A few miles southwest of Whitehorse several seams of anthracitic coal have been discovered, two of which are 9 feet 8 inches and 10 feet 4 inches thick respectively.

Deposits of lignite are also known to exist in the Klwane district to the west of Whitehorse, and prospectors report having found numerous valu-

able coal seams in this locality. So judging from the wide distribution of the coal bearing formations it is believed that extensive portions of the Yukon Territory are underlain by valuable coal deposits thus to some extent counterbalancing the lack of the more valuable forests with which nature has endowed other parts of Canada.

For more detailed information concerning the coals of the Yukon the reader is referred to the writer's reports on the Yukon Territory for the past three years published by the Geological Survey Branch of the Department of Mines of Canada.

The following are a few analyses of Yukon coals:

Locality.	Water.	Volatile Comible Matter	Fixed Carbon.	Ash
Sour Dough Mine—Average of scow load	14.46	33.94	40.52	11.08
Tantalus Mine, from adit where seam was 6ft. 6in., thick	0.76	24.74	58.60	15.90
Tantalus Butte—Surface average of 8ft. seam	13.64	31.83	51.84	2.69
Five Fingers Mine—2ft. seam.....	5.95	40.46	45.16	8.43
Whitehorse anthracite, average 9ft. 8in. seam	2.15	6.01	69.86	21.98

Goods Yukon Territory Needs

By J. T. ROSMAN, President of Dawson Board of Trade.

THE history of merchandising in the Yukon would show many failures since the time of the discovery of gold in the Klondike, and while many causes contributed to this end, the only one which I wish to consider at this time is the fact that many, if not all of the business houses of the outside seemed to consider that this country was providentially opened up as a dumping ground for all the shopworn, unsaleable goods; the experiments, junk, trash and such which they had accumulated up to that time. A more discerning knowledge of the needs and demands of the country on the part of the merchants and a grow-

ing realization of the value of this trade on the part of the jobbers has brought about a very different view of this country and its trade. The shipments into this country for the last two years have been about 25,000 tons each year of which some 5,000 tons have been dredge material, hydraulic pipe and other appliances for hydraulic mining. The people here demand the very best that can be had, not only in the line of provisions and foods, which make up the larger part of the shipments into the country, but also the machinery must be of the best. We have learned that the freight, which is a large item in the

cost of goods here, is no more on a first class article than on an inferior one, and a territory that consumes 25,000 tons of high class merchandise annually is not to be overlooked by any up-to-date jobber who is so situated as to handle any part of this business. To attempt to forecast the future of trade here is difficult. We have been going through a period of depression, but we are hopeful that the worst of that is past. If quartz should be found within the next year in such quantity and quality as to justify working on a large scale it might result in largely increased shipments, perhaps doubling the amount shipped now. Larger operations in agricultural lines would call for additional goods suited to that work. However, business operations must be governed largely by actual existing conditions rather than by dreams of what may come to pass, and the business houses of today want facts from which they will draw their own conclusions.

In the main the business of this country is well looked after by the jobbers on the outside, but I would say to the wholesale trade: Are you keeping in touch with the trade in the Yukon and looking out for your share of it? Are you filling orders promptly, and with a knowledge of freight rates and conditions generally in shipping here, which enable you to consult the interests of your customers? Are you sending in lists of shorts at the end of the season which mean to the merchant at this end that he will be out of those same articles until the following year? We ask you to find out about us and our country, and act for us, and we will talk for you. Co-operation makes for good feeling all around. We are looking forward to a bright and prosperous season, and, although the pessimist is still with us and ever will be, we trust that there are men enough of back-bone here to make things go ahead. We ask you to do your best for us here in the North, and we will do our best to pay one hundred cents on the dollar and to send the yellow metal out to you."



John T. Rosman, President Dawson Board of Trade.

LAND TITLES OFFICE

By NAPOLEON LALIBERTE, Registrar of Titles for Yukon

Showing Security of Property in Yukon

—Virtually a Torrens System

THE Yukon Territory is constituted a special land registration district, known as The Yukon Land Registration District. The office of such registration district is called the Land Titles Office. The business of the office is conducted by an officer appointed by the governor-in-council and called the registrar. No person is appointed registrar unless he is a barrister of at least three years' standing in one of the provinces of Canada.

The registrar has a seal of office approved by the governor-in-council with which he seals all certificates of title. He stamps all instruments which are presented to him for registration, showing the day, hour and minute of receiving the same. He may administer any oath or take any affirmation or declaration respecting titles to land.

The Land Titles Office is kept open on all days, except Sundays and legal holidays, between 10 a.m. and 4 p.m. during which time the registrar is in attendance. On Saturdays the office closes at 1 p.m. The registrar keeps a book, called the Day Book, in which is entered, by a short description, every instrument given in for registration relating to lands for which a certificate of title has been issued or an application made, with the day, hour and minute of its being given in. For the purpose of priority between mortgages, transferees and others, the time so entered shall be taken as the time of registration.

Unless required to do so by order of a court or judge, the registrar shall not receive or enter in the day-book any instrument, until the duplicate certificate of title for the

land affected is produced to him so as to enable him to enter the proper memorandum on such duplicate certificate. There are some exceptions to that rule—for instance, a duplicate certificate of title need not be produced in the case of:—(a) executions against lands, caveats, mechanics' liens, transfers by a sheriff or municipal officer, a caveat, or order of a judge; or, (b) transfers on sales of lands for taxes. . . and a few other cases. The registrar keeps a book or books, which are called the registers, and enters therein all certificates of title, records therein the particulars of all instruments, dealings and other matters required to be registered and affecting the lands included in such certificates of title.

On every transfer of ownership, the certificate of title of the transferrer and the duplicate thereof is cancelled and the certificate of title of the transferee is thereupon entered upon a new folio in the register.

Every instrument is deemed and taken to be registered so soon as the same has been marked by the registrar or so soon as a memorandum of it has been entered in the register. The registrar retains in his office every registered instrument. Plans, leases, mortgages and encumbrances, powers of attorney, transmissions, executions, sheriff's sales, sales for taxes, caveats, etc., are registered in the same manner. The registrar may, whenever a question arises regarding performance of any duty or as to the true construction or legal validity of any instrument, etc., refer the same to the judge, and the judge, having regard to the evidence

adduced, before him, shall decide the question or direct any proceedings to be instituted for that purpose.

There is an Assurance Fund to guarantee the titles. That is to say: After a certificate of title has been granted for any land, any person deprived of such land in consequence of fraud, or by the registration of any other person as owner of such land, or in consequence of any fraud, error, omission or misdescription in any certificate of title or in any memorandum thereon, or the duplicate thereof, or otherwise, may bring and prosecute an action at law for the recovery of damages against the person upon whose application the erroneous registration was made, or who acquired title through such error or fraud.

If the person against whom the action for damages is directed to be brought as aforesaid, is dead, or cannot be found within the territory, an action for damages may be brought against the registrar as nominal defendant, for the purpose of recovering the amount of the said damages and costs against the said assurance fund.

In any such case if final judgment is recovered, and also in any case in which damages are awarded in any action as aforesaid, and the sheriff makes a return of nulla bona, or certifies that any portion thereof, with costs awarded, cannot be recovered from such person, the minister of finance, on receipt of a certificate of the judge before whom the action was tried, shall pay the amount of such damages and costs as are awarded, or the uncovered balance thereof, as

the case may be, and shall charge the same to the account of the assurance fund.

Any person sustaining loss or damages through any omission, mistake or misfeasance of the registrar or any of his officers, in the execution of their respective duties, who is barred from bringing an action of ejectment or other action for the recovery of the land, may, in any case in which remedy by action for recovery or damages is barred, bring an action against the registrar as nominal defendant, for the recovery of damages.

If the plaintiff recovers final judgment against such nominal defendant, the judge before whom such action is tried shall certify to the fact of such judgment and the amount of the damages and costs recovered, and the minister of finance shall pay the amount thereof out of the assurance fund to the person entitled on production of an exemplification or certified copy of the judgment rendered.

Notice in writing of every such action, and the cause thereof, shall be served upon the Attorney-General of Canada, and also upon the registrar, at least three calendar months before commencement of such action.

No action for recovery of damages sustained through deprivation of land, shall lie or be sustained against the registrar, or against the assurance fund, unless the same is commenced within the period of six years from the date of such deprivation.

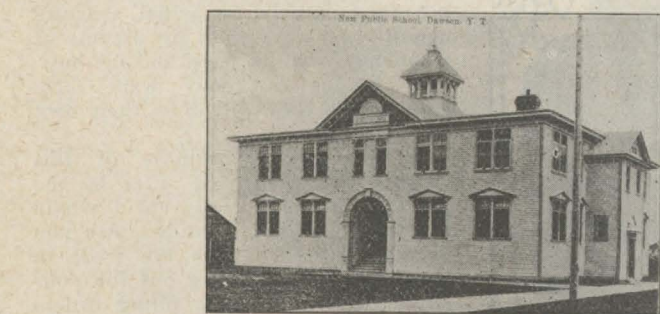
En resume, our system of registration is almost perfect and gives to the public an absolute security.

PUBLIC SCHOOLS OF YUKON TERRITORY

By T. G. BRAGG, Superintendent of Schools for the Territory

PUBLIC schools were instituted in Yukon Territory as soon as it appeared that a permanent settlement of families had been established. From the first the administration of all schools has been vested solely in the

territorial government, without reference to any local board or municipality. No school tax, local or territorial, has ever been levied, but liberal provision for all schools has been made annually in the appropriation voted by the Yukon council.



New Public School, Dawson.

territorial government, without reference to any local board or municipality. No school tax, local or territorial, has ever been levied, but liberal provision for all schools has been made annually in the appropriation voted by the Yukon council.

The school ordinance of the then Northwest Territories of Canada, out of which the provinces of Alberta and Saskatchewan have since been created, was adopted practically without change as the basis for the organization of Yukon schools, and the course of studies for these territories was also adopted in all grades up to the high school.

Schools have been maintained not only in the more populous centres, such as Dawson, Whitehorse and Bonanza, but also on all creeks where

established and have never been closed unless the average daily attendance fell below seven. The instances have not been few in which the per capita cost of creek schools has run as high as \$300 per annum, and in one or two instances the per capita cost amounted to about \$350 per annum, where the cost of maintaining a school of eight pupils for one year was about \$2800. The liberality of the Yukon government in providing educational facilities for a sparse and rapidly shifting population may thus be gauged. Moreover, in localities where the school population has never reached the required minimum, the government has granted very substantial aid for "Assisted Schools," so that not even a few children might suffer the absolute deprivation of

educational advantages.

There is but one sectarian school in the territory, a Roman Catholic separate school, known as St. Mary's school, at Dawson, founded during the administration of Commissioner Ogilvie, and maintained out of public funds. This school has two teachers.

The school at Whitehorse is a nicely finished two-roomed building. The principal is a graduate of Toronto university, whose classes include elementary high school work as well as the higher public school grades. His assistant is a lady specialist in primary work with a first class certificate.

The Dawson public school building is an eight-room building, erected in 1901 at a cost of about \$45,000. In this school, facilities are provided for

each in charge of an experienced specialist. The high school department uses three rooms, one being a physical and chemical laboratory, equipped in 1904 for elementary work in these branches. The highest classes are in charge of two honor graduates of Cambridge and Toronto. Several graduates from the Dawson high school have matriculated into Toronto university, honors being awarded to some of them in several branches. A few are pursuing their studies in arts, law or engineering at Toronto, Chicago and Ann Arbor.

Though the Yukon schools always have been managed directly by the territorial government, politics never have been allowed in any way to affect their administration. In making



Free Library, Dawson.

the teaching of all grades up to honor matriculation into Toronto university. One room is set apart for a kindergarten, in charge of an expert directress from Toronto. Three rooms are required for the public school grades,

appointments of teachers, particularly in all permanent centers, the sole consideration has been that of merit and successful experience, so that, as far as possible, only specialists are engaged in the various departments.

FIRE PROTECTION IN DAWSON

By JAMES A. LESTER, Chief of Fire Department, Dawson, Y. T.

DAWSON, Yukon Territory, with a population fluctuating around 5000, is a level town with the exception of the extreme outskirts, presenting no serious obstacle to the movement of fire apparatus. The citizens are justly proud of their streets, particularly of those in the mercantile district. The principal streets are macadamized with a cement clay taken from the hills back of the city. This clay makes a splendid surface, packing hard and smooth, and has the great virtue of being practically dustless. All streets are electric lighted, by the Dawson City Electric Light & Power company's plant, the service being supplied by contract with the local government. This company supplies light and power to the city generally, besides transmitting to the surrounding creeks a certain quantity of power for mining purposes. The city government has been generous in the building of sidewalks, and any part of the city may be reached on a good board walk. The sanitation and health of the city has been given a great deal of attention, and many thousands of dollars have been expended in providing and maintaining a first class sewerage system of a permanent character.

One of the first questions asked by the business man seeking investment for his capital is: "What sort of fire protection do you provide?" If the town is wooden, that is mostly of wooden construction, the answer to that question would be of vital importance from the prospective investor's point of view. If, for various reasons, he is unable to secure insurance, he feels that he is at least able to minimize the chances of loss by building up an efficient fire department.

In the early days of the town stock values were necessarily very high. This condition was due largely to the lack of transportation facilities and the risk incidental to bringing goods into an entirely new country. Consequently the stocks carried by Dawson business houses represented many times the value of corresponding stocks on the outside. This, as well as the fact that insurance companies had not as yet entered the field, aroused the citizens to the necessity of providing an efficient fire department for the protection of their lives and property. In a few hours the sum of \$20,000 was raised by subscription and an engine and hose telegraphed for. This apparatus was the nucleus of the present department. This policy of fire protection has been faithfully adhered to from that time, with the result that today Dawson has a modern, up-to-date fire department, the equal, if not the superior, of any town its size in America. The fire fighting apparatus of the department consists of three steam fire engines, one double sixty gallon Champion chemical engine, one hook and ladder truck, one combination chemical and hose wagon, and ten thousand feet of cotton rubber lined hose. Fire department headquarters, situated on First avenue in the center of the mercantile district, is a steam heated, electric lighted, modern structure two and one-half stories in height, erected at a cost of some \$30,000. It is fitted with all modern improvements, such as automatic door openers, "Hale" quick hitching harness, sliding poles and all such. The apparatus and property of the department represents an expenditure of \$70,000.

The water supply for domestic and fire purposes is obtained from the

Klondike river and is ample for a city many times the size of Dawson. It is always pure and cool, coming as it does from the eternally snow clad hills. The water is distributed through a system of wooden, wire wound pipes, by high duty Reidler pumps, having a capacity tested to supply eight one and one-quarter inch

amination, and changes and alterations ordered where considered necessary. Twenty-four hours is given in which to make suggested changes or repairs. Since the inauguration of this preventive branch of the service, a large reduction in the number of fires is noticeable, with a consequent small fire loss. For the year 1907, the

come to Dawson with the settled conviction, that it is necessary for them to submit to all sorts of inconveniences.

Those who have been here know that such is not the case. They are agreeably surprised to find a town modern and up-to-date as regards public utilities, with commodious electric



King Street from Post Office, Dawson.

streams, with a pressure at the hydrant of from 140 to 160 pounds. Hydrants in the business district are distributed so that hose lines three hundred feet in length overlap.

During the winter season, special precautions have to be taken to prevent the system freezing. All water pumped into the mains passes through a heater, supplied with steam from 500 horsepower Babcock and Wilcox boilers. The temperature of the water is raised by this means to not less than forty degrees above freezing, at the farthest point of delivery, circulation being always provided for by certain regulated overflows in the system. As a further precaution, all hydrants are provided with a covering having a hinged lid, and around each hydrant is fitted an electric heater. As a result of these precautions we have had but one frozen hydrant in our experience of years.

The Dawson City Water & Power company supplies the water service under contract, and assumes all responsibility for its efficiency under any and all circumstances. By the terms of the contract, the chief of the fire department is judge of the efficiency of the service, and any failure to comply with the contract is sufficient cause for its cancellation. The fire alarm is automatic and is supplemented by a first class telephone service. There is a good distribution of street alarm boxes, especially in the mercantile district. Comprehensive by-laws respecting fire limits, the prevention of fires, and the erection and removal of buildings, are in force. The "National Electrical Code" is included in, and forms a part of these by-laws. They provide also for the appointment of the chief of the fire department as fire marshal and inspector of electric wiring.

For the last seven years, special attention has been paid to what we call the inspection work of the department. Every building within the fire limit is visited at least once a month, and a written report made of its condition, particularly as to the means of heating and lighting and the class of occupancy. Every stove, furnace and smoke pipe is subject to a rigid ex-

total fire loss amounted to \$2,275, and for the year 1908 to but \$637. Property to the value of hundreds of thousands of dollars has been protected by insurance. Up to date, losses paid total less than \$45,000 for the last seven years. Tourists and visitors

lighted and steam heated hotels, having rooms supplied with every modern convenience and luxury. And the climate, some call it the "Spell of the North," for its attractiveness is such that having once experienced it, they are loath to leave.

New Ways in the Klondike

Brief Review of the Many Large Dredge and Hydraulic Operations in Yukon and the Electrically-Driven Elevators and the Reform They Work in Mining.

SCORES of extensive large-method mining plants have been installed in the Klondike since the region began to evolve from the old conditions of individual operation. The investment in dredges and hydraulic equipment has reached many millions, and this line of enterprise seems scarcely more than begun.

In connection with the dredges extensive outlay has been necessary for steam and water power plants, for generation of electricity, with which the dredges are driven. For each hydraulic plant long ditch lines often are necessary, necessitating in many instances extensive outlay for pipe material or siphons, to say nothing of the need of hydraulic giants and the other parts aside from lumber for flumes, penstocks and such.

The new style of electrically driven elevators or lifts for handling tailings from ground being worked by hydraulic on the creek bottoms also calls for extensive mechanical equipment. The framework of the lift is entirely of steel, and carries a steel bucket line similar to a dredge, and is equipped with two large centrifugal pumps to each lift, for handling of water from the sump to the tailing boxes. The hydraulic giants used for washing the gravel down to the lifts are akin to the hydraulic plants used in the operations on hills.

The electrical equipment for conveying power is one of the biggest items of expense. Lines from a quarter of a mile to sixty miles long are installed, conveying power, and heavy wire and transforming stations add to the quantity of equipment materially. In connection to each such line also is the generating equipment in form of dynamos driven by tur-

bines or steam plants.

Some of the dredges are supplied with power from steam boilers aboard the craft, but the larger concerns have their steam or water power plants ashore, and electrical lines with which to convey the electricity to the dredges. The several big companies branching out are planning the installation of extensive power plants of most modern character. The power will be generated largely from the vast natural water courses, and conducted over hills and valleys with copper wires. In some instances there are plans to generate power at the coal mines, so as to avoid hauling the coal, and to transmit the power by wire direct from the mines to the place of consumption.

The many new hill groups organized for working on hydraulic plans will be demanding much more new equipment before long. Flumes, ditch line and pipe line material and giants and such will come largely into demand as a consequence.

The prospecting of the dredge ground also makes a demand for more modern equipment, in the way of large drilling machines. The Keystone drill is the favorite for this purpose in the Yukon, and no less than ten are in use within ten miles of Dawson. These drills cost, laid down at Dawson, \$3,000 to \$4,000 each.

The dredges in use in the Klondike camp cost on the average \$140,000 to \$150,000 each, completed on the spot, ready for starting. Of this cost approximately one-third is represented in the purchase price of the machinery at the factories. The remainder is for lumber, transportation and labor.

FLOWERS OF THE YUKON

By MARTHA MUNGER BLACK.

TO the stranger without our gates the flora of the Yukon consists chiefly of golden nuggets to be found cozily nestled at the grass roots, and when told that from May first to October first we have an ever varying ever blooming flora differing but little from that of the temperate zones elsewhere, our statements are quite

and around Banff. The flowers are very like the ordinary garden crocus in appearance, save as they are protected from the frost and inclement weather by a soft hairy down. The peculiarity of this member of the Ranunculaceae or Crowfoot family is the growth of the foliage after the flower has blossomed. As the purple

again in the lovely color to which she has given her name.

One year not so long ago, it was my delight to make a systematized collection of the flora to be found about Dawson, and within a limited time and area I had four hundred and thirty-seven varieties, so that I cannot doubt the statement made by

blues and greens that seem to reflect their opaline shades not only in the waters beneath but in the skies above, while the midnight sun may be seen majestically circling the far distant snow capped mountain peaks.

There are so many lovely flowers, to say nothing of the many varieties of bracken and ferns, while the far famed northern mosses must have due mention, that it seems almost like adding insult to injury to suggest that the varieties be merely catalogued. But in an article of this sort where space must be considered, I will merely name the more common varieties that are to be found in Yukon: There is the modest Forget-me-not, growing almost side by side with the vividly yellow Iceland Poppy. In June, July and August our hills are radiant with the Lupine, Hyssop, Foxglove, Grass Pink, Adder's Tongue, Monkey Flower, Spiderwort, False Dragon Head, Columbine, Hudson Bay Tea, Drummond's Dryas, and an infinite variety of others. I must not forget the Twin Flower or Linnoea so named because it was the favorite of Linnaeus, the great Swedish botanist.

But to me the most surprising find of all in this land of floral surprises, was discovered one July day, when after an aimlessly wandering walk of half an hour from the Ferry Landing at West Dawson we suddenly came on the southern slope of a poplar covered sandy stretch of hillside and there lay before our astonished eyes acres and acres of the beautiful spotted orchids. Although we picked over two thousand blossoms, finding among them a number of the pure white orchids, there was seemingly no diminution of the colony. To the beauty of the flowers was the added delight to the senses of the violet-like fragrance that pervaded the air.

Let not the traveller remain away to scoff because we are in the Arctic regions, but let him come to be conquered alike by the magnificence of our scenery, the vastness of this golden territory, and the beauty and charm of our floral offerings.



Dahlias Grown in Dawson.

apt to be met with an incredulous smile and uplifted brow.

Always a lover of the beautiful in nature, a life of eleven years in this country has opened up a hitherto unknown and unappreciated vista of beauty to be found among our hills and valleys. To be sure we have three months when daylight is short and warmth out of doors is a stranger to us, but, aside from that period our climate is not only as mild and pleasant, but far more desirable than that of many of our coast or inland cities.

Frost is frost wherever it is found, and that of sixty degrees below zero can freeze no harder than that of zero. In April and May when the valleys and hillsides are covered with beautiful blossoms that change in color and variety with the passing of the summer months only to write "Finis" in a glow of vivid scarlets and yellows in October, no lover of the beautiful can fail to award this country the palm for variety and luxuriance of its wild flowers.

Early in March the first harbingers of spring are to be found in the form of the soft willow buds, or "Pussy Will Yous," as a tiny little friend of mine once christened them. For three or four weeks the flower seeker must perforce be content with these dainty pieces of down, but from the early weeks in April there will be no limit to the floral surprises to be found in this golden Yukon. No rocky pile must be deemed too forbidding, for oft times sheltered by the sun kissed sides of some giant's footstool may be found our first Spring flower, locally called the purple crocus, but in reality the dainty Pasque flower (*Anemone Nuttalliana*) so commonly found in May in the valley of the Canadian Rockies in

sepal fade and fall, the seeds form and then the head presents a beautiful plumose appearance for to each seed is attached a long silky tail, the whole forming a pretty feathery tuft.

Closely following the Pasque flower I have found eleven other members of the Ranunculaceae family varying in size and color from the tiny yellow Water Crowfoot commonly found skirting the edges of ditches and pools, to the long fruited Anemone with its dainty blossom of white shading into delicate greens and blues.

Next after these flowers are to be found the blossoms that later will bear the edible fruits in such profusion, among them being the strawberry, currant, raspberry, wintergreen, blueberry, salmon berry and three varieties of the cranberry. The dwarf cranberry, to my taste, is much more desirable for table use than the Cape Cod berry considered so fine in the States.

From now on it is difficult to note the exact order of floral arrivals in this garden of the wilderness, for new beauties are added to new beauties each day in the most bewildering fashion. But we will find the Shooting Star early in May, a blossom well known to all lovers of the primrose family. At the same time in the cool seclusion of some mossy nook, the shin plant, so well deserving of a prettier name, it is so transparently beautiful with the veriest gleam of a blush touching its waxen bloom, that the local appellation of wild Begonia seems far more appropriate than the plebian word "shin." The violet too, in her modest retreat must not be forgotten, for she nods at us from many shady dells clad sometimes in white, again in yellow, and

that well known Canadian botanist, Professor Macoun, that there are over three thousand varieties of plant life in the Yukon Territory alone.

In June whole acres of ground are covered with wild rose bushes, while blossoming in close proximity will be found the dainty blue bell giving a beautiful color combination of pinks,

ROBERT W. SERVICE.

Robert W. Service, recognized as the premier poet of the Yukon, author of verses elsewhere in this edition,



Robert W. Service.

and probably entitled to the same honor for all of Canada and to high praise anywhere in the English-speaking world, is a resident of Dawson, where he is a member of the staff of one of the large banking institutions

of Canada. His success is attributable chiefly to having caught the Yukon spirit, especially as to the rough and raw phases of life. His verses treat little of the felicities of life, but he pictures indelibly the struggle-side of the northerner's career.

For a number of months his work, "The Sourdough," had one of the largest sales of any publication in Canada; and now his new effort, "The Ballads of a Cheechaco," are just coming out.

Mr. Service was born 31 years ago in England, and was taken to Scotland by his parents when too young to remember much of it. After being educated at Glasgow, spending some time at the Glasgow University, he came to Canada, when 20 years of age, fighting against damnation from city to city until he came to the Pacific slope, where for five years he wandered up and down the earth from Mexico to British Columbia, working at all manner of things. Six years ago he accepted a position in the Victoria branch of the bank which he is now serving. He had written classic verses when young, but later became disgusted over them, and his idea now is to write something which the ordinary workaday man or woman can read and appreciate, something which will come within his scope and approval as a matter of reality. His first publication aside from occasional verses was two years ago, and now his works are greatly in demand.

Copper and Silver Fields of the Yukon

By ROBERT LOWE, Member of the Yukon Council.

ON July 25th, 1897, a small coasting steamer, the Excelsior, sailed into San Francisco harbor with a crowded passenger list of men, ragged, unkempt, with long hair and shaggy beards and the fierce light of victory in every eye and bearing. These were the Argonauts returning with the Golden Fleece and the next morning every adventurer the world around was reading wondrous tales of the till then unheard of Klondike and within a few weeks a mighty host of the hardy and adventurous poured over the mountain passes and down the valley of the Yukon in search of the gold that nature had with lavish hand scattered over this northland.

In the few years that have passed since then, the Klondike region has yielded one hundred and fifty million dollars in gold dust while the rest of this vast territory with its many streams has not yet been scratched over. Those who first came had but one object, namely, to find a rich placer claim, wash it out as quickly as possible and then ho for home and fatherland. None had time to consider the baser metals or plan for the slower development of the country and as a result thousands passed over or near the rich silver leads of Conrad mountain and the vast copper deposits of Whitehorse heedless and indifferent to what promises eventually to yield more millions than all the placers of the world combined. It is with these that the writer proposes to deal in a general way, space forbidding any attempt to go into particulars.

Beginning at the southern boundary of the territory about sixty miles from tidewater and a few miles from the White Pass railway is the little camp known as Conrad City at the foot of Conrad mountain which, if present prospects hold out, will eventually prove to be one of the great treasure houses of the world. This mountain is seamed and scarred in all directions with veins of quartz carrying high values in silver and gold.

Originally several groups of claims were staked by Messrs. Pettit, Pooley and Stewart and several others. These known as the Montana and Venus groups a few years ago passed into the hands of Col. J. H. Conrad of Montana and Wm. Mackenzie of the great railroad firm of Mackenzie & Mann who have in the past year erected a gravity tram from the Venus down to the lake shore (Windy Arm) and there erected an experimental concentration which for the past few months has been running through about one hundred tons per day of ore valued at twenty dollars per ton. It is asserted that this one claim has ore enough in sight to run ten times as large a mill for years to come, and when one stops to consider that there are scores of claims on this wondrous mountain whose surface indications are just as good as the Venus, it does not seem improbable that the history of the famous Comstock with its hundred and fifty millions in dividends and its Virginia City of thirty thousand inhabitants will be repeated in the North and that Conrad City and Caribou Crossing will rise like magic to full blown cities with their millionaires made over night. On the opposite side of this wondrous mountain and facing Lake Bennett and the little town of Carcross (Caribou Crossing) is the "Big Thing" group where ground was opened last fall and at the present time a small gang is sinking and drifting on a vein of twelve feet of solid metal containing fabulous values in gold and silver. The writer recently interviewed a mine foreman generally considered a very conservative man and one who was familiar with many great mines, who declared that if this ore body went down three hundred feet as it has gone for the first fifty it would be one of the world's wonders.

Looking north and west from Con-

rad mountain one sees the twin valleys of the Watson and the Wheaton. Here are many groups of claims rich in silver and gold which are as yet in the hands of the original prospectors, men of little or no means who are paving the way for capital to come and reap a golden harvest. The government has built twenty-five miles of good wagon road through these valleys from Robinson station on the White Pass route enabling prospectors to get their supplies out at reasonable rates.

There are not less than two hundred claims in these two valleys that have rich surface showings giving assays from ten dollars to ten thousand per ton.

Among others may be mentioned the Porter group with four leads varying in size from one foot to seven and carrying from fifty to three thousand ounces in silver per ton. These leads can be traced for thousands of feet on the surface and a tunnel is being run to tap them at considerable depth, capital being supplied by a Chicago firm and the work being carried on under the management of H. E. Porter, one of the original locators. A few miles north of this we come



Robert Lowe.

to the Stevens property where rock assaying thousands in gold can be picked up all along the surface of the mountain extending across the length of three full claims. A tunnel is now being run to tap the main ledge.

A few miles east of this is Gold Hill, one of the earliest recorded properties which created a sensation by showing surface croppings that assayed one hundred thousand dollars per ton. A shaft is now being sunk to strike the main ledge. Further east again we come to the properties of Wm. Schnabel, the pioneer prospector of the Watson valley. Mr. Schnabel has many rich leads on his group of claims and also a mountain of low grade ore as great in extent as the famous Treadwell and carrying twice the Treadwell's values.

Returning to Robinson station we take the train and after a twenty-mile ride northwards arrive at the little town of Whitehorse, one hundred and ten miles from tidewater, the present terminus of the White Pass railway and the head of navigation on the Yukon river. Immediately to the west of this little town is a copper belt about fourteen miles long and it is safe to say that there is not a single quarter mile in the fourteen without its rich cropping of copper ore and where any development has been done rich and large bodies of copper have been exposed.

On the Valerie a shaft one hundred feet deep shows a body of ore over thirty feet wide, five feet of which carries ten per cent. copper while the balance carries four per cent., together with good values in gold and

silver. A tunnel on the Arctic Chief shows thirty thousand tons of six per cent. ore in the first fifty feet. A shaft and drift on the Grafter shows a body of ore sixteen feet wide and getting wider as it goes down. Two thousand tons of this ore, without any attempt at sorting, were shipped to the Tyee smelter at Ladysmith, B. C., and yielded seven per cent. copper and three dollars per ton gold and silver. The Pueblo has a surface showing two hundred and sixty feet wide and stripped bare for four hundred feet lengthwise of solid ore. A shaft one hundred and ten feet deep, a drift one hundred and sixty feet long and a cross cut ninety feet in length failed to find a pound of anything but ore carrying an average of four per cent. copper. It is doubtful if a greater surface showing than this exists anywhere.

A few miles north of the Pueblo are the War Eagle, Le Roi and the Anaconda Rabbit Foot groups showing large bodies of high grade ore, while half way between and a mile to the east is the Copper King group from which has been taken the richest shipment of copper ore that ever went into a coast smelter, averaging forty-nine per cent. in copper.

Many other properties that have up to date shown equally remarkable results here await the magic touch of capital to pour forth a boundless stream of wealth. These ores contain all the requisites for fluxing and are considered ideal smelting ores, while only fifteen miles away are vast deposits of high grade semi-anthracite coal for fuel and almost at the miner's feet the mighty Yukon flows through Miles canyon and White Horse rapids with a drop of twenty-five feet in two

miles, an unlimited storehouse of electrical energy.

The White Pass railway has built seven miles of a spur through this belt and intends to build four miles more this year, bringing cars to the door of every mine. One hundred miles northwestward from Whitehorse a vast field of copper deposits has been discovered in what is known as the Hootchi country while sixty miles eastward large deposits have been found in the neighborhood of the Livingstone creek placer camps, while one hundred and fifty and two hundred miles west of Whitehorse are Burwash creek and White river districts with their slabs of pure bomite four feet thick and sixty feet long and their nuggets of native copper from one to six tons in weight.

And so it goes in every direction throughout this vast territory, north, south, east and west, great bodies of gold, silver and copper ores are found with the prospects of the makings of camps as great as Butte, Cobalt or Tonopah, only needing capital, skill and energy to startle the world.

We are close to tidewater, railways are easy to build, our summers are beautiful, our winters are dry and healthy, our government is keen to advance and develop the country by building roads as fast as required, ready to subsidize smelters and grant water powers, in fact everything that capital could most desire. And so great is the copper wealth of this territory that with proper transportation and smelting facilities and sufficient mine development, were all other copper supplies of the world to cease to exist, this territory could supply the demand without a hitch.

RAILWAY BUILDING AND OPERATION IN YUKON

By EUGENE MURPHY, General Manager Klondike Mines Railway

AMONG the principal means of opening up a new country are quick and cheap methods of transportation. In the early days of the Yukon or of the Klondike district, dogs were the only means of transportation. Later came horses, and then railways.

Railway construction was expensive. The cost of material and labor was high, but not any more so in comparison than ditch building for mining purposes or other similar heavy construction work.

At present there is but one railway in the Klondike district, namely the Klondike Mines railway, running from Dawson to Sulphur Springs, a distance of 32 miles. During the stampede of 1897-8 a railway was thought of, but actual work was not commenced until 1903, at which time considerable grading was done and three or four miles of track laid. This grade was afterward abandoned and a new line built, which was completed in November, 1906, through to Sulphur Springs. One of the objects in building the railway up Bonanza creek to its source, was to handle the business of all the creeks then being worked, as a glance at a geological map of the Klondike district will show all the main creeks, including Hunker, Gold Bottom, Bonanza, Quartz, Little Blanche, Sulphur, Gold Run and Dominion, heading or having their source at or near Dome mountain, the present terminus of this railway.

Quartz claims were staked at the head of these various creeks as far back as 1898, and at the present time hundreds of claims are located in the immediate vicinity. Many of them have been crown granted and are being opened up. At the present time

freight for outlying creeks is taken to the end of the railway and from there taken by the company's own freighting outfits to its destination.

Passengers and express are handled from the end of the railway by daily stages to and from all creek points.

The present outlook for this, the only railway in the Klondike district, is very promising, for the reason that quartz property adjacent to the railway is being extensively opened up, and, as a consequence, the railway is a prime factor in its development, and will share to a certain extent in the prosperity of the country in general.

The era of railroad building has only begun, and as is shown by various reports from practical mining men who are experts in their different lines of mining in the way of dredging or handling placer ground or mining quartz, the country comprised in the Klondike district has not begun to be developed, and, as a matter of fact, the country has as yet been only gone over and not even prospected in a thorough manner. With the additional development, which is bound to come in a very short time, will come additional transport facilities in the way of new railways. When it is taken into consideration that the total area of the Yukon Territory is several times that of many of the European countries, and the total length of railways is 91 miles, it can be readily seen that the extent of railway building in the Yukon in the near future will be marvelous.

With the number of railways now building to the Pacific Coast, it will be a matter of but a few years until we will have a direct route from Dawson to some point in Western Canada.

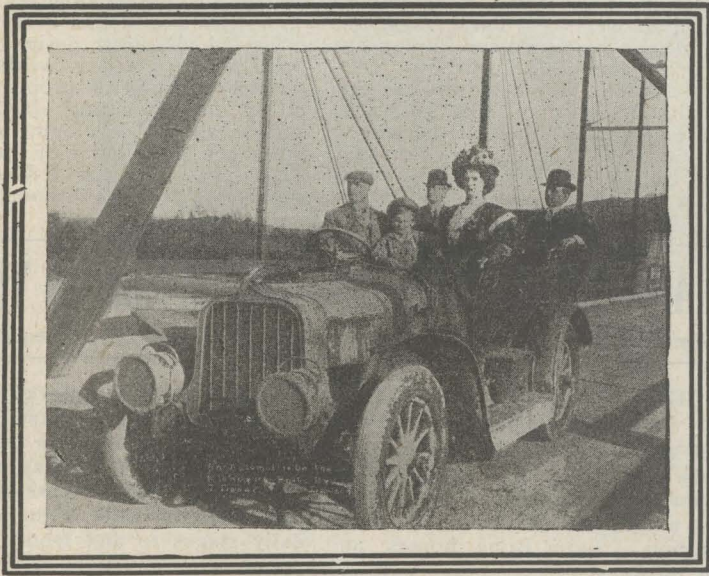
The Dawson Curling Club

By PHILIP M. RAY, Secretary of the Club

THE history of the Dawson Curling club, the most northerly club in Canada, dates back to the early days of the camp, for it was October 4, 1900, that Colonel W. H. Rourke and a few other enthusiasts founded the club. The personnel is continually changing, and out of forty-five charter members only seven are residents of Dawson today, and four of the seven no longer take an active part in the game. Curling in the early days was an expensive sport. The club entrance fee was \$25 and a monthly subscription of \$10 was charged, which with the cost of purchasing curling stones and an extra or two added, made the first year's expenses average \$130 a member. The club's first rink was built on the slough at the back of the R. N. W. M. police barracks. The building, a light wooden frame-work covered with canvas, giving accommodation for two full-sized rinks, a dressing-room, and a small waiting-room, was erected at a cost of nearly \$1,000. It was found to be exceedingly difficult to make true curling ice on the slough, as the ice was continually heaving and cracking, and the following season, that is 1901-02, the club rented a warehouse on Front street and was

ing beaten in the semi-finals by Braden of Winnipeg, who eventually won the trophy. In the points competition 208 entries were made, and M. H. Jones obtained twenty-third, and J. Moncrieff, forty-first place. The rink also took part in competitions for the Blue Ribbon, Alfred Dolge International and Dingwall trophies; and for the Tetley Tea Tankard and the Empire trophies. It barely failed to reach the semi-finals for the Empire trophy. Early in 1908 another rink, representing the Dawson Curling club, composed of F. G. Crisp, skip; A. M. Thornburgh, third; Alf. Watson, second; Jas. Munroe, lead, and O. F. Kastner, reserve; visited Winnipeg and took part in the same competitions as mentioned with one exception, but were unable to secure any prizes. In the O'Grady Challenge Cup contest the Dawson rink played in company with that of J. D. Flavelle, the veteran curler from Lindsay, Ont., the most easterly rink present at the Bonspiel, and won every game up to the semi-finals. Mr. Watson obtained a high position in the points competition.

The winter of 1908-09 may be said to have been the most auspicious season since the inauguration of the



Auto on Ogilvie Bridge Near Dawson.

able to considerably reduce the fees. In the fall of 1902 the Curling club became affiliated with the then newly-formed Dawson Amateur Athletic association. The membership, which had been limited to 50 was raised to 75, and the following year the limit was abolished altogether and the dues were reduced to \$40 a year which included membership in the D. A. A. A. In 1903 the Dawson Curling club affiliated with the Manitoba branch of the Royal Caledonian Curling club, and all games are now played under R. C. C. C. rules. The next few seasons were practically uneventful, but in January, 1907, the club sent a rink 3,000 miles to compete at the Winnipeg Bonspiel. The team which distinguished itself, in spite of being handicapped by being unable to take its own curling stones, was made up as follows: M. L. Strickland, skip; M. H. Jones, third; C. W. Macpherson, second; Jas. Moncrieff, lead. En route to Winnipeg the team took part in the Brandon Bonspiel, winning 15 out of 16 games and capturing the Walkerville Cup, the Gold Standard trophy and the second prize in the Grand Challenge Cup. Proceeding to Winnipeg the team played 16 games, winning 12, and securing a third prize, namely the Royal Caledonian Tankard presented by Lord Strathcona, and be-

club, for it was honored by being represented on the Canadian curling team of 35 members which visited Scotland the beginning of this year, meeting with only three reverses during the tour. The Dawson club's representative, Chas. W. Macpherson, was the first of the eleven members chosen by the Manitoba Curling association, and he was further honored by being given a rink. During the tour he took part in 17 competitions, won 19 out of 22 games, and secured the only individual prize of the tour, one donated by Andrew Usher of Edinburgh for the rink making the highest average score in the three test matches. M. H. Jones, while "outside" for the winter, picked up a Dawson city rink, and at the Fort Saskatchewan Bonspiel won the Merchants and the Grand Challenge trophies; losing only one out of thirteen games played. At Edmonton Mr. Jones' rink took part in a local bonspiel, where it won 13 out of 15 games, and returned to Dawson with the following prizes: Grand Challenge Cup, presented by the premier of Alberta, together with gold watches for each member of the winning rink; the Calgary Brewing trophy and the Grand Aggregate prize.

The present accommodation of two sheets of ice for the use of 143 members has been found to be inadequate

this season, and Walter Creamer, the popular and energetic manager of the D. A. A. A. has decided to make extensive alterations and enlargements for the coming winter. The present rink will be turned into bowling alleys, and a new curling rink 150 feet long and 66 feet broad, lit by over 120 electric lights, will be erected, which will give accommodation for four sheets of ice. A large steam-heated observation room, will be provided for the use of lady spectators, and a small wooden platform will separate the rinks as at present, giving ample accommodation for members wishing to view the games.

The curling season begins the first week in November and usually ends the first or second week in April. This year however, has been an exceptionally cold one, and play has been possible up to the end of April, but there were two months, January and February, when it was to uncom-

portable to curl. The season opens with a bonspiel between rinks made up of the entire members of the club, chosen by the president and the vice-president; the losing side entertains the winners at a dinner of "Beef and Greens." Other bonspiels held during the season are "Married Men vs. Single Men," and the patrons' bonspiel for prizes donated by the president and patrons of the club respectively. The following cups presented to the club are competed for annually, the games being played either by the Bagnall-Wyld or percentage system: Brackman-Ker Milling Co. Cup; Jersey Cream; Seagram; Grand Challenge Cup presented by the New York Life Co.; Kelly Douglas Cup, and the Dawson Cup, presented by Hiram Walker & Co. A "tyro" and a points competition completes the programme, and the season winds up with a smoking concert and a presentation of prizes.

Yukon Sports and Pastimes

By J. M. EILBECK, Deputy Sheriff

DAWSON City, Yukon Territory, Dominion of Canada, the pivot of the Klondike, a name which means so much to many and a town and territory of which so many people have such erroneous opinions. Many have drawn the idea from misleading articles and interviews that we live midst snow and ice the year round and have no enjoyments nor amusements. How different is the case to those who have lived here. Quite true we have some six months of winter, some parts of which are extremely cold but in that self same period I believe I am safe in saying we have more enjoyable times than any other place of its size in the world.

Curling, one of Dawson's many sports, could alone amuse the people. The Dawson Curling club, the second largest club of its kind in the world, has 125 members. As a club house it has the Dawson Amateur Athletic association building, a vast pavilion that cost \$42,000.

The club building also has beneath its roof two fine sheets of curling ice, a skating rink of 185 feet by 80 feet, where are held hockey matches, skating carnivals and ice races during the winter months. The same department is utilized in the summer for a natatorium. It is a swimming resort the most fastidious would desire. The tank is 80 feet long and 35 feet wide, and an average depth of seven feet. During the summer have been held also some of the finest boxing exhibitions ever pulled off. The participants included such men as Choynski, Philadelphia Jack O'Brien, Jack "Twin" Sullivan, Billy Woods, Joe Millett, Dick Case, Freddy Wyatt, Nick Burley, Solly Stroup, C. Gleason, Frank Slavin and many others. Six thousand people can be seated in the athletic club's arena without any difficulty. The club also has a fine gymnasium, hand ball courts, shower baths, reading room, billiard room and a fine reception hall. The club is engaged installing two more sheets of curling ice and four bowling alleys at an additional expense of \$7,000.

The Dawson Amateur Athletic club is but one of the fine buildings in Dawson which is devoted to sport. The Arctic Brotherhood hall, which is 190 by 75 feet, is the resort for many basketball matches having teams composed of both sexes. Here are held amateur theatricals well worthy of producing anywhere, also fancy and masquerade balls take place and where one may see as handsomely dressed women as any spot on earth.

The "Men's Club" has a fine build-

ing with gymnasium, shower baths, reading and writing rooms and lecture hall under the management of Rev. W. E. Dunham of the Methodist church. Dawson also has the Zero club, a purely social club where such renowned personages as Lord Minto, Ex-premier Sir Mackenzie Bowell, General Funston, General Greeley, Selous the great hunter, and many others have been entertained. The Auditorium theatre is a place of amusement confined principally to theatricals, but where have been held wrestling matches of no mean importance and where men of world wide fame, such as Frank Gotch, Ole Marsh, Tiv Krelling, Ben Trennaman, and that old, one time world champion McLaughlin have gone to the mat.

The Fraternal Order of Eagles, the Masons and the Independent Order of Oddfellows each have fine halls where dances are held and socials are regular events. So much for winter amusements.

In the summer season—a season which I could eulogize to far more considerable space than I am allowed, consisting of long days and ideal weather—we play baseball games at eight o'clock in the evening. Think of it, you old baseball promoters. Figure out your profits if you could play at that hour. On the 21st day of June, we play our game even at 12 o'clock at night, due to the fact that at that particular time we enjoy twenty-four hours of daylight. While our baseball season lasts—from May 20 until August 20—the games are played in Minto park, a field built at an expense of \$12,000 and maintained in excellent condition. On this field have been played some of the keenest baseball games ever contested on a baseball diamond. The excitement has been so intense at times that families were split. Different clubs have gone to great expense importing players from the outside. On this self same diamond have been held great international games, and no later than last year Dawson sent a team to Fairbanks, Alaska, seven hundred miles away, to compete for "The International Championship North of 53." Dawson returned with the honors after traveling 2200 miles and consuming three weeks on the trip at a great expense. Prior to playing in Minto park, Dawson played ball on the Royal North West Mounted police barracks ground where, in addition to baseball, cricket, football and lacrosse matches were played. The Dawson Lawn Tennis club, with a membership of forty,

built in 1901, two fine courts at an expense of \$5000. The club has comfortable quarters, with shower baths.

On Empire Day, Dominion Day and the Fourth of July, the citizens, with aid of large public contributions, hold sports to celebrate. Here we know no boundary line. The sports comprise horse races, bicycle races and Caledonian sports. These are held upon our front street, where we have a full quarter of a mile straightaway track. We have even road races, and

have over 300 miles of perfect roads in and around Dawson, not to speak of the overland road between Dawson and Whitehorse, more than 300 miles in length. The same extent of roads exists in and around Whitehorse, which permits us to run automobiles. Not alone to Dawson are confined all these sports. Right at Granville, Dominion Creek, in the centre of the mining district the people have baseball and grounds where they celebrate the twenty-fourth of May, July first and the fourth of July, with

Caledonian games, races and the like with the same good will as we do. Whitehorse joins in a baseball league, consisting of Skagway, Whitehorse, Juneau and Douglas Island. At great expense these teams import players from Seattle, Vancouver and other coast towns. Excitement runs to blood heat, and with true sportsmanlike feeling, they contest in the games for supremacy, and by so doing cementing more closely the already friendly feeling of the two nations. Whitehorse also enjoys lawn

tennis courts and has the Northern Light Athletic association with a building fully equipped with hand ball courts and a perfect gymnasium, with shower baths and the like. In winter the people there have skating, curling and bowling.

People of the "outside" in reading of our humble amusements must admit that the Yukon fares very well and if anyone doubt my statement, visit us. Our latch string always hangs outside and "welcome" is always on the door.

STEWART RIVER DISTRICT

By A. W. H. SMITH, Former Prospector on the Upper Stewart, now interested in large holdings there, and in business in Dawson

THE Stewart river, one of the principal tributaries of the Yukon, drains an extensive region lying between the basin of the Pelly river to the south and that of the Peel river to the north. It rises in the Pacific-Arctic watershed ranges and flows in a general westerly direction towards the Yukon valley, entering the Yukon seventy miles above Dawson City.

The Stewart river above Fraser Falls, which is a distance of 200 miles from its mouth, drains an area of about 12,000 square miles.

During its course through this region it receives four important tributaries, Canyon river which flows into the south fork, Lancing, Ladue, and Beaver rivers which flow into the north fork. The forks of the river are about forty-five miles above Fraser Falls.

There has been considerable prospecting done above the falls since 1898 and previous to that time prospectors ascended the river as far as Ladue creek, one of these being Lancing, after whom the present river is named. They no doubt are the first prospectors to discover gold, both on the Ladue and Lancing rivers, but up to the present time no mining operations have been carried on, although I have no doubt that at some future date some of the large gravel benches which are in that vicinity of the country will pay to hydraulic, when navigation facilities above the Fraser Falls are improved so that the prospector will be able to handle his supplies. This section of the country is well timbered and there is no doubt that it has produced more fur than any other section its size in the Yukon Territory or Alaska.

Stewart river, below Fraser Falls, has one of the brightest futures of any stream in the entire Yukon valley. It is one of the first rivers in the territory to attract the attention of the miners.

From the year 1883 and since, gold has been found in paying quantities on some of the bars along the river when the water is low by "rocking" between the Mayo river and a few miles of the mouth.

In 1895 coarse gold was first discovered in the streams, tributary to the Stewart, and from that time until the present, discoveries of placer gold of more or less importance have been made each year.

The Clear creek, Duncan creek mining districts and latterly the Haggart and Dublin districts were established and included all the streams tributary to the Stewart as far east as the Mayo river and its branches.

Although some of the creeks in these districts were rich in placer gold the average remuneration was small. The difficulties and expense of mining and transportation and the inexperience of many of the miners have hitherto tended to keep down the profits and to discourage prospecting. The area, however, in which it might be reasonably expected to find placer

gold is large and with a better knowledge of the methods of mining best suited to the conditions, future developments and extension of the productive ground may be looked forward to, as much of the region is yet unprospected.

At Fraser Falls the Stewart river flows through a gorge three-eighths of a mile long, with a fall of about forty feet in this distance; above this gorge the river still occupies a narrow channel bordered by rock benches and three short rapids due to the rock barriers occurring at intervals. By harnessing these falls it is capable of generating at the lowest stage of water 15,000 horse power, sufficient to run a fleet of dredges. This can be accomplished at a very reasonable cost.

At present there are three large companies operating on the river. One has one of the largest modern type of dredges, which was installed during last season, and from all reports the company is well satisfied with the results obtained. They are operating at a distance of about ninety miles from the mouth of the river and it is their intention, in the near future, to increase the number of dredges as they have numerous dredging leases on their river. One hydraulic company is operating on Dublin Gulch, and the work of constructing a ditch has already commenced and the plant for hydraulic is already on the ground and there is no doubt that the water will be run through their ditch this season. A dredging company just organized has a numerous number of dredging leases and are installing at the opening of navigation two large Keystone drills and during the present summer will prospect the bars at the mouth of the McQuesten river and next season will also instal a large modern type of dredge.

One of the Dawson steamboat companies is operating on the river and has a very fast, light draft steamer, giving a weekly service, something which the miners and operators of the river have not previously enjoyed. The river is navigable throughout the season as far as the Fraser Falls, or for a distance of two hundred miles from the Yukon.

In respect to further information and corroboration regarding the physical conditions and history of the Stewart district I will refer the interested reader to "The Yukon Territory, Its History and Resources," a book issued by the department of the interior of Canada, obtainable on application in Ottawa; and to the reports on the Upper Stewart River Region, by J. Keele, Dominion government geologist. Beyond this the most authentic recent data obtainable respecting the Stewart river country and its auriferous deposits and present workings is given in the report made by Arnold F. George, secretary of the Yukon Miners and Merchants' Association, headquarters at Dawson, after a personal canvas and trip by dog

team over the region the first few weeks of 1909. Mr. George's excellent report contains in part the following:

The Stewart River

By ARNOLD F. GEORGE,
Secretary of Yukon Miners' and
Merchants' Association.

A report on this district must include a statement as to the difficulties of getting in and out in the winter time. In the summer the heart of the district is reached by steamer from Dawson, at Mayo Landing on the Stewart river. Distances are then comparatively short to almost any point where mining development has yet taken place. But in the middle of winter the 169 miles between Dawson and the recording office of the Duncan district at Mayo Bridge holds for the musher some severe experiences. As a rule there is no travel over the trail in the middle of winter at all. At the farthest end from Dawson there is decidedly more snow than in the Klondike, and the trail

as follows: Dawson to Jensen, 43 miles; to King's, 12 1-2 miles; to Barlow, 22 miles; to McQuesten, 16 miles; to Mayo Landing, 47 1-2 miles; to Minto Bridge, 10 miles; to Mayo Bridge, 18 miles. From Mayo Landing to the mouth of Haggert, on McQuesten, is 30 miles, and to discovery is 12 1-2 miles.

Duncan District.

Duncan has long been a name to conjure with among the miners. Discovered in silence, held in secrecy and worked without recording. Duncan creek in '98, '99 and 1900 furnished the "Three Mysterious Swedes" with an independence, before being discovered and stamped in the usual way. Considerable traveling over the country has since taken place, and some prospecting. But the country over which gold is scattered—fully 2500 square miles—leaves the prospecting already done but a drop in a hoghead of water. A few general facts seem to have been established. Many of the creeks are steep and have canyons cut through in places. Any canyon in the district yields well to the miner. This general rule leaves many sure things certain to be worked soon, for the rule has become recognized. Another rule which holds good over much of the country prospected to date, is that there has been less concentration outside of the canyons spoken of. There is also much thawed ground, the rule being the gravels are thawed under and near the running water and frozen out towards the limits of the valleys. However, there are exceptions. These differences to the Klondike, and some others not yet mentioned, have held the country back. It cannot be said the Stewart has reached at all the degree of development found in the Forty-mile and Sixty-mile country.

The country has suffered, too, from a concentration of effort and attention to Duncan creek, in an effort to overcome the underground flow of water. The district already shows improvement since the men have largely given it up and scattered elsewhere. For instance there were only 77 men in the district last winter; there were 118 people there when I was there, with more to arrive later. Also the revenues of the district have advanced from \$6400 to \$7000. More creeks are being investigated, with several meritorious discoveries on it. By elimination the impossible is being dropped, and much of a promising nature is to be recorded. Six hundred and ten claims in the district are being maintained in good standing. It is difficult to estimate the gold taken out since there is no check upon it. But the stores sent down considerably over \$40,000.

Duncan Creek.

The government pumps are located on 54 below discovery. They failed to lower the water more than sixty feet when all pumps were set and working day and night. As far as



"Prof." Arnold J. George.
—Photo by Duclos.

leads through a wilderness for two to four days not broken by even a house. The government has put up three shelter tents with stoves for such travelers as may have to be out, and they are much used in the early and later winter, and occasionally call forth eulogiums of the seldom mid-winter traveler. A concrete instance of the difficulties of the trail is afforded by the fact that twelve and a half miles from Dominion creek over the first divide supplies were short much of the past winter, with the road practically impassable between—that is to say for loads. With the exception of the gap spoken of, there are occupied cabins and occasional roadhouses for the traveler. The distances are about

the men generally upon the creek are concerned, the attempt was then abandoned, though Jas. Hughes, the contractor in charge, has continued on his own account. Moreover, the general decision that the water is too great in volume for the pumps, does not mean the creek is or is to be abandoned. The same conditions have been proved not to prevail everywhere. There is shallow ground and frozen ground on the limits, and earnest efforts are being directed to capture the paystreak there. Moreover there is ground on the creek that has always been worked, and will continue to be.

Passing up the creek the first work of importance is on 111 above Bellevue, where four men are trying an important experiment. On the left limit bedrock has been struck at 38 feet, instead of at ninety. The ground is also frozen, and three feet of gravel yields 1 to 4 cents. A small pump has been borrowed from the government plant to combat the natural seepage, and preparations were making for large workings. The interest in the situation lies in the fact that midway between this point and where Parent creek enters Duncan, four men have struck the same situation on the left limit. That is to say, with a bluff between them and Duncan creek proper, a channel has been undoubtedly struck. This, in conjunction with the situation on the Baker claim, is taken to mean that this limit was once Parent creek, and Duncan has been crowded over to it later by slides, and that this old channel is part of the present Duncan creek which can yet be mined.

The creek is twenty odd miles long. From discovery was taken \$12,000 the first year after rediscovery and dispossession of the "Mysterious Swedes." Wages are yet taken out of discovery each summer, and at several points above—and occasionally better. Thunder and Lightning, tributaries at the head, yield pay. Sample handfuls to the amount of a pan from the Malesich dump on Thunder yielded as high as 25 cents.

As stated, the admission that the water in the deep gravels near the creekbed cannot be pumped does not mean that the creek is abandoned. There is gold in Parent. James Hughes and George Baird were trying it again in another shaft on 54 below, using the government plant in a last trial. There will be the usual summer increase of population when the men return to work the shallow ground at the head.

Ledge is one of the many creeks running into Mayo lake. It has a canyon, and following the general rule, the canyon, when investigated, yielded a thousand dollars last fall in six weeks, in which period all the dead work had to be done also.

Steep, Edmonton and Cascade, all creeks on the lake and having canyons, will be worked the coming summer.

Davidson creek is a recent discovery. It runs into Mayo river 2 1-2 miles below the lake on the left limit, and is six miles from the recording office at Mayo Bridge to discovery. It is a canyon creek, very steep, and may be confidently set down as going to be a good producer this summer. There has been the usual heavy concentration in the canyon, while last summer demonstrated the benches at the head of the canyon also to be profitably rich. The canyon affords a ready means for disposing of tailings to any amount, and hydraulic preliminaries were under way. The canyon is a sample of others. Depth of gravel varied about the four-foot mark and values from five to forty cents. Nothing is known of the fine flats and benches far above, attention of those on the ground being confined to the "ready money" in sight. The creek is all staked, is twelve miles long, and

the success at the lower end guarantees an investigation of the upper end. The ground in the creek follows the rule of the Duncan country, and affords an illustration of how the new conditions are met in order to get down to bedrock and sample the ground. Several shafts are started at once over the claim or over several claims. Sometimes where creeks are close together, the simultaneous shaft-sinking is on two or more creeks. The ground is found frozen on the surface say four feet. Two feet is thawed and taken out, and the shaft abandoned to the frost until another four feet is frozen. Then two more feet is thawed and taken out, and the shaft again abandoned to the cold weather. This process is called "freezing down a hole." The period required to "freeze back" varies from a couple of days to a week or more, according to the severity of the weather and the depth of the shaft. Jake Davidson, the discoverer, with a frying pan for his goldpan, in one afternoon picked out \$250.

I found two men investigating 9, 10 and 11 below discovery, of course, being in the canyon. Here the ground is deeper, and, where the shafts are sinking, frozen. Several other men were on the creek.

out to be washed. The depth of the shafts is not much over twenty feet, and the creek, expected to be about twelve feet, will be turned and its bed worked this summer with the expectation of finding the rest of that pay which on the rim went so well.

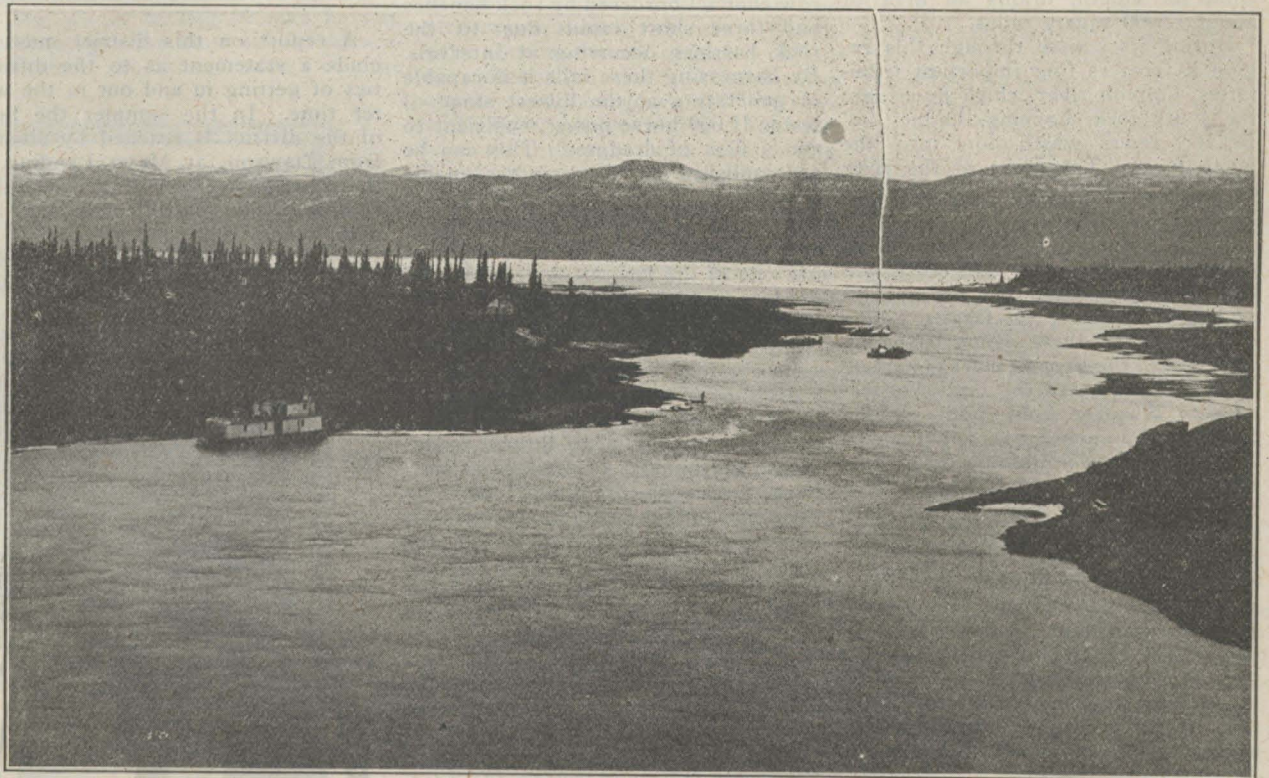
This strike, with the known values on Dublin, caused a hasty restaking of the entire creek, right down to the mouth. The past winter substantial cabins were erected all along, many boilers were carried to the creek, and men from the summer diggings of Hight, Duncan, Davidson and other streams gathered there and put down holes.

The extreme cold weather delayed work. At the time I was there it cannot be said any important developments had taken place. The creek is of magnificent proportions and contour. More than all the creeks of the Duncan district it resembles the streams of the Klondike, with high, sheer sides, and the evidences of much concentration. Where Duncan has not yet lost the surface evidences of glacier deposit, Haggert has plainly been worn down by much rushing water.

Not all had reached bedrock, though some were down fifty and sixty feet. The depth comes from the width of

claims in large lots. Individual miners have been bought out in numbers, and have started developing other creeks. But the summer will find much work going on. Worked as it is destined to be worked, Hight will yet produce much gold.

Minto has been neglected by the miners in favor of the side streams, but prospects well, and has many promising benches, with some of them proved. This winter two men were on Minto discovery. They hold some ground on 8 pup above the discovery claim, and a group of benches between which are being worked profitably each summer. With more water and force the group may confidently be looked for to give Minto creek a big boost in the near future. At Mayo Bridge I found living two men and the recorder, Tom Hinton. Minto Bridge is a trading and roadhouse settlement at the junction of Minto and Mayo river. There were there George Cunningham, J. O. Binet and a Jap cook. It should be stated that the Mayo river all along here prospects gold. The Jam is the name given by the miners to the flat at the junction of Haggert and the McQuesten. A roadhouse is there. Mayo Landing is the entrepot of the whole district



On the Stewart River.

There will be a considerable increase of population this summer at this point to aid these men in taking out the gold.

Haggert Creek.

But it is not in the neighborhood of Duncan that the bulk of the population of the district has centered its efforts this winter. Thirty miles from Mayo Landing on the Stewart, Haggert creek empties into the upper reaches of the McQuesten river. A discovery had been staked 12 1-2 miles up at the mouth of Dublin Gulch, which has produced gold for years. Haggert was known before the Klondike strike, and some work done. The bars have yielded gold. In 1898 quite a number of men staked, but no real work was done. It lapsed, all but a few claims about discovery. In 1907 two brothers found gold cropping on the left rim. As high as \$3.75 was found with but little work. A dump yielded 40 cents to the bucket. A ditch was constructed to work the bench. Though completed late last fall, it was in time to demonstrate the pay did not go back into the hill. This winter they have taken out dumps on the right limit. An investigation by myself showed only the fine extreme edge of the pay, but dumps have been taken

the creek valley, and the gentle slope to the ground commencing at the creek and extending to the side hills. About 60 men were on the creek this winter.

Other tributaries of Haggert than Dublin, and which will come in for investigation, and on which there has already been more or less staking, are Abbot, Fisher, Gill, Iron Rust, Dry, Lynx, Swede, Hyde, Phillips, Chasni, Murphy, Barbara, Snowshoe and Fell.

To sum up for Haggert, whether or not the lower creek proves to have a continuous paystreak, there is rich ground at the head already demonstrated and working, as well as on Dublin Gulch. More work is to be done this summer on the bunch of claims at the mouth of Dublin, constituting the concession. The ground has been demonstrated and work, once commenced, can hardly fail of being profitable, and therefore continuous.

Hight and Other Creeks.

This is a summer creek, and this winter was deserted. Much of the population of Haggert is from Hight. This creek is to the present the main standby of the district, and has produced gold steadily year after year. The tendency now is to gather up the

where supplies in summer are landed from the steamers. The government road with branches built by the miners, runs to Davidson, Duncan, Haggert and Hight. There are various outlying creeks with the beginnings of settlements. Empire creek, a tributary of No-Gold, on the south side of the Stewart, has Albert McCoy and Emil Hebert. J. E. Farrell, the trader, is on the Stewart 75 miles above the falls. Frank Williams, trapper and prospector, is somewhere between Duncan and the McKenzie river. Charles Doty, trapper, trader and prospector, is on Hess river, a tributary of the south fork of the Stewart.

McQuesten River.

Outside of those on Haggert and Dublin, the McQuesten district has few resident miners. Charles Turgeon and Albert Grant are on the North Fork, while Hale Williams and Louis Boden are on another tributary of the same. W. L. Bramley wintered in his cabin near the mouth of McQuesten—a fortunate thing for travelers, his house being open to them all.

Stewart River.

A little below the mouth of the McQuesten, on the Stewart river, is found the pioneer dredge of this dis-

tract. At the settlement I found six men. The number last summer when the dredge was working was nearer thirty people. The dredge is not working the river, but a part of the left bank locally known as Nelson's Point or Bar. The ground was held in placer claims, and was drifted in the usual manner. The dredge has a nominal capacity of 35,000 yards a month. The company has a lease on a hundred miles of the river, and has acquired title to seven mining claims on the point. Another dredge is contemplated for this summer, while a kindred company—The Stewart River Gold Dredging Company, Ltd., has acquired three ten-mile leases for dredging on the McQuesten river, and will erect a dredge thereon this summer. It is needless to point out that the 88 miles of river from here to the Yukon have yielded handsomely to men with rockers, and that the banks have shown coarse gold everywhere, so that the introduction of these dredges may be regarded as the entering wedge which is to make the Stewart the center of a vast mining activity. The company will this summer construct a light draft boat for use on the river, and promises to be of much aid to the miners of the Duncan district in ensuring them a means for getting their supplies regularly. The company's quarters have been constructed on a basis of employing at least forty men the coming season. The winter has been utilized in cutting and hauling wood for the dredge. The fuel is both abundant and of finest quality.

Resume on Stewart.

Conditions are altogether different in the Stewart country to those in the better known Klondike. On ascending Jensen creek to the summit from Dominion, the view presented is startling in its change of panorama from this side of the same divide. An immense flat greets the eye, bordered by parallel ranges of mountains, the great flat extending at an almost water level from the Klondike on the left, to the Stewart on the right. The great flat extending through the country is seen to be of almost uniform width. At once it is comprehended that the Klondike is an island—a high, mountainous island, if this description of the curious conditions can be allowed. And it is seen at once the difficulties confronting the engineers who have undertaken the bringing of water onto that high island, and the limited possibilities of such schemes.

The great flat spread out before us is crossed by Flat creek—well named—Slough creek, and a multitude of smaller streams. Gravel lake is seen in the center. One hundred foot hills border the flat. Timber is not abundant. In place of it are found numerous meadows yielding native hay. Several farmers there have their homes. John King, 12 1-2 miles from Dominion, at the first edge of the flat, has had a family of children born to him there—not one of whom has ever seen Dawson. He has comfortable buildings, a herd of cows, and is a prosperous maker of hay. The great flat is all gravel. And gold can be found in it at almost any place, though lacking profitable concentration so far as yet known. What is known of the flat already would give it great value in any other country.

Cutting the low foot hills on the far side is Barlow creek and Clear creek from Barlow up. Few men were up there this winter. Large lots of the Clear creek ground have been gathered together in one large holding. So far as known, the ground is not high grade, but nevertheless paid to work in many places. An unfortunate miscalculation in installing a water supply on Clear caused the experiment to fail, giving the Clear creek district an unmerited black eye. An investigation of the situation shows

the experiment to have proved nothing detrimental, only that water delivered onto low, unprospected ground, and where not available for prospected and proved ground, is badly planned and invites failure. However, the district is suffering from the depopulation coming from dispossession by purchase and other causes.

The various creeks cutting through the big flat spoken of are coming in for attention. Slough creek had prospectors all winter, the men coming there after the death of Alex. McDonald. The government trail to the McQuesten crosses a high rolling country, mostly wash gravel, but little known. But the McQuesten reaches the Stewart through a true gold country. The bars of the river have been long worked, and some of the side streams are staked and recorded. A new creek is Roden, on which gravel is found occasionally

going several cents to the pan. The river is of sufficient size to use boats—during part of the year, at high water, shallow draft steamers can ascend for a considerable distance. Last summer polling boats took provisions to Haggert creek for 17 cents a pound. Nevertheless, it is difficult to get in and out of the upper reaches, the most promising portions of the river from a placer mining standpoint. The lower end where the dredges will be, finds the transportation problem solved. The freight by river from Dawson is but \$40 a ton.

I found game most abundant. I fed dried moose meat to my dogs good enough for a hungry man. But it is in the matter of fish and wild ducks of every kind the district excels all other districts in Yukon. The greyling, netted in the fall and frozen, and round and fat as young porpoises, to feed them to the dogs

seemed a shame, but they were the cheapest uncooked feed there. The supply is quite inexhaustible. I found everyone well supplied with wild meat. Caribou herds are not so numerous nor nearly so big as on the west side of the Yukon river. But the abundance of the fish, which can be readily caught under the ice if a supply has not been laid in, and its altogether superior quality, makes up for the scantiness of caribou.

Supplies in the district this year were even more than ample. I found warehouses filled, warm storage houses well stocked, and no complaint anywhere of inability to get needed articles. This was not always so on the upper Stewart, and is here recorded as indicating a permanent advance in living conditions.

The gold of Haggert creek is the best in the country, going \$17.48 to the ounce.

SOUTHERN YUKON

By E. J. WHITE, Publisher and Editor of the Whitehorse Star.

BY the expression "Southern Yukon" is implied all that portion of the territory lying south of Yukon Crossing, the south half of the entire area of the Yukon territory. The whole of Southern Yukon does not contain a population to exceed from 1200 to 1500, and of this number fully three-fourths are residents of the extreme southern end and within fifty miles of the British Columbia line.

Whitehorse.

The town of Whitehorse with 1000 summer population and about 750 winter population is the metropolis of Southern Yukon. The town is located at the northern terminal of the White Pass & Yukon railway, and at the head of navigation on the Yukon

Mounted police; and the gateway to and outfitting point for six different mining districts, two placer and four quartz. Whitehorse also has an active board of trade.

Besides her heavy mercantile and outfitting industries, Whitehorse is the home of the British Yukon Navigation company's shipbuilding industries, which employs nearly 200 skilled mechanics during the summer. Many of the gold dredges in operation at points along the Yukon and tributaries were constructed at the B. Y. N. shipyards in Whitehorse.

Early during the present year a trail was constructed and opened clear through from Whitehorse to the head of White river where vast mineral deposits have been discovered and where

Among the heaviest operators on Livingstone creek are the Livingstone Creek Syndicate, the Seattle-Livingstone company, Dan G. Snure, J. E. Peters, Chestnut & Peters, Wood & Ameroux and M. J. Hoernal. Livingstone has a monthly mail service during the winter months from Whitehorse and a much more frequent service in the summer. She also has telegraphic service with the outside world.

Kluane Placer Mining District.

The Kluane placer mining district lies westward from Whitehorse about 125 miles. This district was discovered and staked in 1902 and has been the scene of active operations ever since, the principal creeks being Ruby, Dixie, Fourth of July, Bullion, Burwash,



Whitehorse, Y. T.

river. By the river route, Whitehorse is about 425 miles from Dawson, and by the overland winter mail route it is distant from Dawson 323 miles. The town of Whitehorse is located just one mile below the famous Whitehorse rapids and three miles below Miles canyon, the two constituting the grandest and most sublime scenery in the entire north-land.

The town of Whitehorse was founded in 1900 when the railroad was completed to that place from Bennett, 70 miles to the southward. The town is substantially built on the most ideal townsite of the broad white north. It is endowed with all modern facilities in the way of churches and schools, is the seat of customs for Southern Yukon and Northern British Columbia; is the central location of "H" Division, Royal Northwest

the international boundary survey corps of both Canada and the United States have been operating for the past two years and where they will probably complete their duties during the present season.

MINING INDUSTRIES OF SOUTHERN YUKON. Big Salmon District.

The oldest and most extensively worked placer mining district of Southern Yukon and tributary to Whitehorse is the Big Salmon, which was discovered and staked in 1899 and which has been worked with most gratifying results ever since. The principal creek in the Big Salmon district is Livingstone which, while never employing to exceed 50 men, has annually yielded from \$50,000 to \$65,000 worth of gold for nine years and it is estimated that the output of the present year will be fully \$100,000.

Sheep and Arch. New life was given the Kluane district a few months ago by the discovery on Burwash creek of the paystreak which has been traced practically the entire length of the creek. It is sixty feet wide and from seven to nine feet in depth. Thirty men are at work on Burwash and it is confidently predicted that the creek will yield more this season than the entire district has produced during all the former years it has been worked. The Dominion government is advertising for bids for a regular mail service to Kluane from Whitehorse. A new trail constructed from Marshall creek to Lake Kluane has reduced the cost of freighting supplies from Whitehorse to Burwash creek from 30 cents to 12 cents per pound. From Burwash on to the White river country travel is now easy. A cable ferry has been constructed over the Donjek river, the work of the Whitehorse

board of trade. The road from Whitehorse to Klauane was constructed by the government at a cost of nearly \$50,000 and is in good condition winter and summer.

Whitehorse Copper Belt.

Mining experts and engineers have pronounced the Whitehorse copper belt to be the most gigantic mineral deposit on the American continent. The belt is from two to three miles wide and about fourteen miles in length, the trend being from north to south. The nearest point from the town is not to exceed three miles. Among the most prominent and most extensively developed of the copper properties are the Pueblo, Copper King, War Eagle, Anaconda, Rabbit's Foot, Carlisle, Empress of India, Spring Creek, Best Chance, Grafters, Arctic Chief, Polar Group, Valerie and Josephine. Dozens of other properties have been sufficiently developed to demonstrate their great wealth. Among the heaviest copper property owners in the Whitehorse belt are Byron White of Spokane, War Eagle company of Spokane, Col. W. S. Thomas of Harrisburg, Pa., Arctic Chief company of Spokane and Victoria, A. B. Palmer of Vancouver, Whitney & Pedlar, Robert Lowe, Dixon & Johnston, Louis Belney and dozens of others of Whitehorse. Several thousand tons of ore have been shipped from each of several mines, namely, the Copper King, Grafters, Arctic Chief and Carlisle, and shipping would be going on at the present time but for the persistent low price of copper. The general run of the mines from which ore was shipped was from 5 to 12 per cent. copper with a little gold. Ore from the Carlisle mine went as high as 42 per cent. copper.

Last season the White Pass Railway company started a spur of its road along the copper belt but owing to the depression in the copper market discontinued work when eight miles of the road had been completed, leaving six miles uncompleted. It is understood, however, that the work will be resumed this summer and the road completed the entire length of the copper belt. At a cost of approximately a quarter of a million dollars the railroad company erected ore bunkers at Skagway last season for the accommodation of ore from the mines of Southern Yukon and that it is to the interest of the railway company to foster the mining industry of Yukon goes without saying.

With her vast stores of hidden wealth, Southern Yukon has as yet been but superficially prospected, and with reasonable transportation charges, this God-favored section of the Northland is destined to become paramount to any mining country on the continent.

Windy Arm (Conrad) Quartz District

THE names of Bennett, Caribou Crossing and Little Windy Arm, are doubtless familiar to many of those who joined the rush to the Klondike. The names of these places are perhaps associated in their minds with the vicissitudes and initial hardships of those argonauts who in early days endeavored to wrest from the Goddess of Gold her treasures, the while her syren voice lured them to the Great Essay. Memories of wrecked scows, broken sleds, frost bites and hardship, may serve to render more vivid the experience of those who passed through the narrow neck of Nares lake known as Caribou Crossing. He who fled by the mouth of "Little Windy" in the teeth of a gale with wind and wave urging him to disaster upon her rocky shore, may

surely be pardoned, if, while speeding onward to Klondike, he was unconscious of the fact that at his very elbow he was leaving untouched treasure caves, the contents of any one of which, would have made him richer than a Klondike king.

The first permanent locations in the Windy Arm mineral belt, were made by the three pioneer prospectors Josephus Stewart, John M. Pooley and Ira Petty. The claims known as the Montana, the Mountain Hero, the Uranus, and the Venus were located on dates ranging from July 1899 till September 1901. On the latter date was staked and recorded the banner mine of the district, the Venus, now owned and operated by a company of Conrad city. At this early date, lack of funds, that bete noir of the prospector, precluded any greater development other than that amount of preliminary work incidental to the opening up of a mining property, which is commensurate with the painstaking efforts of prospectors who pack supplies on their backs and ore in a rawhide.

In May, 1905, these properties

The ore of the Venus mine is chiefly argentiferous galena and averages about \$30 per ton in gold and silver. Several shipments of concentrates have already been made with satisfactory results, and the mine even in this early stage of its development, is conducted on a fully paying basis. The vein has 2200 feet of development work done upon it, and has been opened up a distance of 5000 feet along the surface.

Located in 1904, and adjoining the Venus, is the Humber Group, the lead in which carries a large quantity of argentite, ruby silver, stephanite, as well as native silver, galena and pyrite. Some very rich ruby silver has been found on the "Ruby Silver" claim which adjoins the "Venus No. 2," and owned by Carcross people.

Perhaps the best showing of any mine on the Windy Arm belt, is in the "Big Thing" mine, which has apparently well justified its title. It is situated some five miles from Carcross. Toronto capital is opening up the property. This mine differs from all other properties on the belt, in that it is in granite formation. The ore is chief-

and associates prospecting some twenty miles west of Robinson, located the property known as the Union mines. A railroad magnate of Virginia became interested in the property and several shipments of ore have been made with good results. The next locations were made by Laura Hill and Robert Clegg, followed by Jno. Mack in the employ of a mining company of New York city. In June 1906, prospectors named "Scotty" Morrisson, Dave Hodnett and Jack Stagar, made very promising discoveries on what are now known as Hodnett Mountain and Gold Hill. They arrived in Carcross bringing with them numerous samples of free-milling gold. A stampede immediately ensued. Under the guidance of "Scotty" Morrisson and headed by prominent citizens a little army of would-be millionaires streamed into the Wheaton and recorded over four hundred claims. Since that time, however, extensive work has been done on several of the properties, and last year one hundred and thirty-two claims were represented and renewed. On the Gold Hill there is a tunnel



ON THE WAY TO THE GOLD FIELDS--THE HALT AT LAKE BENNETT

were bonded and the first material advance was effected. In the following year Toronto capital became interested in this and kindred undertakings, and during the last three years, in the acquiring of claims and development work, the associates have expended upwards of one million dollars. An aerial tram has been constructed from the company's wharf on Windy Arm to the Montana Group, a distance of four and a quarter miles, and costing in the neighborhood of \$100,000. One of its spans crossing an intervening valley, is said to be the second longest in the world. There is also a short tram to the Venus mine, and a third tram has been commenced to the Vault mine, which when completed will have cost some \$12,000.

Apropos of trams, negotiations have been opened with an aerial tramway company anent the construction of an aerial tram across the Chilcoot summit to Lake Lindeman, which, when operating in connection with the water route to the interior, will considerably lessen the cost of transportation from tidewater at Dyea to all parts of the Yukon and Atlin districts.

The company already has erected a concentrating plant costing \$50,000 and having a capacity of one hundred tons of ore per day of twenty-four hours. It is working one shift at the present time and putting through about sixty tons daily. The plant, when running at its full capacity, will give employment to about 80 men.

ly sedentary quartz and near the surface is very porous, the minerals being chiefly oxides and carbonates. The ore in the lower workings is sulphide. The vein is ten feet in width, E. & W. strike, with north pitch and averages \$25 per ton. The company, owing to the splendid showing, has under consideration the erection of an aerial tram from the mine to the mouth of MacDonald creek on the shore of Lake Bennett, distant about five miles.

The Watson and Wheaton Rivers

AS early as 1893, prospectors from Juneau crossed the Chilcoot and prospected around the shores of Lake Bennett, eventually reaching the valleys of the Wheaton and Watson rivers. They made several locations, and as their old notices will show, they believed themselves to be in British Columbia. They took samples of ore back with them to Juneau, which assayed very highly. Owing to the distance from their then base of supplies, very little was done, and their locations were unrecorded. At the present time these districts are accessible from Carcross by way of the Wheaton river or from Robinson station on the White Pass & Yukon railway a distance of about twenty miles in either instance.

In August 1903, William Schnabel

111 feet in length; on the Buffalo Hump, one of 87 feet; on the Silver King 60 feet; and one of 50 feet on the Whirlwind and one of the same length on the Nevada. The ore in both the districts is gold and silver bearing with lead in combination. There are no copper claims, nor is there any placer ground in either district. Perhaps the most extensive work is on the "Tally Ho" Group owned by five local miners. They have built about three miles of trail of which one mile is a wagon road. They have driven a tunnel close to 300 feet and have made several shipments of ore which, after paying smelter and transportation charges, netted them \$54 a ton. Contracts have been let for several hundred feet on the Gold Hill Group, work on which has already been commenced. On Carbon Hill, Chicago capital is interested and is inaugurating large development work for the coming season.

In a brief sketch such as this but little mention can be made of the many favorable features which would doubtless commend to the mining operator the quartz camps of Southern Yukon. Suffice it to say, that such natural advantages as fuel, fish, game and a magnificent climate, leave no defect, at the existence of which one might cavil.

With the introduction of capital, and the resulting increase in facilities for the handling and transporting of its output, the future of the Southern Yukon quartz camps should be assured.

GAME IN THE YUKON

By JACK LEE, Nine Years Exclusively a Hunter in the Yukon

IN the vicinity of Dawson, the vicinity of all others, in this Northland that has been most persistently hunted there is and has been during the last winter within fifty miles to the west of Dawson (or much nearer than ever caribou have been killed for the Klondike market) the near edge of a herd of caribou that has been estimated by several parties, who travelled through it, to contain more than one million head, and, most extraordinary to relate, there isn't one white hunter disturbing their serenity. The remarks of a party of men who came down the White river in a canoe when this herd was crossing that stream, and of George Black, Yukon Councilman, and a leading Dawson lawyer, will be interesting and instructive. He said:

"For forty miles we were running through one continuous mass of caribou. The narrow valley and high bald mountains on either side, all the way swarmed with the animals. Never before did I have the slightest idea of what a herd of caribou signifies until while on that trip up the Sixty-mile river, I saw where the lower part of the great herd had crossed. About every hundred yards up to where I turned back or for fully ten

habitants of the North. One of the many Mackenzie herds of caribou is described photographically and otherwise by J. B. Tyrrell, Dominion Land Surveyor, in his book, "Across the Sub-Arctics." The photographs of Mackenzie caribou that Mr. Tyrrell had hanging in his office when stationed in Dawson are worth travelling many sleeps to see.

With regard to moose, it is also incontrovertible that except along active mining creeks, this noble beast is as numerous, all over this vast land, as ever before, all pipe dreams and brain storms to the contrary notwithstanding. Even in the unpretentious Klondike watershed, where ninety per cent. of all Yukon moose hunting has been done, moose are now more plentiful than they have been for the last eight years. They are very prolific. Cows with two calves are in the majority. So long as beef can be had in Dawson for less than twenty cents per pound, by the side, no white hunters will outfit at a cost of eight to ten hundred dollars for each two men for the winter to supply a demand that would scarcely pay the freight on possible killings. Klondike hunters have to be sure of twenty-five cents per pound for all they can kill

each year salmon in unbelievable numbers are in every accessible stream to a distance of twenty-five hundred miles from salt water. The greyling retire each fall to the deep waters of the large rivers, and return to the small streams after the ice breaks up in spring. They afford a luscious bite to the hundreds of prospectors who would otherwise be compelled to kill big game animals, or live on a piece de resistance bacon and beans.

Big game is not nor ever has been wantonly slaughtered in any part of this country, and from my nine years' experience in the upper Klondike country in continuous touch with all regular hunters and trappers, I never have actually known nor heard from any trustworthy or first handed source of even one game animal being left where shot. No one, travelling or prospecting away in the hills, kills more game than is needed for food, or has ammunition at \$7.50 per hundred rounds to waste; and as the Yukon game laws provide against killing and leaving game in the woods by a fine of five hundred dollars, and imprisonment, and a case has never yet been prosecuted, I cannot conceive how, where, or by the imbibing of what brand, the originators of these hallu-

high mountains in great numbers. The ruffed grouse are plentiful all over the timbered parts of the North, which means four-fifths of the entire country. The spruce grouse and pin-tailed grouse are also plentiful in the timbered parts. The pintail resorts mostly to the timber line on the high hills.

The migratory game birds—ducks, geese, sandhill cranes, swan and snipe—"of all the kinds that are known to migrate north," and many kinds of song birds, including the American robin and blackbird—pass through the Klondike district, on their way farther North, by the millions, during the first part of May each year. They commence going south again early in August. Some of all species of the song birds, summer and rear their young with us in the Klondike, but the great flight of waterfowls proceeds farther north and northwest to more marshy and lake-like regions.

The main, or greater, spring migration lasts only eight or ten days. The fall migration south is of some six weeks' duration. So it can be seen that the extreme northern scatter-gun nimrod is time limited by providence and nature.

The closed season for game in the



383 Ducks and 1 Goose, Ten Mornings' Flight Shoot by One Gun, Thirty Miles From Dawson
A Yukon Caribou Hunter in Winter.

Returning to Camp with the Spoils.

Bear Skin Nine Feet Long, Killed by Jack Lee, the Writer.
Klondike Moose Hunter in Winter.

miles there were trails a foot deep, cut freshly into the soil, and between those trails it was, without exaggeration, impossible to put down my hat and not cover several hoof prints in the inch or so of snow that then covered the ground. How far more this condition extended up the valley I do not know. Unfortunately the herd, with the exception of some stragglers, had passed, and I missed the sight of my life."

When it is incontrovertible that this White river herd is only the smallest one of the three herds that range within the Yukon Territory—containing only two hundred thousand square miles—the Peel river herd, and Pelly river herd being the other two; and when it is considered that four thousand caribou would easily cover the number killed in this territory since white men first came in here, I will ask the reader to contemplate what detrimental effect, allowing for natural propagation and decreased financial interest in hunting, can such insignificant losses have on such hordes of animals.

The great Mackenzie watershed, of approximately one and a half million square miles, also teems with caribou and all the kinds of game that are

before they will go seventy-five to one hundred and twenty-five miles into the hills, where big killings are certain, and pay eight to ten cents per pound to have the meat hauled to Dawson.

Mountain sheep of at least two species are plentiful on all the interior high ranges, and are perfectly safe from all serious harm, except that inflicted on them by their old and natural enemy, the eagle. The expense of hunting sheep on these ranges places the sport beyond any but those who control the strings of long, full money bags.

Bears of all kinds are simply a pest to prospectors and others in the hills. They continually destroy caches of provisions depended on for future requirements. They break into cabins while the owners are away, and leave destruction behind on all occasions. I have had three invaluable caches of provisions, one hundred miles from a grocery store, pulled off scaffolds in the trees by these marauders, and very little left that could afterwards be utilized.

All streams in this Northland are plentifully stocked with greyling. The large rivers and lakes teem with whitefish and great sized trout. And during July, August and September of

cinations find their inspirations.

To conclude, the extermination of the buffalo, so much harped on, cannot in any way be used as a comparison. When dealing with the big game of the Northwest, the buffalo hide had a high market value, and his range was dotted up and down and closely surrounded by populated districts. It was cut up by several railroads and wagon trails, and any part of it was accessible in a short time from some market. But for his hide he would be plentiful today, providing he could stand civilization, consequently, as he was valuable and at the mercy of anyone who cared to go after him, he did not last long.

Not so with the big game of the Yukon and the sub-Arctic. Their hides have no market value, and there are millions of square miles where millions of big game exist. Access means elaborate preparation, and months of heart-breaking travel and toil, and there being no incentive to kill but for food, I am compelled to declare that I, for one, cannot see far enough into the future to be alarmed at the fate of the big game of the Far North.

Our local small game comprises a few species. The ptarmigan, several species of which are here, resort to the

Yukon follows:

Buffalo or Bison—The whole year.

Musk-ox, Elk or Wapiti, Moose, Caribou, Deer, Mountain Sheep or Mountain Goats—Between the 1st of March and 1st of September.

Grouse, Partridge, Pheasants, Ptarmigan and Prairie Chicken—Between 15th March and 1st of September.

Wild Swans, Wild Ducks, Wild Geese, Snipe, Sand-pipers or Cranes—Between the 1st of June and 10th of August.

Except as provided in respect to special cases no person shall have the right to kill during the open season more than two elk or wapiti, two moose, two musk-oxen, six deer, six caribou, two mountain sheep and two mountain goats. No females shall be killed at any time.

No person who is not a resident of the Territory shall have the right to hunt, take, kill, shoot at or carry away any of the beasts and birds mentioned unless he has obtained a license from the Commissioner of the Territory, who shall have authority to issue permits for export of trophies. The license fee is \$100. Full details of game laws may be obtained in pamphlet form from the Territorial Secretary of Yukon.

Outlying Creeks Tributary to Dawson

What is Doing on Streams Which Pour a Wealth of Gold Into the Northern Metropolis.
(From Reports to Governor Henderson by Secretary Arnold F. George, of the Yukon Miners' & Merchants' Association.)

BY the courtesy of Commissioner Henderson the News is enabled to give its readers of this edition extensive extracts from a report made to him of outlying camps contributing to the business life of Dawson. Secretary Arnold F. George, of the Yukon Miners & Merchants association, in preparation for his lectures at the Alaska-Yukon fair, made a trip over these districts in the dead of the last winter gathering detailed information. The commissioner aided financially in making the trip possible for the association's secretary, hence the report to the commissioner, the main part he so kindly permits us to publish.

Much valuable information will be found herein for the stranger, and even to men who are not strangers to the country, and few of the latter could make such an extensive trip for themselves. Mr. George's journey covered nearly two thousand miles, and was made with dog team in a temperate running from fifty to seventy-two below. It begins with the Fortymile creeks on both sides of the boundary line, then the Sixtymile creeks were visited and are described, and it ends with a comprehensive report of the district which is generally known as the Upper Stewart. The reports are very full. Mr. George writes:

FORTY-MILE DISTRICT.

The American Fortymile is a very valuable asset, both to Dawson and to Yukon. It is more developed than our other distant placer districts, and is on a paying and profitable basis. Its importance and value to Yukon is indicated by the fact that nine-tenths of the work of the American recording office of the district, located on the Fortymile river at the mouth of Steel creek, is work done for Dawson people. Seventy-five per cent. of the receipts of that office are from Dawson people. In short, seventy-five per cent. of the ground owned or operated in that entire district is owned and operated by Dawson people.

The gold from the American Forty-mile all passes through Dawson, being checked through at the American customs house at the boundary on the Fortymile river at the junction of Moose. The checking is accepted by the Dominion authorities at Dawson. The profits of the district are almost wholly to Dawson people and concerns, and the district makes a large and profitable market. With the exception of the most distant creeks of the district, as Chicken, Dawson is looked upon by all as headquarters. Chicken and a few other headwater creeks are trying to make Eagle headquarters.

The gold production of the district for the last two years is as follows:

	No.	ounces.
	1907	1908
Wade	4112	3152 $\frac{1}{8}$
Chicken	2296	1620 $\frac{5}{8}$
Lost Chicken.....	330	210 $\frac{1}{4}$
Fortymile	324	729
Poker	296	356 $\frac{3}{4}$
Davis	293	211
Stonehouse	171	18 $\frac{1}{8}$
Woods	130	
Franklin	122	327
Eagle	54	62 $\frac{1}{2}$
Myers Fork.....	40	
Twin Fork.....	14	
Squaw	12	40
Canyon	8	
Last Chance.....		15
Flat		4 $\frac{3}{4}$
Nugget Gulch.....		8
Napoleon Creek.....		283
Totals	8202	7038 $\frac{1}{8}$

The apparent falling off in the production on Chicken came from the cessation of work, owing to the bonding of the entire creek for a sale which fell through. In the dead of winter I found the Fortymile district with an increased population of nearly forty people, and an increased activity promised a production for 1909 in advance of 1907. The distribution of the population of 181 miners I found as follows:

On Moose creek, 9; on Canyon, 8; on Walker's Fork, 8; at Steel creek, 22; Walker's Fork dredges, 13; Jack Wade creek, 46; Chicken creek, 30; jointly on Lost Chicken and Chicken, 24; Franklin Gulch, 6. A scattering fifteen, known to the recorder and others to be at various points, are not yet known by name, making the total of 181 in the country at midwinter. Reference to the gold output discloses

in 1908 a doubled output for the bars of the Forty-mile river proper. The spring arrivals for that work are not here enumerated, nor the regular summer additions to the workers on the dredges and other works.

The men named above are not tied to the creeks under which they are named, but move around, their headquarters only being where named.

The gold output for Walker's Fork is not given, there being but one concern operating there—the dredge—and the figures being regarded as private.

Canyon creek was being worked when the Klondike was struck, and with its tributary, Squaw, was practically deserted in favor of Dawson. Miller creek, over in the Sixtymile, and in Canadian territory, was long supposed to be in American territory, and was located and worked before the Klondike era. Gold was found in paying quantity over a large area now unworked, which is being held in large lots for speculation, and which is made particularly easy by the American laws, conceded by all the miners alike to be bad for the country.

BAR DIGGINGS.

The Fortymile river is an unfailing source of grubstakes for miners finding themselves short of funds owing to prospecting ventures. For a hundred miles the bars of the river yield readily to the rocker of the miner at low water, in many places yielding large returns. I found much preparation at many points for working these bars in the winter.

The river freezes down to the bottom. It is very shallow over these bars. Men were removing an average of a foot of ice which exposed the gravels of the bed of the river. These are thawed by fire in the usual way. When rich, the gravel is rocked then and there under cover of a tent, the water for the work being heated with a Yukon stove. When not so rich, the gravel is hoisted to the bank, and there washed when the water runs in the spring. I sampled much of the dirt thus exposed and found nothing less than five cents to the pan. I have reason for believing the reports that spots are yet found going a dollar and even better to the pan, and other spots are barren. The river bed supports a host of prospectors looking for good diggings. I met several such who worked on the bars for a month during the summer once a year and even once in two years, this, with the game, with which the country abounds, and the fish and berries, affording an excellent grubstake. The further preparations found for working these bars lend credibility to the report current, that as usual, men would be coming in from great distances in a little while to take out their regular grubstake. Much of this work is done after the coldest weather is over. I found men already on the ground for this purpose, several having come from the Tanana, and at least two from the Arctic slope. The dredges operating in the river—and there are three, with two more on Walker's Fork—have caused records to be entered for applications covering pretty much all of it. But no disposition is being displayed to interfere or hamper. The time-honored privilege of working the bars and river bed is not likely to be wrested from the miners, as the United States issues no title either to miners or dredging companies. As one consequence of the availability of this river to all comers, the community is composed of the most independent men in the North. Some have gone so far as to cease all effort beyond getting the yearly thirty-day grubstake, reinforced with game and wild berries and fish. The district has in it a number of characters who have lived thus for from five to fourteen years. There can be no privation in the district as long as these conditions prevail, and it will be many years before the operations of the dredges and bar miners make any appreciable difference. In any event the largest half of the river bed is too shallow for dredging, with only from a few inches to a few feet of gravel. Where there is insufficient water but sufficient gravel to pay, it has been suggested a system of flooding might be utilized by the dredges in order to attain sufficient depth.

In so vast a country, and so difficult of prospecting as is the Fortymile, the value of the river as a means of renewing grubstakes cannot be overestimated, and the writer took particular pains to disseminate information received from Washington declaring the river open to everyone, notwithstanding the formidable locations filed with the recorder—locations he is not empowered to refuse, no matter how lacking in value he may consider them to be.

Just how the river bed is regarded is seen in the fact that where locators, as John Elden, at the

mouth of Moose, have departed from the general custom of staking only down to the water's edge, and has staked across the stream, "snipers" to the number of five are by invitation rocking as if the ground were open.

Fifteen such snipers were due to arrive when I passed on the piece between Moose and Steele. Last year a "sniper" found a nugget on his grizzly too large to go through, which weighed 2 $\frac{1}{4}$ ounces. This on the free strip opposite Moose. Peter George, who died a couple of years ago in the Dawson hospitals, leaving a fortune in the neighborhood of \$15,000, was a sniper on the Fortymile, and did nothing else. At the mouth of Moose, John Elden has completed ditch work onto a bunch of claims, the four miles of ditch costing at least \$10,000, and every bit of it paid for, principally from working the bars thereabouts. Quite often this "snipping," or working unowned ground, is carried from the river up the creeks, and it is of record that three strangers came out of Moose creek after six weeks with a thousand dollars apiece, this a few seasons ago.

The Dominion boundary line is just below Moose, and one of the Davison dredges is below the boundary. It is working in the bank, not the river bed. It is known that for many years the bars immediately below that point yielded to the rockers more than four dollars a day in fine gold.

From four to a hundred dollars a day is the record of the rocking on Fortymile, the higher figures being reached in several localities where the bedrock has acted as the riffles in a flume. It should be explained that in the shallow river bed the gravels are constantly traveling, bringing gold along. In this way certain localities can be and are being worked year after year, and constantly yield gold.

I have dwelt this long on the river because in my opinion the Fortymile and Sixtymile countries are Yukon's most valuable outlying camps at present, and the Fortymile river is that camp's most valuable asset.

Particulars of the more important streams of the Fortymile district are as follows:

CANYON CREEK.

The creek is twelve or fourteen miles long, wholly on the American side. Ten miles of the creek is held by Dawson parties as a hydraulic and dredging proposition. There is a paystreak through most of it that pays to drift. Eight cent pans have been obtained for four feet. Six men are on the creek, or were there when I passed up and down.

SQUAW CREEK.

Fifteen men were working on Squaw creek. It is a tributary of Canyon, and was one of the very first creeks to be worked. It still produces good gold, right up to the ridge in which it leads. Adolph Skopenski, after sinking sixteen holes on No. 8, now gets as high as dollar and dollar and a half pans. Only discovery claim is worked out, and there is more virgin ground still left on the creek than is to be found on the famous Jack Wade. It heads with Wade, and the gold resembles Wade gold. The creek became depopulated owing to the Klondike rush.

JACK WADE CREEK.

Wade creek was the most extensively worked creek of the district the winter of 1908-9. It is fourteen miles from the mouth to the forks. Gold has been taken out for years. The workers have traced the pay down to near the mouth. I found dumps so close together—and as early as the holidays—as to touch in some places. From the forks up there is much fine gold which will pay to work when transportation gets lower. Methods of mining are rather primitive. Though thawing is done by steam most of the hoisting is still done by hand. More work is being done than for six years. On the Bower concession, near the mouth, Sven Carlson this winter found a nugget at the bottom of his shaft weighing \$59. Pat Slattery last summer on the benches of the "graveyard" claim operated a "jump-off" gate, and by this primitive means, with a limited supply of water, took out from \$30 to \$100 a day. This from the benches has raised high hopes for the creek when the creek paystreak shall have been worked out. The "graveyard" claim is a title coming from the fact that the true paystreak thereon was discovered accidentally through the burying there of the first man to die on the creek. The spot was chosen because thought worthless and far from possible molestation. Years afterwards the gravel from the grave was accidentally panned and yielded seven

dollars. The body was disinterred and buried somewhere else, and a shaft where was the grave quickly turned No. 5 into a famous claim.

In a general way it may be mentioned that on the ridge between Jack Wade and Squaw, a quartz lead crops out in plain view which is sixty feet wide.

When I was there, seventy-five men were working on the creek, with no one idle. Indeed it may be stated generally for the entire Fortymile and Sixtymile, that they only were idle who could resist many importunities to go to work. And they were few.

I found many laymen and others paying bills on the creek in gold dust, which is currency there. The general prosperity is further indicated by workmen and others preferring to pay \$90 a month at the road-houses rather than batch. Claims are twenty acres, and there is much ground yet to be worked, with nearly all the benches yet untouched. This creek in 1898 was almost as unsatisfactory as is Black Hills today, with many then declaring there to be no continuous paystreak down the creek.

CHICKEN CREEK.

Chicken creek has been a heavy producer for many years, but has fallen away as has been stated. Notwithstanding the stoppage of much of the work by bonding for selling, it is still the center of a considerable population. It is an extraordinary creek, being but five miles long, and widening out into an immense basin in the middle like a great empty lake.

John Weeden, on Last Chance, a tributary, was preparing for more hydraulicking the coming summer.

Myers Fork is shallow summer ground and produces every year. The owners are prospecting, and laying out their summer campaign.

Stonehouse is another good tributary. It produces gold from the benches on both sides. The men there are married, have fine quarters and are independent of the whole world.

Coal creek has a little gold on its benches.

Chicken creek proper shows gold on both benches wherever opened, though owing to the immense width but little work has yet been done. On the left limit the gold in great quantity has been traced and worked up the bench clear over the divide onto the next creek, which was thereby discovered, and named Lost Chicken. The two Chickens are now mostly worked in the summer. Lost Chicken has very rich ground located. Fortunes have been taken out, and fortunes remain to be taken out. Owing to the shortness of the creek, the water is a very serious problem there. Various schemes are afoot to remedy this. An important scheme is from Dawson, some of our business men having financed the beginnings of a scheme for bringing water down from the Ketchumstock, at a height and in volume enough to clean up the two Chicken creeks and benches, and also the known valuable benches on the main river. Several miles of ditch and a big dam have been constructed.

INGLE CREEK.

Ingle comes into the Fortymile six miles above Chicken. It is only five miles long, but had seven outfits of men working there, who work both winter and summer. The gold I was shown was in quantity, and of excellent quality. G. C. St. Florens is estimated a very wealthy man.

SOUTH FORK AND TRIBUTARIES.

The South Fork now divides off into many great tributaries but very slightly known. Mosquito Fork is 125 miles long, and a superficial examination, which is all it has yet received, shows more or less gold all along. It heads against the Tanana, and has immense flats of gravel five and ten miles wide.

The Dennison Fork enters the South Fork and is also 125 miles long. Nothing at all is known excepting that where the benches at the mouth have been investigated they have yielded gold.

Moose is a tributary of Mosquito twenty miles from the mouth, is about eight or nine miles long, and shows gold everywhere.

Ketchumstock is another tributary of the South Fork of the Fortymile. The Ketchumstock tribe of Indians have their encampment at the mouth, hence the name. The stream is about thirty-five miles long, shows gold everywhere, and heads in the most extensive of gravel beds fifty miles across the immense flats of the Tanana slope.

In connection with these comparatively unknown tributaries it remains to be said that trails were well beaten all winter with parties of stakers and prospectors, lending color to the claim of the Chicken creek people that there are no less than 200 people in that neighborhood. The most extravagant anticipations are indulged in as to the future of that unknown region, and vast areas are being held, principally with the financial aid of Dawsonites. The claims are twenty acres, with eight of these held as an "Association" claim, and but work to the amount

of \$100 required on this association claim. These association claims in turn are held in bunches, while, owing to the remoteness of the region, even this poor excuse of representation is easily avoided altogether by restaking, or cut down to zero by a little shoveling in the snow. However, there is no crowding at the present time to make these conditions serious.

BURNING COAL BEDS.

On the divide between the two Chickens I found the coal beds with which those streams are partially underlaid, to be burning. Notwithstanding the extremely low temperature at the time I was there, the ground was so hot from these subterranean fires as to burn the feet in places. I saw one man whose moccasins had been destroyed in this manner. This coal on Chicken creek is found in places and coal seams and stringers in others. Both the gravel and stringers carry gold. In fact, the richest pans the creek has shown have been accompanied by coal, or been picked out of the coal seams. Coal is picked from the tailing piles in summer to sharpen picks or to be mixed with wood and used for fuel under boilers. I found this gravel coal in stores being used in the stoves.

On the other limit of the South Fork is Walker's Fork, now practically given over to dredging, though some claims are held near the mouth. The black sand here shows curiously. Forty-two ounces yielded \$11 in gold which could not be found by panning, and thirty-one ounces of magnetic iron ore.

NAPOLEON.

Napoleon was a non-producer, having fallen into the hands of the N. A. T. & T. company. Last year a lay was given and the ground proved very rich. The layman with one man in a short time washed out 283 ounces. It heads with Jack Wade. It was

work filings were made at the American recording office while I was there.

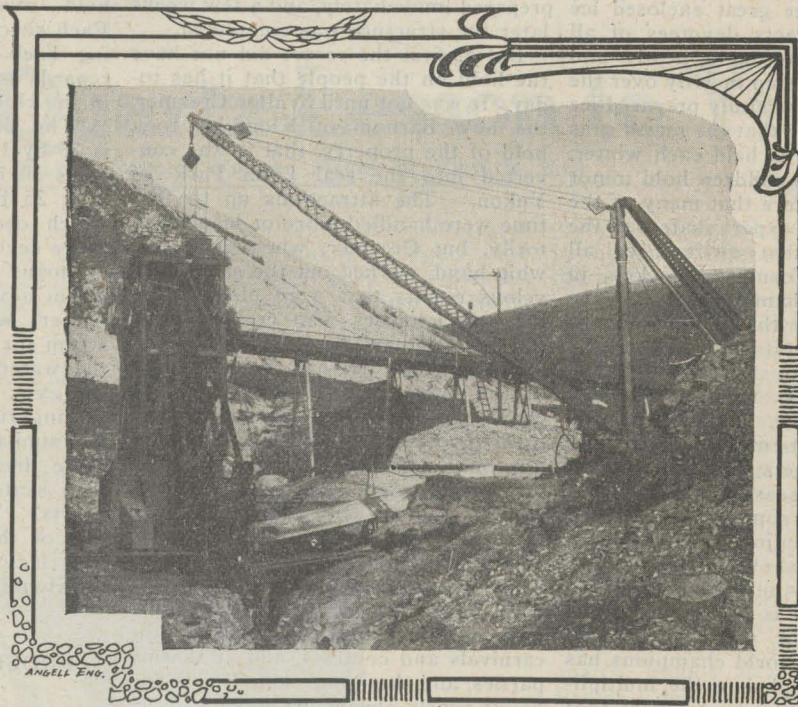
ACCESSIBILITY.

The region is hard to enter, freights are high and distances great. I cannot do better on this matter than to briefly quote U. S. Geological Survey Bulletin 345, of 1907:

"Transportation to the creeks of Fortymile region has always been difficult, and the situation has been rendered more complex by the presence of the international boundary with its attendant customs regulations. Most of the supplies are purchased in Dawson, Yukon Territory, and freighted up Fortymile creek on the ice by horse sleighs during the winter months. About 400 tons was shipped by this method (in 1907) for the dredge on Walker's Fork, and a hundred tons for the dredge below Franklin creek. The freight rate from Fortymile Post to the latter locality was \$70 per ton in 1907. Summer freighting on Fortymile creek is done by polling boat. It is a difficult stream to navigate, and boat loads of material are frequently lost or long delayed by low water. The rates from Fortymile to the farthest locality, Chicken creek, are about 25 cents per pound. Cattle are frequently driven overland on the wagon road from Dawson to Glacier, a distance of sixty miles, and thence to the various creeks on the Alaska side, where they are sold."

DREDGES.

Four modern dredges and a dipper dredge were found in the Fortymile and its tributaries. The dipper dredge was on Pump bar, below the mouth of Franklin gulch, and is understood to have been discontinued. All the others were found piling up wood for the summer campaign. One of the dredges is on the Canadian side of the boundary, and has a capacity of 3000 yards per day. The one above the boundary has a capacity of 1500 cubic yards. The



Electrical Elevator on Bonanza.

—Photo by Doody.

at one time regarded highly, and is expected now to make good.

THE FORKS.

Russell King, the dredge man, has taken an option on the South Fork. His prospecting forces began work on the ground this spring.

The North Fork is but very little known. Few have been up there. It heads against the Tanana, and wherever prospected at all has shown gold. Montana, Confederate, Fish, Gold Run, Wilson and Bear are a few of the hundred sub-creeks there awaiting the prospector. The region is remote and difficult to get supplies into. Also it is on the way to nowhere, which accounts for its being so little known. It is of record that John Meeklin got coarse gold and a nugget weighing \$42 from there. Only two or three men are known to be up there.

FRANKLIN.

This is the oldest gulch up the Fortymile, and is still a producer, and a money maker for those staying with it. The output last year, when a few men returned to the old standby, was increased nearly twice.

In the neighborhood of Chicken and Attwater the bars of the Fortymile have been very rich, yielding millions. They are still being worked, and large areas of the river valley are being newly bonded to proposing hydraulic and dredge companies.

Particulars were not obtainable of the fifty-three quartz locations on the American side at the head of the White. Twenty-six locations stand in the names of Dawson men, and another twenty assessment

other two dredges are on the upper end of Walker's Fork. Their capacity would be somewhere between the other two. The good work of the machine on the Canadian side was especially noticeable, the best of unfrozen ground having been encountered. It is current the work was particularly profitable which is the more easily believed in that the river at that point has for many years been a favorite resort for "snipers."

Regarding the U. S. government road to the Fortymile river from Eagle, it remains to be said the road was designed for the purpose of diverting valuable trade from Dawson to Eagle. But the distance is greater, two summits have to be crossed, and it is the opinion of all the Fortymilers excepting a few at Chicken that the money spent is practically wasted. During the winter, while many hundreds of tons from Dawson, Fortymile Post and even Whitehorse were being delivered in the district, a single freighter from Eagle was spending weeks and spending several times the value of his load, in shoveling a way through the snow on those Eagle summits. The conditions appear to be these, and the same would likely prevail were there a road built along the benches of the Fortymile river, even without summits to climb or snow to surmount. In the winter time teamsters would quite naturally prefer the level ice of the river, and in the summer time no teamster could begin to compete with the polling boats which deliver freight as high up as Chicken creek. In short, the geographical position is such, nothing can happen to take from Dawson any considerable share of the trade and profits of that region.

YUKON'S GREAT AMUSEMENT PLACE

LUNA PARK OF THE GOLD METROPOLIS—DAWSON'S AMATEUR ATHLETIC CLUB

Fascinating Story of How People, with Aid of Walter Creamer's Genius, have Unceasing Round of Pleasure

WHAT is there in Dawson to help one wear through the long winters? Is there any diversion, any sport, any resort of amusement? Well, rather.

Under one mammoth roof, virtually a part of the municipality and as notable a branch of the Yukon public affairs as the Capitol building or any portion of the government, is the Dawson Amateur Athletic Club. This institution numbers among its supporters and its adherents almost every man, woman and child of Dawson, and many who live on the gold creeks surrounding the city within a radius of three score miles.

Not only is this club the center of social life and amusement in winter, but also in summer; and, in fact, in every portion of the year it has a firm hold on the public attention. It is here that in winter the great enclosed ice skating rink attracts devotees of all ages, who, making up a neatly and gaily clad throng spin merrily over the long stretches of carefully prepared ice surfaces; it is here that the mardi gras of the Northland is held each winter, and here that the children hold minor carnivals. It is here that many of the swiftest and most expert skaters of the world join in that swiftest of all human physical contests, hockey, in disputing the championship of the North. It is here that in the summer the mammoth natatorium, one of the most elaborate on the continent, is made the city's most patronized amusement center, and where the scores of expert men, women and children swimmers gather several times during the season in magnificent water carnivals, something as much patronized and enjoyed here as are the great horse shows of New York or the flower fetes in the sunny climes of the South. It is in this capacious pavilion also that many an athletic contest between world champions has been held, and added to the multiplicity of diversions under its vast roof must be enumerated the fashionable dances held in the large hall, and the receptions, bazaars and banquets held in the resplendent parlors. In one portion is an excellent club room with billiards, reading room and other comforts of life, including a buffet, and attached is a large gymnasium and hand ball room, with shower baths. And last, but not least to be enumerated, is the home of the Dawson Curling Club, the second largest club of the kind in the world, and the club which turns out more high grade curling experts than any other club on earth. Being added to these are four large bowling alleys, and the curling capacity is being doubled this year.

The entire athletic club building covers an area of 100 by 200 feet, and the front portion, where the social rooms are located, is three stories high. The new curling space will cover an additional ground space almost as large as that now occupied, and Dawson promises to have more curlers per capita than any other city on the globe.

The entire premises of the Dawson Amateur Athletic Club are lighted by electricity, and the many rooms heated with steam. Every modern convenience is afforded in the club, and any metropolis of America will do well to show as great a variety of amusements and conveniences on as large a scale under one roof.

The D. A. A.—as it is known locally—is the luna park of Dawson. It is here that all classes meet in common chase after fleeting hours of pleasure, and the needful recreation which mankind craves and especially must have in this land where winters are long and the outdoor diversions necessarily limited. It is to Clement B. Burns that the credit is due of having conceived and promulgated the idea of such an institution in Dawson. Mr. Burns, the present territorial and federal secretary in Yukon Territory, on his arrival here in 1902, perceived at once the need of such a resort. With the loyal support of a few Klondikers, he soon had the matter crystallized, and the movement under way. The \$45,000 needed to defray the cost of erection and first installations was pledged in a month. The plans were prepared immediately, and a few weeks later the structure was completed.

But at first the resort did not have the hold on the people that it has today. It was not until Walter Creamer, the now Barnum of Klondike, took hold of the property, that it was converted into the real Luna Park of Yukon. The attractions up to that time were handled more or less desultorily, but Creamer, when given the whip hand, worked out the same marvelous results that were obtained by the two geniuses who created Luna Park. Creamer asked for a chance to throw himself. He had the confidence of the management, and he got the chance. No one of the management regrets it. Creamer has made the place not only a financial success instead of a losing proposition, but has defrayed the expense of many additional features, and has made everyone in Dawson feel that he or she has a personal interest in the place. Concerts with brass band and orchestra are given in connection with many of the carnivals and contests, and at skating parties, and the immense galleries and boxes nearly always are filled.

Men with the peculiar intuition, foresight, and all round ability to please the public and make all feel happy while carrying the weight of heavy financial undertaking in such a venture as this are few throughout the world. But Creamer is a genius of just this kind, and Yukon is fortunate in having him here. Should he ever enter any other field in such work it would be Dawson's loss, but a great gain to the other community, be it anywhere from Gotham to Melbourne.

Mr. Burns, founder of the club, writing modestly of the institution, at request of the editor, says:

"In the summer of 1902 a number of gentlemen met in the Gold Commissioner's office of the Government Building in Dawson and formed the Dawson Amateur Athletic Association. They were ten in number. Since that time the association proper has grown to a membership of 165. The original idea of the association was to erect a club house, skating and curling rinks, gymnasium, reading and writing rooms, card rooms and baths. All these portions of the scheme have been carried out, and in addition there have been installed a billiard room, with English and American tables, a buffet bar and a splendid swimming tank for use in summer. A further feature which is in contemplation is that of bowling alleys, which are to be built during the present summer.

The whole building, with its various branches of sport and recreation, comprises an institution, which, in the opinion of the majority, outclasses anything of its kind north of Seattle.

"The building occupied by the association cost \$45,000, and has conferred a distinct benefit on the town. It is safe to say that without it Dawson would be a remarkably quiet town, especially in winter, as the 'D Three A's' is certainly the centre of social life during that period of the year. Skating carnivals for adults and children, hockey matches, curling bonspiels, smoking concerts and dances follow each other in quick succession. Then, too, the members occasionally suspend that ironclad rule against permitting ladies in the club rooms, for several times during the winter they throw open their doors to the fair sex and hold most enjoyable 'At Homes.' Each succeeding spring finds us looking back upon what every member regards as 'the most successful season in the club's history.'

"The skating rink of the D.A.A. is 75 by 175 feet; the two old curling rinks 30 by 150; and the swimming tank 26 by 70. In the natatorium, which occupies in summer the vast space devoted in the winter to curling, are many private dressing rooms, with steam heat for accommodation of the bathers when out of the water, and steam for keeping the temperature of the water equable. Connected with the gym, the curling department, the skating rink and all such are lockers and similar accommodations, and separate dressing rooms for the ladies who skate or indulge in the other sports. The resort on the whole is one of the boasts of Yukon, and a vast factor in the economic features of Klondike life."

PROSPEROUS VANCOUVER INDUSTRY.

Amongst the many flourishing industries which are to be found in Vancouver, none has made greater strides than the Vancouver Engineering Works, Ltd., and to those who have failed to appreciate the extraordinary development which has taken place in British Columbia in recent years, the existence of so modern and complete an engineering establishment may well cause some surprise. The plant comprises machine shop, iron foundry, boiler, pipe and blacksmith shops, pattern shop, warehouse, etc., and to these will shortly be added a steel foundry capable of turning out high-class steel castings up to five tons in weight. When it is mentioned that there is no steel foundry plant in Canada west of the Great Lakes, the importance of this development will be fully appreciated, and there can be no doubt, in view of the growing demand for steel in place of cast-iron, that there is a big future for this department of the Vancouver Engineering Works, Ltd.

While the variety of work handled by this company covers everything required for the sawmill, logging and mining industries, and manufacturing generally, it may be noted that special attention has always been given to the requirements of the mining industry, and rivetted steel pipe, hydraulic monitors, dump cars and gravity tramways are only a few of the lines in which this company may be said to specialize.

A recent achievement of the Van-

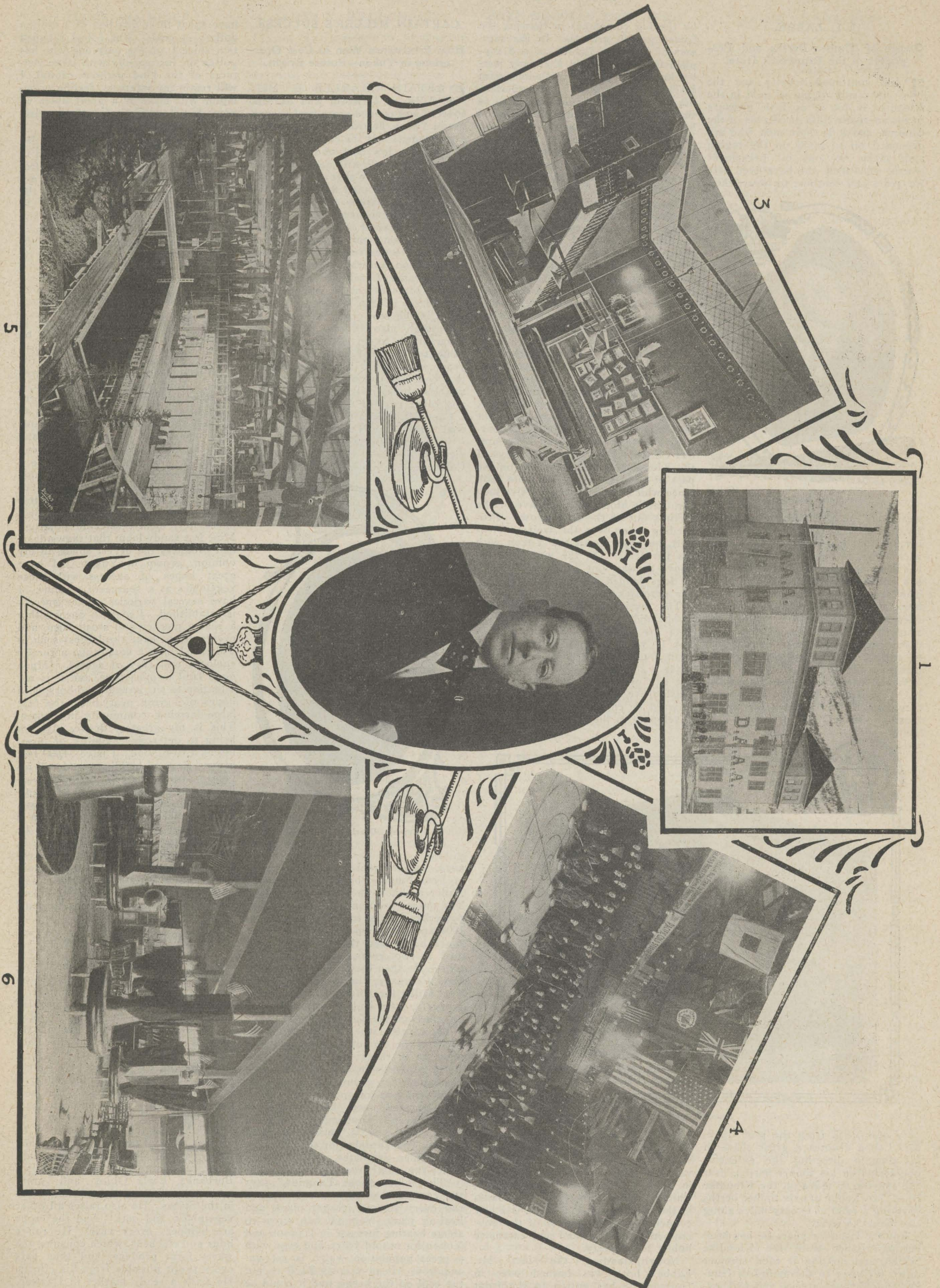
couver Engineering Works, Ltd., was the fitting of the steamer "Senator Jansen" (owned by the Fraser River Lumber Company, Ltd., of Millside, B. C.) with complete sternwheel engines and locomotive-type boiler. The engines are designed for a working pressure of no less than 200 lbs. per square inch, a pressure which has hitherto been employed only in railroad locomotive service and large ocean-going steamers. The placing of this modern steamer on the Fraser river caused great interest and it is a satisfaction to be able to state that she has developed a turn of speed which enables her to pass anything at present operating on that waterway.

In conclusion it may be stated that whilst the Vancouver Engineering Works, Ltd., has always made a specialty of mining plant, the interests of the other industries which are rapidly being developed in British Columbia have by no means been neglected. Logging engines, refuse burners, steel tanks, boilers of every description, transmission plant, castings of all sizes are only a few of the lines in which this company is doing a large and growing business, and to those who have to do with the manufacturing industries of the province, a visit to the works cannot fail to prove of the greatest interest.

PERCY SHARPLE, ARTIST

Of all the amateur artists who have worked in the North, none more deserves attention than Percy Sharpe, the designer of the cover page of this publication. Mr. Sharpe is a man still ascending the sunny slope of the twenties, and has before him a promising career. He is a native of the land beneath the southern cross, but since coming to America from the Antipodes he has gained most of his prominence as an artist. In British Columbia he tarried but a short time after landing from Australia, and shortly afterwards was in the Yukon. Here the spell of the North and the lure of the gold held him a prisoner to that enravishing hope which is the backbone of every persevering Klondiker. Sharpe has not faltered in his desire. He has not waited to see his brothers recover the fulsome poke by sweat of brow and crucifixion of the muscle while he has idled in artistic dreams, but he has taken the pick and the shovel, and has gone down into the bowels of the earth like every rugged miner of the Northland. Preferring artistic work to that of mining, he has taken for the time what has seemed most expedient and promising of quick returns, but he ever is called back to the pencil and the brush. He had instructions in the elements of artistic work in his native town, and with more experience he will be heard from at large. Mr. Sharpe has done a number of splendid sketches on moose and caribou skin and with charcoal and in water colors as well as with pen and ink. Yukon themes are his favorite, and his work has been quite the talk of Klondike this season.

WILLIE, a little country boy, six years of age, was taken one Sunday night to a large city church, where he saw for the first time a vested choir. To his mother's surprise and gratification, he not only kept wide awake, but seemed greatly interested in every part of the service. At its close he turned to her and said, "I like this church; it is so nice to watch the preacher when he comes out with all his wives in their night-gowns."



DAWSON AMATEUR ATHLETIC ASSOCIATION.

1. HOME OF THE DAWSON AMATEUR ATHLETIC ASSOCIATION. (Photo by Ellingsen). 2. WALTER CREAMER, Manager of Dawson Amateur Athletic Association. (Photo by Adams, Dawson.) 3. CORNER IN CLUB ROOM D. A. A. A. 4. CURLING BONSPIEL ON DAWSON RINKS. 5. NATATORIUM OF D. A. A. A. 6. RECEPTION ROOMS D. A. A. A.

J. L. LABBE.

Owner of Timber Berths and Proprietor of the Brunswick Hotel

THE continued activity and the unceasing output of gold in the Klondike is due in no little measure to the energetic class of citizens of the country, and it is these men who are depended on to build up the region and make it one of permanent worth. The men who have lived here for years and continue to invest their



J. L. Labbe

wealth are the class who make a country, and J. L. Labbe, owner of timber berths, and proprietor of the Brunswick hotel, is one of this type. He has been in Dawson since 1898, and has bucked hardships of every class. The success which is now attending him has been won by utmost perseverance, and he promises not only to continue to handle his present large holdings with every smile of fortune, but to enlarge his big operations as the camp advances.

While conducting the Brunswick hotel, which is at the corner of Queen Street and Third Avenue, in one of the most prominent places in the city,

by the big companies in thawing the frozen golden gravels. In the summer of 1907 Mr. Labbe cut and supplied the Yukon Gold Company, better known as the Guggenheims, with 5,000 cords of wood. The undertaking was one of the heaviest up to that time ever attempted in the wood business in the Yukon.

During the present year Mr. Labbe is getting out for the Dawson market 5,000 cords of finest spruce wood. Twenty or more men are at work on the timber limits, and will continue in his employ until the last stick of the great drive is run down the Klondike river, dragged ashore at Dawson or nearby and piled on the beach ready for the market. The cost of landing this immense drive in Dawson will run \$40,000.00 or more, and by the time it is placed on the Dawson market will bring half a hundred thousand or more. A large wood camp and messhouse are maintained on the limits.

While making his headquarters at the Brunswick, Mr. Labbe leaves the details of the work there to others, but is the real manager himself.

Mr. Labbe is a native of St. Luce, Quebec, where he first saw the light of day in 1862. He is one of the fearless adventurers who crossed the famous Chilkoot Pass in the rush days of the Klondike, and was present on the pass at the time the great slide took place which buried alive fifty-five men. Mr. Labbe alone shoveled five of the victims out of the deep snow. Proceeding later over the trail to Bennett, he came down the Yukon with his partners. On the way they cut above Stewart one of the finest rafts of logs landed at Dawson for lumber purposes.

The business experience of Mr. Labbe did not by any means begin with his coming to Yukon. When but 18 years of age he was in the grain business in Halifax. Later he made a stake of \$50,000 in the booming city of Duluth, and lost it in the crash there in the panic of 1893. Afterward he engaged in exploring and developing in the Rainy Lake district

CAPTAIN MILLER'S SUCCESS.

How Persistence Won in Coal Operations in Yukon—Future Bright.

CAPTAIN CHARLES E. MILLER, of Dawson, who has discovered and opened more coal properties in Yukon Territory than any other man, predicts that the country, as soon as adequate low cost of transporting coal is provided, will need no other fuel than coal. He says:

"The splendid coal deposits of this territory are assets of incalculable value. Having been raised in the great coal center of Pennsylvania, near Scranton, and managing for a time the Steetler coal mines, working 100 men on anthracite properties in Pennsylvania, I feel that I am qualified to some extent to judge of coal when I see it. An experience of nine years in the coal center of Harriman, Tennessee, also afforded me further observations as to coal, and when I came to Yukon I saw, after a few years spent here in other pursuits, that coal was one of the great opportunities here, just the same as in any other part of the world."

Capt. Miller located the Five Finger coal mines; the Tantalus mines and Tantalus Butte mines, all in the vicinity of Five Fingers. George Carmack, discoverer of gold on Bon-

have spent three-quarters of a million dollars in coal. But I feel satisfied that since I am the only one who has gotten on successfully with large ventures of the kind without capital, I will retain my interests, feeling population will make it a great asset in time, but I may exploit fields elsewhere meantime."

Capt. Miller is a true Yukoner. He has his family here. He was born in Mauchchunk, Pa., in 1856, and after living in that state and Tennessee until 1897, came to Dawson; built the Yukon sawmill here; later went to steamboating, running the Clara and the Reindeer, and after the burning of the Reindeer took to the coal exploitation in Yukon.

H. B. WELCH SUCCEEDS.

One of the marked successes in farming in Yukon has been made by H. B. Welch, of Minto. Coming north from Los Angeles in 1898 with the great stampede, he prospected three years. With grit, backbone, muscle, he took to farming, and has forty acres in crop this year, and plans to increase the acreage yearly. He finds oats, wheat and barley develop and ripen in most seasons without frost. He says: "Wheat may never be a source of revenue, but will be valuable feed for fowls and pigs. Western rye grass is best suited of any grass to this climate and soil. Not all land produces dry, mealy, saleable potatoes. Mine is a sandy loam that thaws deep, and produces the driest spuds, in my opinion, grown in Yukon. I have great hopes of success with these vegetables as a source of revenue. I have several varieties whose success is established. I plan to open within a year a poultry and stock farm, and eventually to have the largest such in Yukon. I have a vast range naturally enclosed and easy of access. Much good land is open here, and it is my intention to encourage neighbors, with hopes of having near here the first large farming community in Yukon. This is my greatest desire, my aim being to determine stability of farming as a livelihood. I have 34,000 feet ground floor of buildings, and will increase largely this year. I am preparing to make a thorough test of adaptability of small fruits to this climate. When the secret of wintering them is found bush fruits particularly can be made to pay. I am here to prove it, if possible. Time and innumerable experiments have shown me that certain things will pay, notably potatoes. The prolificness of vegetables in Yukon has for some time been established."

G. A. HATCH, FARMER.

G. A. Hatch, one of the most successful Yukon farmers, is situated on Hatch's island, in the Yukon river, a mile and a half above Dawson. He bought the island in 1901. It was heavily timbered with cottonwood. He planted his first potatoes in 1902. The product was sour and watery, and anything but inviting. He watched the seasons and planted under a little different conditions. The second and third year improvements were made, and so on from year to year. Mr. Hatch now produces 61 tons or more of potatoes a year. They have become acclimatized, and are large, mealy and delicious. He raises Burbanks, Early Ohios and other varieties, which equal anything raised in the States. He also raises all other vegetables, and oats. And the crops are bumper every year. He raises hogs and chickens, which consume the waste farm produce, and thus gets every profit possible from his efforts. He finds a ready market in Dawson. Mr. Hatch's goods are so well and favorably known that he is required to spend little or no time in marketing.



Captain Charles E. Miller
—Photo by Duclos.

anza, was the real discoverer of coal at Five Fingers, but it remained for Miller to know the value and locate. The outcrop was in plain view to any passerby. Miller took the property in 1900 and got it opened. After three years he located the Tantalus, operated it two years, taking out 4,000 tons. He then leased it to the White Pass Company, the present lessees. Next Miller located the Tantalus Butte property, two and a half miles up stream from the Tantalus.

The captain, when he had determined from the conditions that such coal must be in the vicinity, located the Butte property in five minutes after getting on the ground. To him the "blossom" was an open book. Many inexperienced men had sought it there, but not knowing the blossom when they saw it, missed a great thing. The Tantalus, or second mine, has, Miller estimates, 5,000,000 tons under the water line.

"The mines about Tantalus," says the captain, "contain enough coal to run every steamer, power plant, and heating plant, from kitchen stove to steam heating furnace, in Dawson and Yukon for untold years, and even with a great population which is yet unacquired. It now costs \$2.50 to put the coal on the barge, and it could be landed in Dawson with proper constant line of coal business throughout the season for \$5.00 a ton. Different companies in the Yukon, however,



Brunswick Hotel —Photo by Ellingsen.

only one block from the post office, Mr. Labbe devotes a great share of his time in directing the extensive operations on his timber berths, near the canyon, 60 miles up the Klondike river. Mr. Labbe has six timber berths covering a total of twenty miles along the Klondike river.

For the last four years he has been cutting timber from the Klondike berths, and floating it each summer down the river to the mouth of Hunter and Bonanza creeks, and to Dawson. He has supplied some of the largest contracts ever fulfilled in the Klondike. The wood is the finest grade of spruce, and is used largely

between Winnipeg and Port Arthur, extensive tracts of mineral lands which he still holds. He also has valuable improved business property in Port Arthur, where his brother, Phillip Labbe, formerly of Dawson, is in the concrete business, and is a city councilman and a trustee of the government mining school and extensive holder of property.

Notwithstanding the fact Mr. Labbe's hotel was burned once in Dawson, he has gotten to the front again, and intends to remain here with his wife and little child, Amanda, and to keep abreast the times with the development of Dawson and Yukon.

"ALABAMA BILL."

Fascinating Story of Bill Ansley, One of the Best Known Men of Yukon.

Wm. Ansley, better known as "Alabama Bill," was a locomotive engineer on the Louisville & Nashville Railway at Birmingham, Alabama, when the Klondike gold strike startled the world. Bill got the Klondike fever, resigned his position on the road, and accepted the managership of the "Besiege Cox Gold Mining and Prospecting Company," composed of his fellow employees on the railway. Bill left for Dawson February 6, 1898, with a grubstake of \$800. He agreed to pay his expenses into the country and to buy the grub and to remain two years. He did not know the big expense which would attach, and the \$800 did not prove enough for even one year. But by holding down to a diet of pork and beans—using bacon so strong that when it was cooked it always drove him from the cabin—he pulled through as agreed in the contract. Packing his outfit of 1,500 pounds over the terrible Chilkoot Pass, Bill sledged it to Little Windy Arm, where he built a boat, and embarked May 26 for Dawson. Two men accompanied Bill under the same agreement with the same company. They three fell in with two other men, making a party of five. Arriving at Whitehorse Rapids, all of the five but Bill refused to shoot the rapids. Bill had all the packing he wanted. Gus Mercier, another of the party, concluded that he had rather die than have word go back to old "Alabam" that he showed the white feather, so he joined Bill, and they and a hired man, Pete Lorensen, took the scow through the seething waters.

The Ansley party arrived at the mouth of the Stewart, and there made a serious mistake, for the time, by going up the Stewart. They spent the summer prospecting, but none of them knew the first thing about the work. Returning to the mouth of Stewart the last of August, they split their outfit. Bill gave the two others about \$200 cash each, and their share of grub. Bill had managed to retain over \$600 of the grubstake of \$800 that each had at first. The two others left the Klondike in '99 without success. Ansley staked several good claims, but owing to conditions then existing, which were understood by all old timers, he says, he was unable to get them recorded. He got the name of "Alabama Bill" from the sign he hung in front of his cabin at the mouth of Bonanza the winter of 1898-99. The sign read "Alabama Point," which was two miles from Dawson and known to every Sourdough. After two years' stampeding and prospecting, Bill went to work on two below upper on Dominion, running one of the first steam plants on the creek, running the plant until the claim was almost worked out. He bought a roadhouse, did a big credit business, and had to sell out to pay bills in Dawson. He then went to work running a steam plant for "Spieler Kelly" on 22 below upper Dominion, broke but a much wiser man, and vowing never again to seel hootch, nor ever do credit business, and until this minute everything is cash both ways with Bill. When Bill got a little stake he went up White river and started a small wood camp, and hunted and bought and sold furs and such. Travelers on Yukon boats well remember him, as in the fall and spring he generally had a bear or two hanging in front of his cabin. He killed eleven bears the spring of 1906, and while there about six years was very successful in hunting. He is in the express, transfer and wood business in Dawson, and everyone knows his happy face, and his cheerful voice, and everyone who has dealt with Bill knows he gives the best of service and prompt attention, and that "Alabama Bill" always is there with the goods.

JAMES F. MACDONALD.

James MacDonald, now serving the inland revenue department of the Dominion as inspector of weights and measures and deputy collector of inland revenue, and former mayor of Dawson, is a native of Whycomah, Nova Scotia, where he lived until quite well along in years, and where he was connected with commercial business. He served as a municipal councillor in Inverness, his native county, for two terms. Mr. MacDonald left his old home in 1903, taking a position with Geo. Munro's Sons, Publishers, New York. He made headquarters at St. Louis, and represented the firm several years, while traveling through Kansas, Iowa and Nebraska. He came to Dawson in 1899, and opened the postoffice money



James J. Macdonald

order department under Postmaster Hartman. He was elected alderman in 1902, and again in 1903; and mayor in 1904. Mrs. MacDonald formerly was Miss Trezell of Kansas City, Mo. Mr. MacDonald and family reside in Dawson.

ELI VERREAU.

Few men in Yukon have waged their way to success in this new country with more persistence and against more daily physical obstacles than those who have won their laurels on the mail routes of the realm. The foremost of all mail carriers in the North is Eli Verreau, contractor carrying the Canadian and United States mails on the Dawson-Eagle route.

Eli received his strenuous schooling under no less a master musher and hustler than rare old Ben Downing, long since called over the last trail to the camp of the last stampede. Eli started work on the Dawson-Eagle route with Ben in 1900. He had been here then a year, and was a handsome, robust young man, well fitted to the trying work. Through the summer time they carried the mail down river in canoes and skiffs, and came back on the lower river steamers. In the fall, when the ice floes began to form, they sallied forth in their canoes until forced to take scows heavy enough to resist the crash of ice. The scows did service until the danger became too great, and by that time dog teams could be used on the newly formed rim of shore ice. The perils of late fall and late spring on the ice, and of the few periods of extreme cold snaps on the Yukon are faced by these intrepid carriers without hesitation. They take their lives in their hands, and the regularity with which they deliver the mails under the most trying stress of the extremes of conditions which prevail a short time each year has made them admired and honored for their work by all Yukoners. Eli in particular is known as a man who will get there if anyone can, and what is possible for human force to perform against Yukon odds, he is the man who exemplifies it in his daily work.

FRED NEWMAN, GARDENER.

One of the most energetic and successful Klondike gardeners and farmers is Fred Newman, of Sunnydale, opposite Klondike City, and three miles above Dawson. Properly speaking, he is on Duck island. Newman has 14 acres under cultivation, where he has been the last five years. He has raised as high as seven tons of potatoes to the acre, and has splendid success with cabbage, carrots and other varieties of vegetables.

Mr. Newman well deserves the success which has attended his efforts. In taking this island ground, he found it covered with a growth of timber which required much hard labor in clearing the trees and stumps. However, the low lands along the river are dryest and best for gardening, and he now has a magnificent garden site, and easily reaches the Dawson market every morning in the open season with his boat laden with the tenderest and freshest of garden truck. Mr. Newman came to Klondike from St. Louis, Mo. He saw that the Klondike is a country which has agricultural possibilities and determined that he would not let the opportunity pass of getting sure money from rich loam.

Some of the potatoes raised by Mr. Newman would be prize winners as to size in any part of the world. The other vegetables he raises, as with all Yukon gardeners, are the most tender in any part of the world. This is because of constant growth under the never setting midnight sun.

KELLY PLACER GROUPS.

Two of the largest and most persistently developed properties on Quartz are the groups of W. P. Kelly. The oldest comprises Nos. 27, 28A, 29, 30, 31, 31A and 45 below A. Mack's discovery, a total of more than half a mile of creek ground. High as \$1.20 to the pan has been found on the ground. Mr. Kelly is ground sluicing on the benches. He cleaned up over \$1,500 there in two months last year working alone. The ground is 18 to 27 feet deep and carries two to eight feet of gravel on the creek bottom. This group begins where the rich bench pay of Quartz creek falls into the creeks. Mr. Kelly's second group comprises Kelly's discovery and Nos. 1, 2, 3, 4, 5, and 6 below on Indian, controlling the mouth of Quartz. The bar at the mouth of Quartz on this group was worked in early days. Billy Radford, discoverer of Quartz, and his partner, rocked out as high as \$64 there in one day, and frequently got \$5.00 or more a day to the man. Many others, including Chris Olsen, took out grubstakes there in early days. Mr. Kelly staked Kelly's location in this group, and also got the other claims two years ago, and has represented them continuously, holding them for dredging properties. He acquired his first Quartz creek claims in '98.

PRETTY-PATTERSON GROUP.

A. E. Pretty and N. M. Patterson have five promising bench claims on the left limit of Fortymile below Steele at the junction of Twin creek. They will take with a ditch water from Twin two miles from the mouth to hydraulic the ground. The talings will have a perpendicular drop of 250 feet. This group comprises some of the best ground in the entire Fortymile district. Colors are found in the gravel from the grass roots down, as is characteristic in the Fortymile gold district. There is practically no overburden on the property, and the depth of gravel is as great as 60 feet. Tunnels and shafts are being run in the opening of the property. Work this season starts in June. The owners are well known at Dawson, their headquarters, and have been in the country mining for years.

FINE YUKON ART.

Exquisite Line of Work Done in Dawson—Original Klondike Ideas.

To the stranger visiting Dawson there is no place so unique and so fascinating as the art store of the Butler & Faulkner store, in the Empire Block, at the corner of Queen Street and Second Avenue. In this store is gathered the finest collection of Indian novelties, pyrographic designs, moose skin and caribou skin work, and Indian baskets ever assembled in Yukon.

The work in this store represents the efforts of the aborigines scattered across the broad Northland from the Arctic ocean to the slopes of the Pacific, from the Rocky Mountains to Bering Sea. It likewise represents the efforts of many white hunters and other adventurers who have contributed toward assembling here these rare works of art. The pyrographic work, done on moose skin and caribou skin, is peculiarly Yukonese. Not only are the burnt figures employed to heighten the beauty, but the material on which the figures are made is so designed and cut as to form fascinating lanterns, which can be illuminated with electric lights; window luminaries, through which the sunlight can throw its rays in heightening the beauties of photographic prints placed therein; large Klondike scenes, and other beautiful sketches done on quarters or full size skins; and in many other forms attractive to the eye.

The demand for this work has spread far beyond Yukon, and many of the products of the shop, as it has been known through the present management and its predecessors for years, are to be found in every part of this continent and also in the old world. Tourists who have visited Dawson the last few years have obtained work which they have carried away with them to be shown to the great delight of their many friends, and old time Yukoners have bought liberally of the wares to send to friends or to keep as mementoes.

A large and splendid collection of Yukon souvenir books, replete with pictorial half tone sketches, afford another feature of the store. Beside this the house also carries a great many of the choicest Yukon photographs ever taken. Grand panoramas, scenes along the phenomenally rich gold streams, glimpses of the beautiful modern parks, waterfront scenes and the many cosy homes of Dawson likewise add to the collection.

The artists who have contributed most to the work are Miss Dorothy Ogburn and Percy Sharpe. They have been in the Yukon years and have caught the spirit of the North. Miss Ogburn is a pupil of Morte Craig, famous in Klondike as an originator of much of the attractive pyrographic work and moose skin and caribou skin luminaries which have become so noted here and abroad. Since undertaking the work alone she promises to distance the old master. Mr. Sharpe is an Australian who has drifted into the work from a predilection in that line. He devotes most of his time to mining, and is a real miner-artist. Mr. Sharpe designed the cover page for this publication.

In the same block Butler & Faulkner have an adjoining store, where they carry the largest line of fine cigars, tobacco and fancy confectionery in Dawson. They also have a good line of toys and fancy stationery, and all latest magazines and newspapers. Attached to the store they have a swell ice cream parlor. Mail orders or inquiries in respect to any of their lines receive prompt attention. Harold W. Butler and Clare Faulkner are the proprietors.

AERIAL TRAMWAYS

(By C. W. Stancliffe.)

Photos Used by Courtesy of Messrs. Ropeways, Ltd., London, E. C.

IN a rough and mountainous country like British Columbia and the Yukon, it is not surprising that considerable interest is being taken in the ways of simple and efficient means of transport, and of these, none offer more advantages, both in respect of cost, and maintenance than the Aerial Ropeway system.

Going back to the history of aerial ropeways, we find that even the aboriginal races used a similar arrangement, though very primitive, and were accustomed to twist fibre strands together into a rope, and use same for hauling goods and passengers across streams and ravines in places of bridges.

Coming to later history we find that a Dutch engineer about the year 1644 was the first to use an aerial ropeway, but as only hemp ropes

which cannot be overcome by means of aerial ropeways, and their capabilities have now been so thoroughly tested in different countries and climates, that the experimental stage is past, and they have proved their economy with regard to working expenses, reliability and simplicity.

Then again, an aerial ropeway is free from interruption by and does not interfere with traffic beneath, nor is it subject to stoppages by floods or snow, and can be run night and day.

A further great advantage is that where the gradient is in favor of the load, the ropeway becomes self-acting, not only giving off sufficient power to haul up the empties but also sometimes leaving surplus energy, which can be utilised for other purposes. Provided the de-

livery station is at a lower elevation than the loading station, the ropeway will be self-acting according to the difference in elevation, notwithstanding that the buckets may have to travel to a considerable height before reaching the down grade.

Systems.—These may be divided broadly into two distinct types:

1. That in which the loads are suspended from carriers or small trolleys running along fixed cables, and drawn or controlled by a separate traction rope, or,

2. That in which a single endless constantly moving rope not only supports the load, but carries it along also.

Each of these types differ in detail according to the duty and kind of work to be performed.

While the first of these systems has found much favor in Germany and on the continent, the endless moving rope system, as perfected by J. Pearce Roe, is not only doing all that is claimed for the first system, both in regard to the hourly capacity and weight of individual loads, but also in the very successful working of long spans, and steep gradient, whilst being cheaper in cost, more economical in the working, and less complicated.

Installations on Roe's system have been erected over some of the roughest ground, with very long steep gradients, whilst being cheaper and more economical with capacities of over 80 tons per hour, which speaks for itself.

Amongst the disadvantages of the double rope No. 1 system, as compared with the moving rope system may be mentioned:

1. Two sets of cables, making cost of renewing ropes much more, there being more ropes to replace.

2. The rail cables being fixed, are subject to uneven wear at different parts of the line, and suffer severely at elevations or ridges, while again, the wear is confined to the top surface only, except at trestles and supports, where wear will take place underneath also.

3. The inspection, greasing etc., has to be performed by men travelling on the line in carriers.

4. The existence of a separate traction rope with its attendant coupling devices, involving independent operations or mechanism for attaching them.

Turning from the double rope system to the single rope system, we find that the system is perfectly free from the above objections, and presents the advantages of:

1. An endless rope which both supports and carries the load, which is subject to even wear all round, and can readily be inspected and greased at the stations.

2. The employment of special saddle clips of simple construction which effectually prevents the carriers from slipping on steep gradients, and permit of the cable being greased, by which its durability is increased.

3. Distributing the rope pressure over a series of balanced sheaves, mounted on those supports which have the greatest weight to sustain.

These sheaves are arranged to automatically distribute the pressure equally between each one of a given group.

4. The automatic action of the carriers, which take on to and leave the cable at the stations without any separate coupling operations, and which, when once on the rope, can only be released by being lifted bodily off. If by any chance a carrier is allowed to run along the station by carelessness, etc., it simply attaches itself to the rope automatically.

5. The capital represented in the ropes in this system is much less than in the double rope type, and the renewal expenses are reduced to a minimum.

Choice of Route.—Great care should be taken in determining the route to be followed, and time and expense in this direction will be amply repaid.

It is not necessary at all to find easy ground by following contours, as intermediate gradients, and on the rope to some extent, have no bearing on the question of power, which power depends entirely on the difference of altitude between the terminals, either in favor or against.

The sites for the terminals having been fixed upon, the intervening ground should be examined, and notice taken as to any extraordinary obstacles which might have to be surmounted, and which would increase the cost of installing, where a slight alteration of line would result in a big saving.

An ideal ropeway should run in an absolutely straight line from point to point, and angle stations should only be considered where absolutely necessary, though they are easily worked, but are more liable to wear.

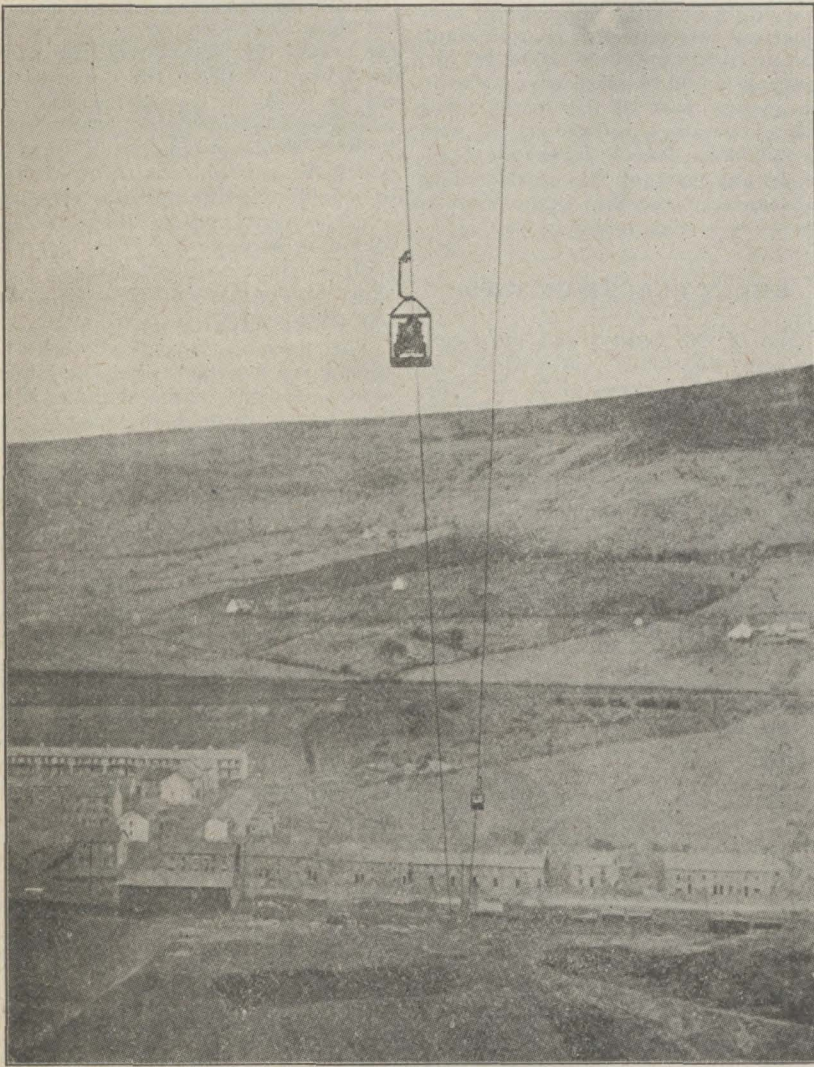
The length of a ropeway is immaterial, but when very considerable, it becomes necessary to divide it into sections, the carriers passing from one section to another by means of shunt rails. In this manner there is no breakage of bulk, the buckets travelling the whole length, and there is no limit to the length of a ropeway constructed in this manner.

On easy ground, undivided sections of six miles are practicable, and one of 4 1-2 miles in length is now working very successfully carrying 35 tons per hour. Where long lines are used, angles can be introduced at the ends of the sections, giving a larger choice of route.

In the early days, large spans could not be negotiated, but under Roe's system, long spans are easily worked, this being due to the special appliances for grouping and supporting the sheaves, distributing the pressure on the ropes, thus avoiding undue strains.

The clip which is used for gripping the rope is an invention of Roe's and with it, even the steepest gradients can be easily worked, and grease or climatic conditions have no effect on the grip, nor does the gripping have any detrimental effect on the rope, the action of the carriers, passing from the rope to the shunt rails at the stations being perfectly automatic.

As an instance of an automatic



J. MONK & CO.'S ROPEWAY, BLAINE, MONTANA—LENGTH, 750 YARDS IN ONE SPAN—BY ROPEWAYS, LIMITED.

were available, the system did not make much advance until the advent of the wire rope in the year 1834, from which time onwards they have become increasingly popular.

Advantages.—The advantages of aerial ropeways are very obvious, being very apparent in the crossing of hilly and rough country, where the building of railways or roads would entail enormous expense out of all proportion to the value of the proposition in hand.

For the carriage of ores, merchandise, shingle bolts, logs and for contractors' work in the building of bridges, etc., transporting the material from bank to bank it has proved its economy. Messrs. Ropeways, Ltd., have even successfully erected a plant to pick up complete wagons with their loads, traverse, and place them on the track at the other side of a river.

Another class of ropeways known as suspended cableways is also exceedingly useful for dam construction, as well as in connection with certain kinds of quarry work.

There is scarcely any obstacle

AERIAL ROE'S SYSTEM ROPEWAYS

Single Endless Rope

BUILT BY ROPEWAY'S LIMITED, LONDON, ENG.

Cheapest means of transport for mines, quarries, smelters, merchandise, etc. In successful operation all over the world. Spans of over 700 yards giving every satisfaction. Traverse the very roughest country. Frictional Resistance reduced to a minimum by use of Special Appliances. Estimates prepared and complete installations erected.

C. W. STANCLIFFE & COMPANY

ENGINEERS AND AGENTS, VANCOUVER, B. C.

Phone 844.

Cable: Stancliffe, Vancouver, B. C.

ropeway, an installation 3,170 yards long conveying 40 tons per hour, with a mean grade of only 1 in 25 or 4 per cent. is automatic. Where, owing to the difference in altitude between the stations much surplus power is produced, such power can be utilised by a patent water brake, which both absorbs the power, controls the speed of the line, and works automatically without attention.

Trestles.—Which may be either of steel or wood, are spaced according to the contour of the ground, and advantage should be taken of all points and ridges, so that the fewest number of trestles need be used. An average spacing of trestles is about 150 yards, but they have been installed where only 17 supports have held a line 2 1/2 miles long, while some of the spans are 600 yards. These long spans are a great advantage, not only in the saving in material of trestle, but in the erection and foundation.

Where timber in the form of poles is cheap and plentiful, and labor cheap, it is sometimes worth while

ing information will have to be given:

1. Length of proposed line.
2. How many tons have to be transported per working hour, and the number of working hours per day.
3. The nature and weight per cubic foot of the material in the state in which it would be carried.
4. As to whether individual loads must be kept to a particular weight, or arranged to suit the capacity of the line.
5. The character of the ground to be traversed, (whether flat, hilly, or mountainous).
6. Whether the ropeway can be taken in a straight line from terminal to terminal.
7. Whether the grade is for or against the load. The approximate difference in height between the terminals.
8. Whether the loads have to be conveyed in both directions. If so the quantity each way.
9. The exact terminal requirements in connection with loading and unloading. Whether the stations

One point to be remembered in the planning of the power station is that it is not necessary to have the power station near water and fuel, as the ropeway can bring up its own supply, but of course it is better, where possible, to place the station near its own fuel supply.

Here in British Columbia, we have conditions very favorable to the economical use of aerial ropeways, the simplicity, portability and lightness of a well designed plant lend themselves to a country where cheap means of transport alone can solve the problem of the successful working of mines, etc., and we look to see big strides in this line in the very near future, both for mining work, and for logging, for which latter it has been successfully used.

FIVE O'CLOCK TEA

FIVE O'CLOCK TEA is the most popular of all institutions adopted by English speaking people the world over; it is the hour most welcomed by all lovers of the cup that cheers. In the United States, Afternoon Tea is made a special feature by all the leading hotels. Across the Atlantic it is found in the palace and in the cottage, and there is perhaps hardly a household in the British Isles where it is not in use. The lumberman in Canada keeps his pot of tea going throughout the day, while the bushman in the wilds of Australia finds it a refreshing beverage.

Tea was known to the Chinese in the very early centuries, but its introduction to Europe was of a much later date. History records that the Honorable East India Company, wishing to please and honor their Royal Patron, King Charles the Second, presented to His Majesty in 1664, "2 pounds and 2 ounces of Thea." It is also recorded that his Queen Katherine of Portugal was the first to introduce tea drinking as a luxurious custom with the English Court; the fashion, however, was confined for many years to the aristocracy and wealthier classes, and no serious at-

dian Tea is to be found in the care and method adopted in the factory, the rolling of the leaves, the baking or firing being done exclusively by machinery, thereby preserving all the essential tea-goodness and richness of favor, a method vastly superior to that which still obtains in China and Japan today of employing coolie labor for rolling the leaves between the palms of the hands.

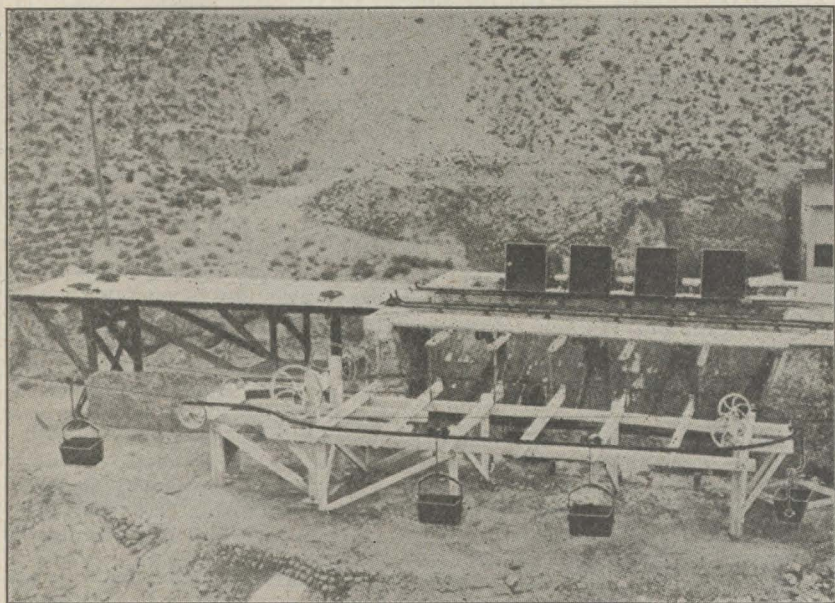
The shipments of Ceylon and Indian Teas last year reached the enormous total of over 400 million lbs. They have now completely beaten out Japanese tea from the European markets and are daily making great headway in the United States and Canada.

The Encyclopaedia Britannica makes the following interesting statement: "What is indisputable about tea drinking is that it forms an agreeable means of imbibing the proportion of water necessary in human nutrition which being taken hot, communicates to the system a diffused warm glow. Further, as used by Western communities, it is a medium of taking, in the form of sugar and cream, no inconsiderable amount of real nutriment."

Its virtues have nowhere been better summarized than by the earliest Chinese writer on the subject, Lo Tu, who says: "It tempers the spirits and harmonizes the mind, dispels lassitude and relieves fatigue, awakens thought and prevents drowsiness, lightens or refreshes the body, and clears the perceptive faculties."

"The gentle exhilaration which accompanies the moderate use of tea is not followed by the depression which succeeds the use of alcoholic stimulants. Experience has proved that it sustains the frame under severe muscular or mental exercise without causing subsequent exhaustion and collapse. Tea is frequently found to be beneficial to sufferers from nervous headache, and it counteracts to some extent the effects of alcohol and of opiates."

RIDGWAYS TEA is uncolored and unsophisticated; it is the pure leaf picked from the finest selected trees and grown at a high altitude in Ceylon



VIEW OF LOADING STATION AT PEDROLA, NEAR SARAGOSSA, SPAIN—BUILT BY ROPEWAYS, LIMITED.

building the trestles of pole timber, but the extra labor required for the construction of the trestles would generally amount to more than the cost of square sawn timber. Steel trestles, however, whilst slightly more costly at first, are practically permanent, and require no upkeep and are very easy of erection, light for transporting and much time and labor is saved by their use.

Loads.—The weights permissible vary according to the capacities of the line with regard to spans, etc., etc. Carriers can be designed to handle the many different classes of goods, special provision being made for logs, barrels, cases, slates, tiles, ores, etc., etc. And as will be seen from the photograph the load can be diverted in any direction for unloading.

An automatic weighing machine can be introduced at any convenient point on the shunt rails at the station, which will register the number of buckets as they pass, and weigh their contents, and indicate the total weights of the buckets at any time, or after the passage of a bucket.

Haulage, Cost, etc.—The wear and tear on the single rope system is remarkably small, both on the ropes as well as the other parts. This is due to the care which is taken to carry the ropes on suitable appliances which will distribute the weight uniformly. The rope wears even all round, and is not liable to local deterioration as in the case of fixed ropes.

In one case an installation handling clay was in use for eleven years, not only without renewing any part of the appliances, but also without renewing the rope, and its life was only terminated by the clay pits giving out.

It is impossible to make an estimate of cost of handling material by ropeways, unless all the data, as regards contour of land, weight and kind of material to be handled, cost of labor, and capacity are known, and in order to get an estimate the follow-

ing information will have to be given:

10. What is the manner of transportation carried on now, and over what distance.

Also any other remarks and information which would go to helping to make an accurate estimate.

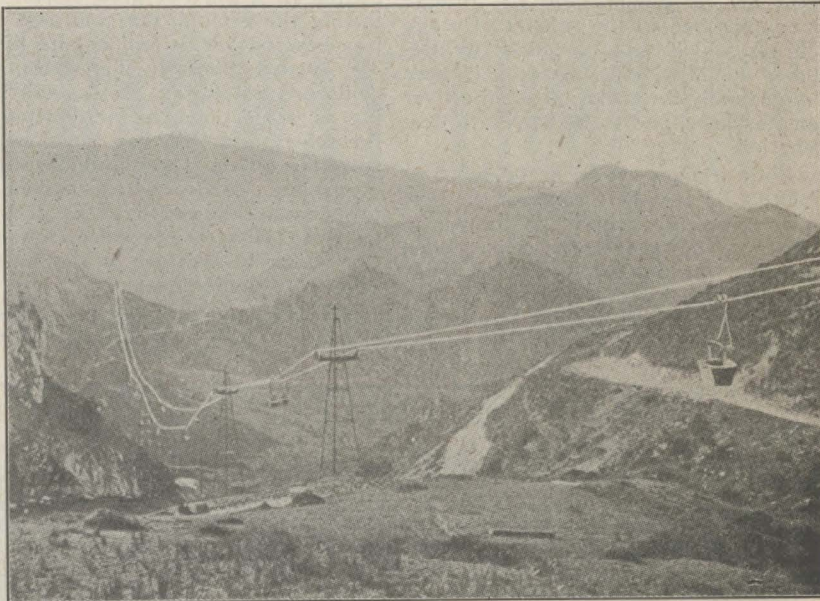
It will readily be understood from the foregoing that the success of an aerial ropeway lies in the care and suitability of the design, proper distribution of strains, and the material employed, for on these depend the frictional resistance of the ropeway, which resistance is also a fair measure of the ensuing wear and tear.

In different designs of ropeways, there is large variation in self resistance. Good design, properly suited to the class of material carried, and the gradient, has resulted in a self-acting ropeway where the mean gradient in favor of the load on a long line was only 4 per cent. whereas a badly designed ropeway has been observed to require power to drive it when the mean gradient was as much as 16 per cent. in favor of the load.

The designing of a ropeway therefore, is for an experienced engineer in that class of transport, and is not to be lightly undertaken by any one as the result will only prove failure or a constant source of worry and expense in upkeep and repair.

The working cost of a well designed ropeway will vary from just over 2 cents per ton per mile upward, every case having its own specific value, according to the load carried, gradients and spans, etc., and it is impossible to make an accurate estimate until these points are fixed.

The use of sharp ledges and points in the contour means a large saving in the number and height of the towers both in first cost of material and also foundations. Straight lines from point to point form the ideal road and angles should be used only where absolutely necessary.



ROPEWAY AT COVADONGA, AUSTURIAS, SPAIN—THE ASTURIAN MINES; BUILT BY ROPEWAYS, LIMITED.

tempt appears to have been made until 1834, when the monopoly of the East India Company was abolished and the extravagant prices hitherto demanded were no longer forthcoming.

This opportunity was seized by Ridgway, one of the shrewdest and ablest merchants of his time, who in 1836 established himself in the heart of the City of London, determined to supply tea of all grades at fair and reasonable prices.

In that same Tea House Ridgways Teas have been sold ever since, year in and year out, and have enjoyed the highest reputation for excellence of quality and flavor, patronized by Royalty, the nobility and aristocracy of Europe, and today Ridgways have the largest sale in the world of high-grade tea.

One of the reasons for the steady increase in the use of Ceylon and In-

and being manufactured by machinery and untouched by hand, the fine aroma and delicate flavor is perfectly preserved.

RIDGWAYS TEA is more economical than that of Japan or China, only half the quantity being required for each pot; a pound will make over 200 cups. Ridgways best tea—H.M.B.—"Her Majesty's Blend," the same as supplied to the late Queen Victoria for over 40 years, costs per cup less than half cent, and it is the choicest tea that is grown, unique in quality and richness of flavor. Sold only in air tight tins and packages.

Canadian offices: Vancouver, Winnipeg.

U. S. A. offices: Seattle, Portland, San Francisco.

Branches and agencies throughout the world. Largest sale of high-grade tea in the world.

DREDGING ON THE STEWART RIVER

YUKON BASIN Co.

Splendid Showing is being made by Big Concern—Has the Largest Dredging Area in the Yukon

THE Stewart river, which for so many years, including quite a period before the discovery of gold near Dawson, has furnished grubstakes for the prospectors of the realm, is to be turned over this year as never before. More of the gravel will be torn from its ancient resting place and sifted for its precious flakes of gold in the several months of the open season of 1909 than has been handled by all the old time miners in aggregate since the first of their number thrust a shovel into the enchanted gravels.

The dredges of the Yukon Basin Gold Dredging Company, Limited, having its main offices in Kansas City, Mo., will turn over the great bulk of gravel. Two thousand cords of wood were cut during the winter for dredge No. 1, and also for dredge No. 2. The first dredge operated a part of last season, and located the best pay yet known on the Stewart. Something out of the ordinary in dredging values for any part of the world, the superintendent reports, was run into last fall toward the end of the season, and it was decided to get the dredge into the very best form. P. B. Eteson, the dredge master, from the factory, arrived over the winter road this spring, and began making repairs before the ice was gone. The large force of men at the wood camp, who also act as helpers for the dredge crew, assisted in the repairs. Dredge No. 2, which was landed at Whitehorse in May, was assembled there immediately for taking down the river on its barge, and to be towed to destination.

Both dredges are to be operated at Nelson Point, where some of the best ground on the Stewart is known to exist. The gravel there has been proven rich, and two drills are working with the dredge. The new dredge has five foot buckets, and a capacity of 3,000 yards a day. One additional

dredge is to be placed on the property each year until there is a total of seven. The government requires this. The first dredge has a theoretical capacity of 2,500 yards a day. So far as physical conditions are concerned, the Stewart is an ideal dredging proposition. The volume of water is so large the gravels never freeze, and the dredges operate without the heavy resistance and wear and tear on dredges in some parts of the north which work in frozen ground. The growth of timber on Nelson Bar has afforded a fine wood supply right at the dredges, and the light thin overburden, which is thawed, and the stumps will be washed off this summer with hydraulic force, supplied by a large steam-driven, high duty, compound pump. The dredges also are driven with steam, meaning, the management states, they may get in four to six weeks more time each season than the hydro-electrically driven dredges, which are cut off early in many places by the creek water sources freezing before the large streams close. The Yukon Gold Basin Company has 105 miles of the Stewart river from bank to bank, extending from a point 15 miles above the mouth to a point 155 miles above the mouth, which is above Fraser Falls. The total comprises 25,000 acres.

The company has operated two years on its holdings, and has obtained splendid results in places, and gold in all places worked. The company has such extensive holdings on the river, that it can find suitable depths of dredging for a machine of most any size, and in this way most flexible conditions prevail as to utilization of a fleet of gold ships. In testing the ground, the company utilizes keystone drills and empire drills. To operate beneath the water, the drills are placed on scows, and casing is sunk through the bottom of the scows. In this way the same results are obtained as though working on ground. Bedrock in places on the property is known to be as deep as 60 feet below the surface, but this easily can be worked to the bottom with long ladder dredges.

The company acquired its extensive holdings through the efforts of Wm.

Ogilvie, former Governor of Yukon Territory. He organized, with assistance of others, and the new concern took over the ground from the original holders of the tract, who had secured it in the early days of the Klondike. Mr. Ogilvie was in the Yukon years before Klondike was struck, when he was in charge of the international boundary survey between Alaska and Canada, and it was at that time that he observed the splendid results being obtained by the prospectors on the Stewart. Many were getting winter grubstakes from the bars with simple rockers, and others were taking out handsome stakes. Some got as high as \$30,000 in a single year, and the Stewart became famous far beyond the Yukon. The fact the gold was scattered so many miles along the stream aroused the greatest excitement and no end of curiosity as to its origin. Not so much gold has been found above the McQuesten as below, and that stream is thought to have been the parent stream of the creeks originally carrying the gold.

Stewart Company

New Concern Holding Property on McQuesten and Stewart Rivers is Energetically at Work This Year

AMONG the new mining concerns in the Yukon holding large tracts of placer property is the Stewart River Gold Dredging Company, Limited, incorporated last year. The company has taken over 44 miles of property on the Stewart river, and 30 miles on the McQuesten, the famous gold bearing tributary of the Stewart. The area along the Stewart comprises gaps which were lying unclaimed between the holdings of the Yukon Basin Gold Dredging Company. More than 100 individual placer claims along the McQuesten river also are owned by the company. The submerged river bed holdings on the McQuesten control the situation at the mouth of that stream. The individual claims lie along the benches and beside the river, and are in what is declared by old timers in the country to be the extension of the famous white channel from which

the millions in wealth on Bonanza and Eldorado creeks were taken.

The company had planned to put a large dredge on the property this season to initiate operations, but it was impossible to get a machine delivered at Whitehorse before September, which means it cannot be gotten to the place of operation in time for service this fall. It, however, will be ready early next spring, the management states, and there is no reason why the company should not get an early start the season of 1910.

This season two drills will be operated on the McQuesten property, and the ground which is to be operated next season will be blocked out, and there will be no waiting when the dredge does arrive. Supt. D. A. Matheson ordered the drills for the company while he was at the factory of the Keystone Company in Pennsylvania last winter. He was enabled to give specifications for machines that should be peculiarly fitted for work in the north, and to arrange for their early delivery. The next spring it is planned to put on two seven-foot dredges, and to operate them with steam, but to so equip them that they can at any time be operated with electricity, which the company hopes before two or three years have passed to generate from nearby water sources. Immediately after the opening of this season the drills go to work, and the men will have the most promising bars along the river tested thoroughly. Those interested in the company who belong in Yukon say that the McQuesten river will surprise them all.

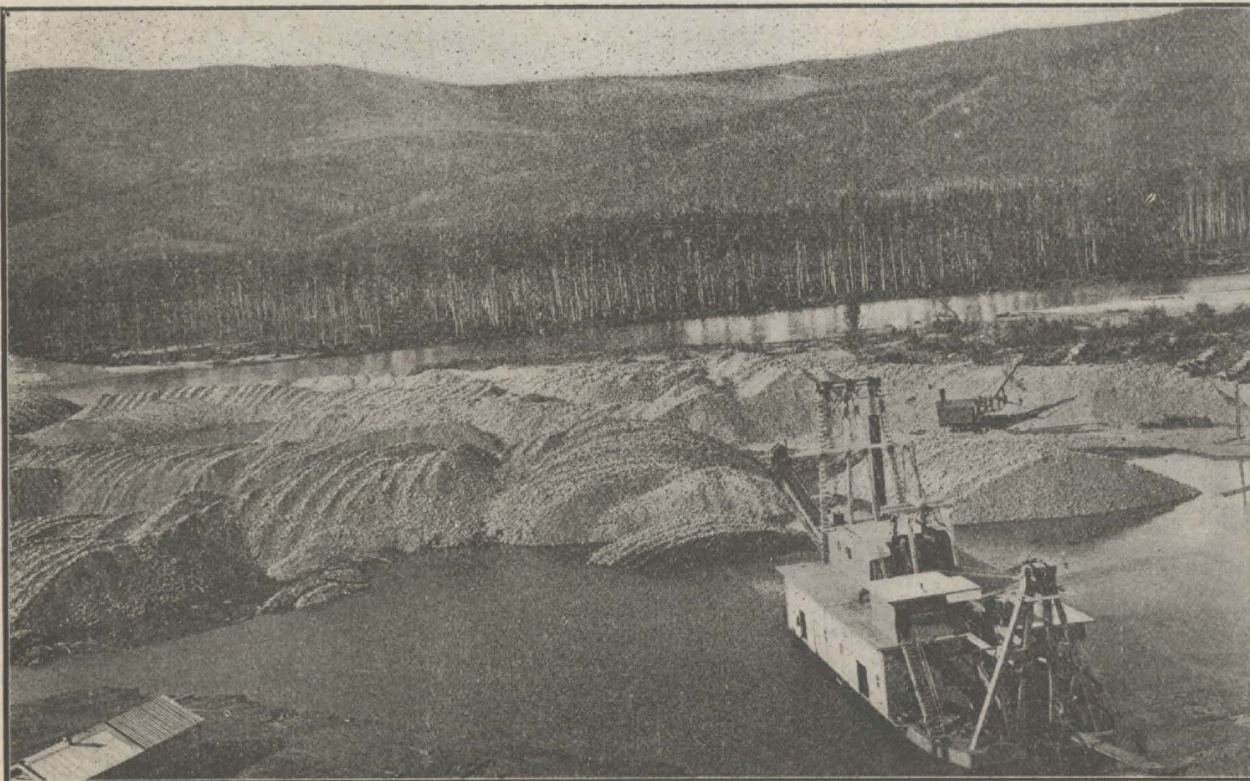
Joint Power Plans

Stewart River and Yukon Basin Companies to Have Co-operative Service in Several Respects

THE Basin Gold Dredging Company, Limited, and the Stewart River Gold Dredging Company, Limited, operating on Stewart and McQuesten rivers, have arranged for the joint erection of machine shops, foundries and the like at McQuesten Post, at the mouth of the McQuesten, for the undertaking of extensive plans for the installation of a large hydro-electric power plant for lighting and driving dredges, etc., and for the building of a steamer to serve the two companies. The Stewart River Company has a fine "tunnell" launch coming for use on the Stewart and McQuesten this season. It is planned by the two companies to have a fine large steamboat designed especially for towing dredges and for shifting them from place to place. The intention is to have the steamer ready for service early next spring.

Surveyors will be put in the field this season to determine the most feasible water supply in the district for the generation of electricity. So many large streams are in the district that there is no question of finding suitable supply. Notable among the water sources of the district are the Fraser Falls and the water of Mayo, Jannet Lake, and McQuesten rivers and their tributaries. Applications already have been made for water from three sources.

The two companies are entirely separate organizations, but since they operate in the same large valley and their properties are contiguous, it has been found mutually advantageous to co-operate in the organization of power, steamer and such service, and this has been arranged.



The Dredger Piles up the Washed Gravel Behind it.

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Yukon Territory

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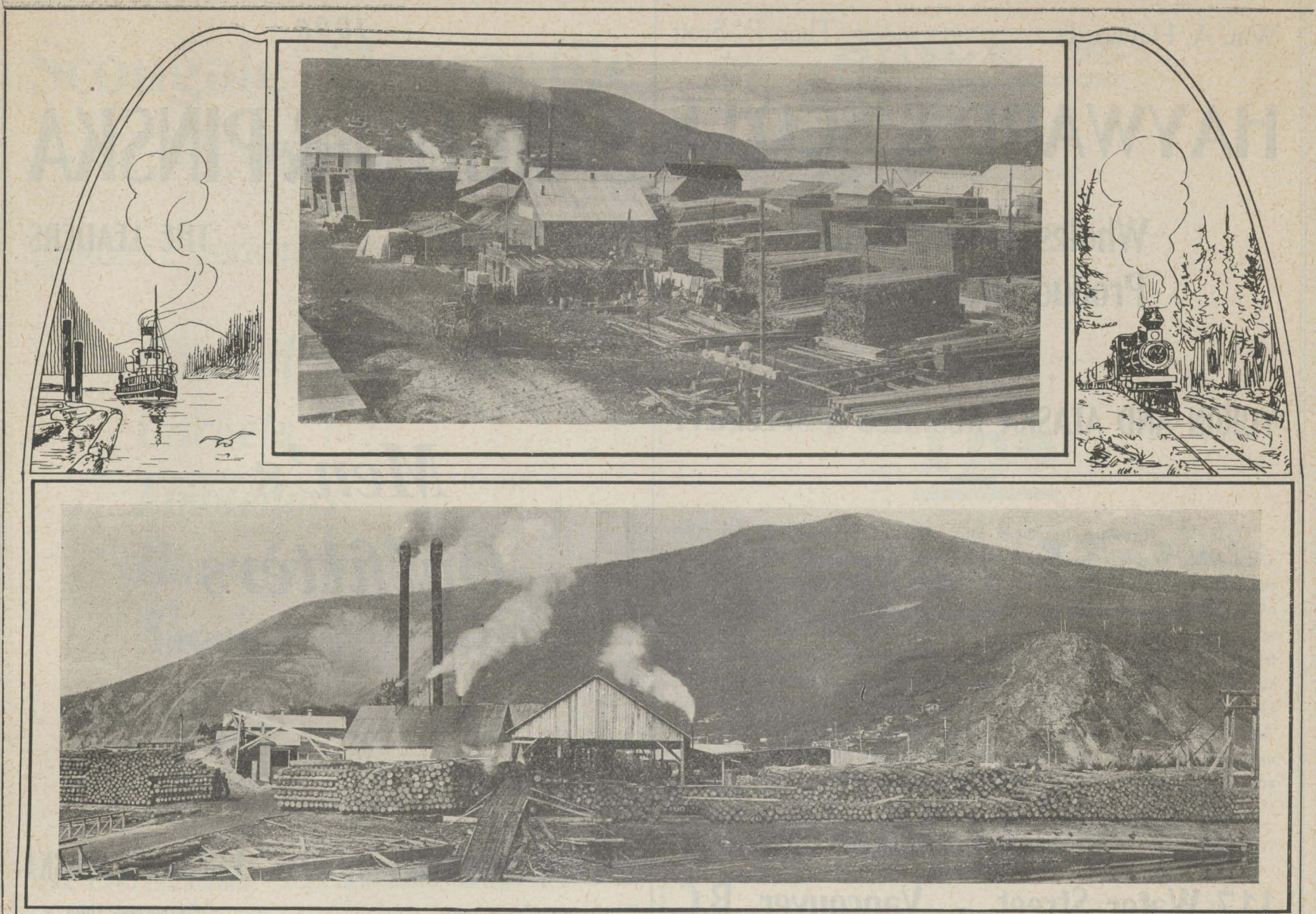
ST. MICHAEL, ALASKA
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No. 902—Chrome tan Nome calf, 12-inch Blucher, two full soles, thoroughly viscolized, re-inforced shank, Goodyear welt, made in Seattle.

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—Boots and Shoes that are as nearly *waterproof*
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—And as nearly *waterproof* as tanners and shoe-makers know how.

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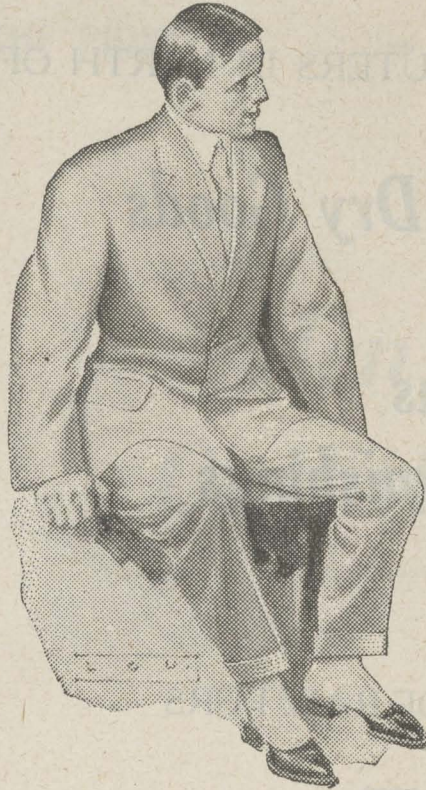
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One of the Largest Hydraulic Tracts in the Yukon—Splendid Property in Upper Stewart District Being Developed.

THE Dublin Hydraulics, Limited, is doing more extensive development and prospecting work on its properties on Dublin Gulch, in the upper Stewart country, this season than ever before. V. V. Blodgett, the superintendent, who is one of the most experienced hydraulic experts in the North, left Dawson in April, and has charge of the work from beginning to end. A number of men were engaged by him as soon as the

make it an ideal hydraulic proposition.

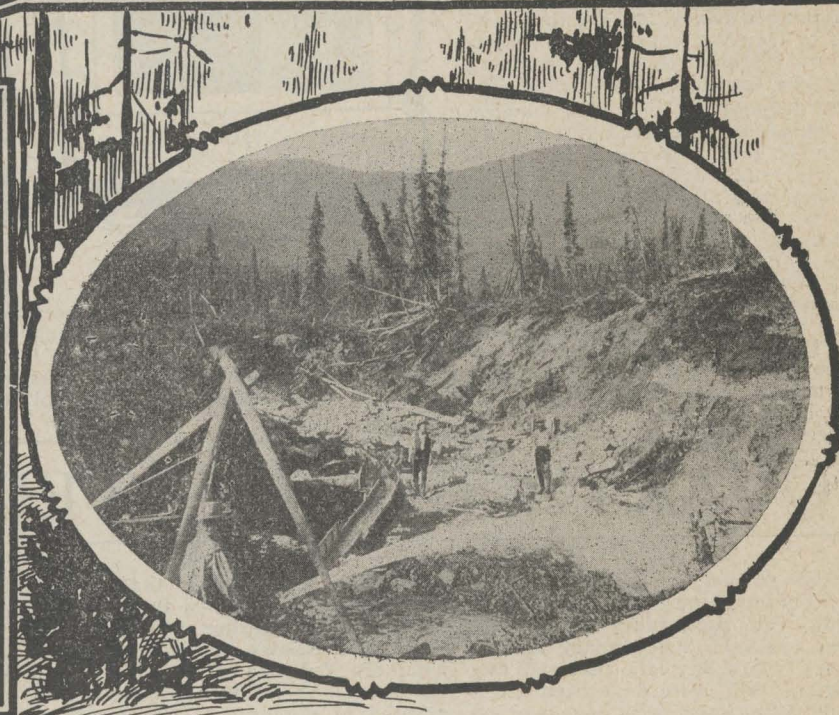
The tract is three and a quarter miles long, extending from the mouth of the gulch up, and taking in everything for the width of a mile with the exception of 2500 feet owned by Jack Suttles, and on which the company has an option.

The company has a grant to 1000 inches of water to be taken from Haggert creek four and one-half miles

schist. More than 40 holes have been sunk on the property, and there is an open cut 400 feet wide and about the same length, representing the work done the last three years by laymen, McIntosh, Anderson and Tom Heney, who took out an average of 75 cents to the cubic yard last year.

At the mouth of Dublin is the discovery claim of Haggert creek, and it is noteworthy that only one or two claims exist on Haggert above Dub-

canvas hose and a two-inch nozzle, under a pressure of 50 feet, and an average of \$1.40 to the cubic yard was cleaned up. This was not a fair test, as bedrock was supposed to have been cleaned, but afterward in washing ten pans of this bedrock 90 cents was recovered. During the summer of 1908 an open cut was worked by laymen and about 6,750 cubic yards was moved by a two-inch nozzle, with six-inch canvas hose. The total sum cleaned



Hydraulic Scene on Dublin Gulch.
A Clean-up on Dublin Gulch.

Ground Sluicing on Dublin Gulch.
Prospecting Scene on Dublin Gulch.

snow melted, and the directors of the company hope to have the most pleasing results to report at the end of this season.

On one of the last steamers going up the Stewart river last fall, the people interested forwarded a thousand feet of ten-inch hydraulic pipe, lumber, camp outfit, horse feed and the like for the season of 1909, and during the winter the consignment was freighted from Mayo landing to the gulch on sleighs.

Dublin Gulch has been worked more or less the last ten years. Only primitive methods have been used, but good results have been obtained, although the work has amounted to scarcely more than prospecting. The large area of gravel and the splendid situation of the tract, together with no end of water and a heavy grade,

above the mouth of Dublin. The ditch to convey this water will be less than four miles long. Work will be begun on the big ditch this season, and it is expected to have it completed by September. At the lower end of the gulch, where the hydraulic work is to be done, there will be a head of 600 feet, which two miles up will be reduced to about 100. The gulch has a grade of about seven per cent. on the lower end, increasing rapidly as it is ascended, thus affording ample fall for hydraulic work. Over the area of 2200 acres in the tract there is little or no overburden or muck. Moss and scrubby trees comprise the only overburden.

Bedrock ranges from eight to 22 feet below the surface, and is soft. The gravel comprises small granite boulders and angular fragments of

lin. Haggert is the foremost creek among the small operators in the upper Stewart district just now, and they doubtless would have staked Dublin together with Haggert in their rush last fall had it not been for the fact that Dublin already was held by the company. The splendid pay located on Haggert, told of elsewhere in this edition, argues the fact the gold there must have come out of Dublin.

The values found in prospecting the creek are established as running from 75 cents to \$4.50 a cubic yard for a width of 400 feet and good values for hydraulic purposes have been found a distance of two miles along the gulch. During the season of 1900, claim No. 6 was worked by two men who averaged \$4.50 a cubic yard. They took out \$350 in ten days during 1906, mining in a crude manner with a six-inch

up for the season was \$4,400, about 75 cents to the cubic yard.

The water supply on Dublin Gulch is equal to the very best in the entire placer grounds of the Yukon. Because of the springs which run continuously throughout the year, no part of the creek bed is frozen. The main water supply is from Haggert, and will be brought through the big ditch already referred to in this article.

Prospectors and miners have been on Dublin Gulch continuously since 1898. The prospects they found have kept them enamoured of the locality, but they have worked in crude manner and under great difficulties. This was chiefly because of the great distance from the seat of supplies. In the early days when there was no steamboating they had to spend most of the winter getting in their necessities,

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QUARTZ—A person eighteen years of age and over having made a discovery may locate a claim 1500 feet by 1500 feet. Fee, \$5.00. At least \$100 must be expended on the claim each year, or paid to the Mining Recorder. When \$500 has been expended or paid and other requirements complied with, the claim may be purchased at \$1.00 an acre.

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leaving them only the summer to work. Under these conditions John J. Suttles is the only man who remained on the ground continuously since 1898. He staked No. One, and in 1900 bought from the government ten claims more, and he has worked on the ground ever since, and nowhere else in the country. Claim No. Six also has been kept in good standing, but has been purchased, and is a part of the Dublin Hydraulic's property.

The history of Haggert and Dublin goes back as far as 1889, when pay gravel first was found. That was long before the great strike on Bonanza was made or Klondike dreamed of by the world. Thomas Haggert, accompanied by another fearless prospector, pushed into the silent, remote field, and lived all that winter in that district, subsisting on nothing more than moose meat. The two men prospected there with considerable encour-

agement, finding as high as 35 cents to the pan. Mr. Haggert did not leave that section until the rush to the rich creeks nearer Dawson. He returned to the McQuesten river district during the seasons of 1901 and 1902, but as he then was a man 55 years of age, and more or less worn down by the roughing of years, in time found the work of ascending the Stewart with a small boat too trying. Now fine steamers and a number of private launches ply the Stewart to McQuesten, and not far from Dublin all through the open season.

Dublin Gulch carries gold from grass roots to bedrock, and there is a general saying among miners that "You can't get a skunk on Dublin." Good pay has been found in the valley bottom over 400 feet wide, and on the left limit 2500 feet wide as high as three cents to the pan, and this only while prospecting.

The company is fortunate in having such an experienced hydraulic man as V. V. Blodgett in charge as superintendent. He has been engaged in hydraulic work continuously for 28 years, and has opened and had full charge of mines from Peru to Klondike. He installed one plant in Ecuador that cost \$1,500,000 before water was turned through the pipe, and he has operated in Ecuador, United States of Columbia, Old Mexico, Arizona, Eastern Oregon, Montana, British Columbia, in Sierra, Trinity, Butte and Nevada counties California; and nine years in Yukon. He is familiar with all branches of work from preliminary survey to melting of bullion. The value of a good man can be better appreciated when it is recalled that the success of a proposition depends largely on having experienced managers and in making a good start in installing a plant

and in opening the ground on practical lines, and in knowing how to meet and cope with all contingencies and conditions.

The officers and shareholders are all Dawson people. At the first general meeting of the company, held in Dawson, April 26 of this year, the election of officers and directors for the year resulted as follows:

President, Dr. W. E. Thompson; vice president, Eugene A. Murphy; Gen. Man. of the Klondike Mines railway; secretary-treasurer, A. W. H. Smith, broker; directors: the foregoing officers and G. I. C. Barton, of Barton Brothers, wholesale and retail meat importers and dealers and president of the Dawson News Publishing Company, Ltd.; Wm. Taylor, general agent for the White Pass Railway company; Frank Lowe, furniture dealer, and H. L. Clements, engineer.

TIMBER IN YUKON TERRITORY

By GUS JOHNSON,
of Dawson.

YUKON is extensively wooded along the valleys, and has extensive forests fit for lumbering, pulp wood purposes and fuel. A few years ago there was a large demand in the Yukon for lumber. A large quantity was required for the construction of houses, for city improvements, for the construction of flumes to carry water from streams to the different mining claims to which water rights were appurtenant, and for the construction of sluice-boxes and power-houses erected in connection with mining plants installed on the principal creeks. The establishment of a mining camp of the magnitude of Dawson, and the enormous quantity of lumber required within such a comparatively short period, created great activity in the lumber industry, and the four sawmills in Dawson, aggregating a capacity of 90,000 feet, were working night and day during the summer.

The demand for lumber in Dawson may be said to have reached that point where the output is governed by the quantity required for maintenance of buildings and other improvements in the city. On the creeks, however, the operations of large companies necessitate a continual supply. Dredges, parts of which are native lumber, are being constructed, several large water grants necessitate the construction of great lengths of flume, reservoirs and impounding dams are being built, and the general repair of water conduits

already constructed may be said to have considerably increased the demand on the creeks for lumber. One large mining company erected a sawmill on the Twelvemile last fall, of a



Gus Johnson.

capacity of 30,000 feet, and has been manufacturing its own lumber during the past winter.

An enormous quantity of timber has been cut in the Klondike district for

mining operations. Wood is the only fuel that has been used up to the present time in thawing the frozen ground, and it is, therefore, an essential factor in the developing and working of claims. At one time a certain quantity of wood piled on a claim was accepted as representation under the old placer mining regulations. Under the Yukon Placer Mining Act, however, this mode of representation was abolished, and in the computation of the value of work as defined by the schedule of representation, the cost of wood used for fuel has been included. In consequence of the enormous quantity of timber used as fuel in connection with mining operations, nearly all the timber of any importance has been cut on the creeks in the Klondike district proper.

Large quantities of excellent timber are cut annually on the upper Klondike for lumber and fuel, and floated down the Klondike river to Dawson, where the logs are caught in booms adjacent to the sawmills, and the smaller timber is piled on the beach for fuel. Besides the supply from the upper Klondike, good timber for fuel is found in the Indian river district, and along the tributaries of the Yukon north of Dawson. From Indian river the wood is brought down the Yukon in rafts, which are moored along the Dawson water front, and from the district north of Dawson it is hauled over the ice by sleighs during the winter.

There is also a large extent of timber along the Stewart and Pelly and their tributaries. Owing to the distance from Dawson, however, very little of this timber has been cut except what is required for mining purposes on the creeks and tributaries of these rivers. Writing of the timber on the upper Stewart, Mr. J. Keele, of the Geological Survey, in his report of 1906, says:—

"The principal forest trees are white and black spruce, balsam, poplar and birch. The limit to which trees grow on the mountain slopes varies from 1,800 to 2,800 feet above the river.

"The white spruce is the most valuable tree, and furnishes good timber for building and mining purposes. The best groves of this tree are found on the islands or on the alluvial flats along the river, but good specimens occur in scattered groups on the slopes to a height of 2,000 feet above the river in the lower valleys.

"There is a marked deterioration both in the size and appearance of the spruce as the more northerly branches of the river are approached.

"The balsam fir occurs only on the valley slopes mixed with spruce, beginning at an elevation of about 1,200 feet above the river and continuing upward to the limit of trees. On the slopes of the Ogilvie range, however, the balsam disappears entirely, its northern limit in this area being about the forks of Rackla river."

QUARTZ IN THE TERRITORY

By FRANK LOWE,
Former President Dawson Board of
Trade.

THIS year above all others does Yukon Territory look to quartz. During the ascendancy of placer, quartz has been a secondary matter, and for years scarcely received any attention. But there have been a few faithful enthusiasts who have worked persistently, and now they have succeeded in bringing quartz to the earnest attention of nearly every one in the territory, and largely to the attention of capital outside the territory.

Hundreds of thousands of dollars are being spent in the development of quartz, and the work is not confined to any one portion of the territory. In Southern Yukon the work in copper has progressed to the extent that shipments are being made to smelters, and in silver and gold in that district the same stage is just being entered. Details of the splendid strides in that part of the territory are told elsewhere in this issue in the article on "Southern Yukon."

In Northern Yukon, that is the northern half of the territory, thousands of feet of tunnel and shafts have been run in solid rock simply in prospecting, and now there is promise of results. The work is being undertaken

this year more earnestly than before.

A statement compiled in the office of the quartz recorder in May of this year, 1909, shows in existence in Northern Yukon a total of 760 quartz claims. Of this number 89 are crown granted or patented. The locations for the year 1908-9 were 298, and renewals 373. Considering the fact that none of the properties were producing, but were merely taken on speculation or held for purposes of prospecting, which in this country is expensive, shows what faith is held in the properties.

The most energetic work this season is being done on the ridge between the Klondike river and the Indian river basin, and centering near the head of Dominion, Hunker, Bonanza, Sulphur and other prominent Klondike placer producing streams, and in the neighborhood of what is locally known as "The Dome," that is the central eminence of the camp. From "The Dome" radiates the streams which have claimed the world's attention because of the richness of their placers, and it has been the logical conclusion that where so much high grade placer has been

found quartz of extraordinary value and in large quantities should exist. The surface indications, backed by the theory, have encouraged a number of indefatigable workers to go in on the more promising outcrops. The best known or at least most talked of quartz property on the Dome just now is that which was located two or three years ago, and which is being opened by Dawson people, in association with eastern capitalists. The claims are at the head of Dominion and Lombard creeks, and on the summit several shafts, one to a depth of eighty feet, have been sunk. Assays show \$40 or more to the ton in free milling gold ore. Now a tunnel has been started on the Dominion creek side, and is being run this season with a large plant, using steam, compressed air, and several modern drills. Eight to ten feet a day are being bored, and it is hoped to cut 1500 feet or thereabouts by August, and to cross-cut the veins found on the top.

Near this property are scores of other groups which have been held and prospected with shafts and tunnels for a long time. At the head of Victoria gulch, a tributary to Bon-

anza, other very promising properties are being opened, and a quartz mill has been ordered for one of the groups. Elsewhere on Bonanza and other old creeks of the camp quartz locations are claiming the attention of the devoted owners. In the Twelvemile district, on Lepine and neighboring creeks extensive holdings have been prospected for years and continue to be exploited. On Indian river, a huge deposit of conglomerate is being prospected by several assiduous workers. Two brothers there have been working on a mountain of conglomerate for eight years, and are as enthusiastic today as ever. They have located rich coal near the quartz property. On Henderson creek an ardent old time prospector is sinking a deep shaft through every formation, hoping to locate quartz or a second placer bedrock. On the Sixtymile extensive holdings in quartz are located by Dawson people. At the head of White river, not far from the Bonanza mines, to which the Guggenheims are building a railway from the coast, are many copper locations held by Dawson people, but as yet little prospected.

KLONDIKE'S BIG DITCH

The Building of Yukon's Panama—A Fleet of Gold Ships—Successful Mining Method, Electrical Elevator

IT is a commentary upon the age in which we live that an enterprise which fifty years ago would have startled the round world, had just been consummated within the shadow of the Arctic Circle with scarcely a ripple of interest and no excitement at all at the populous centres of the earth. The first of June found a despatch telegraphed briefly to the larger newspapers announcing that water had just been turned into the Yukon Gold Company's great ditch at Dawson, Yukon Territory, Canada, signaling the completion of that concern's mastery of the novel situations up there where great deposits of gold have for ages been locked up tight in the frozen alluvial gravels. Only that and nothing more. And not one man in a thousand of even those who read that despatch understood that here again was an instance of man's twentieth century mastery of the indomitable elements; and one more triumph for humanity; another victory over seemingly unconquerable Nature; another vast enterprise launched by the daring and brought to a successful issue against obstacles never before encountered.

A Young Panama.

How many yet know that without the herald of trumpets, an enterprise nearly a tenth as big as the Panama canal, and fully as daring and novel, has just approached fruition in the frozen regions of the far North? How many understand yet that commerce the world over is about to be revived as by a transfusion of new blood into the veins of the aged, and this by a new flow of gold by the tens of millions yearly through the overcoming of natural barriers which have held off humanity since the existence of the world? Volumes have been written and read of the Great Salt River ditch, of the diverting of the Colorado and kindred projects. But here was announced as modestly as would be the building of a house, the completion of an undertaking putting them all completely in the shade for courage, for innovation, for difficulties overcome, and for prophetic vision of the engineers and faith in that prophetic vision by the men controlling the necessary millions.

The telegram means the diverting of a river of five thousand inches, and the carrying of that river over precipitous mountain tops, across frozen morasses, through vast ravines, down stupendous valleys, over mighty mountain chains, and finally delivering it by a great inverted syphon over the Klondike river to the once famous Klondike, there to do the work of tens of thousands of miners and restore that region to its pristine glory as one of the most important producers of the world.

Rework the Klondike.

It means the bringing into productiveness of tens of thousands of acres of gold bearing gravel hitherto lying idle. It means the reworking with increased profits of every inch of ground which formed the original Klondike, with additional hundreds of square miles which never could have been worked by the comparatively primitive means at the disposal of the argonauts of 1898. It discounts any and every undertaking hitherto attempted by ancients or moderns against such unique and overwhelming odds as Nature presents in the shadow of the Pole.

The Yukon Gold Company is one of the vast enterprises familiarly known to the public as the Guggenheim group. So singular have been the applications and adaptations of modern mechanical and civil engineering, and so startling the innovations, a few facts and figures will be particularly appropriate in this special issue of the great metropolitan daily of the North. The twenty claims of Bonanza creek and Eldorado creek which offhand produced twenty-four

million dollars and precipitated the greatest stampede of argonauts the world has ever known, have been absorbed along with thousands more by the Yukon Gold Company. Powerful dredges, unique and surprisingly successful electrical elevators, multifarious hydraulics have been installed to work the ground, and finally a northern river, taken from far up in the Ogilvie Mountains, has been brought to do the work of overturning the hills, ripping out the interiors, stripping bare of its gold the accumulated gravels of untold ages. With sun and wind and steam, and now with great floods of water, the eternal frost in the ground is being made eternal no more; is having a time limit set; is being extracted and dissipated to the four winds of heaven. Tremendous machinery has been conveyed deep into the trackless wilderness. Above timber line, at the head of a jagged mountain range where always the million-headed herds of caribou have hitherto been absolutely safe from even the native hunter, is to be found a modern electrical power plant, complete in all its appointments to the smallest detail, sending its magic-working currents along heavy copper lines down to the distant valleys of the Klondike, there to turn the wheels, pump the water, elevate the gravels, saw the wood, wash the black sand, drive the dredges, illuminate the colossal works at night, and in other ways subject to man and make docile the natural obstacles which are obstacles no longer.

Panama Compared.

No part of the Panama canal strip is removed more than a day or two from the ships of the ocean. Supplies and men can be and are landed there comfortably from the ocean carriers almost in sight of their work. Supplies for the men are landed almost at their camps. Not so with Klondike's Panama. Thousands of miles from civilization, and twice as far from the manufactories, men and machinery had to be assembled far in the interior of a country until quite lately thought inaccessible to all but the most daring Arctic explorers and adventurers. An army of men had to be provisioned over a trackless area many miles from even the friendly Yukon river. New methods of road building had to be devised across swamps. The ways and peculiarities of King Frost in his own home had to be studied and mastered. The times and habits of rivers had to be learned. Machinery and supplies must needs be bought years ahead of actual use in some cases. And in the end we find the masterpieces of Pittsburgh machinery duly installed side by side with Germany's best products of steel, and Slavonians, Swedes, Italians, Englishmen and Americans comfortably housed and working in their various capacities far from the madding crowd.

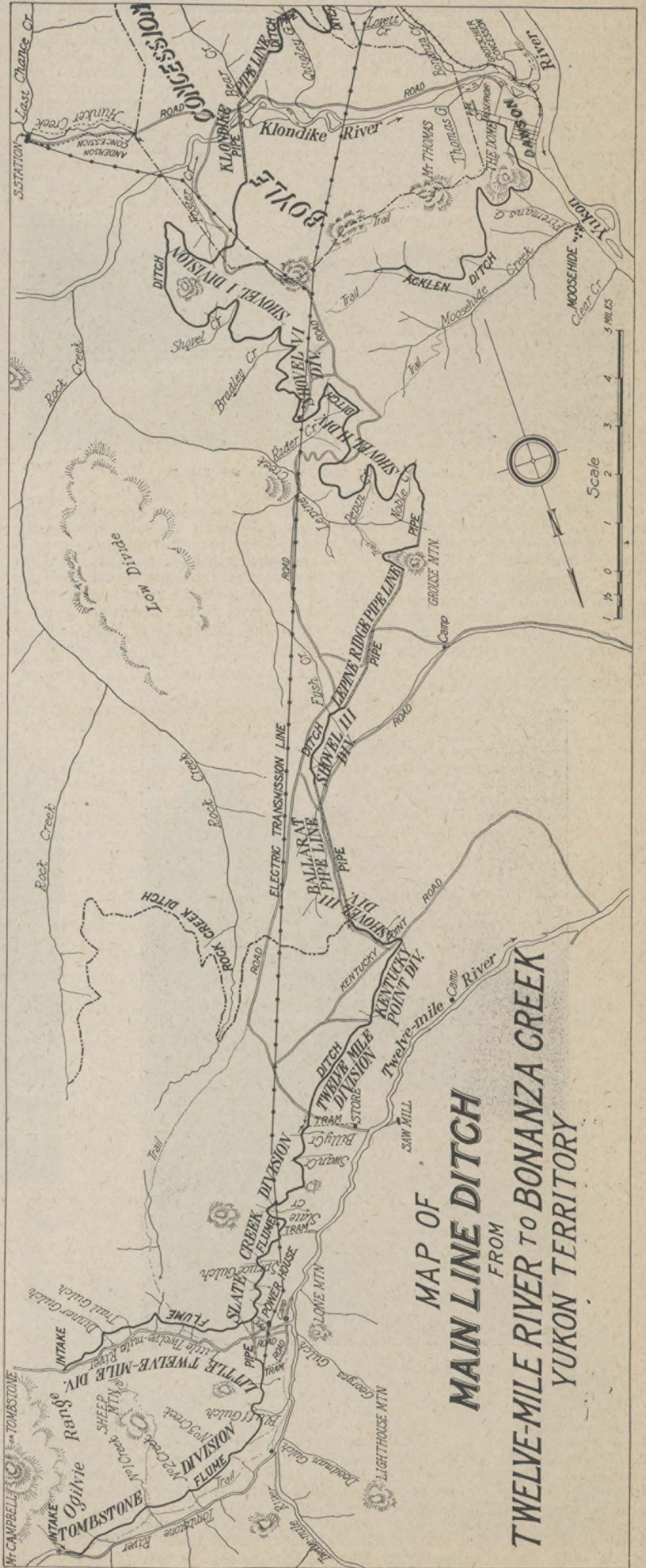
Quite naturally the Klondike river, heading in the distant Rockies, was first looked to as a source of water and power for cheaply opening up Klondike's almost inexhaustible gravels. But a similar supply of water and power to that now turned to use from the Twelve Mile river, would have cost seven millions, would have been another year or two in maturing, and would have required a ditch of eighty-five miles length, instead of seventy miles. The Twelve Mile enters the Yukon eighteen miles below Dawson. It heads in the Tombstone range, part of the Ogilvie Mountains, which attain an altitude of 7,000 feet and over, and afford an inexhaustible supply of water through the summer melting of the heavy snows.

The Great Ditch.

The great ditch, carrying five thousand inches of water, is made up of nineteen and a half miles of flume, twelve and a half miles of steel and

stave pipe, and thirty-eight miles of ditch, acrying every few miles in methods of construction, in dimensions, in grade, and nature of the ground crossed. The bottom of the ditch varies from nine to twenty feet. The fall varies from four to seven feet to the mile. CPlaces where

current would be fatal are slow and big. Where the ground is still more unstable, the great stave pipes of California redwood have been built, crossing the swamps like some vast headless and tailless snake. The Klondike is crossed by a steel line of pipes over a steel bridge specially



built on concrete piers. And at the end the water is delivered 125 cubic feet per second, under a working pressure of 359 to 850 feet, or roughly 175 to 425 pounds pressure to the square inch, according to where on Bonanza creek it is used.

Before filling up the valleys level full with the debris from the golden hills, provision has been made for completely stripping the valleys of their gilded burden. Seven of the largest dredges in the world have been in operation for several seasons. The manner of their operation is similar to that in vogue elsewhere, with the exception that in places thousands of steam points sixteen feet long, are driven ahead of the dredges, and the frost effectively extracted thereby. Night and day the dredges work, tired operators being

the No. 5 copper wire which conveys the high tension current to the goldfields. Four sub-stations, at various points, and transformers at every dredge, change the current back to serviceable pressures.

Electric Elevators.

But while the manner of dredging has been made widely known through the operation of smaller goldships in various parts of the world, it is not so with the electric elevators which are cleaning out the last vestiges of gold from miles of the creeks antipatory to the denuding of the hills. These are a novelty, devised to meet the new conditions of the Klondike creeks, and are proving a miracle of effectiveness. In brief, they are dredges without the dredge. That is to say, there is the same chain of buckets elevating the gravel a ver-

minute 24 buckets dump into the sluiceboxes above. The three elevators of the company each have a nominal capacity of 4,000 cubic yards per day, but this, of course, is modified by the capacity of the sluiceboxes. The buckets are revolved by electric motors. The water from the sump is pumped by electric motors. An hydraulic pressure from the monitors of 140 pounds is secured from electric motors. And the ground is illuminated in the dark nights of the fall by electricity. Two hundred electric horsepower is consumed by each elevator, 35 for the buckets and 165 for the pumps. The effectiveness of the elevators is a marvel to beholders, and a constant source of delight to the hosts of visitors who take a sincere satisfaction in every invention calculated to master the weird northern conditions. Frost interposes no obstacle whatever to the operation of the new elevators. Areas of gravel hydraulicked clean of muck quickly yield the frost under the action of sun and wind. And creek gravels, frozen harder than granite, literally melt as soon as thawed.

It is of record that lots of the ground being worked by the elevators have yielded \$7.50 to the cubic yard and upwards, which is more than double the estimates for the same ground. Since the company is now able to furnish the power at a cost of \$8 per horsepower per month, and ten men per shift can operate the elevator, the dimensions of this mechanical victory, its wealth-making marvel, is readily estimated.

Klondike Inventions.

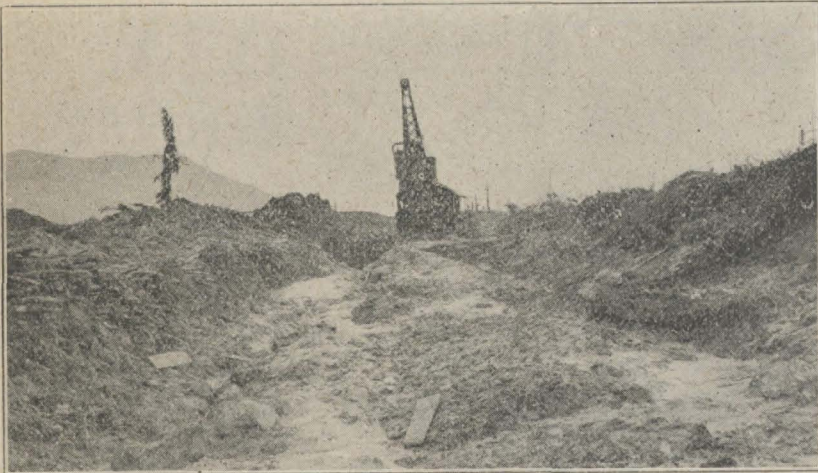
Klondike has in its time introduced, modified and perfected a multitude of devices for mining frozen ground. Everything used throughout the north, and which has gradually reduced the cost of mining from \$15 per cubic yard to as many cents, had its genesis in the Klondike. And the electric elevator, taking the place of the hydraulic elevator found elsewhere, apparently leaves no room for further improvement in working creek bottoms not amenable to the similarly constructed and similarly economical dredges. The electrical dredgeless dredge is the final word in the argument; there is seemingly nothing to follow, ingenuity being exhausted, and effectiveness

just now. The ditch was dug with powerful steam shovels, digging five minutes and then moving ahead by their own power. Six such shovels were employed for three seasons on the work. The modernness of the methods of construction is further shown by the five air compressors—electric, of course—operating the many riveting hammers for the steel pipe, this pipe being thus riveted both inside and out. The substantial steel bridge carrying the pipe over the Klondike river was built with the same aid. The concrete piers of the bridge, for which shafts were sunk through river and gravel down to bedrock, are of sufficient dimensions to withstand the breaking up of the ice of the Klondike river in the spring of the year. Several of the piers, those through the river especially, afforded a unique instance of how the dreadful forces of nature in a country where nature puts on her most dreadful aspect, can be and are utilized. By doing the sinking in the winter, and by chopping out ice as fast as frozen, the bottom of the river was reached through perfect cofferdams of ice—through shafts in the river with frozen sides, and the rushing river held back as perfectly as by compressed air in the cofferdams usually constructed by engineers for such work.

Ten million feet of lumber was used in the fluming necessary to carry the water of the ditch over ravines and bad places. This was manufactured to size and shape at a steam sawmill built on the main Twelve Mile river, a spot beforetime hardly known to even the Indians, but containing the best piece of lumber in that country of not too great a growth of trees. It is of record that in the hands of Angus Macdonald, a general foreman, the efficiency of the most modern plant in the great lumber centres was equalled by the little mill almost at the head of a mountain chain in the interior of that supposed inaccessible country.

Built Against Odds.

More particularly interesting to engineers would be the details of the construction of the ditch. In places it runs through what is practically a glacier, layers of ice being uncovered the moment the upper muck was removed. Cribbing was resorted to,



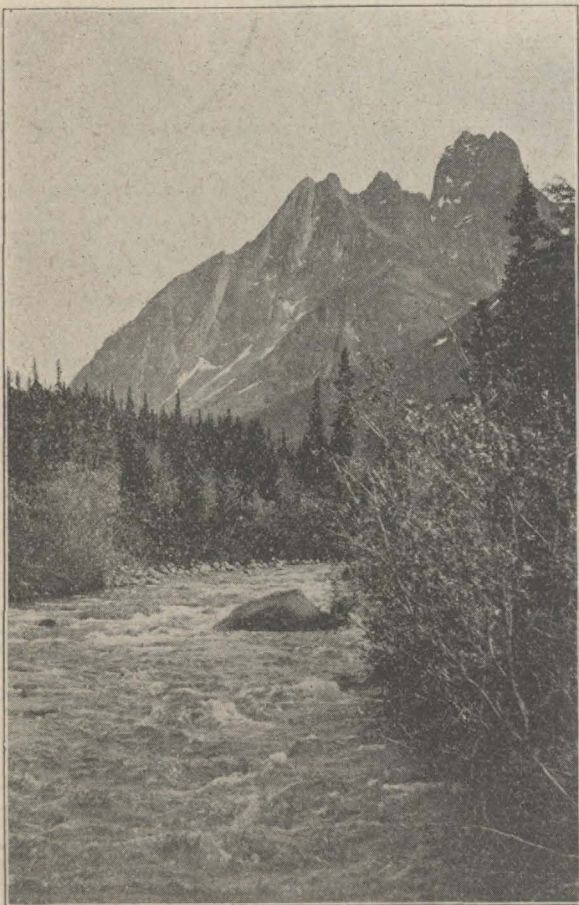
Steam Shovel Working Near the Clouds.

replaced by fresh ones at intervals, the rumble of the powerful machinery and the rattle of the gravels from the stackers behind being all pervading over the old Klondike.

Dredges Electrified.

The seven dredges are electrically driven, securing their current from the power plant on the Little Twelve Mile over heavy copper lines.

tical fifty feet. But the pond of water and the ship are replaced by a sumphole on bedrock into which sumphole the surrounding gravels and muck are hydraulicked. From the top of the steel tower carrying the string of buckets runs a line of sluiceboxes, into which everything from the sumphole is elevated or pumped. Presently large areas of



Near Head of Tombstone Creek.

The main line is 36 miles, the branches 18 miles. On Little Twelve Mile a flume five and a half miles long, three by four feet in size, delivers 60 cubic feet of water per second under an effective head of 650 feet. Three generators convert the power from the Pelton wheels into three times 625 kilowatts, the current being stepped up from 2,200 volts to 33,000 volts, and then switched into

bedrock are exposed and drained, and then men get to work with brushes and scrapers and picks. In this manner bedrock is cleaned of its gold absolutely, and the slabby bedrock, which beneath the pond will puzzle the dredges, is robbed completely if its last grain of the yellow metal. Each bucket holds three cubic feet of gravel. There are 76 of the buckets in the string, and each



Wooden Pipe Line Under Construction.

and economy having apparently reached its maximum.

The seven dredges of the company, making their own ponds and floating thereon, are similarly the ultimate of many years of evolution and experiment. The dredge swings from side to side constantly, taking a swarth from the bottom of the pond, sluicing it within the dredge itself, stacking the coarse gravels high in the rear, and pumping the sand behind the same gravel piles, the whole as barren of gold as before Nature started making the Klondike.

Modern Methods.

But it is on the newer developments to come from the new flood of water in the great ditch that public attention in the north is centered

the sides being then lined with moss and dirt again, in this way taking a lesson from the country itself, where pure ice is found many thousands of years old, lying unthawed in the hottest summer weather, protected by just a natural growth of moss filled between the interstices with decayed vegetation and sand stuff. Naturally in such places current was not wanted, hence the varying grade of the ditch from time to time, and hence the varying size, the bottom varying in width from nine to twenty feet. The worst ground is that in which not only layers of ice but nearly vertical veins of ice extend through the moss and muck, so as to afford a channel for seepage as the ice thaws. These permit the water

from the ditch to escape, and it will appear a hundred feet or more from the hill slope in the form of a geyser—if permitted by the builders. But these, too, have been circumvented, and the bottoms, where necessary, have been protected in the same way nature would do it if the bottom of the ditch were the surface of the earth.

The wooden pipelines found here and there carry 200 feet of pressure. They vary in diameter from 40 to 50

An Expert's Summary.

"In building the ditch many natural obstacles were encountered. They were overcome by methods suggested, for the most part, by experience gathered elsewhere in the north. The following examples will prove suggestive:

1. Frozen muck, where there is material for constructing lower bank, is scraped by the aid of horses so as to accumulate on the lower side,

taining open drains the whole mass is dried. In the second season the ditch is dug again, and the stuff which filled it serves to form the lower bank poles, moss and fill are arranged as in No. 1. When the moss on the upper side is thick and remains unbroken, it drapes the underlying silt, which continues to run out like a thin mud until it finally attains angle of the rest; then the moss protects the bank from further thaw. When, however, the moss of the upper bank is thin or brittle, the silt slides into the cut, and must be scraped by teams to the lower side. In cases where the lower bank is uneven so that poles cannot be laid regularly, two stringers are stretched longitudinally to serve as a base for the poles. These stringers are held in place by logs placed horizontally underneath the lower bank.

3. Shattered schist is easy to dig, but it makes leaky ground. Digging is done by the steam shovel and the ditch is made 14 feet wide at the bottom. The corners are excavated by hand labor, and filled with moss to a depth of at least 12 inches. The bottom of the ditch is also blanketed with a foot of moss. On top of this is spread a covering of 8 to 12 inches thick of good puddling dirt, and the sides are given a slope of 1 1-2 to 1.

4. A rocky slope with no lower bank offers another problem. On the lower side a crib of logs is built, with a base six feet wide and a top four feet wide. This framework is filled with broken rock. Moss and puddling are applied as before."

The foregoing affords some idea of the nature of the ground on which the engineers were called to exercise their skill. Nor are ditch, electric elevators, dredges, etc., all they were required to adjust to the new conditions prevailing there. It was decided also to conserve the water natural to some of the creeks to be worked, and to this end a mighty dam was thrown across upper Bonanza creek, which, filled by the thawing snows of spring, affords from the reservoir so made some 700 miners' inches of water for at least forty days. Nine miles of flume, and an inverted syphon of steel across Bonanza creek far below the dam, pours this precious water onto the heights of Gold Hill and the hills below.

Another Ditch.

But for the presence of the overshadowing of the great ditch, another ditch of twenty miles, known as the Acklin ditch, would be considered an important enterprise. Taking the water of Moosehide creek, the ditch carries it around Moosehide mountain and onto the heights of the left bank of the Klondike river, opposite the mouth of Bonanza creek, where at some time in the dim and distant past Bonanza creek deposited some of its carried gold at a level far higher than the creek at present. And so what was once known as the Acklin Potato Patch, and was a magnificent garden, now shows immense gravel pits from which the ground has been removed by hydraulics.

New Klondike.

The Klondike has to date produced a hundred and twenty-five millions in gold dust. It is estimated upon

reliable data that much more remains to be taken out. The Yukon Gold Company's holdings are of fabulous known wealth. The expenditure of twenty millions and more in purchase and construction and labor of operation becomes a mere drop in the bucket. Upon acquiring their properties, the company for the most part ceased operating them by the older and more expensive methods in vogue before the company's advent. Naturally, since cheap power, mighty dredges and wonderful electric elevators were to be installed, and the whole supplemented with a river of cheap water under great pressure on the tops of the highest hills—quite naturally it was business to await the advent of the new methods. Now that the water is on the ground, now that dams, reinforced power plant, elevators and dredges are all in operation, there is to be a most marked rise once more in the yearly amounts of gold coming from the Klondike. As a producer the camp saw a new birth with the telegraphing of the news of the arrival of the Twelve Mile water on the heights far above Dawson City. And so vast are the known gravel deposits carrying gold profitably to be worked by the newer and cheaper methods, there is no way of fixing a day when there will again be a falling off in the gold production. The first year there will be no attempt to operate the ditch to its fullest capacity. It will be carefully tried out and watched. Costing some three or four million dollars, built as it is through such strange environment, and precious as is its maintenance in view of future possibilities, it is inevitable the maximum will not be attempted for a season or two. Meanwhile the arrival of the valuable water cheapens the operation of even the machinery installed and operated for years. With but a portion of the water now available the overburden of the creek gravels being worked by dredge and elevator can be readily made to disappear down the Klondike into the Yukon, and thence to the sea 1,500 miles distant. Water works magic with the muck covering of the gravels. Then the sun and wind act fully as magically in extracting the frost, thus facilitating immensely every branch of the work of extracting the gold.

Then, as the creeks become worked out, will come the leveling of the hills, the deep, canyon-like creeks affording unlimited dumping ground for an unknown period. There will be no state legislation against it as in California. There are neither farms to be overflowed nor sluggish river to become blocked by the dirty water from the mines. It is a country devoted exclusively to mining, and where the natural conditions, once matured, aid rather than retard. Mountain torrents are harnessed for power. Mountain streams furnish the hydraulics. Rapid rivers, which made useless scores of steamers of the first steamboats sent to stem their torrents, insure a perpetuation of their channels against any possible mining conditions.

T. A. Rickard, himself a mining engineer of widest experience and an authority whenever he speaks, was an astonished visitor to the big works



A Section of Pipe Line.

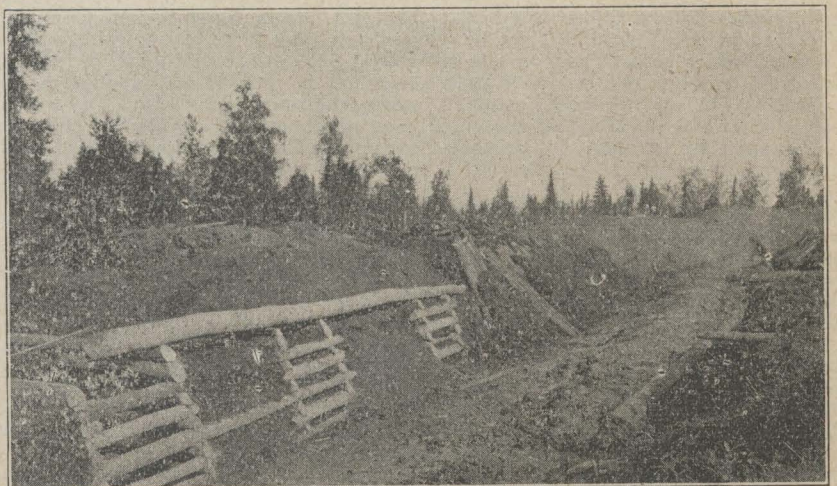
inches according to the grade. The material is from California mills, the staves being shaped where made, and being assembled mile by mile on the ground, the whole held together by malleable iron bands and steel rods. The spacing of the bands determines the pressure the pipes will stand. Smaller wooden pipes in use elsewhere in the far north have demonstrated the complete reliability for these stave-pipe sections of the great ditch. A few extracts from the reports of the mining expert, T. A. Rickard, who also is editor of the Mining and Scientific Press, of San Francisco, will disclose somewhat of the difficulties overcome.

and against the bank thus formed poles are laid close together, the points being placed two feet below the grade of the ditch. Upon the poles is spread a layer of moss or sod from 6 to 12 inches thick. Then dirt or other good tamping material is scraped, forming a slope 5 feet from the top of the moss, and inclined at an angle of 1 1-2 to 1.

2. Fine silt or glacial sand, which is frozen material upon being exposed to the warm air, upon removal of the moss, thaws to a slime. In such material the ditch is dug 16 to 18 feet wide, during the first season; the lower bank sloughs away; the upper bank melts, and the ditch is practically obliterated; but by main-



On the Line of Ditch.



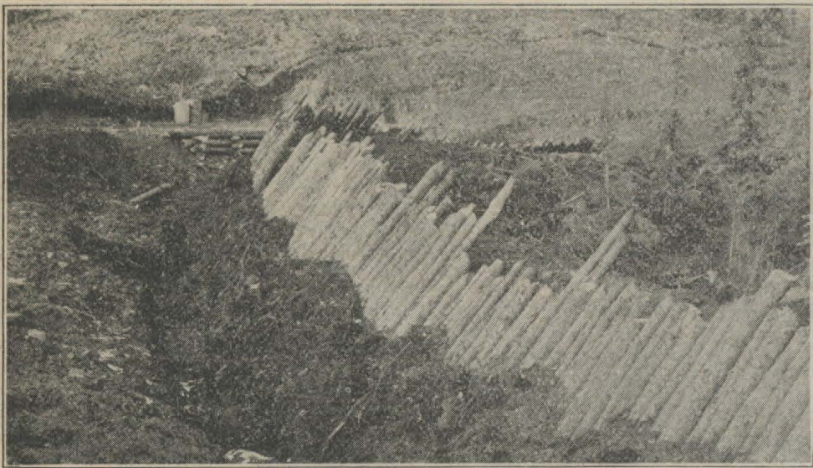
Another Piece of Ditch Construction.

during construction. He graphically sums up some of his impressions thus:

Expert Sums Up.

"It was no light task to take care of the men engaged in this work; they were scattered over a line reaching more than 50 miles from Dawson, the various camps being pitched in

as the frost comes a passage is effected. A plow removes any excess of snow, and the road is then watered to give it a durable crust of ice. Logging sleds from Michigan are used. The average load is nine tons with four horses, and eleven tons with six horses. The maximum load is fifteen tons with six horses. It cost



Bulkhead to Protect Ditch.

a wilderness of scrub and soggy moss. No supplies, either of food or material, are hauled in summer, for all the roads, except those built by the government near Dawson, are then impassable by heavy wagons. Hauling is done exclusively in winter. The stumps and brush are cleared in a line across the marsh and as soon

\$2,000 to set up a camp, and it cost \$7,000 to \$12,000 to get a steam shovel ready to work. Not less than \$75,000 worth of horses were employed, the price at Dawson being \$800 to \$900 per pair.

"The magnitude of the work accomplished by the engineers of the Yukon Gold Company may be in-

ferred from an enumeration of the tasks completed during the three seasons since the surveys were completed; seven dredges in commission; three mechanical elevators; a dam and reservoir (700 miners' inches for 40 days) on Bonanza creek, connecting ditches, flume and pipe—aggregating nine miles); a power plant of 2,000 horse-power (now increased by the addition of a third unit generator—Ed.), with 36 miles of line, 18 miles of branch, and 8 miles of secondary lines; 64 miles of main ditch, flume and pipe of 5,000 inch capacity (Now increased to 70 miles—Ed.) All this has been done 3,500 miles distant from manufacturing centers, with an inadequate supply of labor. Some of the machinery that arrived at the time of my visit had been ordered 18 months previously. The company was carrying 1,812 men on its payroll, representing from 1,600 to 1,700 men continuously engaged. This called for an expenditure of \$300,000 per month. In the examination of the claims purchased or optioned not less than \$55,000 was spent. During the season of 1907 over 7,000 tons of material were received, and it was inevitable that some of the parts ordered in advance, for immediate operations, should be delayed in delivery despite every effort. It is always difficult to operate when engaged in construction work on a large scale. Of the four large dredges, two are Bucyrus and two are of Marion manufacture, each couple being of the same pattern, so that the parts are interchangeable. The three smaller dredges were built by the Bucyrus company. They are of iden-

tical design and entirely interchangeable. A sufficient stock of parts is carried, so as to obviate delays from slowness of transport. Maintenance of a proper commissariat for laborers scattered over an area 70 miles long by 30 miles wide required some generalship, etc."

The supervision of all this remarkable work has been in the hands of singularly youthful men. Older men might stand appalled before the problems to be solved for the first time, or might prefer to follow safely after established precedent. And, too, with maturer years comes often a liking for greater creature comforts than are to be found on an Arctic frontier. Apparently much the same thought struck Mr. Rickard, from whom we have previously quoted. He says:

"The supervision has been in the hands of young men, mostly graduates from mining schools. The chief, O. B. Perry, is a graduate of the Columbia School of Mines; the resident manager, Chester A. Thomas, hails from Stanford University; the superintendent of dredges, E. L. McCarthy, is a Harvard man; C. G. Newton, in charge of pipeline construction, is a Michigan graduate; the head of the hydraulic mining, George T. Coffey, is a graduate from the school of experience; H. H. Hall and E. A. Austin hail from Stanford. They constitute a fine body of young and vigorous men, willing to make the most of the long Arctic day, and eager to hasten a work of which it can be said that it is the most interesting example of man's invasion of the trackless wilderness that borders the Arctic Circle." •

NORTHERN COAL FIELDS

By CAPTAIN C. E. MILLER,
of Dawson.

FROM present indications the country in the vicinity of Dawson must at some day have been a large lignite coal field. Outcrops are to be found in most directions and after approaching Fort Selkirk a field of older measures is entered with outcrops of bituminous and as we pass toward the coast, even approaching semi-anthracite.

The coal of this region will compare very favorably and in some cases much better with coal mined in the states of the Pacific slope. The coal indications in the Yukon valley and throughout Yukon and Alaska are extensive. To speak of the known deposits in Yukon territory proper, I may say that there is a coal deposit 23 miles southwest of Whitehorse, which is said to be semi-anthracite. The seams lie at an angle, and there are a number of them outcropping.

On Indian river, less than 30 miles from Dawson, to the south of the city, there are two lignite coal locations. On one of them several hundred feet of tunnel has been run. The coal is said to be of good quality.

On the Twelvemile river are deposits of lignite equal in quality to any found in this belt.

Three hundred miles northeast of Dawson coal outcrops are reported on the Wind river. The seams are said to be more than six feet in thickness. This river is a tributary of the Peel river. The samples shown by H. Vaughn, who returned from the country with Charles Black a year or more ago, compare favorably with the best I have seen in the Yukon.

Seventy miles below Dawson one of the large trading and transportation companies for several seasons mined coal at Cliff creek. Much of the coal was shipped by steamer to Dawson, and found a market at \$25 to \$30 a ton of 2,000 pounds.

In the vicinity of Five Fingers, between Dawson and Whitehorse, and right on the bank of the Yukon river, are a number of coal locations with which I am most familiar. I made the locations on some of the properties, and have been associated with their development. In 1900 I located the Five Finger coal mines from a blossom or outcrop which I sighted when on the way down the Yukon river in a small boat the year before. The property previously was located

by George Carmack, famous as the discoverer of gold on Bonanza creek. The seam on which I first located is two feet nine inches thick with some rock through the top portion. The texture of the coal is quite hard, and it will not slacken when exposed to the air. It is a very good coal for domestic and steam purposes and will coke. It has a good roof and floor.

The mine has produced several thousand tons, always finding a ready market for the product. The analysis show 10 to 15 per cent. ash, and 45 to 50 per cent. fixed carbon. I opened the Five Finger coal properties in association with Fred Wade, former crown prosecutor of Yukon, and after operating it five years, I located the Tantalus mine, and operated it three months, when I leased it to a large navigation company of the upper Yukon, the present operators. The coal is sent to the Dawson market, and burned on nearly all upper Yukon boats. They have used it five years. The railway running from Dawson to the creeks also has used it ever since it was put on the market. The Tantalus mine has been the largest producer of any in the Yukon. It is 240 miles south of Dawson, and so close to the water's edge that room for some of the works had to be made on cribbing. This coal needs to be washed to make it satisfactory for domestic or steam purposes. The seams lie at an angle of about 30 degrees, and vary in thickness from three and a half to eight feet. The analysis shows fixed carbon 65 to 70 per cent., ash 10 to 15 per cent., water 1 to 3 per cent., volatile, 2 to 12 per cent. It is claimed this coal is much more economical than wood, and it has been demonstrated that when clean it equals the Comox coal for fuel. It has proved satisfactory in tests for coke, and assayers have pronounced it satisfactory for smelting.

The Tantalus Butte mine, two and a half miles up stream from the Tantalus, was located by me in 1905. The property has not produced as yet, but the outcrops show, and there are three opened, one seam of seven feet, with one foot of rock near the centre; one seam seven and a half feet thick, with one clay band a quarter of an inch thick; and one seam five and a half feet thick.

These seams lie at an angle of 35 to

40 degrees. Butte Mountain is 860 feet high over the water level. The river bends and winds around ten miles after it first touches the hill, and travels but half a mile with the hill in having made ten miles of a run and dropped three to four feet to the mile, which some day might be used as water power through the coal mine. The analysis of the seams show: fixed carbon, 55 per cent; ash, 4 3/4 to 7 per cent, and volatile, 29 to 31 per cent.

The Tantalus properties lie about 208 miles north of Whitehorse by the

route of Yukon navigation, along the lake and river; or 130 miles by government road from Whitehorse, and 150 miles from the Klondike placer fields. The roofs and floors of these properties are solid sandstone, with no interruption except breaks from lateral pressure and other causes.

I estimate the Tantalus Butte has three million tons virtually in sight above the river. It is only 400 feet from the river. The Tantalus, I estimate, has four to five million tons under the water line.

FURS IN THE YUKON

By J. S. BARRON, of Dawson.

DAWSON is one of the largest fur centers of the North. The fact that many of the finest furs in the world are obtained from this region has caused this city to be looked on



J. S. Barron.

—Phot. by Duclos.

in the fur world as one of major importance. The people of Dawson naturally take to furs in winter, and those who buy in the Dawson market have the first choice, and therefore get the best that is going. Nearly every Klondiker is more or less of an expert in matching and selecting furs, and the women of Dawson wear many of the finest marten, mink, fox,

ermine, beaver and wolverine sets to be seen anywhere.

The localities in Yukon mostly frequented by trappers are the Pelly, the headwaters of the Klondike, the White river, the Stewart and the Fortymile. Some say the best fur is obtained on the headwaters of the Pelly, where a few years ago marten were plentiful. During the winter of 1902-1903 two trappers caught 446 marten, and also a large number of otter, beaver and mink, which they sold at the trading post at Fort Selkirk. The marten averaged \$7 a skin.

In the Pelly country there is a trading post at the mouth of Ross river, where fur can be sold by trappers and supplies can be obtained for prospecting. Unless a trapper has a large number of skins, it will not pay to make the trip either to Fort Selkirk or Dawson as the extra price that could be obtained would not repay the expenses and time occupied by the trip.

A much higher price can be obtained for wolves and wolverine in Dawson than can be obtained in the markets outside of the Territory. This class of fur is shipped from Dawson to St. Michaels and other points on the lower Yukon, where it is much in demand by Indians for trimming purposes. For one wolf or wolverine the Indians will give in exchange three white foxes or three marten. The value of wolves and wolverine is, therefore, determined in the Dawson market according to the demand by the Indians along the lower river.

SIXTYMILE DISTRICT

By ARNOLD F. GEORGE,
Secretary of the Yukon Miners' and
Merchants' Association.

THE Sixtymile creeks head with the Fortymile, and the same general characteristics prevail. The gold is coarse, there has been much concentration of it, and the miners are chiefly engaged in taking it out where it may be described as in "bonanza" quantity. That is to say, the exploitation of cheap ground at a small margin of profit has been neglected in favor of ground where even desultory work and primitive methods cannot fail to yield a profit. It is wholly on the British side where the work is being done. The working creeks are fewer, the miners less numerous, and the area of exploited territory far less. But while the activity is confined to Glacier, Miller, Big Gold, Little Gold and Bedrock creeks and a portion of the main Sixtymile itself, it is a self-supporting and profitable country, while recent developments have still more accentuated its "bonanza" features.

GLACIER CREEK.

Glacier creek is the center of present activity and population. It is seven miles long and runs into Big Gold just a short distance from where Big Gold in turn empties into the Sixtymile. And thereby hangs an important tale, as will appear later. All of Glacier is staked, with fractions and benches, from 37 above to 33 below, and is represented and held from year to year. Work has of recent years been on the upper end, most of it summer work, many of the miners looking elsewhere for deeper ground with which to occupy themselves in the winter. As far as 18 below good pay was found. Below there the creek acquired a reputation of containing only a little of the finer gold. But John Stocton staked a discovery on Big Gold near the mouth of Glacier, which claim took in Glacier ground. A tunnel towards Glacier 200 feet long, and a shaft at the end of the tunnel sixty feet down, revealed pay. Later the pay proved to be Glacier pay, and on the left limit, where before unsuspected. The work of the early part of this winter, before I went there, had disclosed an important strike of coarse gold from this Stocton discovery up Glacier very nearly to where the rich pay left off at 18 below years ago. Before the holidays many fair sized dumps were out, activity everywhere, and the promise then made of many five and ten thousand dollar dumps is being fulfilled. As in the Fortymile country, the average depth is less than thirty feet. This new pay has already been traced down Big Gold, with every indication, as far as the miners have been able to investigate, that it will continue a greater or less distance on down the Sixtymile. It is a valuable discovery, as the granting by the government of much of the nearby Miller creek in a concession had restricted the known gold area of the miners.

Glacier, though only fifty miles from Dawson, in the winter time is very remote from the necessity of reaching there by way of the Fortymile river, and over the divides.

Note—The writer here enumerates many claims which are working in Glacier.

Five dollar pans are common on Glacier. I panned dirt going into the dumps, unpicked, which went \$1, \$2 and \$3. The width of the new pay had not been demonstrated when I was there. Shafts a hundred feet apart found some edge pay. On down Big Gold the ground is staked to No. 12 below, where Rufus Miller last year got water onto the benches with a three-mile ditch from Glacier. After concentration by ground sluicing, he took pans as high as \$50 and \$58. Men are too few and too busy to investigate whether the pay continues on down onto the likely benches on the Sixtymile.

LITTLE GOLD AND MILLER.

This is a tributary of Big Gold further up. Work has been done and gold taken out, but the only men up there are John A. Davison and partner. What is already known guarantees the creek will be worked when transportation charges come down.

Miller creek is a duplicate of Glacier in many respects. From discovery to the mouth, thirty claims, is in a concession, but are known to be rich. Only two claims in between are held privately. To twelve above I found the ground owned and worked. Since my return reports have been received of a very valuable strike on the upper creek, of which there is no reason to be skeptical, since gold has been coming from there steadily. The new strike is on No. 5 above, where Madsen and Bourdelais have opened up five feet of gravel carrying coarse gold valued at 8 and 10 cents to the pan.

The concession is doing good work preparing for dredging operations. An experimental attempt at hydraulicking proved disastrous. What water has

been secured is now being utilized in the most practical and extensive attempts in the territory to strip off the overburden of muck, and have the sun extract the frost from the gravels. The work done thus far is very promising. With a drill and by drifting and sinking shafts the paystreak has been or is being properly located and staked on the surface, and it is computed that the frost will be extracted eventually from the entire auriferous area at a fraction of the cost elsewhere seen in thawing by steam.

VALUABLE EXPERIMENT.

The experiment is a valuable one for the territory at large, where the various dredging enterprises are against this frost proposition. Success on Miller creek extracting the frost cheaply by the sun will be watched, and success should be given the widest publicity. Upon this point U. S. Geological Survey Bulletin 345, 1907, says:

"Dredging cost in frozen ground is increased by thawing cost, which may range from about 25 cents to 40 cents or more to the cubic yard. It may even be as it has been in certain places in the Klondike, more than 80 cents per cubic yard. It is not likely that dredging frozen ground requiring steam thawing can ever be conducted for less than 50 cents per cubic yard unless a new means of thawing shall be evolved. This means that inasmuch as it is exceptional to find extensive deposits of alluvium at such high tenor, frozen ground in general can not be dredged profitably."

The local work of stripping the concession is in charge of Harold Hosking, on the ground under Guy Lewington, mining expert of the company.

BEDROCK CREEK AND OTHERS.

Bedrock parallels Miller, and enters the Sixtymile further west—up stream. Every inch of this stream carries gold, of sufficient value to be worked when freights are reduced by better roads and

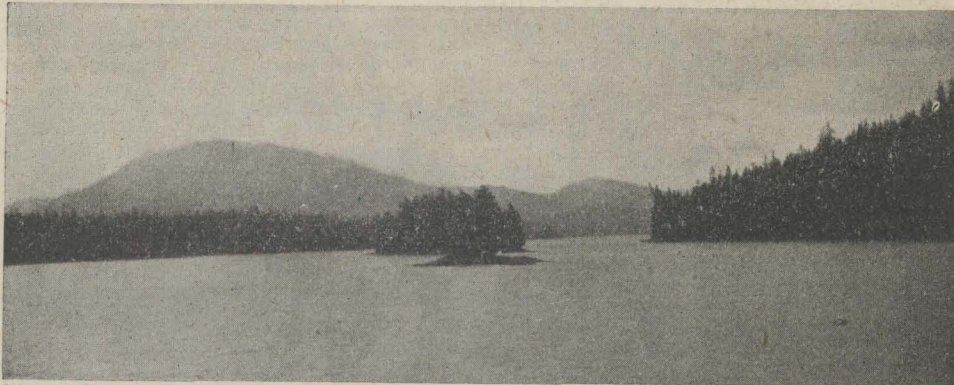
territory, and some of which may be put down as permanent producers. A creek crossing the boundary, with pay on both sides, is Poker, a summer proposition, with only one man wintering there when I passed. Davis is another. Both are short creeks, shallow, and worked by ground-sluicing and shoveling in.

But Moose creek, all of which is British, but a claim or two at the mouth, is no longer a "sniping" creek. It is staked and held owing to the work of one man who has opened a new discovery on which many men have panned 25 cents. Several more men have moved in. The gold I saw is coarse and flat, and of a dirty high-grade color. The tracing of the pay from discovery is proceeding with some success and much promise.

Bear creek parallels the Yukon at some distance inland. It has long been known to carry gold both on the main stream and its tributaries. It has been the scene of many stampedes, being convenient to Fortymile for that purpose. But persistent search there has been none until lately, when continuous work upon Hubbard, a tributary near the mouth, has uncovered "bonanza" pay, amounting, it is said, to as high as half an ounce to the pan. This strike was since I passed through, and I was therefore unable to personally investigate.

Six to ten men worked on Log Cabin creek part of the winter, this being brought about by a recent discovery of two-cent dirt in quantity. The work done has improved the value of the find somewhat, and has shown four feet of it.

A word must be said of the enormous plentifulness of game throughout this entire region of Fortymile and Sixtymile. Though used for every purpose for which meat can be used, including feeding the dogs, no impression whatever has been made upon the vast herds of caribou which roam the hills. Herds which it would be impossible to count pass



Yukon River, Near Dawson.

facilities. Several men are permanently located there, and many of the claims are owned and represented.

The N. A. T. & T. Co. hold the claims on Sixtymile below Miller, both creek and bench, down to nine below the mouth. Only two or three other claims are owned. Sixtymile creek or river shows gold in the bars as far as the Yukon. Ten dollars a day has been made on some of the bars near the Yukon by men with grizzlies and rockers. There has been practically no prospecting of the main extent of this river, with every indication pointing to much gold thereon.

At the head of the middle fork of Sixtymile is an outcropping of interesting quartz. The point is sixteen miles from the Glacier settlement. In four years' work to the extent of \$5,000 has been done. A seventy-foot shaft penetrated 14 feet of a cap yielding assays to \$20 and \$30, while the bottom of the shaft yielded more, chiefly in gold, but carrying tin, galena and iron.

Towards the head of the main Sixtymile is another outcropping of quartz, differing somewhat, but regarded as very valuable by the men exploiting it. Also thirty claims in that neighborhood are recorded on the American side, including a coal mine furnishing excellent samples of coal.

On a tributary of Boucher creek is another outcropping of lode mineral. Four claims are recorded.

BEAR AND OTHER CREEKS.

There are many more creeks in the Sixtymile showing gold, but which creeks cannot be regarded as established. California is only one of these many promising creeks. But across the ridge dividing the Sixtymile watershed from that of the Fortymile are many Fortymile creeks, all and nearly all in British

territory. Miners readily stock their caches, until the meat becomes a surfeit. They were in sight on the hills for months. One man I met got eleven in half a day. It is interesting to note that the Peel river Indians this winter abandoned their own hunting grounds east of the Yukon, and have spent the winter in this territory west of the Yukon. Good trails have been established up Swede creek and over to Sixtymile river by these Indians bringing in their moosemeat and caribou to Dawson. The range of the herds was over the tops of the divides, where the snow is blown from the moss and shrubbery, and extends almost from Dawson to the divide between the waters of the Fortymile and the Tanana. Travelers up the Ketchumstock and Mosquito Fork report fabulous herds, the herds being miles wide and requiring many days to pass a given point. It is suggested by experienced hunters that the slaying of the preying wolves by trappers and hunters is what has enabled the herds to attain this enormous size. The plentifulness of game, fish and berries aids the miners materially in overcoming the handicap of excessive cost of food supplies.

Glacier is 7 miles long, was very active in years past, but this year will produce more gold than for nine years.

Fortymile and Sixtymile show the same high channels found in Klondike, but owing to the scanty population, extent of the creeks, and lack of crowding, it is only now attention is coming to be bestowed thereon. Big results may safely be predicted, for whenever cut by the creeks, these channels have fattened the paystreak just as here.

Mr. George's report on the Stewart River country will be found under the article herein entitled the "Stewart River District" by A. W. H. Smith.

Agriculture and Horticulture in the Yukon

By WM. S. PADDOCK, Dawson Farmer.

IN 1898, when the great rush took place to Dawson from the older portions of creation, one man had the nerve to plant a few seeds in the sandy bank of the slough where St. Paul's cathedral of Dawson now stands. He was ridiculed for thinking he might raise anything in ground which only a foot beneath the surface was charged with eternal frosts. To the surprise of those who laughed at him and to his own surprise the man succeeded in his little enterprise. The seeds germinated, grew and produced fine vegetables, for which he got a fabulous price from the eager-to-buy Klondikers. The next year he planted a garden on an island near the mouth of the Klondike river, where he grew several varieties of vegetables.

To the surprise of everyone it was found that the vegetables here grew and matured much more rapidly than outside. He sold his crop faster than he could harvest it, and got the then extraordinary prices of \$6 a dozen for celery; and 35 to 50 cents a pound for turnips, carrots, beets, cabbages and the like.

The success of the pioneer experimenter in Dawson encouraged others, and the industry rapidly spread near Dawson, and each year is taking on more extensive phases, until today about 200 acres of land are under cultivation in the suburbs of Dawson, and the crops produced are as large in weight per acre as those of any outside farming district. This is the result when the soil is in proper condition, that is, when it has been cultivated two or three years and is well fertilized. I have seen oats harvested here that cut 50 bushels clear to the acre; and I have dug potatoes in the vicinity of Dawson yielding 350 bushels to the acre.

The islands in the Yukon or other large streams are the best for gardening, because they have no frost in the ground, and are more or less of a decayed vegetable matter, and are not so sour as the mainland, which is covered with moss. It is the moss which makes some ground in Yukon very sour, and as a rule very poor. But by plowing and cultivating about three years it becomes quite fertile, and will produce good crops. We are visited about every month by a light frost, so the sensitive plants are grown in the greenhouse. These include melons, tomatoes, peppers, egg plant and cucumbers. Some have been grown, however, out of doors with great success after having been started under glass.

By starting the greenhouses early in February, we have lettuce, radishes, onions and such small stuff in the market by March 20. In the meantime we start in the greenhouses celery, tomatoes, peppers, egg plant, cucumbers and the like, and, in fact, plants and flowers of all kinds.

By May these plants are of good size and can be transplanted in the open ground.

By starting the greenhouse work February 1 to 10, the gardeners get six crops of lettuce or radishes off the same bench, but two or three generally are raised, and the plants then are transferred to hot beds, and the greenhouses filled with tomatoes, cucumbers, egg plants, and peppers. The experimenters have not been able to raise any of these last named plants by outside gardening, that is, so as to ripen the fruit, but can do so by having the plants transplanted in pots until the first bloom. Tomatoes average eight to twelve pounds to the plant.

Because of the frosts coming too early, corn and beans are not a success in this country, but garden beans are raised to some extent with great care. Celery grows splendidly by starting the plants in the greenhouse twice, to get a good root, and then transplanting in the garden in very rich material. This will produce large, crisp and exceedingly tender and luscious celery. I believe no

celery in the world can excel that of Yukon for tenderness and quality in general. It is a matter of common comment by all visitors to Yukon.

Cabbage and cauliflower do very well if the plants are started in hot beds, and replanted in the gardens. We use for our winter cabbage what



W. S. Paddock.

is known outside as the early cabbage. Late cabbage will not mature here.

Beets, carrots, turnips, arsnips and the like sown about May 1st in the open garden will mature and yield well. Oats and barley grow well and will ripen when desired, but the farmers find it more profitable to cut it in the milk, and to make it into oat hay, as hay here brings about the same price as oats or other grain—a result of high freight rates from the coast. Not much timothy hay has been raised in Yukon, but from

They stand the Yukon winters splendidly.

Potatoes yield from 200 to 300 bushels to the acre, and by planting the very earliest seed maturity is secured. Potatoes here have to be dug from September 1st to 15th, whether ripe or not, as a killing frost may be here by September 15th. Sometimes the frosts do not leave the ground after the last of September.

The farms producing hay and grain are becoming quite numerous. At the head of Flat Creek, 16 miles from Dawson and 50 miles or more from Dawson is a ranch of 160 acres on which are raised much hay and many vegetables. The owner has a herd of stock. Four miles up the Pelly is a farm of 100 acres which supplies oats and native hay to roadhouses on the winter trail and to others. Oats are ripened and threshed in this vicinity. In the Mayo district sufficient wild hay is cut to supply the demand.

Prof. John Macoun, Dominion florist, in his extensive reports to the government, embraces this in his pamphlet on Yukon:

"I took notes during the seven weeks I was at Dawson of the growth of all cultivated grains and vegetables. Everything, be it native or exotic, grew surprisingly, and I never found any cultivated thing a failure. Growth of vegetables is so rapid and vigorous that to a person coming from the east it is simply astounding. When I reached Dawson on July 10th early cabbage were being cut, and on August 5th their weight ranged from 3 to 5 pounds. On the 22nd, when I made my last visit, hundreds of matured cabbages and cauliflowers had been cut and sold. I measured the two lower leaves of a cabbage cut the day before, and these placed opposite each other had an expansion of 3 feet 9 inches with a breadth of 16 inches. I cannot call this even an average one as there were hundreds

son City is named, says, that to-day the Yukon Territory may well be characterized by the term which has been employed in connection with the Mackenzie basin, a portion of "Canada's great reserve." In the future there is every reason to look forward to the time when this country (Yukon) will support a large and hardy population, attached to the soil and making the utmost of its resources.

It was computed by Dr. Dawson in 1887 that within the drainage area of the Yukon, as far north as Fort Selkirk, there was an area of 60,000 square miles, of which a large proportion might be utilized for the cultivation of crops, and in which cattle and horses could be maintained for local purposes. Since that time there have been discovered other important agricultural districts, which would afford ample scope for farming operations, and the extent of territory available for agricultural purposes is greatly in excess of the area computed by Dr. Dawson. It might be interesting to quote here an extract from Dr. Dawson's report of 1887, showing how much he was impressed at that time by the agricultural possibilities of the Yukon. He wrote:

"To instance a region which produces the general conditions of the Yukon district and adjacent northern portions of British Columbia, we must turn to the inland provinces of Russia, to which allusion has already been made in connection with climatic features. The province of Vologda, in European Russia, appears to offer the nearest parallel. It is circumstanced relatively to the western shores of Europe as is this district to the western shores of the North American continent. Its area is 155,498 square miles, situated between the 58th and 65th degrees of latitude. The climate in both cases is a continental one, in which severe winters alternate with warm summers, and the actual degrees of cold



Klondike Vegetables.

small experiments it seems that it will grow and thrive here when properly seeded.

The two hundred acres of land under cultivation near Dawson last year, 1908, produced 450 tons of potatoes and 150 tons of other vegetables.

Green onions are grown to a great extent, and are an inch to an inch and a half in diameter. Strawberries have not gained any commercial proportions, but some have been grown outdoors with much success. Berries from native plants are growing quite well. They came originally from the Pelly river, in the Yukon.

larger but later in maturing. Cauliflowers were from 6 to 10 inches in diameter, but I was told larger ones had been cut.

"No doubt the constant daylight gives the force necessary to expand the growing organs of the vegetables in cultivation, but behind the long day are climatic conditions that as yet are little understood which in my opinion are the prevailing factor in this wonderful growth."

Writing of the agricultural possibilities of the Yukon, Dr. Dawson, Dominion scientist, after whom Daw-

and heat, so far as our information goes, are not dissimilar. There is no very heavy rainfall in either region, such as we find near the western coasts bordering on the Atlantic and on the Pacific respectively. The agricultural products from the province of Vologda are oats, rye, barley, hemp, flax and pulse. The mineral products comprise salt, copper, iron and marble, but the precious metals do not appear to be important, as in the Yukon district. Horses and cattle are reared, and the skins of various wild animals, as well as pitch and turpentine, are among the

exports. The population of the province is 1,161,000."

It is computed that the quantity of potatoes grown near Dawson last season and placed on the market aggregated 200 tons. It has been estimated that the population in the Yukon consumes annually over \$200,000 worth of potatoes. During the present the principal industry is mining, and agricultural development must necessarily proceed according to the requirements of the population engaged in the mining industry. Farming operations can only be successful so long as those who are engaged in agricultural pursuits produce no more than is required for consumption within the Territory. Up to the present time, however, the number of agriculturists is not sufficient to supply the local demand for farm pro-

duce, and the quality of some of the products is not quite equal to the imported article; but as Professor Macoun has pointed out in his report on the Yukon, "these matters will right themselves in time, but the climate must not be blamed for the ignorance of the cultivator." Careful and systematic farming operations, with due regard to the peculiarities of the climate, would abolish the importation into the Yukon of many of the agricultural products required by the people of Dawson and surrounding district. If hay, oats, potatoes, etc., were grown in such quantities as would supply the local market, the price would be much less than is paid at the present time for imported products, the transportation rates would be avoided and the consumer would derive the benefit.

Instead of the people of the Yukon paying large sums outside of the Territory for these products, the agriculturists in the Yukon would transact the business, and the money would be retained in the Territory, and probably invested in such a way as would aid in its future development.

In the latter part of April, 1907, one farmer near Dawson, who had held his stock of home-grown potatoes during the winter, sold 13½ tons at 13 cents per pound, which brought him a round sum of \$3,500. Potatoes grown in the Yukon are quite equal in size to the imported product, and when the proper kind of seed is planted in suitable soil and attention is given to the cultivation, potatoes can be grown fully equal in quality to the best outside product. The best quality of potatoes so far

have been grown on the islands in the Yukon river. On the land surrounding Dawson, either in the valleys or on the benches, potatoes of good quality can only be grown after the land has been cultivated for a few years. On an island in the Yukon river at Ogilvie 175 pounds of potatoes were planted on the 12th of May, 1906, and by the first or second week in September the crop was ready for lifting, and yielded 8,000 pounds.

Many instances of success in raising garden supplies or oats, hay and the like on various farms in Yukon could be cited, and for further references the inquirer is referred to the government reports, which may be had on inquiry of the agricultural department at Ottawa.

How to Outfit for Prospecting

By ROBERT HENDERSON, discoverer of the first gold in the Klondike Basin, now assistant to the territorial mining engineer.

THE cheechaco, or newcomer, entering the Yukon to prospect should receive a little preliminary instruction before launching into the wilderness. He cannot start into the Yukon to spend the winter without enough money to defray the cost of a winter's outfit. If one leaves Whitehorse in the summer, the trip down the Yukon river may be made by steamer or in small boat. It always is easy to arrange accommodation.

By buying in a Canadian town, goods entering the Yukon will not be subject to duty, but it is best, all things considered, to buy an outfit right in Dawson, or one not coming to Dawson, to buy at Whitehorse. By buying in this territory, one has the benefit of experienced and scrupulous traders, who know just what is adapted to this region, and who will assist in giving the best for the peculiar work to be undertaken.

The prospector should leave Dawson in August or September. At this time the summer floods are over, flies are less troublesome, and game and fish plentiful. Whenever possible, the prospector should go by boat. For shallow, swift and narrow rivers, a boat 30 feet long, 26 inches bottom, 22 inches in depth is the best. Having procured his boat, 150 feet of ½ inch hemp rope and a pair of long rubber boots, the prospector next takes on his provisions, always bearing in mind that articles less likely to be damaged by water should be placed in the bottom. The outfit for 12 months should comprise the following:

Flour, 500 lbs.; rolled oats, 150 lbs.; cornmeal, 50 lbs.; rice, 25 lbs.; beans, 75 lbs.; sugar, 125 lbs.; Lubeck potatoes, 60 lbs.; butter, 50 lbs.; apricots, 25 lbs.; prunes, 25 lbs.; apples, 25 lbs.; milk, two cases; cream, two cases; ham, 25 lbs.; bacon, 50 lbs.; salt, 15 lbs.; pepper, 1 lb.; syrup, 5 gallons; baking powder, two lbs.; baking soda, two lbs.; yeast cakes, six boxes; soap, 12 lbs.; best pilot bread, 30 lbs.; candles, two boxes; tobacco; best woolen underwear, three suits; thick overshirts, 3; thick woolen sox, 12 pair; German sox, 2 pair; woolen pants, 1 pair; overalls, 3 pair; felt shoes, 1 pair; rubber shoes, 2 pair; moccasins, 3 pair; insoles for moccasins, 6; snowshoes, 1 pair; pack straps, 1 set; eye glasses, colored, 1 pair; good field glasses, 1 pair; reliable pocket compass; fur robe; fur cap; canvas jacket; sweater; axes, 2; small camp axe, 1; augur, ½ inch, 1; crosscut saw, 14 feet; whipsaw; jack plane; nails, 15 lb. 10 penny; claw hammer; flat files, 2; three cornered files, 2; sharpening stone; picks, 2; shovels, 3; gold pans, 2; sheath knives, 2; Yukon stove with oven or drum; 30-30 Winchester rifle, good shot gun; 200 rounds for rifle; 200 rounds for shot gun; frying pan; knife, fork and plate; small pots, 4; large enamelled mugs, 2.

The outfit should include a small medicine chest, among the contents of which should be one box of carbolic salve and half pint bottle of peroxide of hydrogen or other equally good antiseptic. One gallon of concentrated lime juice should be taken along to make a pleasant and

invigorating drink, and it will be a most effectual preventative of scurvy. The tent should be 10x12 feet. It serves, when not in use, to cover up the outfit, a precaution that should never be neglected either in the boat or in the camp.

The prospector will have no difficulty in providing himself with fresh meat. The country abounds with moose, bear, caribou, mountain sheep, geese, ducks, ptarmigan, partridges and grouse and cranes and swans alight on the bars of the upper rivers by the thousands. Beaver, land otter, marten, lynx, wolf, fox, wolverine and other fur-bearing animals are plentiful around the upper reaches of Yukon side streams.

On the trail in severe weather, always make camp while there is plenty of daylight. Never travel in foggy or stormy weather; always have matches and dry birch bark ready to make a fire quickly. Eat regularly even if you are not hungry.

Keep your hands and feet dry, and—don't forget your tobacco.

It is well on a trip of this kind to take two or three good dogs and a Yukon sleigh. The dogs cost little to feed in a game country. The sleigh can be packed in the boat, and will be useful for moving camp from creek to creek. Make a good warm shelter for the dogs and feed them at night.

To keep the outfit while in camp, cut four trees a few feet apart, and 12 feet from the ground. Pick off the bark, and build a platform on top and let it extend about three feet on each side beyond the supports. Place supplies on top and cover with canvas and spruce boughs. They are in this way protected from bears and other animals.

In building a cabin, make it big enough. It takes little longer to build a cabin 16x12 than one of less dimensions, and this is large enough for all requirements. Level off the

ground, and let the first logs be imbedded in it. Cover well with moss and lay the next log on top, and so with each log until the walls are six feet high. The logs forming the gable must be pinned together with 1½ inch wooden pegs, and the ridge pole laid in place. A smaller log on each side of the ridge pole further supports the roof, which is made of poles 3 or 4 inches in diameter, laid side by side and covered with moss and earth. Whipsaw a few boards to make a door. Pieces of moose skin make good hinges, and a clean flour sack steeped in melted tallow or oil makes a good substitute for glass.

Your partner on a prospecting trip should be a man with whom you are well acquainted, and of jovial and optimistic disposition. Avoid arguments, especially of a religious or political nature, and the golden adage "a kind word turneth away wrath," is nowhere so forcibly realized as in the wilderness.



SAMPLES OF YUKON GRAINS (Photo by Duclos.)

The accompanying illustration gives an idea of the wheat, oats and native grass that can be grown in Yukon. Samples shown in the picture stand six feet, two inches high. The grass

is known as spare top, brown top and fuzz top. The oats mature and thresh 46 pounds to the bushel. These samples grew on Clear creek, a few miles below Dawson. Similar grain and grass is grown in many places in Yukon.

Fraternalities in Dawson

DAWSON is a most ardent fraternity center. Five orders are represented here, namely, the Yukon Order of Pioneers, the Arctic Brotherhood, both of which are of northern origin and limitation; the Masons, the Oddfellows and the Eagles. The city also has a Canadian Club, an American Club and other such organizations.

The Yukon Order of Pioneers is several years old, and was formed among the leading pioneers of the Yukon valley years ago. It has been maintained in Dawson by a number of old timers intently devoted to the old traditions and fond of meeting occasionally to talk over old times and look after their fellow trail-blazers. The Pioneers have their own hall.

Camp Dawson of the Arctic Brotherhood is one of the strongest of the many camps of this peculiarly and exclusively northern order. It numbers among its members nearly every prominent citizen and official of the Yukon, and many noted men of the continent who have visited the country but temporarily. No man is eligible to join the order unless he does so while in Alaska or Yukon.

The Masons have been organized in Dawson since early days, and have a fine temple. They have organized here branches of the blue lodge, the Royal Arch, and the Knights Templar, all of which are flourishing.

The Fraternal Order of Eagles is represented in Dawson by Aerie No. 50, one of the staunchest of all Eagledom. The membership is very large, and the aerie has its own home in the heart of the city. The hall is one of the most popular for public assemblies in Dawson.

The Oddfellows of Dawson were organized in the early days of the camp, and have one of the heaviest enrollments of any order in the Yukon. They purchased their own home two years ago, and have converted it into a most enjoyable place for lodge and social gatherings.

Oldest Klondike Placer Creeks

By DR. G. M. FAULKNER, of Dawson, Experienced Heavy Klondike Operator.

OF all the creeks of the Klondike placer camp, that which has seen most activity and extensive operations on the largest number of claims is Bonanza. After it comes several other important streams on the Klondike river side of the camp, and chief among them are Hunker and Eldorado and their tributaries. The creek claims and some of the more choice bench properties of these creeks are absorbed by one mammoth concern, in which New York capital is chiefly interested. The company has a fleet of electrically driven dredges, several hydraulic lifts or elevators, and a number of hydraulic plants, all in operation, with elaborate accessories in the way of 30 miles of water ditch, hydro-electrical power plants and the like, representing an investment of ten to twenty million dollars. This concern plans, in short, to tear the bottom from all these old streams with dredges and hydraulic elevators, and then to cut off the hills with hydraulic process. The work in fact is under way. Hundreds of claims on these various streams are held by individuals, but it seems they eventually will go into the hands of the present big concern or other similar concerns seeking placer investment on a large scale. For this reason the prospector in virgin ground is devoting his attention chiefly to other localities in the Yukon. Since the portion covered by the one big concern here is within a radius of 25 miles of Dawson, very little of the total area of Yukon Territory is covered by big mining concerns' holdings.

Over the divide from the Klondike side, is the Indian river division, where Dominion creek, Gold Run, Sulphur and Quartz are the main producing streams. Hundreds of miners are operating on those streams in the improved individual methods, and are getting out large dumps each year. A number of the large dredge and hydraulic companies of California have been looking into the field, but as yet none have entered the field to operate. It would not be surprising if within a short time some of the big concerns will be tempted to gobble these propositions. But there are thousands of gold bearing streams left open to prospectors. A short review of these older creeks of the camp, especially as to their discovery and opening, and a word about the work on each will here be of interest.

BONANZA CREEK.

THE first in the order of its discovery and its access from Dawson is Bonanza Creek. In 1896 Skookum Jim and Tagish Charley, Indians, and their white brother-in-law, George Carmack, made the joint discovery of gold that brought to them fame and fortune and to the world its greatest placer gold field. To Carmack the world has granted the honor of this discovery because the legal records so declare, but Skookum Jim, the Indian, claims the honor for his very own, alleging that Carmack's knowledge was derived from him. Jim relates that during a hunting trip on Bonanza with his brother, Tagish Charley, he stopped to drink from Rabbit Creek opposite the now famous discovery point, and as he drank saw in the creek bed the glitter of a golden nugget. With this as a talisman he visited the present site of Dawson where Carmack was camped with his Indian wife and revealed to him the locality of the find. Together the trio returned to the spot and staked off four claims, discovery, No. 1 below, and 1 and 2 above, and Carmack thence proceeded to Fortymile, bearing the news of the discovery, and recording the claims located by them. The rush of prospectors from Fortymile followed soon after and from discovery point pushed their investigations over intervening hills to other valleys and creeks, widening the circle and extending the field of

their activities until the region embraced in the Klondike Gold Fields covers the largest continuous area of known placer ground in the world.

The operations on Bonanza were not extensive in 1897, but in 1898 they began to assume proportions, and a year later were yielding millions. The benches and gulches, including Cheechaco Hill, Gold Hill, Adams Hill and others quickly came into prominence, and also were great producers. At



Dr. Geo. M. Faulkner.
—Photo by Duclos.

present but a few operators are on these streams or hills, but the one big company has 5000 inches of water from Twelvemile river, which is being brought in at a cost of many millions, as has been intimated.

ELDORADO CREEK.

SURPRISINGLY rich Eldorado Creek, a tributary of Bonanza, enters at No. 7 above Discovery. The phantom Eldorado in Central South America could not have been imagined to be richer than this veritable "channel of gold." Along its length for nearly four miles there is not a single blank, and most of the claims are fabulously rich.

Phiscator was looking for a location on Bonanza creek, having come up from Fortymile on that account. The party had passed Eldorado and had located the claims Nos. 32, 33, 34, 35 and 36 above on Bonanza. On the way up the creek Phiscator had gone a little way up Eldorado and panned along the creek bed. He had obtained encouraging results, but the party, lured by the tales of richness on Bonanza, had passed by. However, as they came down from their Bonanza claims, Phiscator prevailed on them to stop and have a try on Eldorado. Phiscator put a hole down on what is now the line between Nos. 2 and 3. The result here encouraged him to believe that Eldorado was a rich creek, and he believed himself entitled to a discovery claim. He had been on the ground about six days when another party arrived, headed by a man named Cobb. Cobb, learning that Phiscator had staked a claim on Bonanza as well as Eldorado, put his stakes on the same ground Phiscator had staked, and hence there ensued a contest over possession of the ground. Phiscator claimed a discoverer's rights on Eldorado, calling the creek Whipple creek, but Cobb contended that Phiscator, having previously staked on Bonanza, was not entitled to a claim on the new creek, which Cobb in his application called Eldorado. The name Cobb chose was finally given to the creek, but Cobb was deprived of a claim and Phiscator was awarded No. 2 Eldorado instead of a discovery on Whipple creek, which at that time perhaps seemed a fair division of the honors, if not of the spoils.

Strange as it may seem, Eldorado creek, though now known to have been by far the richest creek in the country, was at first frowned upon as "only fit for Cheechacos." When all the available ground on Upper and Lower Bonanza had been located, miners reluctantly drove their stakes on Eldorado ground, cursing their luck in not being in time to get property on Bonanza. It was on No. 8 that bedrock was first struck on Eldorado and pans of unprecedented richness were taken out. From that time on all along the creek miners

first place in the catalogue of gold producers. It may not have the richness of Eldorado in its creek, and Gold Hill may out-rival the benches and hillsides in its immensely rich pay, still for extent of pay ground in its watershed, Hunker is without an equal. From 43 above to 2 below the concession, a claim which is fully one mile beyond the Hunker valley on the Klondike flat, a total distance of sixteen miles, this creek carries pay ground, some of it being exceedingly rich. Gold Bottom, Last Chance and numerous other tributaries are rich contributors. Benches and hillsides on both limits of Hunker creek, and the left limit of its tributaries, are very extensive.

Hunker creek from its head, at the Dome, to its confluence with the Klondike is about eighteen miles in length, and is very narrow, with the exception of a few places, until 44 below is reached, where it widens considerably, there being places between 44 and 76 where it is 500 yards across the valley. At 76 it becomes very narrow and from there to the mouth of the creek it gradually spreads out, and at times is fully half a mile from base to base.

Andrew Hunker, the discoverer of Hunker creek, located discovery and 1 above on September 6, 1896.

Hunker arrived from Fortymile on his way to the Bonanza stampede on August 21, and spent about ten days on the creek looking for "something good," which he was unable to find, and concluded to go to Gold Bottom to see Henderson, but passed that creek, thinking it nothing but a pup. He reached what is now Hunker creek by the way of Carmack's Forks and Last Chance, and spent four days prospecting the creek. He arrived at what is now discovery on September 5, and finding a place where bedrock was exposed began panning and in two hours had panned \$22.75. This was a little better than the "something good" Andy had been looking for, and the next day he staked.

He worked the property on a small scale until May 1897 when he sold to Tom Kirkpatrick for \$165,000. Hunker now enjoys "something good" outside. In the summer of 1897 but little



A View of Lower Hunker.

This creek, the most productive of all the Klondike region, was discovered in 1896, shortly after the discovery of gold on Bonanza. by popular story those who got claims on Eldorado were ignorant Cheechacos, who knew nothing of mining, and the discovery of gold was the result of accident. This is not according to the strict letter of history as told by Frank Phiscator. In company with Antone Stander, Frank Keller, James Clements and one Whipple, Mr.

seemed to be vying with one another as to who should locate pay first.

HUNKER CREEK.

HUNKER creek is the second in importance and discovery in Dawson division, and until the advent of Gold Commissioner Fawcett in the spring of 1897 was known officially as the Hunker district. It is not usually heralded with the pomp and consequence of Bonanza and its tributaries, yet it deserves a

work was done on account of the almost utter impossibility of getting provisions and tools to the creek.

In the winter of 1897 Hunker was alive with men and enjoyed a huge boom in November, and property sold for boom prices.

GOLD RUN CREEK.

THE Eldorado of the Indian river division, or Gold Run, has always been a favorite with the mining public. The doubts and uncertainties

that have always been so freely expressed concerning other creeks beyond the Dome have never been applied to this stream which has ever enjoyed a large share of the general confidence. It is often, and justly, called the Eldorado of the Indian river division; and in many of its physical features, as well as in its remarkable yield of gold in a limited length, it resembles the Pactolus of the Klondike.

In length, Gold Run traverses about twelve miles from its source to its confluence with Dominion at 227 below lower discovery. It does not rise in the Dome as nearly all the paying creeks do, but has its source in a high spur that juts out from the Dome a considerable distance and forms one of the flanking ridges that break away toward Indian river. Both Sulphur and Dominion rise close together in the Dome, but as they radiate from it like spokes from the hub of an immense wheel they leave an increasing margin of space between. It is in this space that Gold Run takes its rise.

Gold was first struck on this stream in the summer of 1897, but no discovery was allowed upon it, as the authorities held that it was simply a tributary of Dominion. In consequence of this decision the numbers commence at its mouth and advance by numerical progression toward its head. The first trail up the creek was made by D. Ennis, Billy Moss and K. H. Ennis, who first pitched camp at the mouth of Gold Run, February 9, 1898. They prospected and afterward staked 108, 109 and 110, where gold was found, but not "pay." Claims were staked up to 130.

SULPHUR CREEK.

SULPHUR creek, in the rather forcible language of a miner who was discussing the subject, "has been damned with the faintest praise of any stream in the district." At times it has well nigh been forsaken by the dejected owners. The

above, was a good one, but it took about all the gold the ground yielded to pay for the plant and maintain current operating expenses. No. 18 below was another illustration of the same truth, being handicapped from the start with a costly plant that was frequently in need of repair and that caused numerous delays at a time when gravel should have been rapidly taken out.

Sulphur is only very rich in spots. Its paystreak is wide and the general average fairly remunerative, but on streams like this economy of management is the first essential to success. Owners are realizing the force of this fact, and as a result the creek yielded a better profit last summer than ever before. A better understanding of the peculiar conditions prevailing there and the application of more improved methods, has restored confidence in its value, and in the years to come Sulphur can be depended on for a regular and profitable yield of gold.

Rising in the Dome, Sulphur creek flows south a distance of eighteen miles to its confluence with Indian river, its bedrock formation being a mica-schist, intersected with porphyritic dykes. In its course it receives several important tributaries, the best known being Green, Meadow and Brimstone. These tributaries are all staked, but with the exception of Green prospecting has been barren of results. There is some pay at the mouth of Meadow creek.

QUARTZ CREEK.

QUARTZ creek was the first mined creek in what is now known as the Klondike camp. A year before Carmack made his famous discovery on Bonanza creek "Billy" Radford, who had been prospecting along

the mining town, Grand Forks. For nearly two years after the discovery of gold by Carmack, during which time active mining operations were carried on all along Bonanza and Eldorado, the treasures of Gold Hill were unknown. Although discovery was made near the base of Gold Hill, no one dreamed that gold would be found three or four hundred feet above on the apparently barren hill that frowned down upon them.

However, there is always some one more venturesome than others, who is willing to suffer the scoff and ridicule of the masses in order to test some pet theory of his own. In this case a Cheechaco (tenderfoot), either through sublime ignorance or by inspiration, commenced to prospect for gold on this hill. Even his own partner and cabin mates "joshed" and ridiculed him for his supposed folly to such an extent that he could get no one to assist him, and was obliged to prospect alone. He commenced sinking a "prospect hole" near the rim of the hill, on the Big Skookum side. To do this work alone it was necessary for him to build fires to thaw the frozen ground. When a fire had burned out he would go down into the hole, fill a bucket with the thawed out dirt, climb a ladder to the top and then windlass the bucket of dirt to the surface. By this slow process he finally attained a depth of sixty-three feet, and struck the rich pay which has since given Gold Hill its name. Probably no one ever realized more keenly than he did at that time that "He laughs best who laughs last."

Naturally, a wild stampede followed. Claims were located far and wide, and soon the whole hill was peopled with burrowing hundreds. Some were successful, others not; but the result of it all was the uncovering of one of nature's richest storehouses. It was on Nels Peterson's property that discovery was made. After taking out \$10,000, the claim was sold for \$40,000 to the Alliance company, of Philadelphia.

FRENCH HILL.

FIRST among the discoveries on bench and hillside ground was that made on French Hill by an intrepid miner familiarly known as "Caribou Bill." The discovery was made in March, 1898, and it demonstrated the fact that all the gold in the Klondike was not in the creek claims, but that thousands upon thousands of pent-up treasure lay within the rock-ribbed hills. French Hill, opposite No. 16 Eldorado, on the left limit, has proven to be a fabulously rich find. The eight claims around discovery have probably not been excelled in output of gold. While this gold is of a low assay value, it is noted for its coarseness. More beautiful nuggets have been taken out of this hill than from half the Klondike beside.

BEAR CREEK.

AT a distance of about seven miles from the Yukon Bear creek enters the Klondike from the left limit. Bear creek was discovered on September 17, 1896, by Solomon Mauberg. In 1896, when Mr. Mauberg, in company with William Corley and Frank Johnson poled up from Forty-mile, they found Bonanza staked from end to end and concluded to try for a new creek.

They arrived on September 16 on what they called Bear creek on account of the constant appearance of bruin. After prospecting on several places they finally found, on what was staked for discovery, a fifteen-cent pan on rimrock. Other pans went as high as \$1.25. Mr. Mauberg staked discovery, William Cooley 1 below, and Mr. Johnson 2 below. Bear creek is about eight miles in length and as it runs in a northerly direction, erosion has not been extensive, and the creek in consequence is a veritable canyon.

DOMINION CREEK.

BROAD and bounteous Dominion creek. No stream in the country has the demonstrated length of paystreak that is possessed by Dominion creek. Commencing almost at the extreme head, in the flanking spurs of the Dome, the pay follows the tortuous windings of the creek for a

known distance of thirty-five miles, and the prospecting now going on may show it to possess a greater length. Its width has never been determined with sufficient accuracy to form a just estimate, but in the opinion of those best acquainted with the creek it approximates 500 feet, sometimes following one limit of the creek and sometimes the other.

In very few places can the pay of Dominion be called exceptionally rich, when compared with such streams as Eldorado, but it is uniform enough and great enough to yield a handsome profit on the work done and the vast extent of pay possessed assures a steady and continuous supply of the precious metal. In the three years that it has been worked, Dominion has annually produced from \$2,500,000 to \$4,000,000. The new discoveries along the lower reaches of the creek near the mouth of Gold Run, will likely augment the output considerably in another season, as they are attracting the attention of miners from all parts of the district.

There are two discoveries on Dominion creek due to the fact that the two stakers both claimed priority in the discovery of gold and priority in staking. These discoveries are the size of ordinary creek claims, are five miles apart and are designated as "Upper Discovery" and "Lower Discovery."

Albert Fortier (Hootch Albert) was the first man to find gold on Dominion. During the fall of 1896 after Carmack had discovered gold on Bonanza Hootch Albert prospected on lower discovery and found prospects on rimrock. No recording was done for the reason that Albert and his party intended to sink to bedrock the next spring. The other members of his party were Camille Corbeil, Frank Pijon and Max Landreville.

At approximately the same time another party composed of Tim Conolly, Mr. Dnieper, Louis Corkey and a few others caused a stampede to the ground around upper discovery, but Hootch Albert's party rushed to lower discovery to stake. No double claims were allowed, but discovery was recorded for both parties.

The first winter work was done on No. 2 below lower, where the owners had out by far the largest dump on the creek. E. Alexander, of No. 31 below upper, was also among the first to do extensive winter work. Pans were found which showed \$5 and \$10, causing great excitement on the entire creek.

GOLD BOTTOM CREEK.

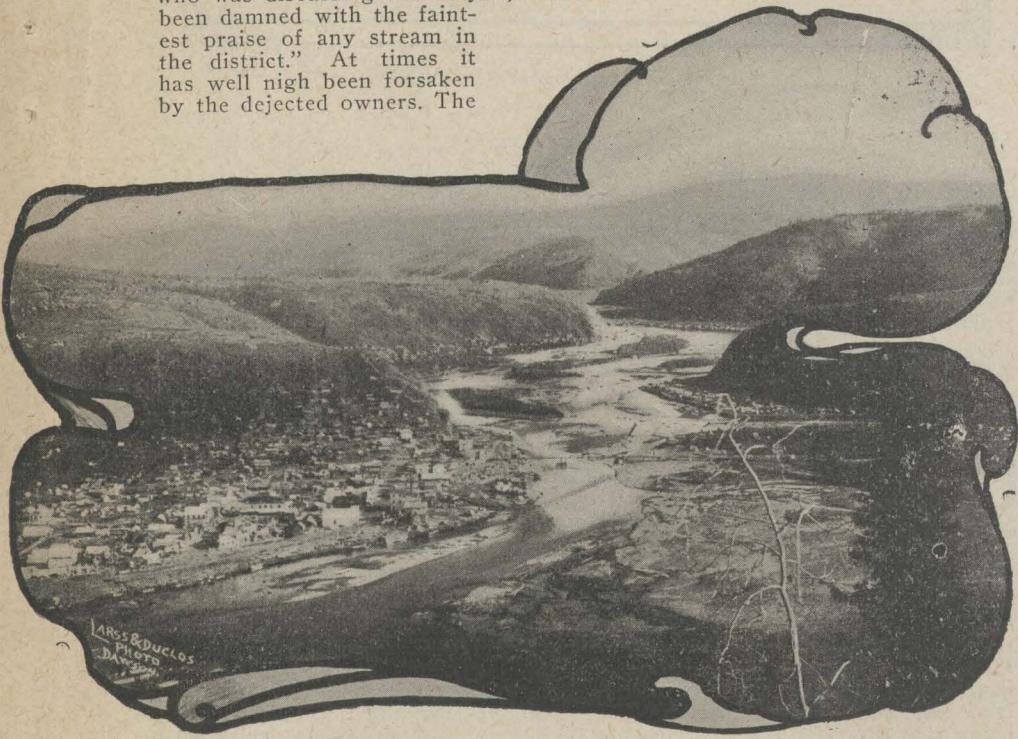
GOLD BOTTOM is a tributary of Hunker creek, coming in on the right limit at 29 below Discovery. Originally Gold Bottom extended to the Klondike, but Hunker's name applying to his discovery immediately changed the name of the lower creek. How little we hear of this creek! Yet it must be indelibly impressed upon us that it was here the first work in the Troandike was done. Had it not been for Henderson working on Gold Bottom and finding pay enough (and being kind enough) to send word to his friend, George Carmack, the chances are none of us would have been here now to enjoy the blessings which the district has poured upon us. And yet, in spite of the result of the labors of Henderson and Carmack, not even a street is named in their honor.

"Bob" Henderson was working this ground in 1896, having previously been on Quartz creek. He found pay and sent word to Carmack, who was at a point near the present site of Klondike City familiarly known as "Louse Town." When Carmack made his discovery on Bonanza he sent no word to Henderson, and as the latter had no knowledge of the new strike, he continued work on Gold Bottom until too late to stake anything good in the new diggings.

Although Henderson had worked this ground, yet he did not record it. It was none other than Alexander McDonald who staked and recorded the claim.

Gold Bottom is about eight miles in length, and the erosion is much more marked than on the part of Hunker above the mouth of Gold Bottom.

Black Hills, Hubbard and many new creeks since have come to the front.



Looking Up the Klondike from Dawson.

truth lies between these two extremes of feeling. Parts of Sulphur are good and pay a fair return for effort expended, while other parts are of so low a grade that every attempt to work them has resulted in financial loss.

There are difficulties in the way of mining on Sulphur. It is wide and the paystreak irregular, while the depth to bedrock makes operations there rather costly. The shallowest part of the creek is twenty-five feet, while many of the claims are worked to a depth of sixty feet. The general average is about forty feet along that part of the stream where work is being done.

Several of the claims on Sulphur seem to confirm the truth of the old saying that it costs a dollar to take a dollar out, though under a more economical system of operating the cost need not have been so great. In the excitement over the creek that existed two years ago owners went to vast expense to procure machinery, and in one instance a \$75,000 plant was installed, equipped for sluicing in the winter time. That claim, No. 36

Indian river, ascended one of its tributaries and discovered gold in paying quantities about eight miles from its mouth. He named the creek Quartz creek and the discovery has ever since been designated as Radford's discovery. The pay was of low grade and so, when Carmack made his fabulously rich find and the riches of Eldorado were being revealed, Quartz creek was deserted. Radford was accompanied by Bob Henderson.

In 1897, however, A. Macks discovered gold on Quartz at the mouth of the pup which now bears his name. This discovery is five miles above the mouth of Quartz and three miles below Radford's.

GOLD HILL.

TREASURE laden Gold Hill is the "Hub of the Klondike." This mountain of gold, this desideratum of precious metal—situated in the geographical center of these great placer gold fields—lay for years, undisturbed, unnoticed. Gold Hill is at the junction of Upper Bonanza, Eldorado and Lower Bonanza, and from its golden crest one looks down upon

Beneficent Government

Some Good Works Done for Yukon's Benefit
By OTTO F. KASTNER
Vice-President of Dawson News Publishing Co.

NOTHING can more retard a country in its struggle to reach its maximum development than bad government, and nothing more hasten destiny of wealth or greatness of a naturally richly endowed country than good government. Yukon fortunately is favored with good government.

There was a time when, in the hurry and organization of order out of chaos in a camp 2,000 miles from



Otto F. Kastner.
—Photo by Duclos.

the seat of government, the most remote outpost of the empire, that there may have been some ground for temporary complaint, but without doubt the heads of government in the responsible positions at the national capitol were for the good of the country, and as rapidly as system could be evolved and the avenues of communication with the nation's nerve center opened, everything quickly got into good running order.

Not only has Yukon been provided with protection to life and property, but a splendid system of roads, costing between one and two millions of dollars, have been built in various

parts of the territory, an accomplishment which stands without parallel in any sub-Arctic country. Britain well can be proud of this, and to know that Alaska with all its promise even has been distanced in this respect by the Canadians.

The police service maintained in Yukon by the Royal Northwest Mounted Police alone has been a feature, making life and property safer than in any frontier or mining region ever before in the history of the world. Murder and robbery scarcely have been known, a marked contrast to western camps of this continent with their hundreds of murders and endless lawlessness.

In respect to public works, the government has been most generous, expending millions, and making most elaborate provision for careful handling of the people's business. A few facts will assist to appreciate this work.

The public buildings of Dawson are the finest buildings, taken as a class, in the north. They include the Administration Building, virtually the capitol building of Yukon, where the commissioner, or governor, and others of his department, and various branches of the government are situated, erected at a cost of \$100,000. It covers 9,000 square feet, and was erected in 1901. Eighty officials can find accommodation there.

The postoffice building, a fine two-story structure, cost \$50,000, and is heated with hot water.

The court house is about the same size as the postoffice, and of about the same cost, and is equally well furnished and heated. The schoolhouse, of two stories and eight rooms, accommodates 200 or more children, and cost \$40,000. It is heated with hot air. The Government House, or executive mansion, cost \$45,000 originally. Improvements and furnishings have run the cost near to \$100,000, and it is one of the finest buildings in the north. It is palatial in appearance, and handsomely furnished.

Dawson is served with telegraphic communication connecting it with all parts of the world. The Dominion Government constructed a line from Bennett to Dawson in the summer

and fall of 1899, and the next year extended it northward to the Alaskan boundary. Work also was commenced that year at Quesnelle and Hazelton on a through line from the Canadian Pacific Railway to connect with the Dawson line. This meant operation through a wilderness of 1,000 miles in extent but in September of 1901 the work was completed. The Canadian line now extends from the boundary north of Dawson south to Vancouver, serving Whitehorse, Atlin, Port Simpson and all way points, a total of 2,000 miles. The

ocean cables, thus affording more than one outlet to the outer world.

One more big public enterprise is that of blazing an all-Canadian trail from the Northwest to Yukon, via the present telegraph route. This is nearly done, and may mean much to the Yukon's future safety. This is an instance of government foresight.

The latest financial statements from Ottawa show that Yukon has not been required to pay for Yukon, but that Ottawa has contributed considerable more than collected from Yukon in taxes. Other parts of Can-



Winter View of Government House, Dawson.

line was constructed at great risk and expense, and is one of the boasts of Yukon. It is owned and operated by the Dominion of Canada. Splendid service is given, and as for the Dawson end, Manager William Brownlow and his efficient staff always are most courteous, painstaking and efficient. Dawson also has connection with wire with Nome, Valdez, Skagway and the U. S. army land and

ada can have no complaint on this score when it is recalled that annually Yukon buys supplies from all parts of Canada to the value of millions of dollars. All parts of Canada can help, and with good reason, to develop the Yukon, and the market that goes with it, and all parts well can appreciate the government which has done so much already to develop this region.

Yukon's Bright Future

AN APPRECIATION OF THE NORTHLAND.

By GREER I. C. BARTON,
President of Dawson News Publishing Co.

IT is under auspicious circumstances that Yukon faces the future today. Behind her is the experience of ten years of active mining operations at the hands of the most experienced old-method placer operators of the world. To-day she stands at the threshold of a new era, a country enchanting to all classes the world over, and one which has added a charm by attracting the investment as well as the prospecting and individual operating forces.

It has been learned that the extraordinary area of placer fields of low grade already known, to say nothing of the extensive expanses not yet opened on many an untrodden stream in this widely unexplored realm, can be operated profitably with modern equipment, and capital, after taking most precautions and conservative steps for investigation, is embracing the opportunity. Not only this, but quartz also is lifting a glow of promise over the horizon, and in many parts of the territory the promise is exceptionally flattering. Quartz is being exploited this year more than ever. A careful perusal of the data in these pages will reveal the facts as well worth serious consideration of the business and developing world.

The most significant fact of all, perhaps, and one most emphatically convincing of the stability of the Klondike is that the country has the great natural resources and is acquiring all the advantages enjoyed by

those who reside in the outside world. Railways, steamship and steamboat lines have been established giving access to the interior and more of these will come in time. A metropolis has sprung up in the very heart of the country which throbs and beats with all the activity of a cosmopolitan city of many times its size in older quarters of the globe. The thousands who have been attracted to Dawson, the center of life, have provided for themselves all the comforts of home as they may be found in any other part of the world, and have engaged in business pursuits with all the equipment and stock that the most progressive minds and most aggressive men of this ultra-progressive age have been able to contrive and supply to those who may demand the product of their genius and skill.

The great wealth which lay hidden in the pockets of nature in the Klondike has supplied the wherewithal for the Klondike to advance to this extraordinary and most enviable position in so short a time. The camp is the richest the world has ever known, and no marvel is it to thoughtful minds that this community, so remote, and in the shadow of the Arctic circle, almost in the polar region, has been able to push to the front. Riches in the hands of the men who have grasped the situation and forced the issue, despite arbitrary conditions of isolation and rigorous winters have brought about this consum-

mation now so gratifying to record.

On the horizon the glow of hope is bright as ever; the present revels in the glory of the endless harvesting of the golden wealth, and all those who have cast their fortunes here participate and send a share to less favored lands, that they also may live and enjoy some of the resultant blessings.

The population has changed much as to social lines. The rough and vicious tendency of the earlier days has been overcome by the seething infusion of more permanent and more lasting men of enterprise; men in substitution for the reckless ones who drifted elsewhere with the flower of those who seek the new sensations.

Homes have been established, and in place of the stuffy cabin and its attendant evils miners have their families, and in many instances handsome modern homes have been built. They live on the best the world can produce from its four quarters and they have the money to pay for all they consume; they are living, not existing. Schools are here in plenty, new institutions of learning, and appliances of civilization for mental, spiritual and physical development, and superior methods of government have been evolved from the experiences of the past and are growing in perfection as time proceeds.

Mechanical genius has been invoked and millions of dollars worth of devices for extracting gold from

the frozen grasp of nature have been brought into the country, and the frosted lands are honeycombed as never before wherever auriferous gravels remain that the wealth from them may be secured.

All this and more, which is legion, has been brought about and the Klondike raised to a position which commands respect as a stable centre, with the marvelous credit of no apparent diminution in production and the promise of its continuation for decades, if not generations.

The prospects for finding permanent bodies of quartz and the uncovering of other natural resources of wealth that will support here in Britain's most northerly possession a perpetual and populous pole star province, the permanency of which shall ever be monumental evidence to the perseverance of the hardy pioneers who first braved the prowess of the prevailing superstition against this land, and who placed the realm on the firm footing on which it stands to-day, a credit to the empire and the marvel of the world.

The Yukon extends its arms to the world. The opportunities are open to all who are energetic. A few years will count this among the richest producing lands of the continent. Those who refuse this opportunity to come will regret it as have many already regretted seeing others open in the west the immense riches less than a decade ago considered worthless.

CHURCHES OF THE YUKON

YUKON is well supplied with churches, and it can be said that the church has indeed preceded the greater rush of empire-builders into the country. The churches in Dawson include the Presbyterian, the Catholic, the Methodist and the English. All have splendid buildings, some with seating capacity of 500 to 800, and with all modern improvements, including pipe organs, elec-

of prairie land in a wagon drawn by an ox team from St. Paul, Minn., thence down the Mackenzie, and over the Rocky Mountains. He was two seasons making the trip. For 40 years Rev. McDonald and Rev. Bompas worked together in the Yukon. During that time Rev. McDonald performed the remarkable work of translating the entire Bible, the prayer book, hymn book and several other volumes into the Takudh language, that of the Indians living within 20

portions of the Yukon valley. The Rev. William H. Judge, S. J., was the first Catholic priest at Dawson, and followed the early stamperers here from down the Yukon. He worked nobly the first season when the fever had stricken the camp, and died heroically laboring for suffering humanity in Dawson. His successor, Father Gendreau, opened the first school in Dawson, now known as St. Mary's Catholic school. Soon after a hospital was opened in Dawson by the

son was founded in the early days of the city by Rev. A. S. Grant, who remained here until two years ago, when he was succeeded for one year by Rev. John Pringle, D. D. Last year Rev. Pringle was succeeded by Rev. Dr. A. G. Sinclair. The church is one of the largest and most modern church buildings in the north, and has the most elegant organ this side of Vancouver. A large and flourishing congregation has been built up here, and the church has as-



Bishop Bompas.



St. Paul's Church, Dawson.



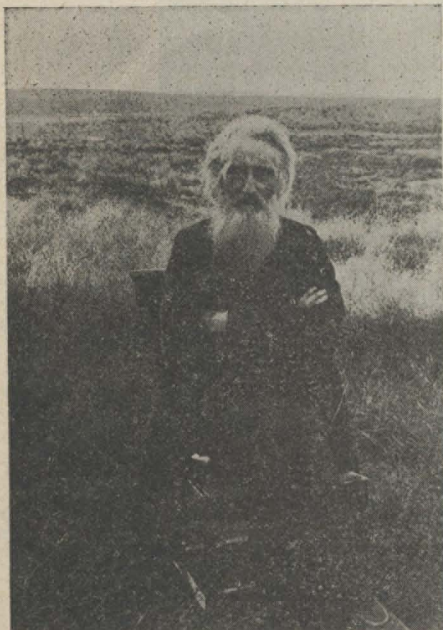
Father Judge.

tric lights and fine heating apparatus. Whitehorse, Fortymile, Selkirk, Conrad, Carcross and the several leading creeks near Dawson are supplied with church buildings of moderate size, at which the people of the localities centre weekly in worship. Frequently the creek churches afford a meeting place for celebrations, socials and the like, and the places are indeed appreciated by the populace. The first church mission of which there is any record in Yukon is that

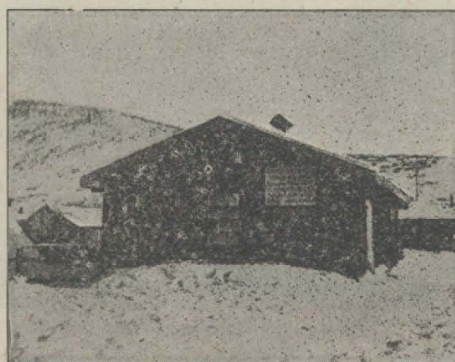
miles of Dawson. Rev. McDonald, as early as 1863, discovered gold on Birch creek, in the Circle district, and sent it to England. In 1892 Archdeacon Canham established a mission at Fort Selkirk. A number of Church of England missionaries were engaged on the Alaskan side before the gold strike at Dawson. When the strike was made, Bishop Bompas was living at Fortymile. R. J. Bowen and F. F. Flewelling represented the church at Fortymile for a short time,

Catholics, and known as St. Mary's. It is one of the finest in the north, and is in charge of Sister Mary Zeno, who has a large corps of assistants. The Catholic church has a magnificent home in Dawson, with a chapel in connection with St. Mary's hospital, and one in connection with St. Mary's school. A number of Catholic churches also are maintained on the creeks. Fathers Bunoz, Gofrey and Rivet are in the Dawson district. The Dawson Methodist Church was

sociated with it and under direction of Presbyterians as a separate body, the Good Samaritan Hospital, one of the most valuable institutions of the city. F. W. Arnold is superintendent, and Miss Isabel Moody is matron. The Presbyterian churches on the creeks are supplied by Rev. George Pringle. The Salvation Army in Dawson has done a valuable work here since it was established in 1898 by Ensign McGill and Lieutenant Bloss and associates,



Archdeacon R. McDonald.



First St. Paul's Church, Dawson.



Bishop Stringer.

established in 1862 at Fort Yukon by Rev. Robert McDonald, now Archbishop McDonald, who was sent out under the Church Missionary Society of the Church of England. The year before that Rev. William West Kirby had visited Fort Yukon, coming via the Mackenzie river and over the Rockies in connection with Hudson Bay trappers. In 1865 Rev. W. C. Bompas, later Bishop Bompas, now deceased, left London, England, travelling across the then great waste

and Mr. Flewelling opened the first church at Dawson the winter of 1896-97. Since then several incumbents have presided in Dawson, and to-day Rev. I. O. Stringer is Bishop of the Yukon diocese, and Rev. J. M. Comyn-Ching is the rector in charge at Dawson. St. Paul's Cathedral in Dawson, occupied by Rev. Comyn-Ching, and the headquarters of the diocese of Yukon, is one of the handsomest churches of the north. The Catholics long have occupied

established in 1898 by Rev. James Turner, under the British Columbia conference. He was succeeded by Rev. A. E. Hetherington; next came Rev. W. H. Barraclough; then Rev. William Hughes; followed by Rev. J. A. Seymour; and the present incumbent, Rev. W. H. Dunham. The church is in a flourishing condition, and has a fine home of its own and large parsonage, entirely paid for by the congregation. The Presbyterian Church of Daw-

comprising six men and two women. For a long time a free labor bureau, shelter, and a wood yard were conducted aside from services and other work. The army has done splendid work here for years, and now has a fine home in the heart of the city, with a thriving corps in charge of Ensign and Mrs. George Johnson, assisted by Adjutant Denne and Lieutenants Waller and Wright, and "Wee" Georgie Johnson, the midget drummer boy.

POWER IN YUKON

By W. J. RENDELL,
Civil and Mining Engineer

THE question is asked repeatedly, "Can inexpensive electric power be generated in the Yukon for mining and other purposes, and if so, what effect will it have on mining?"

To one acquainted with the field there can be no question but what the many large rivers and their numerous voluminous tributaries throughout this territory afford an immense source of low cost power for mining or other industrial purposes. As an instance, let the larger streams tributary to the Yukon near Dawson or for 100 miles each way up and down the main artery be cited as to volume, and it will be seen that the flow of each is as follows:

Klondike river, 300,000 miners' inches at high water; 75,000 inches at low water.

Fortymile river, 250,000 inches at

high water; 50,000 at low water.

Fifteenmile river, mean flow, 12,000 inches.

Twelvemile river, mean flow, 10,000 inches.

Indian river, mean flow, 4,000 inches.

Stewart river, mean flow, 1,000,000 inches.

The grades of the larger streams, such as the Stewart, the Klondike and the Fortymile, are very low, and the power could be generated only under low heads, which would be very costly. These larger rivers are fed by many tributaries throwing from 100 to 20,000 miners' inches of water, varying in grade from 50 to 100 feet to the mile. The ground formation in most cases is suitable for ditching.

From the larger Klondike river tributaries there can be generated under heads from 200 to 500 feet,

vertical, 30,000 horse-power, and the power can be transmitted to the principal mining centers, such as Hunker, Bonanza and Dominion creeks, distances of from 10 to 40 miles, over a country where erection of poles is a simple and easy matter.

On the Stewart and Fortymile rivers and their tributaries are many feasible points for generation of power for all enterprises in this district at very reasonable cost.

The coal deposits being located and worked in the Yukon should not be overlooked in the matter of supplying inexpensive power. If adequate power plants are installed at any of the coal mines I believe that electric power could be generated and transmitted to the various mining centers at a very low cost, and, considering climatic conditions, would have many advantages over water power.

If electric power could be generated, transmitted and sold at a reasonable figure, it would give a great impetus to mining generally. Dredges could be installed and operated at greatly reduced expense; electric elevators would be working on ground now lying idle, and water could be pumped to the higher levels for hydraulicking the rich bench ground that cannot be reached or supplied with water in any other economical way.

My opinion is that electricity is to be the savior of the country, as it is to be in so many other mining camps. For the generation of electric power Yukon possesses unequalled advantages in regard to her extensive coal measures, where the power can be generated at the pit's mouth, or by water power from her numerous streams of sufficient grade.

ROADS IN THE YUKON

HUNDREDS of miles of wagon roads as fine as to be found in any country have been built along the gold creeks near Dawson, and many others in other parts of the territory.

The construction of a system of roads in the Yukon Territory was a colossal undertaking. When it is remembered that in 1899 and 1900 miners were receiving as high as \$1 an hour, it is possible to form some idea of the expenditure to be encountered. In 1899 workmen on the road were paid at the rate of 85 cents per hour; in 1900 they received 80 cents, and since 1901 they have been paid at the rate of 75 cents an hour. In 1899 a team could not be hired for less than \$25 a day. In the following year this was reduced to \$20, which is the rate paid at the present day.

The first road in the territory was built in 1899, along the top of the ridge between Bonanza and Hunker Creek, this road being subsequently extended to Gold Run. The same year branches were constructed from this road to Bonanza, Gold Bottom and Caribou. In 1900 the present road from Dawson to Grand Forks was constructed, and in the following year this road was continued up Bonanza, connecting with the summit road which had been built the previous year. In 1901 the present wagon road was also built from the Ogilvie ridge along the Klondike valley and Hunker creek to Caribou, a distance of thirty-three miles.

In 1901 a pack trail was built from Dawson to Glacier creek, and in the following year this trail was improved and made a passable wagon road. The mining industry in the Miller and Glacier district continued with increased activity, and in 1904 warranted the expenditure of a sufficient amount to construct a good wagon road. This road commences on the opposite side of the Yukon from Dawson, but a cable ferry and scow, which were purchased by the local government, convey horses, machinery and supplies, etc., across the river. In summer all the freight and passenger traffic from Dawson to Miller creek is carried over this road, a distance of 73 miles. The winter trail from Dawson to Miller is by way of the Yukon river to Forty-mile, up Forty-mile to Brown creek, up Brown creek to its head, then over the summit to Big Gold and Glacier, a distance of 110 miles.

In winter the trail from Duncan to Dawson is by way of Hunker, Dominion, Jensen, Gravel lake, Barlow, and across country in a straight line to Mayo, a distance of 150 miles. In summer there is steamboat communication between Dawson and Mayo, the Stewart river being navigable to Fraser Falls.

The following statement shows the

number of miles of sleigh and wagon roads constructed since 1899, namely:

WAGON ROADS.			
1899	1900	1901	1902
45.00	32.00	63.36	85.81
1903	1904	1905	Total
26.00	141.00	37.00	430.17
SLEIGH ROADS.			
160.00	10.00	80.25	372.00
4.00	29.00	13.00	668.25

The cost of the construction of

wagon roads runs from \$1,500 to \$3,300 per mile, and sleigh or winter trails from \$250 to \$350 per mile.

The following comparative statement of freight rates between Dawson and the principal mining districts during the summer months will show the enormous advantage derived by the miners from the construction of the system of roads throughout the Territory:—

Destination.	Distance from Dawson.	Rate per 100 Pounds	
		1899	1903
	Miles	\$ cts.	\$ cts.
Grand Forks.....	12	7 00	1 00
Gold Bottom.....	20	8 00	1 50
Caribou.....	33	12 50	2 00
Sulphur (Discovery).....	35	12 50	2 00
Gold Run.....	55	18 00	3 00
Glacier.....	73	20 00	6 00
Duncan—Present rate from Dawson to Mayo by steamer, \$2 per 100 pounds; from Mayo to Duncan by trail, \$6 per 100 pounds.			

In the early days the only route to and from Dawson during the winter season was the frozen surface of the Yukon river. For about one month while the ice was forming on the river, and for a similar period in the spring while the ice was breaking up, there was no communication between Dawson and the outside. It was dangerous and almost impossible to travel any distance on the shore ice. No mail could be carried either way for about two months each year.

In the summer of 1902 the government built a winter trail between Dawson and Whitehorse, a distance of 333 miles at a cost of \$129,000, and since that time about \$50,000 have been expended in maintaining and repairing this road. During the winter season and since the construction of the new trail, a tri-weekly stage service is given between Whitehorse and Dawson. From the close of naviga-



Shooting Whitehorse Rapids by Moonlight.

In order to illustrate the saving to the mining operator by the system of roads which have been constructed in the Klondike district alone, the following is a statement of the total

District.	Tons	1899.		1903.		Net gain to Operator
		Rate.	Amount.	Rate.	Amount	
Bonanza.....	4,500	140	630,000	20	90,000	540,000
Hunker.....	3,750	160	600,000	30	112,500	487,500
Dominion.....	3,000	250	750,000	40	120,000	630,000
Gold Run.....	2,250	360	810,000	60	135,000	675,000
Sulphur.....	1,500	250	375,000	40	60,000	315,000
	15,000	3,165,000	517,500	2,647,500

The foregoing table shows the freight delivered only to the principal producing creeks. It is estimated that the freight delivered on the smaller producing creeks would amount to 5,000 tons, which would thus in-

crease the aggregate to at least 20,000 tons.

The above statistics respecting the construction of roads, etc., were compiled by the Inspector of Works and Buildings for the Yukon Territory.

tonnage of freight, including supplies and mining machinery, delivered by freighters on the principal creeks in the district during the year 1903, as compared with what the cost would have been in 1899, namely:—

tion until sufficient snow has fallen to make good sleighing the company uses Concord coaches, which can carry twelve passengers each. Until the crossings are frozen over, passengers and baggage are taken across the rivers in canoes, which are handled by expert boatmen. As soon as there is sufficient snow for sleighing, sleighs are substituted for coaches. Each sleigh is drawn by four horses, and has accommodation for from nine to fourteen passengers, 1,000 pounds of passenger baggage and 1,000 pounds of mail and express. No team travels more than an average of 20 miles, and fresh horses are in readiness at each station along the route. From about the first of March the passenger traffic to the interior becomes very heavy, and from that date until about the seventh of April there is an almost daily service of stages.

Glorious Climate of the Yukon

By HORACE McKAY,
Dominion Weather Observer
at Dawson.

Land Blessed With Verdant Springs, Evergreen Summers and Crisp, Dry, Invigorating Winters—Much Misunderstood Phase of Yukon Explained

IMAGINE a region blessed with spring, with the happy conditions of a cherry-blossom season from April until the last days of summer blend into the beautiful Indian summer, and you have Klondike. Here is the vernal land of the American continent. The fact that the sun shines 24 hours or close to it much of the season, and that the twilights are long and exquisite, affords an infinite quantity of

blizzards or storms that rack the earth, the Yukon temperature holds steady below the freezing point, and the coast mountains act as barriers against the Pacific and insure dryness.

A temperature of from 15 to 25 below zero, with a few hours of sunlight, may be characterized as a type of the ideal Yukon winter weather. The snow is fine and powdery, the

are usually a few hours of sunlight. The trails leading from Dawson to the different creeks are comparatively level, and by the middle of January are in splendid condition for sleighing. Wrapped in furs and seated behind spanking teams, many of the citizens of Dawson avail themselves of this exhilarating form of enjoyment.

With the exception of Siberia there

atmosphere. The summers are beautiful, the air is invigorating and the weather, in general, cannot be surpassed. The average temperature for the last seven years is 52 above zero, being a maximum of 88 above zero and a minimum of 8 above zero.

Between May 15th and July 15th there is practically no darkness, and a newspaper can be read at midnight without the use of artificial light.

The winters are cold but the climate cannot be compared with that of Eastern Canada in that the conditions at any time during the year can be depended upon to be the same as the previous year. The winter commences about the beginning of October, and lasts until April 15th each year, and during this period practically no changes take place. The coldest day on record was in January, 1906, when the police thermometer registered 69½ degrees below zero, although the government registered 65.5 below zero.

There are two periods during the year when transportation between Dawson and Whitehorse is difficult. These periods are: First, when the overland trail is breaking up and the ice in the rivers is unsafe to travel; second, after the close of navigation and a short time after the ice has formed in the rivers.

The following shows when the ice in the Yukon in front of Dawson stopped to flow and when the ice broke at the same place during several seasons:

Freeze-up.	Year.	Break-up
.....	1896..	May 19, 2.35 p.m.
.....	1897..	May 17, 4.30 p.m.
Nov. 4	1898..	May 8, 8.15 a.m.
Oct. 23	1899..	May 17, 4.10 p.m.
Nov. 2	1900..	May 8, 6.00 a.m.
Nov. 12	1901..	May 14, 4.13 p.m.
Nov. 5	1902..	May 11, 8.45 p.m.
Nov. 10	1903..	May 13, 11.38 a.m.
Nov. 8	1904..	May 7, 9.44 a.m.
Nov. 10	1905..	May 10, 5.21 p.m.
No. 7	1906..	May 11, 1.45 a.m.
.....	1907..	May 5, 6.52 p.m.
.....	1908..	May 7, 5.27 p.m.
.....	1909..	May 11, 9.47 p.m.

As a rule, the first steamer reaches Dawson between the first and fifth of June; and the last steamer leaves Dawson between the fifteenth and twenty-third of October in each year.



Fraser Falls, Stewart River.

daylight, and the Northern location of the region on the earth means that the sun's rays fall aslant and are so modified that no scorching extreme of summer heat is known. The result is the prolonged season for growth and the consequent dominance of a green period much of the year.

In the winter, instead of the moist and humid temperature, instead of

air is dry and crisp, and the sky is clear. What may be termed the most wintry period of the year is between the middle of December and end of the first week in January. During this period the sun occasionally shines on the surrounding hills, unless there is severe cold, in which case the sun may not be seen for several weeks. By the middle of February, however, there

is perhaps no other country in the world in which the temperature fluctuates more than in the Yukon. Owing to the dry atmosphere it is possible to endure the extreme temperatures with less effect than in a climate of more moderate temperatures such as is found in other parts of Canada, where there is a great quantity of humidity in the

"GO NORTH"

An Editorial by T. A. Rickard in the January Number of the "Mining and Scientific Press"

WHEN the world was startled by the output of gold from the North eleven years ago, and that output gave signs of dwindling, the question was asked: What is the outlook for mining in the interior region of the Yukon and Alaska? Mining engineers and geologists knew that the wonderful gold bearing gravels of the Klondike, of Fairbanks and of Nome were the result of a process of natural concentration that had been at work for thousands of years. They asked: Are the miners simply skimming the golden cream that can never be remade, and will the mining operations soon end, leaving nothing but the skimmed milk of low grade alluvial deposits? The answer is: While the geological dairy operates so slowly that its products cannot be made within the life time of the sons of men, it has been at work so magnificently in the past that even though the richest of the cream has been collected, there remains a vast amount of wholesome milk. The alluvial deposits of the north are not worked out, nor will they be during the life of those now living.

This is an important fact, if true.

Discussing the future of Alaska with an official who had good reason to take a friendly interest in the subject, the present writer was informed, last summer, that the placer camps were necessarily ephemeral, and that the future of the country depended upon the development of its copper and coal resources. Our informant had never been "inside," that is, across the coast range into the spacious region drained by the Yukon, the Tanana, the Innoko and the Kuskokwim; he was one of those to whom Alaska meant the southeastern province, from Ketchikan to Seward; to him the vague and vast tracts beyond the barrier of glacier and peak were the scene of an exciting kind of nugget hunting such as could not last; it had no industrial future; it was but the arena wherein adventurous spirits risked life and money in search for rich patches of gold bearing gravel that were soon garnered and never sown. He was hopelessly wrong.

To a traveler wishing to see a part of the world wholly unlike the beaten tracks, to be with men waging a fierce and cheerful fight with great

natural obstacles, to live for a time with humankind on the farthest frontier of civilization, where man in the unit dwarfs man in the aggregate, there is no more interesting journey than the tour from San Francisco to Skagway, over the coast range, down the 2000 miles of the Yukon, up to Nome, and thence homeward through the Aleutian archipelago.

To the men of our profession, these northern mining regions must be intensely interesting, both from a scientific and commercial standpoint. The frozen condition of the ground and the factors modifying the arctic geology present problems new to most of us. The intelligent application of technology in overcoming regional difficulties, the wide distribution of gold in deposits of peculiar character, the labor problems arising in isolated communities, and the bending of every energy to overcome the delays and expense of transport—these are all tasks for the most adaptable of men, the modern engineer. And he can go there knowing that not only will he not risk his health, but he may even upbuild a physical sys-

tem injured by the miasma of the tropics or the unwholesome life of a crowded city.

The climate of the interior of Alaska and Yukon is superb. Again we find that the average man gets his notions of the country as a whole from seeing a small and easily accessible portion of it. Southeastern Alaska, as typified by Juneau or Sitka, is a wet, misty and rainy tract along the coast that catches all of the humidity of the west wind from over the sea. This excessive moisture brings verdure and a scenic beauty that have a peculiar charm; but it is not bracing to the physical part of man, and it feeds those glaciers with which even the well informed associate the name Alaska. The southeastern coast is cinctured with rivers of ice; they are splendid spectacles; but once across the range the traveler sees no more glaciers; he is in an arid region, where the air is as it is in Tucson at 4 a. m. in March—that is, it is the air that creation breathed at the dawn of time, as free from microbes as interplanetary space; as stimulating as hope, as invigorating as youth, when "the world was young and life an epic."

The List of Dredges Within 75 Miles of Dawson

THE list of dredges within 75 miles of Dawson includes, five on Bonanza, three on Hunker, three on Fortymile, two on Walker's Fork of the Fortymile, one on Indian river, two on Stewart river, two on Klondike river.

Several of the companies are contemplating an increase in the number of dredges on their present properties, and many new companies are in the process of promotion with views of taking up dredging properties. Hundreds of miles of gold-bearing streams are untouched by the big concerns, and are still in the hands of individuals in the Fortymile, Stewart, Klondike, Indian river, Sixtymile, Circle and other districts.

Among the good streams in the Fortymile are Canyon, Squaw, Hubbard, Jack Wade, North Fork, Mosquito Fork and scores of others. Nearer Dawson are such streams as Dominion, Sulphur, Quartz, Indian River, Eureka, Black Hills, Henderson, Flat, Klondike river and others. In the Stewart country are a number of streams, including Clear, Barker, Scroggie and others. In the Sixtymile are Glacier, Pure Gold, the Sixtymile proper and others.

Many of the foregoing streams also have scores of square miles of hydraulic propositions not yet in the hands of large concerns. Streams on which splendid hydraulic property is being held or gotten into shape outside of the holdings of the one or two giant concerns, and which offer inducements to new investors, include Bonanza, Eldorado, Hunker, Last Chance, Gold Bottom, All Gold, Goring, Quartz, Eureka, and many of their tributaries and hills.

The hydraulic plants operated near Dawson include:

Two giants on Ac. Jen group, right limit of the Klondike, 700 inches.

Two giants on Paradise Hill, left limit of Hunker, using 300 inches.

Two giants on Solomon Hill, left limit of Bonanza, using 400 inches.

Two giants on American gulch, left limit of Bonanza, using 500 inches.

Two giants on Bunker Hill, right limit of Bonanza, using 500 inches.

Three giants on No. 3 above Bonanza, hydraulicizing creek bottom into electrical lift No. 1.

Four giants on Adams Hill.

Seven giants on French Hill, left limit of Bonanza.

Plant on Whisky Hill, right limit of Hunker.

Plant on Whisky Hill.

Giant on Paradise Hill.

Giant on Delhi Hill.

Plant No. 1 on Temperance Hill.

Giant No. 2 on Temperance Hill, Hunker.

Plant No. 3 on Temperance Hill, Hunker.

Plant on hill opposite Bee gulch.

Plant on Nugget Hill, opposite 55 below.

Four monitors with 800 inches, working on Treasure Hill, Hunker.

Two giants on left limit of 3 and 4 Last Chance.

Two giants opposite 2 and 3 below

Thistle creek also has some hydraulic plants in course of installation.

On Barker creek, a tributary of the Stewart, Graham and partner are installing a plant. The ditch is completed.

Hydraulic work also has been carried on quite extensively on ground on the Sixtymile.

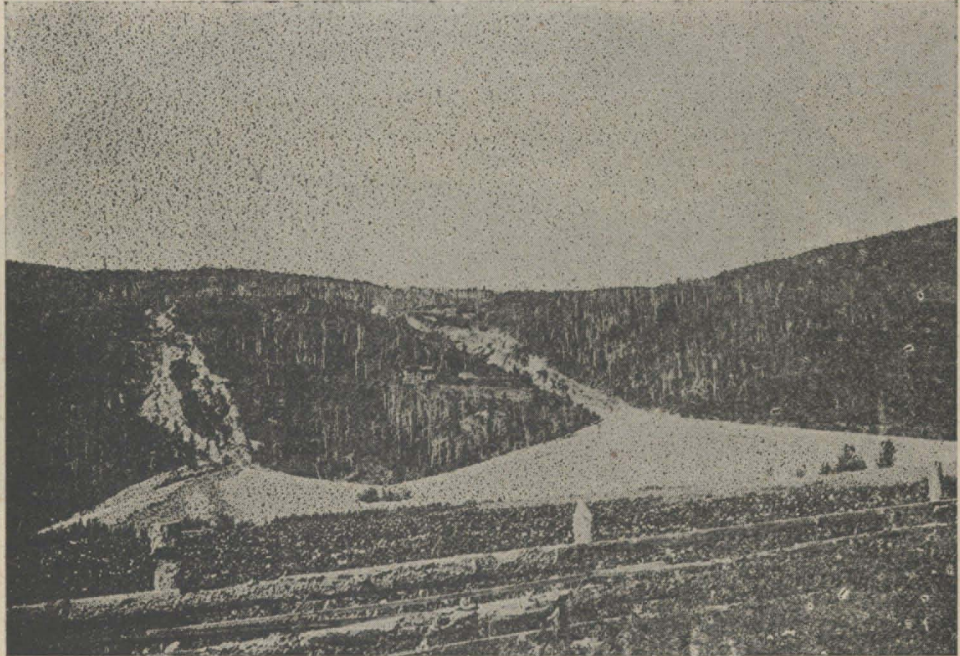
One company has an extensive hydraulic plant, long ditch and hydraulic lift on Miller creek. The company also in clearing the ground there for dredge purposes.

Many large hills in the Klondike

hydraulic work, with many large flumes and ditches, has been under way for years. Dredges and steam shovels also are used there.

The Klondike's new hydraulic plants will include the several to be fed by the mammoth ditch now being completed at a cost of about ten million dollars, sixty miles over the hills from Twelvemile river to the high levels of Bonanza and Hunker. Much of this water will be used to feed electrical conveyor plants.

The first of the electrical conveyors have been installed on Bonanza at a heavy cost, probably about \$50,000,



Tailing from the Hydraulic Operation on the Potato Patch.

on Hunker.

Two giants opposite 6 above the mouth, left limit of Last Chance.

Plant on Goring creek, opposite upper Hunker.

Several giants on Dublin gulch.

In addition to the foregoing are several plants operating on Lovett gulch and other points along Bonanza and Hunker by individuals whose names are not known.

In the Fortymile country hydraulic work also is being undertaken by quite a number.

On Ballarat creek are several giants.

camp are being prepared for operation by hydraulic methods.

In the Circle district, at Rampart, Hot Springs, which are on the lower Yukon, hydraulic plants have been undertaken on extensive scale. These three districts are among the most important in the Yukon basin.

On the extreme upper Yukon waters are the tributaries of the Big Salmon, where plants are working on several creeks, including Livingstone, Cotton-eva and other streams.

In the Atlin district, the waters of which are tributary to the Yukon, hy-

and containing 100 tons of machinery and steel frame material. Two more of the plants are to be installed on Bonanza this season. Part of the machinery for the two plants is on the ground. The ditch will carry 5,000 inches of water.

The hydraulic and dredge mining has been under way in Klondike not more than three years, that is, on anything more than a limited scale, and while millions have been expended in ventures of this kind already, the working here by this method is barely begun.

The Poultry Industry in the Yukon

By WILLIAM J. ANSTETT,
of Dawson.

THE financial success of the poultry business in this region depends on the success of the country in a general way, but as to the possibilities in growing and handling fowls here, they are as great as in

buildings, with plenty of light. A large part of the general success is in bringing the poultry through the winter in good health. That is the most trying time of the year.

Poultry kept in good condition will pay better in Yukon than elsewhere.

half more than eggs from the outside.

Hens sell in Dawson for one and a half to two and a half dollars each in summer. In winter three to four dollars would be the price of a fresh killed chicken. The storage fowls

according to the season. Fires also must be kept burning in winter, to heat the houses, and this is no little expense. In the spring and the summer the long days, stretching even into continuous daylight in midsummer, make the industry then one most pleasant to follow.

But at all times one about to embark in the poultry business must be prepared to face disappointment, because it is only through diligence, study and perseverance that the work can be made a success. All conditions must be understood to make even a good living from the industry.

The breeding and handling of ducks, geese and pigeons as well as turkeys also may be carried on with more or less success, as the foraging fowls and birds do well. But the demand is not large.

With the growth of the country, and increase of population in Yukon, more people will be found in the business in the country. Already a good many are raising poultry here, and some who carry on the industry most extensively have hundreds of fine chickens and extensive poultry ranches.

any other land. The climate, as respects the keeping of poultry, does not vary very much from that of the north central states or the adjoining Canadian provinces.

For success in keeping poultry here, one must have good winter quarters, such as large, warm, well ventilated

Fresh laid eggs bring three and even four dollars a dozen, depending on the locality and the winter supply. At the four dollar rate or anything near that the eggs, as a rule are not readily marketed, but in Dawson the winter price usually is a dollar and a half a dozen, or about a third to a

bring less. So the poultry raising in Yukon is carried on more for the eggs than for the flesh of the fowls. The prices of feed are high, thus making the cost of keeping poultry high, and the price of eggs and the birds also high. Wheat, corn and the like sell at 4½ to 6 cents a pound, ac-



A Vista of Water, Snow-capped Mountains and Cloud.

**Burton Holmes
on the Yukon**

AMERICANS probably more than any other people have gained the reputation of being a nation of travellers. Yet it is an actual fact that there are thousands of Americans who are far more familiar with the highways and byways of Europe than with the rugged scenery and amazing natural resources of their own America.

With improved facilities for travel this condition is likely soon to witness a decided change. In fact the time is already at hand when it will be regarded as both more practicable and more profitable to visit the "show places" of the American continent before running off to Europe for a

Horse City on the Upper Yukon, as comfortably and expeditiously as in traveling from New York to Boston.

"From White Horse to Dawson we have for highway the great, rapid-flowing river, and for conveyance the comfortable Yukon steamers that ply all summer up and down the stream."

The World's Gold Yield

THE world's total gold output in 1908 was \$427,000,000, against \$410,555,000 in 1907, according to the estimate of Director of the Mint Leach. Gold production in the United States aggregated \$96,313,256, an increase of almost \$6,000,000. Silver aggregated 51,798,053 fine ounces, a net decrease of 4,700,000 ounces from the previous year. Africa yielded \$165,000,000 in gold, an increase of

vited to stake on Gold Bottom. A few days afterwards Carmack and two Indians arrived at Gold Bottom, and staked claims near to where Henderson and party were working. Returning across the divide by way of Bonanza, Carmack and the two Indians did some prospecting, and found rich prospects on what is now Discovery claim on Bonanza creek. Carmack staked Discovery and No. 1 below; "Charley," an Indian, No. 2 below, and "Tagish Jim," the other Indian, No. 1 above. Before leaving Gold Bottom, Carmack told Henderson that he would send an Indian to inform him if rich prospects were discovered. Carmack, however, did not fulfil his promise, and he and the Indians at once proceeded to Fortymile, which was the recording office at the time, and filed their applications with Inspector Constantine. Up to this time the majority of the miners in the territory had been working on Fortymile, but as soon as the discovery on Bonanza became known all the miners in the

their heavy burden of supplies in packs and some on sleds, when suddenly a huge mass of snow came sliding down the mountain side, striking the line of travellers and burying between 50 and 60 men. Those who had escaped the catastrophe at once commenced to dig for their comrades, very few of whom were rescued, and some of the bodies were not found until the snow melted in the spring. Such is an instance of the dangers which confronted in the early days the thousands who had contracted the gold fever, and who were unaware of the innumerable hardships to be encountered on the journey to the new diggings.

In the spring of 1899 nearly all the creeks in the Klondike district had been staked; and in a few years this remarkably rich district produced millions of dollars. Though rich gravels were discovered on Gold Run, Hunter, Dominion and Sulphur, and much gold has been and is being taken from those creeks, yet no creek has been discovered that can be compared in



2011

LAKE LABARGE

A Fair Day on Lake Lebarge.

hasty inspection of the Parisian boulevards and the Italian ruins.

The summer trip to the great American and British Northwest—including Alaska, British Columbia and the Yukon and Klondike regions—is neither exceedingly expensive nor yet so costly in time and exertion as a jaunt through the capitals of Europe. E. Burton Holmes, the popular lecturer, and probably one of America's most famous travellers, after his visit to Alaska and the Klondike, expressed himself in the following enthusiastic manner:

"Alaska and the Klondike, as they are today, are amongst the most amazing facts of our new century; yesterday a wilderness with heroes fighting battles with the elements; today a land with towns and cities; with happy homes and thriving business enterprises.

"Where the pioneers dragged their bleeding feet up the icy stairways of the White Pass or the Chilkoot, we rolled in all the luxury of railway cars; and within sight of the death-dealing rapids through which their boats were steered with the fear of death for pilot, we glided smoothly over rails of steel, coming from Skagway on the coast to White

more than \$13,000,000. Alaska, California, Colorado and South Dakota showed increases in gold reaching altogether more than \$10,000,000. Decreases in Utah of 3,500,000 ounces, Colorado of 1,250,000, and Idaho of 1,500,000 were notable in the silver output.—Washington, D.C.,

Discovery of Klondike

IN 1894 Robert Henderson and two other miners prospected the gravels at the mouth of the Pelv, where they rocked out \$54.00 in fine gold. They came down to the mouth of Indian river, which Henderson ascended alone, and prospected on Quartz and Gold Bottom. Having found good prospects on Gold Bottom, Henderson and a party of five returned to this creek in the spring of 1895, staked claims and commenced to work. During the summer of 1896 Henderson prospected on Gold Bottom creek, eventually made a trip to Ladue's trading post at Ogilvie to obtain supplies, and returning to Gold Bottom by way of the Klondike river, he came upon a number of Indians fishing in the Yukon river at its confluence with the Klondike. Living with the Indians was one George W. Carmack, whom Henderson in-

Fortymile district stampeded to the new strike, and in a short time Bonanza creek was staked from end to end. Meantime Henderson and his party were working on Gold Bottom, and did not hear of the new discovery until the whole creek had been staked. Extensive prospecting at once commenced on Bonanza and its tributaries, and in a short time many of the stakers began to realize the marvelous wealth which their claims contained.

As soon as the news of the rich strike reached the outside world, thousands of gold seekers immediately started for the Klondike. Probably never before in the history of gold mining camps has there been such a rush of people from almost every vocation in life, as was seen in that irresistible stream of fortune-seekers who climbed the Chilkoot pass and pressed on to Lake Lindeman, where the most rude boats and other flimsy craft were constructed for the journey of 500 miles down the Yukon river to Dawson. One of the saddest events in the history of this great stampede occurred one morning on the trail between the summit of the Chilkoot pass and Sheep camp. For some distance between these two points the trail leads along the bottom of a steep mountain, and a long line of gold hunters were laboriously toiling along this stretch of the journey, some bearing

richness with Bonanza and its tributaries. Creek claim No. 16 Eldorado, a tributary of Bonanza, containing an area of four acres, alone produced \$1,500,000. Creek claim No. 17 Eldorado, containing an area of 6.4 acres, produced \$1,300,000.

THOMAS A. FIRTH.

Successful young men in Klondike may be counted by the hundreds, but none have gained the smiles of fortune, with very few exceptions, unless by arduous effort and talent. Thomas A. Firth is one of the successful young Yukoners who has forged his way to the front by merit. He has spent several years in Yukon, and has been and is connected with some of the chief enterprises of the territory. Mr. Firth has organized a number of large mining and other concerns, and has conducted a successful brokerage business in Dawson for years. He has faith in Yukon, and although he has visited the outer world several times the last few years, he invariably returns, unable to shake the northern spell. Mr. Firth is the Dawson agent of the Yukon Basin Gold Dredging Company, Limited, and the Stewart River Gold Dredging Company, Limited, and it is through him that hundreds of Dawsonites and other Yukoners have become interested in these enterprises.

Scientists on Yukon Summer

R. F. STUPART, in his report says, "Spring may be said to open toward the end of April. May, with an average of 44 above zero, is by no means unpleasant, and the twenty-third is the average date of the last spring frost. Daily observations during five summers indicate that on the average the temperature rises to 70 degrees or higher on 46 days, and to 80 degrees or higher on 14 days; 90 degrees was recorded in Dawson in June, 1899, and 95 degrees in July of the same year. These temperatures with much bright

moisture descends on the Yukon plain as dry air and having an increased temperature. It follows that the rainfall must be light in summer and also the snowfall in winter."

Volume of Yukon River

W. M. OGILVIE, former Governor of the Yukon Territory, in his report published in 1898, computes the cross sectional area and volume of water in the Yukon River as follows: 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

combining business with pleasure. I believe Alaska to be the grandest country on earth—God's country. Nobody can describe Alaska. Combine all the pictures in nature's art gallery, think of all the wonders in the world, tumble all the mountains, all the snow-capped peaks, all the glaciers, all the gorges, all the valleys, all the cascades, all the torrential streams rushing tumultuously seaward, all together and you have a faint glimmer of the wonders, the greatness, the glory, and the inexpressible grandeur of Alaska.

"If Americans knew more about Alaska, more about the land of sunshine and glory and promise west of the Rockies, fewer of them would sojourn every summer in Europe."

number 29 Eldorado at the price of \$800, his entire cash capital.

The next morning poor Anderson woke up penniless but with a bill of sale to the supposedly worthless claim. Going back to his companion of the previous evening, he begged and entreated with tears in his eyes to be allowed to cancel the deal and receive back his money. This was refused, and although winter was coming on, Anderson had no choice but to go to work on his newly acquired claim. In a short time, however, at a depth of twenty feet, he began to strike rich ground and was soon taking out as high as \$200 to the pan. The claim yielded in all, it is stated, about one and one-half millions, but Anderson could not stand prosperity. Within seven years he had either spent or been beaten out of all his earnings and was back in a saw mill at \$20 per month.

Dick Lowe's Luck.

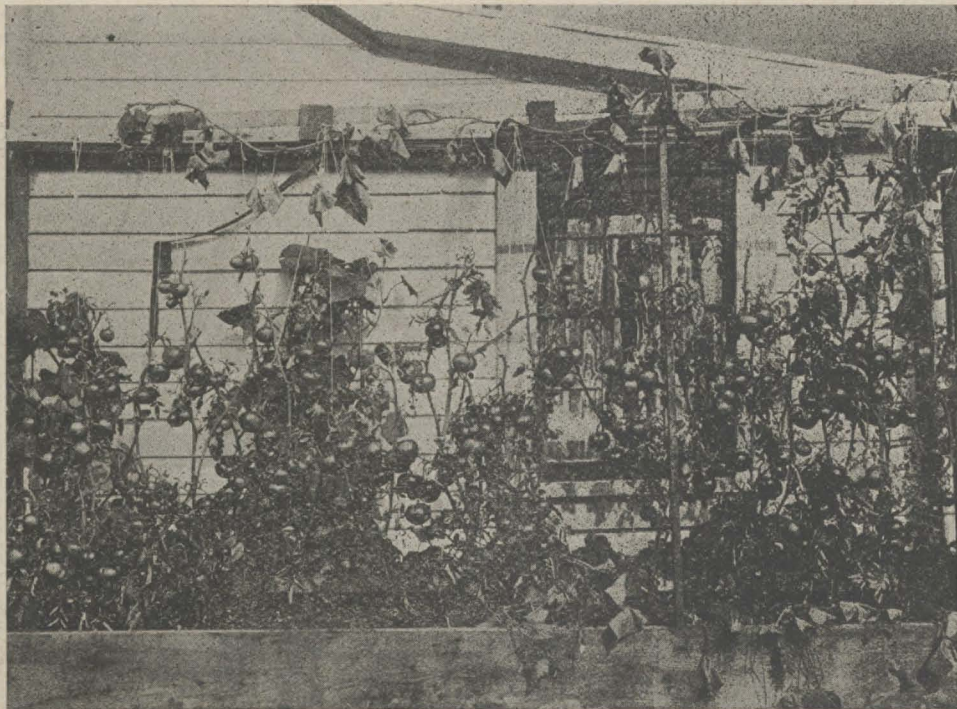
A story often told in the Yukon is that of Dick Lowe, who was advised by the Territorial Governor to take up a fractional claim of about 160 feet. This ground had been tramped over by hundreds of men, but none of them would consider a fraction—they all wanted a whole claim. This same fraction, however, produced something like \$750,000 under the skillful management of Lowe.

Then there is a story of Swiftwater Bill, who made a reputation for himself as a wild and original spender. He probably took out several good-sized fortunes from number 13 Eldorado, and spent them all with the same ease with which he acquired them.

Dawson's Public Library

THE Dawson Carnegie Library Building is the gift of Mr. Andrew Carnegie, who donated \$25,000, provided the municipal council would provide a site and guarantee the maintenance of the institution. The offer was made through A. F. Nicol, at one time a resident of Dawson, and now of London, England.

The library is maintained by the city of Dawson and the territorial government, and a liberal appropriation has been voted annually since 1903, by the commissioner in council for the purchase of new books. There



Tomatoes Grown in Yukon.

sunshine and an absence of frost during three months, together with the long days of a latitude within a few degrees of the Arctic circle, amply account for the success so far achieved by market gardeners near Dawson in growing a large variety of garden produce. August 23rd would appear to be the average date of the first autumnal frost, the temperature rapidly declining during the close of this month. Although night frosts are not infrequent in September, the month as a whole is mild, with a mean temperature of 42 degrees. October may be fairly termed a winter month, the mean temperature being but 22 degrees, and the first zero of winter recorded on the average about the 18th."

Professor John Macoun, Dominion Scientist, in a report on the climate and flora of the Yukon Territory, described the effect of the Coast range of mountains on the climate as follows:

"Instead of the Coast range being an injury to the interior, it makes the climate pleasant both in summer and winter. The Yukon district has two climates, a wet and cold one on the coast, which may be called the Alaskan climate, as nearly all the coast region belongs to the United States. The climate of the Yukon district in Canada is just the reverse, being dry and warm in summer and cold in winter, with a light snowfall. Owing to the moisture rising from the warm Japanese current being carried inland by the upper southwest air current and striking the Coast range, this moisture is at once precipitated on the sea face of these mountains in the form of rain or snow, and the air freed from its

summer level those depths would not be less than four feet deeper, and the cross sectional area 27,000 feet. 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.

The Story of Charley Anderson

THE story of Charles Anderson has been frequently told among the Yukon miners. This prospector came into Dawson one evening with \$800 earned by day



Dawson by Light of the Aurora Borealis.

Congressman on Yukon

THE Hon. Wm. Sulzer, Congressman from New York, in the Seattle Daily Times, said:

"I go to Alaska every summer,

labor in the Fortymile country. As is not unusual in such cases, Anderson was at once shown the hospitality of the town; and after he had been plied with the necessary number of convivial glasses he was easily persuaded to purchase mining claim

is now available for circulation a large selection of the best modern and standard works of fiction, history, biography, science, etc. There are also on the shelves some of the latest and best works on all methods of mining.

Developing the North

By CHAS. R. SETTLEMIER, of Dawson News.

A STUDY IN THE VITAL ECONOMIC PROBLEMS OF EXPLOITATION.

(From the Alaska-Yukon Magazine)

"Alaska-Yukon is an empire without a people."—Daniel Guggenheim.

IS it not reasonably safe to take the cue for this epic theme of empire building from one of the world's foremost diplomates of exploitation?

Mr. Guggenheim, whose enterprises are in every corner of the earth, and who daily scans the world's proffered possibilities for profitable exploitation, visited Alaska-Yukon two years ago and made the foregoing declaration to the writer. The sincerity of his statement is attested in the Guggenheim-Morgan investments in this field to the extent of upwards of fifty millions of dollars; embracing twenty millions in Copper River copper, coal, timber and railway properties; a like sum in Klondike and Atlin gold fields; and the remainder in steamship lines running to the North.

The motto of the virile brotherhood having for its field Alaska and Yukon is "No Boundary Line Here." No more aptly does it apply in any respect than in the welfare and exploitation of these two territories. Their interlacing interests make their destiny identical. Hence, this may be dealt with as the domain of Alaska-Yukon.

The tactical advantage of central location was nature's first favor to this region. The shores of the Orient and the Occident bend above the Pacific Ocean in an arch, spanning the world's most momentous future theatre. Wedged at the top is the keystone, Alaska-Yukon.

To the west, block on block from Cape Horn northward, are the new world powers, pregnant with population and portentous.

To the east, sweeping from New Zealand upward, are the ambitious Antipodes and awakening Asiatic nations, with 800,000,000 human creatures, seized with a hunger-lust flaming into a passion for Western products.

Lifting higher, to widen the horizon beyond the saucer of the Pacific, Alaska-Yukon is seen as the only link of land joining the two halves of the world. Alaska-Yukon thus is the only possible all-land medium of inter-hemisphere migration and commercial and military traffic.

Alaska-Yukon with its 800,000 square miles is equal in area to sixteen Englands. Were it to sustain the destiny of population of central Asiatic nations, Alaska-Yukon would have 1,000 people to the square mile. But, reduce it to only three persons to the square mile, and exclusive of the thousands of miles of sea banks, this Northland will sustain millions.

This Alaska-Yukon, with its spare handful of pioneers, not exceeding 60,000 souls, has had nine-tenths of the active force of today here not more than a decade, yet has produced the splendid returns in wealth touching a billion dollars.

This modest advance corps has gained far more than the immediate pecuniary returns which line their pockets, and the greater gain is the knowledge of the riches in store. This is invaluable especially to those who believe in being early in a virgin country in order to get advantage of its growth. The discovery period, although no more than begun, has progressed far enough to reveal to the Northerner, and to official scientific agents of the two governments, that

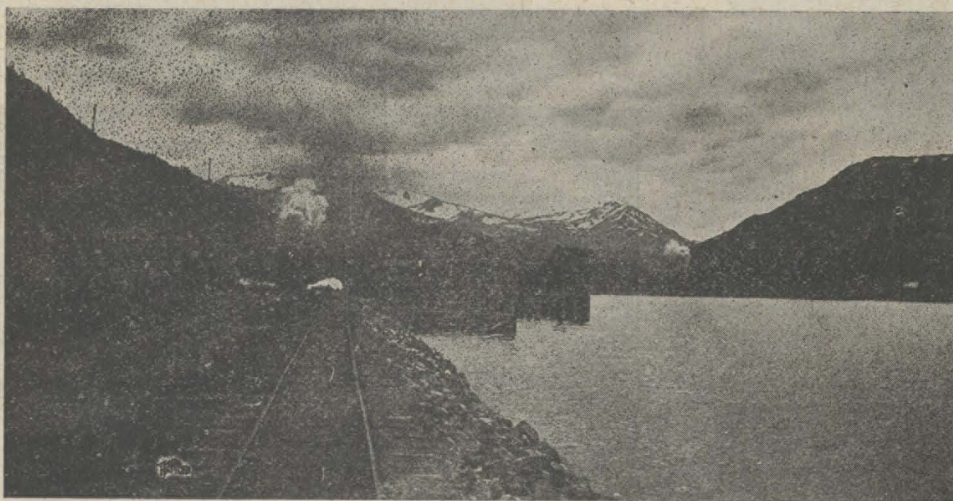
this is a land of prodigious resources.

Here are minerals equal in extent and value to those of several Coloradoes and Montanas; coal fields as excellent, more numerous and over a far greater area than those of Pennsylvania; timber limits, including pulp-wood areas, covering nine-tenths of the domain; deep sea fisheries of 125,000 square miles, exceeding those of New England and Nova Scotia; greatest salmon streams of the world, with a product in the very partially developed condition today bringing returns equalling annually the output of many of the world's best gold camps; sealeries, whaleries and fur domains of princely revenues; a root crop, berry crop and cereal belt athwart the land; rivers of water power on a thousand high divides; calm winters of electrical vigor, cold but exhilarating and free from humidity or blizzard features of great lake or prairie regions; and, suffusing all, the midnight sun, forcing vegetation at tremendous pace without rest, making of the whole a vernal and flower-strewn empire, free from scorch, as

earth. But here is a region which, while broadly speaking as regards the time when it shall be broadly developed, occupies the centre of things, is for the present in the anomalous position of being far from the base of much of its supply, the federal seats of government, the centre of capital and the mass of humanity. These facts call for special lines of action for this country as compared with many other new regions.

Accepting the present nucleus population and those profiting or to profit as individuals or as nations or cities as having at heart the development of Alaska-Yukon, and assuming there is no one Napoleonic individual to force destiny, there is needed united action and policy-piloting. The people of today and accumulating recruits should bend every effort above all things to keep alive the progressive spirit, for all action and course of empire not left to mere chance or recklessness must be outlined first in the mind.

"All is waste and worthless till Arrives the wise selecting will."



Bennett, Lunch Station, on the White Pass Railway.

equable in summer as California in winter, a halcyon land—the American continent's future summer tourist mecca.

With such a dowry is the empire without a people.

Admitting Alaska-Yukon on modest estimate for its area is capable of supporting a population of millions, what are the steps best designed to realize that destiny?

The first requisite for permanent extensive population is inexpensive occupation. This demands a means by which all grades of resource can be made to contribute toward the support of the people and yield some profit. What cannot be supplied at home must be purchased by the profits of home products and industries, and what facilities and supplies cannot be produced locally should have some way of coming into the country at low transportation cost, and the home products sent abroad should be taken out inexpensively. A living margin for the masses must be provided above the cost of conquering the disadvantages of development and marketing. To summarize, the prime factors needed in making Alaska-Yukon are:

1. People.
2. Transportation.

Normal Anglo-Saxon government and human individual diligence would suffice to reclaim such a richly endowed domain in most parts of the

To rear the empire from its swaddling clothes, corrective and nourishing processes will have to be employed simultaneously. The nourishing may be said to be a positive and the corrective a negative. The positive or nourishing needs include: People, transportation, preservation and conservation of public resources, helpful federal government, reasonable home government, adequate representation, skilled and scientific study as to adaptation of herds and of fruit, cereal and root crops; thorough geological and geodetic surveying; establishment of trade; development of neighboring regions which can afford a near-by auxiliary supply; advertisement of the advantages, opportunities, and scenic charms; assimilating loyal people; good schools; vigorous Anglo-Saxon spirit.

Corrective action applies to present evils and those to come, including the breaking down of unwarranted prejudice against this region; stopping of financial drains, by instituting reinvestment; to stop loss of local capitalists by prevailing on the financially successful from moving out of the country; to obviate high cost of operation and living; to take and keep investment out of the hands of men not competent and not conversant with peculiarities of the country; to combat choking monopoly of territory or resources; to battle insecurity of title as affecting individ-

ual or corporation; to correct defective laws speedily; to oppose corruption in all forms.

The pioneers have struggled indomitably and not in vain for improved conditions. No passive state will succeed. The rich, red blood must always prevail if there is to be success. By process of drift or the gradual advance of humanity to the frontier from sheer exigency, Alaska-Yukon likely would become populous after ages, but design and energy should hasten destiny decades, perhaps centuries.

To deal first with the corrective line of action will admit a clearer course for the gradual introduction afterward of the fostering needs.

The most regrettable matter today to the devoted Northerner is the fact that there exists in the public mind outside this realm a colossal wall of ignorance and unwarranted prejudice against this region. In the main it consists of the idea that this is a land of perennial ice and snow, never free from glaciers in every part, whereas, spring, summer and fall in the country as a whole are as free

from ice and snow as the zone between the great lakes and the Pacific or the Atlantic; and the strip in the Northland carrying glaciers and perpetual snow is confined to the Alaskan Alps, which are no greater proportionately in area to Alaska-Yukon than are the original Alps to the whole of Europe.

Failures among the initial investors in this region have not been many, but they have been sufficient to be touched on here as one of the evils needing correction in a fundamental way; and the fault lies not with the climate or want of riches of resource, but with the investors themselves, in sending inexperienced and unpractical men to handle their properties. Too often have the representatives been fondled striplings or men untrained in any work, sent merely to give them a sinecure, and men unacquainted with northern conditions. This region above all requires a peculiar knowledge of local conditions. Properties once unprofitable are proving handsome payers under new management and competent lieutenants having an intimate acquaintance with the field and the work.

Another injurious condition of glaring proportions is want of reinvestment, draining the land of hundreds of millions, and delaying incalculably full fruition. Prompt checking would give new impetus to the North, and do no harm, but rather good to the

southern cities and countries which have been the chief beneficiaries from Northern exploits. With reinvestment here would be opened a greater market for older centers. The kingly profits from sealeries, fisheries, fur trading and mines which have been sent elsewhere, if reinvested, would have multiplied the returns to the owners and the Southern supply houses, and the land would have been leagues ahead of its present stage. Commercial clubs, legislators and others in cities wedded to the North cannot from even selfish interests work more profitably than for northern investment.

Akin to the defect of non-reinvestment is the migration of people from this land after making fortunes here. The successful homestake seeker nearly always leaves the land. The white population has doubled or trebled since the first great rush to Klondike, which marked the new era a decade ago. Most of those who get the large stake leave chiefly because of desire to be amid outside pleasures and to have home and the higher educational advantages for their families, and to make their wealth in the meantime go the farthest possible in a land of inexpensive existence. The remedy largely must be to provide here what they leave to get. This means merging the North with the South, and creating rapid intercommunication, common interests and advantages, and low cost of northern living, and adding all outside advantages to the charm of the greater northern profits and the lure which makes all who have been North desire to remain here despite the expedient call which to their regret now takes them away.

The basic detriment to those willing to remain and invest is the high cost of occupation. To work placers, minerals and other resources of low grade as well as high is the condition necessary to get a maximum development, and to do it at a minimum expense calls for the low plane of costs. The low basis need not mean a level of miserable Oriental existence, but something near the costs elsewhere on this continent.

In hopes to overcome the high rates of living the consumer first turns to the merchant for lower prices. The merchant, especially he of the interior Alaska-Yukon, turns to the railways and steamship lines, saying they set the pace, abetted by the isolated condition; so the merchant maintains that he cannot under present conditions reduce charges and meet his high freight rates. He further has to buy twelve months' stock at one time, make but one turnover a year, and thus invest several times the sum necessary to do the same volume of business annually as done in countries where the base of supply is accessible at all times and turn-overs made several times yearly. The larger investment bears more interest on stored stock and more insurance; and the longer season means more time to suffer deterioration on the long-held stock, and inability to keep abreast the general fluctuations in the world's markets. Thus, if the consumer cannot sustain the merchants' charges he blames nature for being too poor or others for wanting too much, and quits the country. And there's the rub.

From their earliest days, Alaska and Yukon have pioneered against great odds, and at the same time have been subject to burdens of customs, excise duties and other taxes, never complaining against a fair tax. But they do demand, as shown in repeated instances under both flags, representative government. For it they have battled and will

battle and clamor with the same feeling which actuated the vigorous Britishers of the time of George Washington, who then were exploiting a new empire, believing that the taxed should also have a voice.

Isothermic study of any standard atlas shows Alaska-Yukon in the same zone which in Europe is heavily populated. St. Petersburg, gay as a winter Mecca and a summer capital, is on the same parallel as Skagway and Whitehorse with northern Scotland but a little farther to the south. The province of Vologda, Russia, north of St. Petersburg, sustains by diversified industry a million and a half people. Most of Norway and Sweden, all of Finland and Iceland and much more of the European and Asiatic Arctic and sub-Arctic regions are in the reclaimed belt—a land of

tolerable climatic condition and happy homes, yet not nearly so richly endowed as this region of dawning opportunities.

Not any one factor or reform suggested can suffice in the effort for maximum or even extensive development. It must be a blending of all such, and even more.

Alaska-Yukon's destiny is sure, but the guiding star to the speediest realization of the well-rounded empire must be economical exploitation, which supports the prophetic words: "I hear the tread of pioneers, Of millions yet to be; The first low wash of waves where soon Shall roll a human sea. The elements of empire here Are plastic yet and warm, The chaos of a mighty world Is rounding into form."

Mining at Whitehorse

THE town of Whitehorse, Y. T., which is the terminus of the White Pass & Yukon Route rail line, and where transfer is made to steamers operated by the same company between Whitehorse and Dawson in summer and stage line in winter, is the principal town in Southern Yukon Territory. Its merchants are progressive and carry complete and up-to-date lines of general merchandise, and its hotels are equipped with all modern conveniences. This town is destined to be one of the great mining centres of the north, and the copper properties adjacent thereto are at-

ore averaging 5 per cent. copper. About fifteen miles southwest of Whitehorse several seams of anthracite coal have been located, and at Tantalus one hundred and ninety miles down the river from Whitehorse more coal deposits have been discovered and are being worked quite extensively at present time. Last season approximately 7000 tons of coal was taken from this mine, most of which was used by White Pass steamers, and laboratory tests show this coal will make good coke. This can be used when the copper and other mineral deposits in the Whitehorse district be-



Hayward & Scott's Teams Hauling Supplies in Winter.

tracting the attention of the quartz miner.

Six miles west of the town lies an exceedingly rich copper belt about fourteen miles in length. This entire belt has shown good results from the development work done on it, and large quantities of sample ore have been shipped to the Ladysmith and Tacoma smelters. In the past all this ore has been hauled by team to Whitehorse and there loaded on cars, but the White Pass route has practically completed a spur from its main line to the mines which will materially assist in the shipping of ore and be the means of increased activity in mining.

Among the best known and richest mines are the following: Copper King, Graft, Pueblo, Best Chance, Valerie, Corvette Group. Sample shipments from these mines have shown values averaging from 5 to 10 per cent. in copper. In a tunnel on the Arctic Chief there is a showing of approximately 300,000 tons of 6 per cent. copper ore.

On the Graft a shaft has been sunk 110 feet, and a drift has been run from the fifty foot level, showing a body of high grade ore 16 feet wide. 2000 tons of this ore was shipped out just as it came and averaged 7 per cent. copper and \$3.00 a ton in gold and silver. On the Valerie a shaft was sunk 100 feet and shows a 30-ft. ore body, five feet of which averages 10 per cent. copper.

The Pueblo has a very heavy surface showing of bare copper ore over 250 feet wide and which has been stripped for a distance of 400 feet along the ledge. On this property there is a shaft 65 feet, a drift 170 feet and winze at end of drift 45 feet, and a cross-cut about 110 feet, all in

come further developed.

Livingstone Creek.

Livingstone creek, a tributary of the South Fork of Big Salmon river was discovered by Sam H. Lough and George Black on Aug. 12th, 1899, and has been worked continuously ever since its discovery and produces annually from \$70,000 to \$100,000 with good prospects of an increase this year.

Below Discovery the pay is found in the creek bed but above Discovery the best channel is in the left limit hillside. The creek is easily reached in summer or winter from Whitehorse. In summer time by steamboat to Mason's Landing and from there by government wagon road and in winter by overland road from Whitehorse.

In the immediate vicinity of Livingstone creek are Cottoneva, Summit, Lake, Little Violet, Dyer and Mendicino creeks, all of which prospect well, the first three having been worked to some extent with good results.

Kluane District.

The Kluane district is about 160 miles west of Whitehorse and is a section about 100 miles square, abounding with streams and as yet scarcely scratched by the pick of the miner or prospector.

Stamped in 1903, the cost of living and difficulty of prospecting with a limited capital discouraged all but a few of the most arduous spirits, and even their efforts had little encouragement until last summer (1908) when a number of creeks, notably, Burwash, Sheep, Bullion, Fourth of July, Ruby and Gladstone gave sufficient returns to instil new life into the camp, and prospecting last winter met with most gratifying results particularly on Bur-

wash creek. The dumps now being washed show that Burwash is likely to be a big producer.

The prospector, miner, hydraulic man, dredge man and capitalist could hardly find a better field and one that promises better returns on cash and labor, and the further extension by the government of a good road to this section, and the providing of a mail service and a judicious expenditure of capital will in the near future demonstrate that the Kluane district is rich in precious metals.

Conrad, Y. T.

Conrad or Windy Arm mining district as it is called is about 12 miles from Carcross on the main line of the White Pass & Yukon route. This district was little heard of until the year 1905, when Col. J. H. Conrad initiated work on the Windy Arm properties. Since that time considerable work has been accomplished. Aerial tramways were installed to all the most promising mines, a concentrator erected on the beach, and there is now under construction another aerial tramway from the Big Thing mine to Carcross a distance of four miles. Perhaps more work has been done in this district than any other part of Southern Yukon, and it is only fair to say that the advancement and development of the district is due to the untiring efforts of Col. J. H. Conrad.

Watson and Wheaton.

In the Watson and Wheaton districts over 130 claims have been represented, and there are many of the claims that are showing up particularly good, among them being the Tally Ho Group, Nevada, Gold Hill, Whirlwind, Buffalo and Silver King, these are all showing up in gold, silver and lead. All through this section there is good quartz, and considering the little prospecting done the results were encouraging enough to warrant both prospectors and capitalists to investigate this belt more closely. Yukon Basin Gold Dredging Co. on Stewart River.

The construction of the dredge No. 1 began at Whitehorse in May, 1908, and started for Nelson Point on July 8th and arrived July 15, and started work a month later and worked till October 8th with the gratifying result of one clean up of over \$3,000. This company own and operate over 105 miles lease of the river and have what is conceded to be the best mining investment in the Yukon. During the summer of 1908 the Keystone drill was kept busy with satisfactory results at Nelson Bar, striking 30 feet of pay dirt and averaging about \$3.50 per cubic yard. One great advantage lies in the fact that the gravel remains unfrozen throughout the Stewart River country. The dredge wintered well and a wood camp was maintained and a supply of 1000 cords is in readiness for this summer's use.

Dredge No. 2 is now being built in Whitehorse and the assembling of the machinery is being rushed forward and is expected to leave for the Stewart river about the first of July and will soon be at work. It is about 50 per cent. greater capacity than dredge No. 1 and the end of the season will show to the investors that they have made no mistake in the installation of this dredge, and an exceptionally good cleanup is looked for at the end of the working season. Mr. Morley Ogilvie, an expert mining engineer, has been appointed field superintendent and has been on the field for several weeks getting everything ready for the spring work. He has spent several years in the North and thinks this is one of the finest dredging propositions ever placed on the market for the small investor as well as the large one as all share equally in the profits of the season's work. This company have a very neat booklet on the work being done on the Stewart river that will be gladly sent upon request by application to Yukon Basin Gold Dredging Co., head offices at Kansas City, Mo.

Whitehorse Board of Trade,
W. C. PEDLAR,
President.
Attest:
J. E. BARRAGAR,
Secretary.

The Alaska-Yukon Magazine is the Publicity Organ of the Northland

From month to month it publishes interesting and valuable material concerning Alaska and the Yukon Territory, covering such subjects as resources, industrial progress, history, geography, climate, ethnology, subject matter of interest to sportsmen, etc. The fiction in the "Alaska-Yukon" Magazine is western and northern in character and comprises wholesome stories which have an uplift. The aim of the magazine is to be educative and helpful. The files of the "Alaska-Yukon" Magazine contain more educational material about Alaska than can be found in any current publication.

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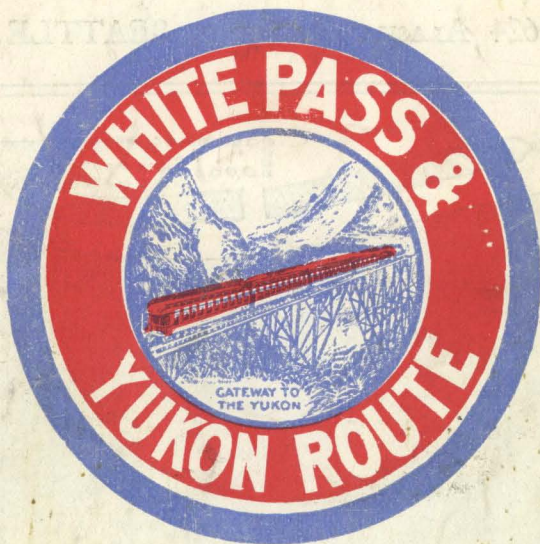
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