

FEB 11 1970

*Yukon*

105

007559

J.H.S.
P.M.K. ✓
G.M.H.
R.D.S.
B.C.B.
I.D.B.
M.D.R.
J.H.F.
_____
E.C.J.

# MINING IN DEVELOPMENT OF THE YUKON

---

by **Dr. A. E. Aho**  
JANUARY, 1970

# MINING IN DEVELOPMENT OF THE YUKON

By Dr. A. E. Aho

January 1970

---

The early fur trade, the Klondike, the Keno Hill silver mines, the Alaska Highway, and post-war mineral discoveries have been the main factors in development of Yukon.

**EARLY HISTORY** Yukon was an unknown, remote hinterland of North America when Vitus Bering discovered Russian America (later Alaska) in 1741 and Alexander Mackenzie discovered the Mackenzie River in 1789. No white man had explored the interior wilderness until the 1840's when Robert Campbell, a Hudson's Bay fur trader, crossed the headwaters of Liard River to find the Pelly and Yukon Rivers. Until that time this cold, austere frontier was inhabited only by nomadic bands of Athapascan Indians.

Within a few years, Campbell established Fort Pelly Banks at the headwaters of Pelly River and Fort Selkirk at its mouth. In 1852 Fort Selkirk was wiped out by a raiding party of coastal Chilkat Indians whose coastal fur trade had been interrupted, and Campbell made a most remarkable overland journey of some 3000 miles to Minnesota in the dead of winter, and thence to England to seek permission to rebuild the fort. Permission was refused, Campbell never returned, and the Hudson's Bay Fur Trading Company eventually pulled back its frontiers, leaving the territory to American fur traders, frontiersmen and gold prospectors as its next explorers and developers.

By the 1860's discoveries of gold and stampedes along the Cordillera of South and North America had inspired prospecting of Yukon and Alaska. Harper was the first to prospect Yukon and

his partners McQuesten and Mayo were the chief traders. All three did much to encourage other gold prospectors and were instrumental in starting the early gold discoveries which eventually led to the fabulous Klondike.

Various rumours and stories and Harper's promoting of the territory resulted in a party of prospectors under governor's orders backed by a U.S. gunboat to force the Chilkat Indians to let them use the Chilkoot pass in 1880. Discovery of the gold mines at Juneau in coastal Alaska in 1880 also brought more prospectors into the region. Within the next three or four years occurrences of fine gold were found on Yukon, Stewart and other rivers, and in the spring of 1885 rich discoveries of fine gold were made on the bars of the Stewart. In 1886 about 100 miners stampeded in over the Chilkoot pass, one of the highest and toughest portages known to man, and began working the Stewart.

In this tough remote frontier most of the men were rugged with all the idiosyncrasies and individuality of prospectors, frontiersmen, Indian fighters and malcontents; law and order was maintained by a miners' meeting.

Then the first discovery of coarse gold on the Fortymile River in 1886 drew miners away from the Stewart, and a wild frontier town called Fortymile sprang up at the mouth of the river where it joined the Yukon. The miners' meetings became unwieldy, incidents of violence and degradation developed, lawlessness of the wild west threatened to develop, but the R.N.W.M.P., predecessors of today's R.C.M.P., descended upon the community and laid down Canadian laws under burly, incorruptible Inspector Charles Constantine. Not until the winter of 1887 when Ogilvie first surveyed the boundary between Alaska and Yukon did the Fortymilers know whether they were in Yukon or Alaska.

As always, the prospectors expected bigger and richer discoveries. In 1893 the Birch Creek placers were found in Alaska. Again there was a stampede and another frontier town, Circle City, was built on the Yukon River. In a year or two nine rich creeks were found and by 1896 Circle City had over 1200 occupants, and nearly a million dollars worth of gold flowed from the creeks.

**THE KLONDIKE** Many of the miners were convinced that far

richer discoveries remained to be made, and the first word spread in late August 1896. Soon Circle City and all the other settlements were evacuated by a stampede into the Klondike where Robert Henderson two years before had found the first gold and George Carmack and his Indians had found very rich coarse gold on Rabbit Creek. Rabbit Creek was renamed Bonanza and its main tributary was called Eldorado.

At first richness of the creeks was not believed. Many of the claims were traded, only a few were prospected in winter and these by very primitive methods of sinking shafts in permafrost and mining underground with the aid of wood fires. However, the gravels did in fact prove to be fantastically rich and two boatloads of Klondike miners carrying several tons of gold landed in San Francisco and Seattle in the summer of 1897, precipitating the greatest gold rush of all time.

Tens of thousands of people stampeded to the Klondike from all directions with a miscellany of supplies. The stampede was promoted to the hilt. Skagway grew overnight into a shack town with Soapy Smith and his confidence men moving in and out reaping the suckers. During the dead of winter and on into spring, 22,000 men and some women carried 30 million pounds of food, equipment and junk over the Chilkoot and White Passes which were guarded by Samuel Benton Steel, prototype of "King of the Royal Mounted". More than 2,500 mules and horses were worked to death under inhumane conditions and many inexperienced stampeders suffered unnecessary hardships. In the spring of 1898 7,124 boats floated down the Yukon River. Below Miles Canyon and Whitehorse Rapids the rambling settlement of Whitehorse sprang up, later becoming an important railway and steamboat terminus.

Stampeders also came in by other routes from Wrangell up the Stikine, over Dalton's trail north of the Chilkoot, over the Valdez and Malaspina glaciers, up river from St. Michaels, down the Mackenzie and overland, and over a dozen portages and passes. Some did not arrive until two years after the stampede was finished. Of about 100,000 persons who set out in 1898 only 30 - 40,000 reached Dawson. Many looked for gold but few found any, and of these very few retained any wealth.

Between 1889 and 1901 the magnificent engineering feat of building the White Pass Railway was accomplished, and from the terminus of navigation at Whitehorse a fleet of over twenty sternwheel steamers plied the Yukon River to Dawson, which was bursting with activity.

By 1901 dredge mining was introduced and for decades until 1967 up to a dozen or more dredges groaned and clattered as they ate through the gravels of the Klondike day and night during the short four or five months of summer operations.

The Klondike stampede opened up the territory. It developed the transportation routes, and brought in hundreds of people who were competent at combing the wilderness for further mineral discoveries. Their efforts resulted in the discovery of other camps such as Atlin, Nome, Fairbanks, Keno Hill, Great Bear Lake, Pine Point and lesser prospects, some of which have become prominent in recent years.

**PLACER CREEKS AND KENO HILL** Although the Klondike rush carried nearly all the miners away from the Stewart River diggings, the flood of prospectors soon spread again through the territory, the more capable ones spreading out into the great hinterland.

In the Mayo district three Swedes by the name of Gustaveson, a father and two sons, found rich placer gold on Duncan Creek, precipitating a stampede of 500 men to the creek in 1902, during which their unrecorded claims were jumped. Other discoveries were made in the area, principally those of Highet and Haggart Creeks which are being worked to this day.

A number of gold creeks such as the Sixtymile, Thistle, Scroggie, Canadian, Henderson, Clear and Kluane Lake Creeks had been discovered throughout the territory and placer operations were carried out. The principal supply routes were established by river with sternwheel steamboats in summer, and overland with horse-drawn stage coaches in winter, mainly to the Klondike gold fields. A subsidiary transportation route was also established in the Mayo district and a number of colourful old settlements and roadhouses sprang up along these routes, including camps in which cordwood was cut for steamboat fuel. Still it was a region of severe isolation, especially in winter when temperatures dropped to 50° and 60° below zero. All sup-

plies had to be ordered a year ahead of time and only the richest creeks could be mined. Many colourful stories are told of the rigours and hardships endured by these early pioneers and by the R.C.M.P., during the gold stampedes and in subsequent years.

Meanwhile, near the railway, the Whitehorse copper belt and Windy Arm gold-silver deposits were mined to a limited degree. In the Mayo district an insignificant-looking discovery of high-grade silver-lead made in the canyon of Galena Creek in 1903 by Jake Davidson was restaked as the Silver King in 1913 and was mined until 1917 by Aitken. Then in 1919 a rich new discovery was made on the top of Keno Hill, and a silver-lead mining operation was established by the Guggenheim interests under severe climatic and transportation conditions. However, reserves of shipping ore were limited, and it soon closed down in 1924.

Meanwhile, an aggressive and imaginative mining and geological engineer, Livingston Wernecke, acting for the Bradley interests, optioned another new discovery lower on the north slope of Keno Hill in 1921 and established the first silver-lead milling operation on the Sadie-Ladue property.

Their new company, Treadwell Yukon Corporation, operated for 21 years on the Keno and Galena Hill deposits and added great impetus to discovery of other mines in the area by prospectors who were encouraged to work on a grubstake basis by Wernecke. Significant discoveries made at this time were those of the exceptionally rich Elsa mine in 1924, the Lucky Queen in 1928, the Silver King extension in 1929, and the Hector-Calumet in 1934. Although limited by shortage of working capital and of developed ore reserves in the face of severe transportation and physical conditions, the developers of the Keno Hill silver-lead mines pioneered the first overland cat train from Whitehorse to Keno, the first overland haulage of ore with gas cats, and the first airborne prospecting of the territory by Wernecke's planes.

However, in spite of exploratory efforts on other prospects, the Treadwell Yukon operation remained as the only successful lode mining operation in the territory. Then this era was brought to a close in 1941 by the Second World War, the death of Wernecke, and financial conditions which made it impossible to continue operating.

THE POST-WAR BOOM. Great changes were next brought about by building of the Alaska Highway, which provided a transportation link tying in with the still-existing sternwheel steamer transportation to Dawson and the Klondike, and of the Canol oil pipeline road across the territory through Ross River. Increases in prices of silver and base metals in the late 1940's after World War II also inspired further development and prospecting.

In 1946 the Keno Hill camp was rejuvenated by takeover of the Treadwell Yukon assets by F. M. Connell of Conwest Exploration and Thayer Lindsley of Ventures, who formed United Keno Hill Mines. As a result of aggressive development of the Hector-Calumet mine, United Keno achieved outstanding success and precipitated a renewed development boom in the Mayo area. By the early 1950's a road was pushed through from Whitehorse to Mayo, and in 1953 to Dawson and the Klondike gold fields, finally bringing to an end the great colourful era of sternwheel steamboats. Although production from the Klondike has gradually dwindled, a number of small placer mines continue to contribute to the economy of the territory.

Among some twenty exploration organizations active in the territory over a period of years, the most aggressive were Hudson Bay Mining & Smelting and Conwest Explorations.

Hudson Bay discovered and explored numerous deposits throughout the territory, notably the Tom zinc-lead property at Macmillan Pass on the Canol road and the Quill Creek nickel property at Kluane Lake. They also made one of the original discoveries of the huge Stikine copper deposits in northern British Columbia.

In addition to developing United Keno which continues to produce silver-lead-zinc and cadmium, Conwest explored many discoveries. In 1950 they optioned Cassiar Asbestos and placed it into production as an outstanding world producer of asbestos, and in 1956 optioned the Clinton Creek asbestos deposit which was brought into production in 1968. Clinton Creek rejuvenated the otherwise dying community of Dawson City which had been dependent for many decades on placer gold of the Klondike.

Prospecting by Kennecott Copper Corporation and by MacKenzie Syndicate in the 1950's led to discovery of the Canada

Tungsten deposit which was placed into production in 1962.

The New Imperial copper mines in the Whitehorse copper belt, which had been discovered at the turn of the century and mined on a small scale until 1920, began production in 1967.

In the Anvil district, the Vangorda lead-zinc deposit was discovered in 1953 and drilled by Prospectors Airways, but proved uneconomic. However, aggressive exploration in this district in 1964 and 1965 by Dynasty Explorations and Cyprus Mines Corporation led to the discovery of the huge Anvil lead-zinc mine which was started up in 1969. This proved to be the greatest single mining development in Yukon since the Klondike. It resulted in over \$100 million investment in Yukon; \$65 million by Anvil Mining Corporation, \$22 million by White Pass and Yukon Corporation for expansion of transportation facilities, about \$20 million by governments, and considerable sums by others.

Geologic studies for petroleum exploration by Crest Explorations, a subsidiary of California Standard Oil Company, also led to discovery in 1961 of huge reserves of iron ore totalling some 40 billion tons of 40% iron in the Snake River area near the Yukon-Northwest Territories boundary. Although not yet economically feasible to develop, this is one of the largest known reserves of iron ore in the world.

Petroleum exploration in the Eagle Plains, Peel Plateau, and the Mackenzie River region in the late 1950's resulted in discovery of gas and oil in the Eagle Plain, and discovery in 1962 of large reserves of gas by Pan American Petroleums near Beaver River in the southeasternmost portion of the territory.

Further major developments may be anticipated in the near future from aggressive base metal exploration programs now being continued by numerous companies, particularly on recent porphyry copper-molybdenum discoveries.

**A GREATER FUTURE** Over the last 20 years developments in Yukon have achieved great impetus. The outlook for, and economics of, mining have improved substantially as a result of more intensive exploration by an ever-increasing number of companies, building of roads, advent of the helicopter, more effective fixed-wing aircraft service, programs of government assistance, increases in metal prices, development of Japanese markets and effects of wider general publicity.

Even this appears to be only a beginning. As exploration of Yukon's mineral resources continues through the ensuing years, more economic operations can be expected to be developed, and potential of the territory indicates that some of these may be very substantial.

Considering Yukon and its surroundings, including adjacent Northwest Territories, as a regional economic unit, the main resources are minerals, gas and oil, and abundant hydro-electric power. The main hydro-electric sources are in the 3.6-million-kilowatt headwaters diversion scheme on Yukon River, the 3.5-million-kilowatt Liard hydro-electric scheme, and the lower Yukon River with potential sites capable of generating some 3 million kilowatts. Of secondary importance are timber resources which might be developed into a pulp and paper industry similar to that of central Finland, and the fast-growing tourist industry. Due to the short growing season, agriculture is only of local importance as are the fresh water fisheries.

In light of developments and resource potential, it can be expected that much more mineral wealth and gas and oil will be discovered, and that hydro-electric power and transportation will be developed to tie the basic resources together into an integrated industrial economy. If another major mining operation such as the Anvil mine can be economically developed in the centre of the territory, a standard-gauge rail system could be extended to it as well as to the Crest iron deposits if these can be made economic as a result of sufficient nearby natural gas.

Thus, in Yukon there can be envisioned a vast self-sufficient industrial empire based on minerals, oil, gas and power, together with the secondary industries which naturally develop therefrom. The main logical transportation is the shortest route to tidewater, to service the Pacific rim countries including Japan, U.S., Australia, and Latin America. However, inland transportation could also tie in with a rail system southeastward into British Columbia or the northern prairie provinces (mid-Canada Corridor) whereby products could be hauled to central North American markets.

In spite of its northern climate and present sparse population, Yukon offers one of man's greatest challenges for co-ordinated resources development, and has the potential to become one of Canada's richest industrial areas.

