THOMPSON-LUNDMARK

Producer (Abandoned)

Gold

62° 36' 45" 113° 28' 30"

Years of Primary Development: 1938-1949

Mine Development: 2 inclined shafts, 1 vertical shaft, inclined winze; 650' vertical depth total

Years of Production: 1941-1943, 1947-1949

Mine Production: 133,989 tons milled = 70,339 oz Au, 13,782 oz Ag

Introduction

The Thompson-Lundmark Mine is located at Thompson Lake, 48 kilometers northeast of Yellowknife, NWT. This was one of the more famous gold mining operations of the Yellowknife area. The site was destroyed in the 1998 forest fires, the ruins of which were visited by the author in June 2000.

Brief History

The property was discovered at the tail end of the original gold rush at Yellowknife. Fred W. Thompson and Roy Lundmark, prospecting for Glyn Burge of the Thompson Prospecting Syndicate, touched down near Hidden Lake in July 1938 and staked 46 claims. The discovery was based on a hunch by Fred Thompson that gold could be found in the rock sediments of the area. Shaft sinking and underground lateral work commenced in 1939. The Thompson-Lundmark company was handicapped by a lack of funds, but a deal with Cominco Limited guaranteed the needed money to put the gold mine into production. The mine produced gold between 1941 and 1943. After a short shutdown period due to conditions of World War II, the mine reopened in 1947. Economic reserves were depleted in 1949 and the mine closed.

Geology and Ore Deposits [1]

The deposit lies within the Archean Age, Burwash Formation of the Yellowknife Supergroup. The mine property is predominantly underlain by knotted quartz-mica schist of metasedimentary origin (greywacke-argillite turbidite). Some ore veins however are associated with unknotted schist. These strata are folded by at least two phases of Archean Age deformation, and metamorphosed to lower amphibolite facies in a 40 kilometer wide, north trending zone. Many plugs, stocks and plutons of the Prosperous Lake granite suite intrude the Burwash Formation west, northwest and southwest of the Thompson-Lundmark Mine. The deposit area is underlain by northwest-striking nodular (cordierite+/-andalusite) quartz-mica schists that dip 45 to 65° to the northeast. Most ore veins are interpreted to lie on the east limb of a broad anticline, the axial plane of which lies about 1000 feet southwest of the Kim shaft. The anticlinal axis trends northwest and dips steeply to the northeast. Two veins, the Trail and Lahti appear to lie near the crest of this anticline. The dominant schistocity sub-parallels bedding in the sediments and most of the ore veins are roughly conformable. Gold bearing quartz veins are grey to white in colour and contain very little other metallic minerals. Gold-barren pegmatite sills and dykes crosscut gold bearing veins. Both the gold bearing veins and the pegmatite dykes are considered to be related to the intrusion of the Prosperous Lake granite suite. A younger set of milky white coloured but gold barren quartz veins also cut the ore bearing veins. Some veins are displaced by faulting although the maximum displacement is only two feet.

Seven veins have been identified, three of which have been the focus of mining development. The Fraser vein strikes north and dips 45° east. It ranges from 6 inches to 5 feet wide on surface, averaging 2·5 feet. In underground workings, the best shoot 0·66 ounces per ton gold and measured 560 feet long by an average 1·5 feet wide, to a depth of 750 feet. Diamond drilling traced the vein an additional 300 feet down-dip, encountering some visible gold locally. The hanging wall rock of the Fraser vein is crushed and fractured, parallel to the vein wall in a sheeted zone one foot thick. The footwall is less intensely fractured in a narrower zone. The ore quartz is banded and streaky, and contains a little tourmaline, pyrite, galena and visible gold. The Kim vein is a zone of at least three parallel quartz veins. The zone strikes north and dips 45° east, and is 1800 feet long and 4 feet to 13 feet wide, averaging 6·6 feet wide. Each vein within the zone is up to 6 feet wide but usually less than one foot. The best ore shoot graded 0·38 ounces per ton gold and was 300 feet long throughout a 450 feet depth, in which the average aggregate width of veins was two feet. The Kim ore-bearing quartz is banded and carries toumaline, biotite and sulphides. A two inch thickness of wallrock has been altered to a mixture of minerals including tourmaline and white mica.

[1] Geology and Ore Deposits section extracted and modified from NORMIN.DB, NWT Geoscience Office.

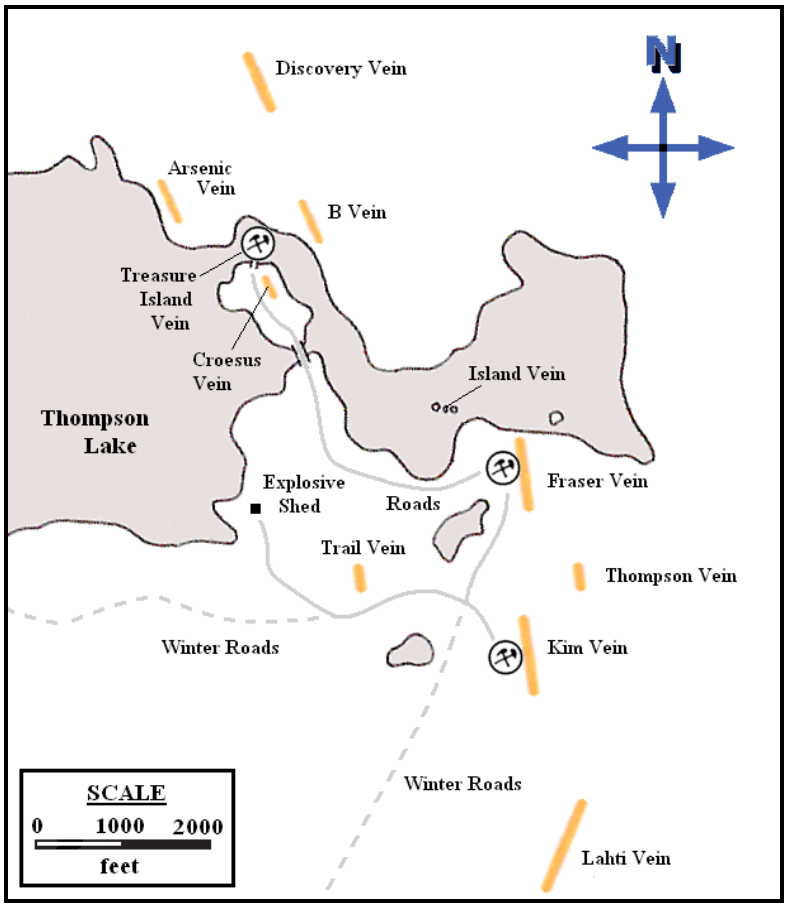

Figure 1. *Thompson-Lundmark Mine area showing important gold veins.*

The Treasure vein is a mass of quartz striking northwest and dipping moderately northeast, with offshoots into the enclosing schists. Some spectacular pockets of coarse gold at surface some surface mining, but subsequent exploration failed to extend the ore zone at depth.

The Island vein strikes north and dips 50° east, parallel to bedding at this locality. It has been traced for 300 feet along strike, and an ore shoot 152 feet long and 9 inches wide grades 1·46 ounces per ton gold. The shoot was not encountered at 200 feet depth in a drill hole undercutting the outcropping ore. The Island Vein carries about 2% sulphides, abundant tourmaline and visible gold, and some biotite. Wallrock is locally altered up to two centimetres from the vein, to a tourmaline-white mica assemblage.

The remaining veins are lower grade and/or tonnage showings. The B-vein and Lahti vein contain small amounts of gold. The Trail vein is said to contain three ore-grade shoots as indicated by trenching and one drill hole. An additional gold bearing quartz vein known as the Thompson vein was discovered in 1948 within 700 feet of the Kim shaft. It was traced for 150 feet on surface with visible gold over a 100 feet interval. It was not developed. The Arsenic and Croesus veins were trenched but contains little gold. A pegmatite sill named the Waco was found to contain considerable tantalum-columbium minerals.

Thompson-Lundmark Gold Mines Limited (1939-1940)

During the summer and fall of 1938, a massive program of prospecting, diamond drilling, and trenching was conducted on the Thompson-Lundmark property. This work uncovered a number of gold-bearing quartz outcrops, of which the Kim vein and the Treasure Island deposit were regarded as the most important. The original syndicate that staked the claims formed a new company to develop the new gold property – Thompson-Lundmark Gold Mines Limited. A winter tractor road was cleared from Yellowknife via the Jennejohn Lake route in the winter of 1938-1939, and a mining plant was purchased from the closed Camlaren Mine (Lord, 1941). The Kim vein was the target of first underground exploration. By year-end 1939, an inclined (50º east) shaft was put down to an inclined depth of 325 feet with two levels at 150- and 300-foot inclined depths. Levels at Thompson-Lundmark Mine were recorded as inclined

depths from the shaft collar. Vertical depths below surface for the underground workings at the mine are listed in **Table 2** (Thompson-Lundmark Gold Mines Ltd. Annual Report, 1939).

Kim Mining Plant
Equipment used to sink the Kim shaft included a Gardner-Denver air compressor of 325 cubic feet per minute driven by Cat diesel engine and a small steam hoist. Ken Muir, formerly mine manager at Camlaren, was in charge of operations. E.V. Neelands was consulting engineer. A tent camp was erected on the shores of Thompson Lake, about a kilometer west of the Kim vein. A rough road connected this camp with the Kim shaft site. Buildings at the shaft site included a large timber-pole headframe, hoist-room/powerhouse, and a mine office/dry (Lord, 1941).

Discovery of Fraser Vein
The Kim shaft was the focus of development until the summer of 1939 when geologist Hugh Fraser found another interesting gold showing on the property - the so-named Fraser vein. By now, nine separate gold veins had been found on the property and the company hired more geologists to work on the mapping and development of the mine (Thompson-Lundmark Gold Mines Ltd. Annual Report, 1939). Work was affected by a lack of investment in the company, due primarily to uncertainty in international affairs. The outbreak of war in September 1939 further hampered development, but adequate funding was acquired from Ventures Limited (Hoffman, 1947).

Fraser Shaft
The mine plant was moved from the Kim shaft site to its new location at the Fraser vein during the fall of 1939 and shaft sinking begun. The inclined Fraser shaft followed the dip of the vein lying on the footwall side. At year-end 1939, the shaft was completed to an inclined (48º east) depth of 322 feet with two levels at 150- and 300-foot inclined depths. No raising was accomplished (Thompson-Lundmark Gold Mines Ltd. Annual Report, 1939).

	Kim Vein:	Fraser Vein:	Other:
Shafts:	325’	322’	-
Drifts:	1,202’	712’	-
Crosscuts:	58’	49’	-
Shaft Stations:	41’	43’	-
Diamond Drilling:	3,339’	1,557’	2,992’
Trenching:	359 cu yards	61 cu yards	569 cu yards

Table 1. *Mine development at December 31st 1939. (source: Thompson-Lundmark Gold Mines Ltd. Annual Report, 1939)*

Cominco Limited (1940-1943)

Going into 1940, Thompson-Lundmark Gold Mines was unable to raise additional capital. The operation was saved when Cominco Limited agreed to assume management of the mine and provide the funds necessary to bring it into production. Under this deal, Cominco supplied the first loan of CDN $350,000. If more funds were to be required, Cominco and Ventures Limited would equally loan $100,000, and if further loans were again required Cominco would supply them and Ventures would have the option to do so. Thompson-Lundmark Gold Mines Limited would work towards repaying these loans, and management of the gold mine would remain under Cominco control until three years after repayment of the loans. Cominco assumed management as of July 1st 1940. Bob Armstrong was brought to the site to assume management of the operation for Cominco. 30 men were reported employed in October 1940 under Armstrong’s direction, including Ed Jewell, mine captain; Howard Barker, engineer; and Eric Caldicott, accountant (The Northern Miner, Oct. 10th 1940; Thompson-Lundmark Gold Mines Ltd. Annual Report, 1941).

The following work was accomplished during 1940-1941: a transmission line was erected from the mine to the Bluefish Lake hydropower-plant, west of the property; a new mining plant was erected; a townsite was built at the Fraser shaft; a Hadsell milling unit was installed; and the Fraser shaft was completed to 834 feet slope depth. New levels were established at 450-, 600-, and 750-foot inclined depths. A considerable amount of development was completed on the Fraser vein in preparation for production. From July 1st 1940, when Cominco assumed management,

to May 1st 1941, 419 feet of shaft sinking, 1,028 feet of drifting, 100 feet of crosscutting, and 213 feet of raising was accomplished. No work was done on the Kim vein. Ore reserves at January 1st 1941 were 67,000 tons averaging 0·56 ounces per ton gold, presumably in both the Kim and Fraser veins (The Toronto Star, July 16th 1941).

Production Begins

Gold production began in August 10th 1941 treating ore from the Fraser workings, and the first gold was poured on September 20th 1941. Early in 1942, the grade of ore being milled was 0·64 ounces per ton gold with mill recoveries of 98·1%.

Power and Hoisting Plant

The Fraser shaft was equipped with a 54 foot timber headframe to support the inclined shaft. The hoist was a Canadian Ingersoll-Rand 8x6 air hoist. Air was supplied by two 670 cubic feet per minute electrically driven Canadian Ingersoll-Rand air compressors. The entire camp and plant was supplied with hydropower, but a 75 KVA Crocker-Wheeler generator and Cat D-13,000 diesel engine set provided back-up power. Heat was supplied by two wood-fired boilers to provide a total output of 75 horsepower (Feniak, 1948; Wilson, 1949; Lord, 1951).

NWT Mining Heritage Society – Ted Hunter collection

Figure 2. *Thompson-Lundmark Mine, 1948. Looking southwest from Thompson Lake.*

Mining Operations

Stopes were excavated using shrinkage methods with ore being hand collected and pushed by mine cars to the loading pockets. All production was focused on the Fraser vein workings during this period.

Milling Operations

Mine ore was worked through a 10 inch grizzly underground before being hoisted. No separate crushing plant was employed in the mill circuit, with ore being reduced to 57% minus 200 mesh in the primary 4 foot x 12 foot Hadsell dry mill unit. The mill operated by using the ore itself as a crushing medium. To help reduce the natural moisture content of the ore, air in the mill was heated by oil burner at 2,000 cubic feet per minute. The ground product was exhausted from the mill and run through two wet-cyclone dust collectors, where gold-bearing dust was washed in a Wallis agitator, and fine dust exhausted from the milling plant through a stack. Gold was then recovered in a standard circuit of cyanidation and amalgamation, consisting of three blanket tables, amalgamation, two 18 foot x 12 foot Dorr thickeners, two 22 foot x 18 foot agitators, an 8 foot x 8 foot Oliver filter, and a Merrill-Crowe sock precipitation unit. Mill tailings were deposited south of the mine into a small pond known as Chum Lake. Approximately 45% of the gold and silver were caught on the blanket tables and amalgamation circuit. Every second week, the amalgam sponge was retorted and refined and bricks were produced grading 82% gold and 15% silver average. Bricks poured from the cyanidation and precipitation circuit graded 78% gold and 15% silver. During the operational period of 1941-1943, mill heads were 0·66 ounces per ton gold with recoveries of 98·3%. Average daily tonnage was 96 tons (Wilson, 1949; Lord, 1951).

Kim Shaft Sinking

The Kim shaft was completed to 652 feet incline depth in March 1942. New levels were established at 450- and 600-foot inclined depths (The Toronto Star, Apr. 25th 1942). Drifting to the north on the 450-foot level opened up two new ore shoots, the first of which with a length of 174 feet averaging one foot wide and the second 44 feet long with widths of 1½ feet (The Toronto Star, Aug. 29th 1942). An ore stockpile of over 7,000 tons was built up on surface at the Kim shaft but no production came from these workings at this time. A drive from to 750-foot level of the Fraser area south towards the Kim shaft was begun early in 1943, but it had to be abandoned due to labour shortages (The Toronto Star, May 17th 1943). The Kim drive had advanced 350 feet when work stopped, leaving 2,150 feet to be completed (Wilson, 1949). Ore reserves at January 1st 1942 were 63,630 tons averaging 0·50 ounces per ton gold (The Toronto Star, Feb. 5th 1942). Ore reserves at June 30th 1942 were 45,000 tons of unknown grade. At that date it was recognized that considerable exploration and development would be required to add to this tonnage (Thompson-Lundmark Gold Mines Ltd. Annual Report, 1942).

Treasure Island

A small amount of ore (35 tons) was mined by open cut on the Treasure vein in 1942 and processed, showing a grade of 0·72 ounces per ton gold. Further development was planned (The Northern Miner, Sept. 11th 1947).

The Thompson-Lundmark operation was greatly hampered by the war during 1943, causing labour and supply shortages. To add to the problems a night fire destroyed the only bunkhouse in July 1943, causing concern of whether it was economic to continue operations. Supplies required to rebuild could not be guaranteed before winter arrived. Meanwhile, temporary tents and prefabricated huts provided short-term accommodation solutions.

Kim Vein:	Inclined Depth below Shaft Collar:	Vertical Depth below Surface:
Shaft bottom	652’	500’
1st Level	150’	110’
2nd Level	300’	230’
3rd Level	450’	345’
4th Level	600’	455’
Kim Haul	750’	540’

Fraser Vein:	Inclined Depth below Shaft Collar:	Vertical Depth below Surface:
Shaft bottom	834’	600’
1st Level	150’	110’
2nd Level	300’	220’
3rd Level	450’	320’
4th Level	600’	430’
5th Level	750’	540’
Winze bottom	950’	650’

Table 2. *Summary of elevations of the underground workings.*

In August 1943, Cominco recommended to the directors of Thompson-Lundmark Gold Mines Limited that the mine be shutdown and put on caretaker status. Hoisting of ore was completed on September 18th 1943 and milling stopped September 20th. Lateral work underground at both shafts consisted of 5,997 feet of development in September 1943 (Meikle, 1943). Accumulative mine production at this time (1941-1943) was 73,235 tons milled to produce 47,632 ounces of gold and 9,258 ounces of silver, poured in the form of 83 gold bricks (Lord, 1951). Total reserves at 1943 shutdown were estimated as 62,586 tons grading 0·40 ounces per ton gold. The Fraser vein was credited with 9,560 tons grading 0·51 ounces per ton gold: 5,000 tons (0·49 ounces per ton) remaining to be stoped on the 750-foot level and 4,500 tons (0·53 ounces per ton) of upper level pillars. The Kim vein was credited with the remaining 53,000 tons grading 0·38 ounces per ton gold (The Northern Miner, March 20th 1947; Sept. 11th 1947; Lord, 1951).

Thompson-Lundmark Gold Mines Limited (1946-1949)

A reported operating profit of $786,000 allowed the Thompson-Lundmark company to repay the loans supplied by Cominco in July 1940; therefore, operating control of the gold property reverted back to the original owners in July 1946. With the end of the war, conditions were perfect to reopen the mine (Hoffman, 1947). Operations begun in July 1946 to place the site back into production. Diamond drilling during the fall of 1946 totaled 1,604 feet, some of which was conducted on the Island and Trail veins but most of which was conducted on the Fraser and Kim workings (The

Northern Miner, Jan. 9th 1947). Additional drilling early in 1947 disclosed interesting values in the northern sections of the Fraser vein extending under Thompson Lake, and it was planned to extend the drifts on the 2nd and 3rd levels into this area. Underground development resumed in March 1947 (The Northern Miner, Mar. 20th 1947). At this point, it was realized that a new source of ore would be needed to re-start production. Known reserves in the Fraser vein were basically exhausted, so attention was focused on the Kim vein. To mine the Kim vein, the haulage-way was completed a distance of 2,500 feet between the two shafts on the 750-foot level. Raises connected the haulage-way to the 650-foot level of the Kim shaft. With this mine plan, all ore could be hoisted via the operational Fraser shaft with the Kim shaft being used for ventilation. The Kim haulage-way was developed using a Sullivan Jumbo drill and Eimco 12-B mucking machine. The working crew consisted of four men, with an advance of six feet per shift with a monthly average of 400 feet per month. It had a width of seven feet (Wilson, 1949).

Due to the stress on the air compressors by the Fraser hoist, most development in 1947 was on the Kim haulage-way drive. A new Canadian Ingersoll-Rand 42 inch x 30 inch 2-drum electric hoist arrived at the mine in 1947 and the transmission line to the Bluefish hydropower plant was reactivated. Additional work completed during 1946 included the erection of a new 55 man bunkhouse, replacing the one destroyed by fire in 1943. Other accommodation consisted of a 16-man Quonset Hut, a 100-man cookery, staff quarters for 10 single men, three houses, one duplex apartment, as well as eight winterized tent frames. Recreation was provided by an indoor curling rink and a small game room. Roads totaling three kilometers were cleared between the Fraser, Kim, and Treasure veins (Wilson, 1949; Lord, 1951).

Production Resumes

Milling resumed at Thompson-Lundmark on August 28th 1947 and the first gold was poured on September 20th 1947. Initial mill feed was from the 750-foot level in the Fraser workings and a small 7,359 ton surface stockpile of ore from earlier Kim development. Pillar ore (4,500 tons) in the upper levels of the Fraser vein were not viewed as recoverable at this time (The Northern Miner, Sept. 11th 1947; Nov. 30th 1947). On October 10th 1947, the Kim haulage-way was completed and two short raises were blasted to reach the 600-foot level of the Kim workings. Owing to a large build-up of ice in the Kim shaft, un-watering was not completed until November 24th 1947 (The Northern Miner, Dec. 11th 1947). Known ore in the Fraser vein was depleted in April 1948 and the Kim vein became the sole source of ore.

Mining Operations

Ore was mined by shrinkage stoping methods through the use of slusher hoists and box-holes, so that all ore would drop directly into ore cars with no mucking required. Mining and stope blasting was conducted during the day shift. Ore was hauled from the Kim vein to the Fraser shaft with a Mancha “Little Trammer” locomotive and six 30 cubic foot side-dump ore cars. Ore hauling was conducted during the night shift (Wilson, 1949; Lord, 1951).

Production Improvements

Late in 1947 the following changes were made to the operation to allow for efficiency: mill operating crew was reduced from 12 men to 7 men; the hoisting capacity was increased to 300 tons per day; ore pocket loading chutes were increased to 100 tons per day, up from 40 tons per day; and pumping equipment capable of 200 gallons per minute were installed (The Northern Miner, Dec. 11th 1947). In an attempt to increase mill tonnage, steel balls were added to the Hadsell mill unit starting in 1947. Usually, the Hadsell mill operated using the ore itself as a grinding medium, but the use of mill balls did indeed aid in increased milling capacity. The average daily mill production figures during 1947-1949 were as follows: tons hoisted, 108 tons; tons waste discarded, 5½ tons; tons milled, 102½ tons; mill heads, 0·37 ounces per ton gold; tailing heads, 0·01 ounces per ton gold; recovery, 97% (Wilson, 1949).

Employees

The mine was managed by Del R. Wilson during these years. Other staff included (in 1947) J.E. Rae, mine engineer; R.Cecil Evans, mill superintendent; C. Anderson, mine captain; F. Cahill, accountant; Vincent Aural, surface superintendent; and Robert D. Hoffman, consulting engineer. The average amount of employees per day was 84 with 100 persons being the maximum at any time. In 1947 there were 87 names on the payroll; 6 were staff, 48 were employed on the surface and in the mill, and 33 were underground workers (The Western Miner, Nov. 1947).

Approximately 1,600 feet of diamond drilling was completed on the large property during 1947-1948 in an attempt to located additional ore in the known vein systems. Some of this was done on the 750-foot level of the Fraser vein to target its depth potential. Drilling proved that the Kim and Fraser orebodies continued to a vertical depth of at least 1,200 feet, and also established that the Fraser vein extends to the north under Thompson Lake. A new vein was discovered in the summer of 1948 by Fred W. Thompson, located between the Fraser and Kim veins - the Thompson vein. It was exposed a distance of 150 feet and averages one foot in width. No known work was completed on this exposure during this period (Feniak, 1948).

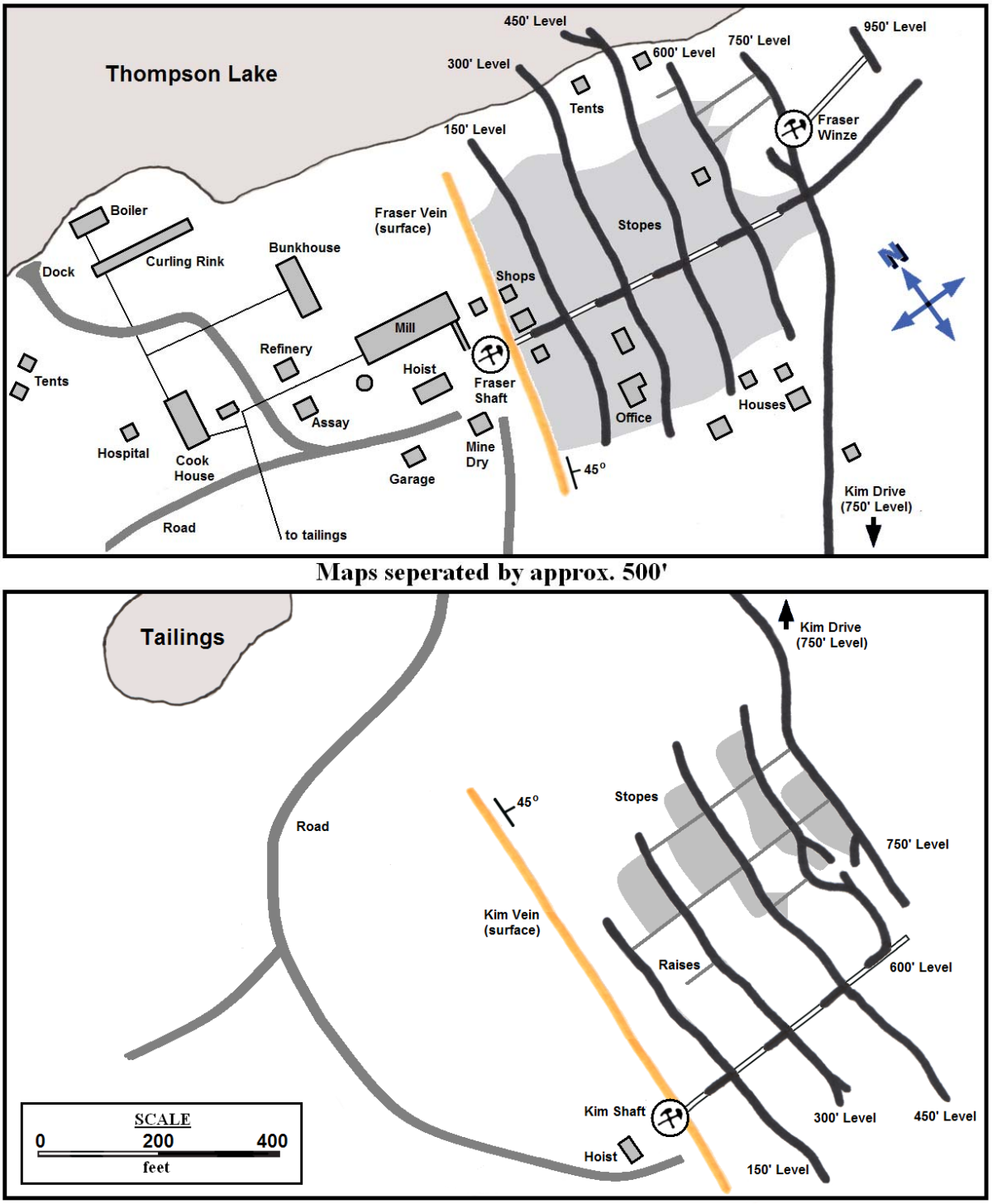

Figure 3. *Surface plan and underground workings within the Fraser and Kim veins, c.1949.*

Treasure Island Shaft

Two major exploration programs were completed during 1947-1948 at Thompson-Lundmark Mine, both involving underground development. The first was a shaft-sinking program on the Treasure vein, located on Treasure Island near the original gold discovery in 1938. Diamond drilling results warranted only a minimum of expenditure for this vein; therefore only 143 feet of vertical shaft was sunk. This work was completed using makeshift equipment including a Joy-Sullivan 210 cubic feet per minute air compressor modified to be operated by the engine off a Cat D-4 tractor. A single-drum 6x5 air hoist was also rounded up for the job, fitted with 10 cubic foot buckets (Wilson, 1949).

On the 100-foot level of the Treasure Island shaft, 165 feet of drifting was completed. Not enough ore was found to justify production or any further expenditure at this vein. No known mill feed came from the Treasure Island shaft (The News of the North, Oct. 28th 1949).

Fraser Winze Sunk
Elsewhere, at the deepest level of the mine, it was decided to sink an inclined winze to explore the deeper regions of the Fraser vein. A single-drum electric hoist, 24 inch x 18 inch, was installed on the 600-foot level, and a raise connected the 750-foot to the 600-foot levels to serve as a hoisting compartment. Sinking then proceeded for 226 feet length beyond the 750-foot level to open a new level at 950 feet incline depth, the deepest in the mine at a vertical depth of 650 feet (Wilson, 1949).

Kim Hanging Wall Vein
Another exploration target during 1948 was the Kim Hanging Wall vein, a parallel structure to the Kim vein located 80 feet east. Diamond drilling indicated good values. It was planned to start a crosscut on the 450-foot level to develop this structure.

Late in 1948 it appeared as though economic ore reserves would soon be exhausted. The Fraser vein was mined out to the 750-foot level and exploration had failed to locate economic ore below that horizon. The Treasure vein also proved to be less than important. The Kim vein was the sole source of ore, and even here the future looked bleak. Remnant mining of the 150-foot level of the Kim vein was undertaken in 1948-1949. This work had been delayed due to a great build-up of ice from previous flooding that needed be excavated before mining could begin. The company acquired assistance funding under the mandate of the Emergency Gold Mining Assistance Act, the government program that alleviated the financial burden placed on gold mines in the expensive post-war years.

Development of other vein structures on the property would prove to be an expensive proposition. Additional underground development was ruled out due to the huge costs in mobilization and manpower. Power allocations for the mine, although adequate for the present requirements, would not permit expanded operations, as the pumping needed to keep the underground workings dry would be too great a burden on the power situation (Feniak, 1948).

Final Closure
The company was slowly exhausting its treasury, and without the price of gold increasing or the high costs of operation being lowered, the Thompson-Lundmark Mine would not continue to operate. In March, a 10,000 foot diamond-drilling program was started to probe the areas of the Kim, Fraser and Treasure Island veins (The Northern Miner, Mar. 31st 1949). Mining operations ceased with depletion of known ore on April 13th 1949, and milling stopped in May 1949 (The News of the North, Oct. 28th 1949). Gold brick #122 was poured. All equipment except the milling and boiler plant was removed and sold, and the property was put on care and maintenance (The Northern Miner, Oct. 26th 1950).

Year:	Ore Milled:	Gold:	Silver:
1941	11,915 tons	8,231 oz	1,598 oz
1942	37,775 tons	22,587 oz	4,373 oz
1943	23,545 tons	16,814 oz	3,287 oz
1947	11,309 tons	3,062 oz	652 oz
1948	37,757 tons	14,653 oz	2,904 oz
1949	11,688 tons	4,992 oz	968 oz
Total:	***133,989 tons***	***70,339 oz***	***13,782 oz***

Table 3. *Thompson-Lundmark Mine production, 1941-1943, 1947-1949. (source: Lord, 1951)*

Operations Summary

The Kim inclined shaft, 652 feet long, is sunk 500 feet vertically below the surface. The Fraser inclined shaft, 834 feet long, is sunk 600 feet vertically below the surface; but including the 226 foot long Fraser inclined winze, the mine has a vertical depth of 650 feet. The Treasure Island shaft was sunk vertically 143 feet with one level and limited underground exploration. Production between 1941 and 1949 amounted to 133,969 tons milled to produce 70,339 ounces of gold and 13,782 ounces of silver. (see **Table 3**)

Exploration Since Mine Closure

A report on the property in 1978 by the Thompson-Lundmark company suggested ore reserves of value in stope pillars (Kim vein: 15,000 tons grading 0·60 ounces per ton gold) and a probable surface reserve on the trail vein, 230 feet long, 6 inches wide, and with grades of 0·71 ounces per ton gold. It was recognized that recovery of stope pillars would not yield significant tonnages to make the effort worthwhile. Other veins were considered too low grade to justify further development. (H.E. Neal & Associates Ltd., 1978) A 1980 report states an estimated 45,000 tons of ore down to the 300-foot level of the Kim vein. Another source dated 1982 reports a proven 72,000 tons grading 0·20 ounces per ton gold down to the 300-foot level in the Kim vein, not including pillars. Drilling on the Treasure Island indicated an ore shoot 100 feet long to a depth of 30 feet. (Gates, 1980)

Ardic Exploration and Development Ltd. optioned the claims from Thompson-Lundmark Gold Mines Limited in 1983. An exploration program was conducted consisting of detailed geological mapping, surveys, and diamond drilling. A crown pillar reserve in the Kim vein was calculated consisting of 14,880 tons grading 0·20 ounces per ton gold from surface to the 150-foot level. 6 tons of bulk samples and chip samples were sent to Lakefield Research in 1983. (The Northern Miner, Jan 20th 1983; Nov. 3rd 1983) In 1987, Ardic continued exploration and conducted a 21-hole (9,043 feet) drilling campaign on the Kim and Trail veins. Work on the Kim vein tested the extensions of the deposit over a strike length of 2,800 feet and a depth of 440 feet, delineating at least two potential ore shoots. This new information, plus known reserves from previous exploration, suggested a mineral inventory of 190,000 tons of ore grading 0·30 ounces per ton gold within the Kim vein. Many of the drill holes from both the Kim and Trail veins revealed visible gold. (The Northern Miner, Mar. 28th 1988)

References and Recommended Reading

Feniak, M., 1948. Field Report on Thompson-Lundmark Gold Mine, N.W.T. September 1948 *(N.W.T. Geoscience Center Assessment Report #082248)*

Gates, B.I., 1980. Thompson Lundmark Property. Option report for Giant Yellowknife Mines Ltd., April 1980.

H.E. Neal & Associates Ltd. 1978. Appraisal of the Thompson-Lundmark Gold Mines Property, Yellowknife N.W.T. January 1978.

Hoffman, Arnold., 1947. Free Gold – The Story of Canadian Mining. New York: Rinehart & Company, 1947.

Lord, C.S., 1951. Mineral Industry of District of Mackenzie, Northwest Territories. Geological Survey of Canada, Memoir 261, 1951.

Meikle, M., 1943. Inspection of Mines – Yellowknife District, Northwest Territories – September 1943. Mining Inspector Report, September 1943. (*National Archives of Canada - RG 85, Vol. 261, File 999.127*)

National Archives of Canada: Royal Canadian Mint Collection (*RG 120*)

Thompson-Lundmark Gold Mines Ltd. Annual Reports. 1939-1949.

Wilson, D., 1949. Operating Report Thompson-Lundmark Gold Mines Limited 1946-1949.

The Precambrian magazine articles, 1947-1949.

The Western Miner magazine, November 1949.

The Northern Miner newspaper articles, 1938-1988.

The Toronto Star newspaper articles, 1938-1943.

National Mineral Inventory (Thompson Lundmark). NTS 85 I/11 Au 5.

geology from NORMIN.DB (http://www.nwtgeoscience.ca) Showing 085INW0037