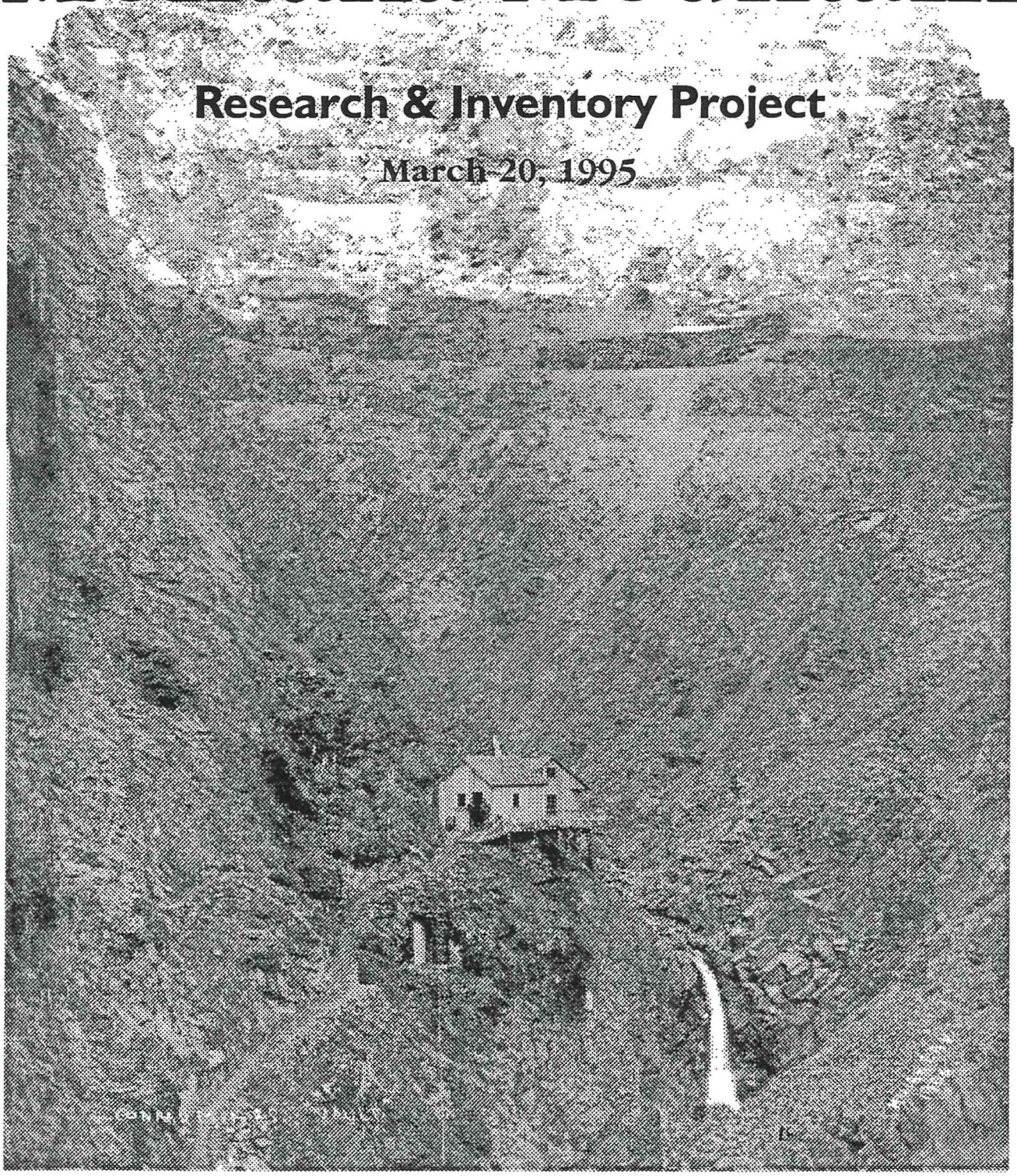
Montana Mountain

Research & Inventory Project

March 20, 1995



Midnight Arts

Montana Mountain

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Prepared for

Heritage Branch
Government of Yukon

March 20, 1995

by

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Cover photograph by Muirhead, 1906 from the Yukon Archives, Phelps/Scott Collection 89/31, 203

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Paul Wray, our intrepid guide and Montana Mountain authority

Muirhead, without whose series of 1906 photographs, we would have very little knowledge of the early structures on the mountain

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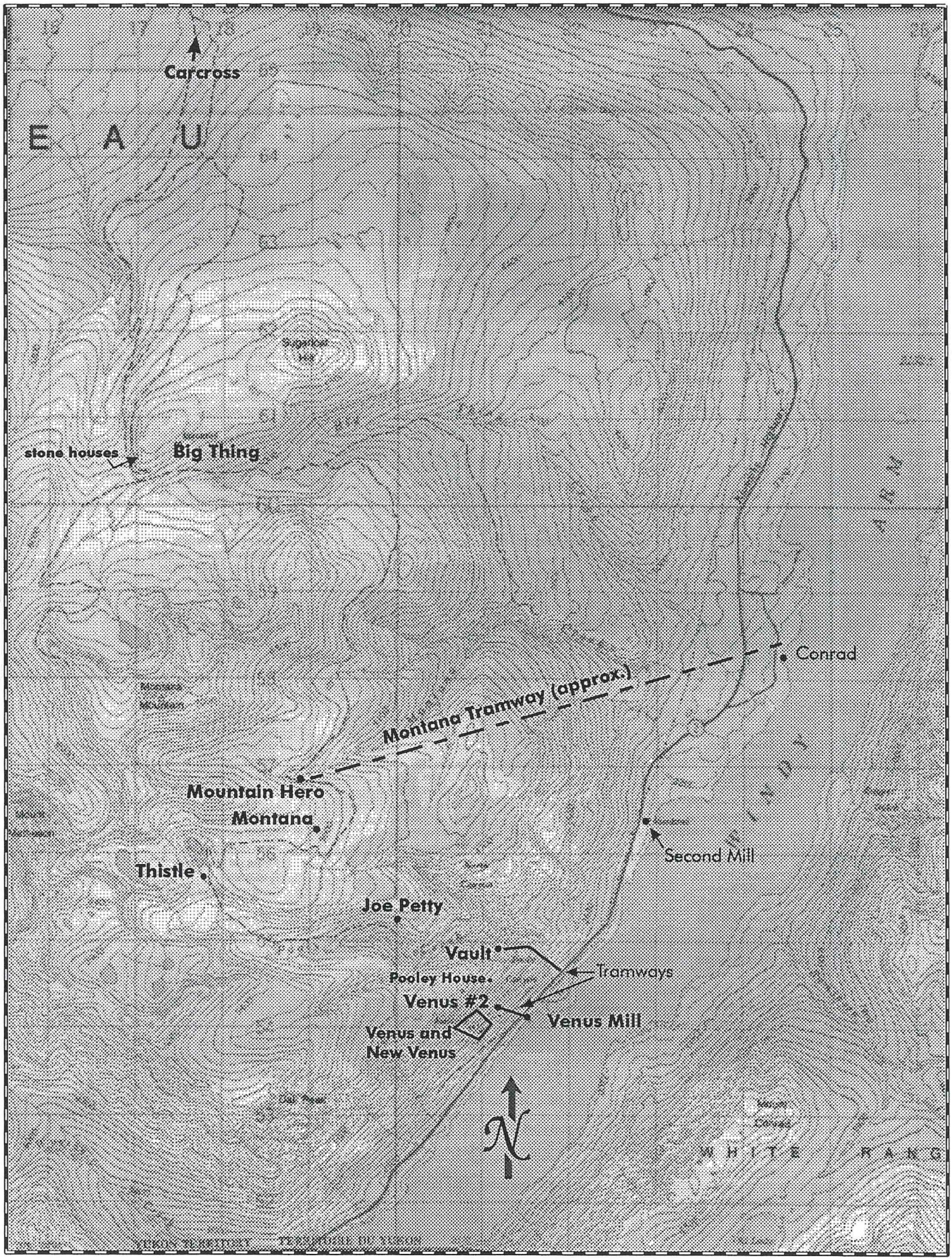


Yukon Historic Sites Inventory

From Map Sheet 105D2

Introduction

There was an explosion in mineral exploration and development in the Yukon following the discovery of gold in the Klondike. Prospectors were on the lookout for minerals everywhere. The Southern Lakes area of the Yukon and northern British Columbia were no exception. The well-known gold discoveries in the Atlin area nearly scuttled construction of the White Pass and Yukon Railway when the crews deserted to stake ground. There was no such mad rush to Montana Mountain, but the years between 1899 and 1912 saw a flurry of staking, building and mining. Despite the incredible entrepreneurial efforts of Colonel John Howard Conrad, World War I saw a sudden end of large scale mining on the mountain. Left behind was a rather extravagant mining infrastructure of roads, adits, tramways, a mill and some very unusual buildings.

The purpose of this study of Montana Mountain is to:

- record and map the historic resources
- create an historical profile of the sites
- develop legal profiles of the sites
- undertake a thematic analysis

A fairly detailed history has already been done in the *Carcross Region Heritage Report*, Carson et al, 1992. That report provided a description of the geology in the area as well. So as not to repeat the fine work done in that study, we have only provided a general history of the region to refresh the reader's memory and provide a context for the site histories and thematic analyses.

The detailed examination of the physical remains on Montana Mountain is contained in a separate Field Report. For each of the main sites we examined, there is a summary of the site's history, a list of key dates and a review of the physical resources.

In the section on Themes, we tie the history and physical resources of Montana Mountain into a thematic framework. As well, we attempt to place the sites in a territorial context and, where possible, a broader regional milieu.

Contained in the appendices is the current ownership or mineral claim on the properties containing historic remains. A summary of historic holdings is contained in the site history. This report also contains a copy of the *Quartz and Placer* claim sheet for the area to aid in locating the sites.

General History

The origins of mining in the Southern Yukon may date back as far as 1893. In a 1907 report, Cairnes of the Geological Survey of Canada, recounted the story of the Union Mines which were situated to the west of Annie Lake. He believed this to be the first claim staked in the Southern Yukon.

Apparently, in 1893, Thomas Kerwin and two other men staked property in this area and took out rich silver and gold ore, assayed at over $1,200 to the ton. While Kerwin lay on his death-bed in Juneau, Alaska, he told the attending Catholic nuns about the discovery and willed his interests to them. He gave directions to the area and told the nuns his camp would be found on a creek. They could identify the place by a pick driven into a tree with a shovel and coffee pot hanging on it. This was Kerwin's *Lost Mine.*

The information was passed on to W.F. Schnabel who, in 1898, found the camp as described but could not find the mineral deposits. Schnabel found Kerwin's original location notice stuck into the crack of a post and assumed this to be the property where the *Lost Mine* was located. They did not find a mine but this was the ground Schnabel eventually staked. At the time of Cairne's report, Schnabel and his partners were finding ore assayed at about $20 to the ton. They were still digging in hopes of discovering Kerwin's *Lost Mine.*

In 1899, W.R. Young and John Mervin Pooley staked the Montana claim. This was the start of mining activity on Montana Mountain. Between 1900 and 1904, staking went on regularly but there was little development. In 1904, Colonel John Howard Conrad, with the support of eastern Canadian backers, began to consolidate and develop holdings on Montana Mountain. In 1905, mining and development began in earnest. Conrad was not the only mining interest on the mountain but he was by far the biggest. There were also a large number of active claims but Conrad and his companies controlled the greatest number.

According to written and photographic records, 1905 - 06 were the big years for construction. Buildings, tramways, telephone lines, docking facilities and roads were built to serve the mines. In 1906, the area became "of sufficient mineral importance to warrant a subdivision " (Cairnes 1907). The Conrad Mining District was formed with a recorder's office in Conrad. This was a statement on the significance of the area and the developments taking place at that time. Cairnes felt "the commencement of work on these Windy Arm properties, therefore, marks an important era in the history of the district..." There was a great deal of enthusiasm in the newspapers, NWMP reports and from many geologists about the prospects for the area. These were never to be realized.

While mining was still in full swing in 1907, there began to be "difficulties among the owners" in Conrad's consortium. The costs of developing the infrastructure for the Montana Mountain properties had been enormous yet there had been very little return on the

investment. Construction of the concentrating mill in that year seems to have boosted mining operations and Conrad even considered installing a second, larger mill at the mouth of Pooley Creek to process the ore from the Vault mine. In response to high freight rates on the White Pass transportation system, Conrad even considered having the Riblet Tramway Company build a tramway over the Chilkoot Pass.

By 1912, Conrad was broke and his mines shut down. His main backers, Mackenzie and Mann, took over the properties for money owed (Cairnes 1916). Very little work was done on the former Conrad properties after that. Cairnes' conclusions at this time was that a better method of concentrating the ore was required (cyanidation as opposed to water flotation) and lower shipping costs, possibly by finding a method of shipping where the ore did not have to go through the expensive bagging operation. He still felt they were viable properties (Cairnes 1916).

Others apparently felt the same. In the 1920s and again in 1946-47, and sporadically through the 1960s, '70s and '80s, some work was done on claims Conrad once held but not to any great extent or for any length of time (MinFile 1994). As late as the 1980s, attempts were made to revive the Venus properties and mill the ore on site. To no avail. There is still active staking by individuals and small operations on Montana Mountain. The big interests have left, perhaps until such time as new technology or higher mineral prices allow them to make a profit from Montana Mountain.

Geology & Technology

Mining practices at the turn of the last century were much different from those used today. For instance, the pneumatic drill and stick dynamite were both invented in the late 1800s but were not in common use in all places until well into the 20th century. Exploitation of the veins on Montana Mountain was accomplished with hand drilling and gunpowder. The process of hand drilling involved one man holding and rotating a length of hardened steel against the rock face while one or two others struck the steel with sledge hammers. Several holes had to be drilled in this manner before the "face" was ready to be loaded with explosives. Each hole was carefully packed with gunpowder and detonated with somewhat unpredictable fuses. The veins on Montana Mountain range from a few inches to about five feet in width. To be worked profitably, the veins had to be mined as narrow as possible to avoid removing material which had no value. This material, known as waste or *muck*, had to be trammed to the portal in hand-hauled cars and dumped. Main drifts and haulage ways from developments were about seven feet high by four feet wide. The rooms in which the miners excavated ore from narrow veins could be as narrow as two feet, and just high enough to accommodate a pick axe swung by a prone miner. These narrow excavations were usually left open with only short lengths of timber holding the roof or back. These small, individual supports are called *stulls* and would be made from locally-cut timber. These are still visible on Montana Mountain.

Several of the workings on Montana Mountain had trestles, along which the mine cars could be pushed to allow dumping the waste as far from the portal as possible. The dip of the veins is generally from 0° to about 45° with an average of 25°. The shallow dip of the veins made extraction of ore difficult. In steeper veins, those with a dip of more than 60°, blasted material or *muck* falls naturally to the floor of the room which then had to be scraped, and sometimes double scraped, into the haulage drift. The cost of mining increases each time the muck has to be handled. The problem of mining shallow dipping veins is one which plagued the more recent miners on the Montana veins. Attempts to mine the veins in the 1960s through the 1980s used the same basic mining method of room and casual pillar whereby the vein is mined out leaving a large open room with the occasional pillar of rock left behind to hold up the back. After an ore shoot is mined out, the pillars are removed and the room is allowed to collapse. This is still the most commonly used method of mining narrow veins with shallow dips. Modern technology has allowed miners to remove larger amounts of vein material at lower grades than would have been mined 90 years ago.

Moving the material out of the mine is still accomplished with the use of mine cars except more recent workings have the benefit of electric locomotives to pull trains made up of multiple cars. This allows the extraction of larger tonnages of ore and waste. When large haulage distances are involved, and suitable loading stations can be constructed, rails are still used. The development of rubber-tired scoop trams, trucks, and load-haul-dumps or LHDs for working in narrow conditions is very recent.

Once the ore was extracted, it was transported from the mine workings to a mill. The first miners on Montana Mountain hand-picked the high grade ore and put it in canvas sacks which were transported to the lake shore on horse back. The trails were treacherous enough in summer. It is hard to imagine what it was like in the dead of winter. Many of these old trails are now used for hiking. The aerial tramways relieved the men and horses of this tedious and dangerous work. Modern miners built roads to accommodate larger tonnages. The hand-picked ores from 1904 to 1908 were shipped directly to smelters in the United States (Tacoma, Washington). This practice required ores of exceptional value to guarantee a profit as shipping costs were extraordinarily high. In 1908, on-site milling to produce shippable concentrate was attempted with the construction of a gravity mill on the shores of Windy Arm. The mill was fed from a tramway extending up the mountain to the mine portal. The mill was abandoned when Conrad shifted his attentions to the Big Thing mine on the other side of the mountain. A second mill was built on Windy Arm in 1969. Once again, the operation failed due to financing problems, as well as insufficient ore to feed the 300 ton per day mill, and the operation closed in 1971. The Arctic mine briefly operated a mill in conjunction with the Big Thing mine in 1968 and '69. The main purpose of the mills was to process the ore and to produce a concentrate of gold and silver along with the sulfides which contained the precious metals. Montana Mountain deposits contained lead, zinc, arsenic and antimony, all of which would go to the smelter.

Vein deposits were the most common type mined until the development of modern mining equipment and advances in blasting agents. Veins were relatively easy to prospect for, were usually very high grade in the elements sought, and easiest to develop with the technology of the time. They were also high grade in silver and gold. On Montana Mountain, however, access presented a problem. The simple act of bringing tools and powder to the site and bringing ore out was made extremely difficult by the terrain. The steep mountain slopes and deep gulches made access a challenge more difficult in nature than the mining of the veins themselves. The technology employed to surmount this obstacle was the aerial tramway. These were in fairly wide-spread use throughout the Pacific Northwest from the California gold fields to the Alaskan copper deposits of Kennecott. Both the length of the tramways and the vertical extent must have tested the engineering skills of those involved to the very limit.

In terms of Yukon geology

The first indication of Montana Mountain's potential to host high grade gold and silver ores occurred when prospectors on their way to the Klondike along the Tagish route discovered mineralized *float* or loose cobbles on the lower slopes above Windy Arm. All of the known Montana Mountain veins were discovered quite quickly after the initial discovery of the Venus system.

The veins on Montana Mountain are mesothermal to transitional in character, meaning they formed by the circulation of evolved meteoric waters (ground water whose chemistry has changed due to mixing with other waters and heat) at depths in excess of 9 kilo-

meters. The veins are located within fault structures parasitic to a strong regional fault. There are some 20 veins in the Montana Mountain District. Veins tend to be richer in gold closer to the major fault structure and more silver-rich further away. The Venus vein, for example, is higher in gold at its north end which abuts the Nahlin fault than on the south end further away. The gold in the veins did not exist entirely as free milling gold. A significant amount of the gold is tied up in the galena and arsenic. Silver existed as silver sulphosalts and in the galena as well. This resulted in low recoveries of gold for the early miners who did not have the technology to extract gold of such minute dimensions. If gold is recovered, then silver is lost and vice versa.

The Venus veins are hosted within a volcanic caldera which formed some 100 million years ago on the western margin or seaward side of a chain of volcanic islands known as an island arc. The island arc docked to North America or accreted about 100 million years ago in the middle Cretaceous. This island arc has been called *Stikinia.* The veins are intimately associated with the Nahlin Fault, a large fault structure which extends up Pooley Canyon, as they are all within three kilometers of this structure. The veins are hosted in a volcanic complex consisting of volcanic flows, breccias, and pyroclastics, which are Late Cretaceous in age.

During the main period of activity on Montana Mountain, there were many epithermal gold vein deposits being mined along the western seaboard of North America from California to Alaska. The gold and silver deposits on Montana Mountain are fault controlled mesothermal veins. This type of deposit was being extensively exploited throughout the world at the turn of the century. There are several vein camps of this type in the Yukon, most notably in the Klondike south of Dawson City and the Mt. Nansen and Freegold areas west of Carmacks. Silver deposits associated with faults are located in the Keno Hill District near Mayo and the Rancheria District west of Watson Lake.

Although the Lone Star deposit in the Klondike was discovered at an earlier date than the Venus deposit, the amount of development and infrastructure on the Venus was far more extensive. Major development took place on the Lone Star between 1909 and 1912, only amounting to a few buildings and a small, four-stamp mill (MacLean).

Site Profiles

Big Thing

Along with Venus, the Big Thing was the most extensively worked of all the Montana Mountain claims. Unlike most of the other properties where silver was the primary metal, Big Thing also produced significant quantities of gold. The Big Thing group was originally staked in 1905 by Colonel J.H. Conrad (Min File 1991). In 1905, Colonel Conrad entered into partnership with the Honourable Edmund Bristol, Member of Parliament for Toronto and they acquired claims in the Big Thing group (*YRG 2002 YQ 4723).* In 1906, the group consisted of Caribou, Pride of the Yukon, Pride of the Yukon #2, Jupiter, Northstar, Vanguard, Nipper, Eureka, Eureka #2, Salvador, and Ida #2. (Tyrrell 1906).

As with the majority of mines on Montana, serious work seems to have begun in 1905. In that year, Tyrrell reported that a stone house had been built similar to that at the Aurora claim. These were apparently built by Icelanders for the company (Scott 1994). The site was originally reached by a pack trail up Big Thing Creek from Conrad and by a pack trail "over and around a mountain summit from the head of the long cable tramway at the Mountain Hero Claim " (Tyrrell 1906). In 1906, a road was built from the railway at Carcross to Big Thing up the north side of the mountain (Cairnes 1907). This may be the approximate route of the present road. Plans to construct another tramway to the site were never realized. Like the rest of Conrad's operations, Big Thing was shut down in 1912. Unlike most of the other claim groups on Montana Mountain, the Big Thing was reworked fairly regularly and, along with Venus, may be considered the most prominent of the mines, being the most productive and heavily worked.

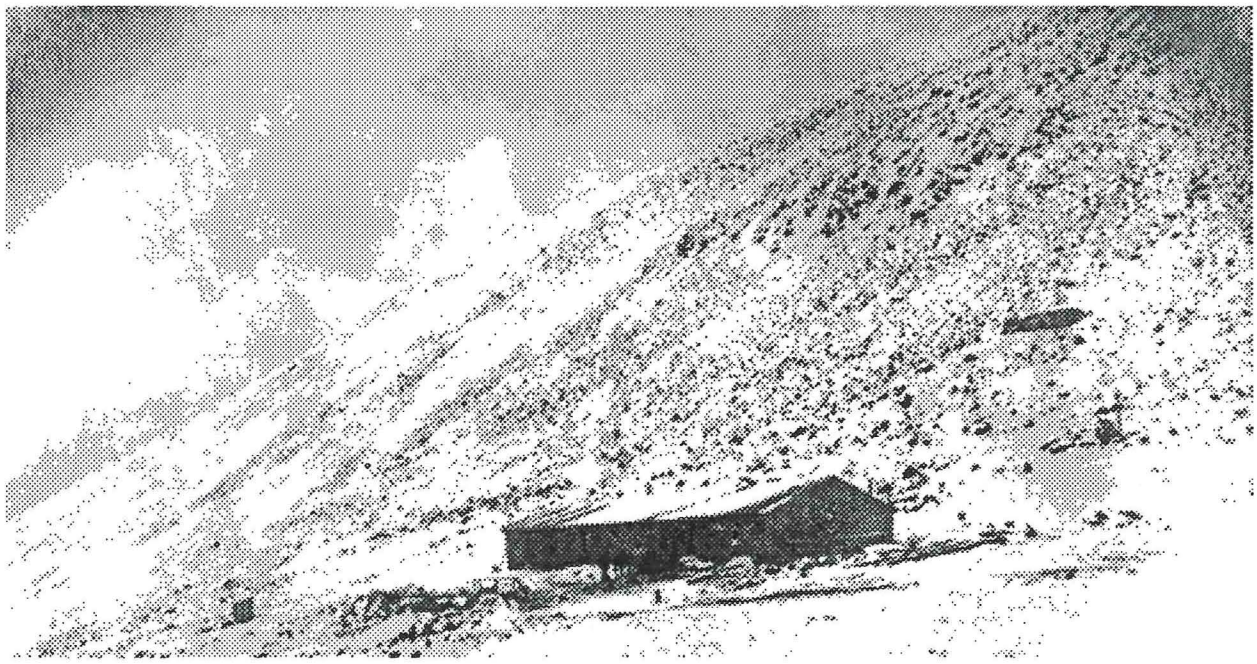
Key Dates

1905 Big Thing group staked by Conrad (Min File 1991).
Conrad entered into partnership with the Honourable Edmund Bristol and they acquire claims in the Big Thing group (*YRG 2002 YQ 4723).*

1906 Edmund Bristol's company owned the group with Conrad as part owner. There was a flurry of activity in that year as mining began in earnest (*Whitehorse Star* 14/9/06 and 21/9/06).

1908 Conrad, Bristol and William Mackenzie "grouped a large number of their claims which they are planning to operate on a large scale next year" (NWMP 1908).

1909 Work continued through the winter and Conrad brought in 40 tons more of mining equipment (*Whitehorse Star* 20/8/09b, 10/9/09a). Another tramway proposed to run down to the White Pass railway at an estimated cost of $80,000 (*Whitehorse Star* 18/6/09). It was never constructed.
Miners living in camps here or in Carcross rather than at Conrad by this time.



"Big Thing, 1906", Yukon Archives, Muirhead Coll. 6419

1909 Government builds a "good highway" from Carcross for hauling ore (Star 10/9/09b). Conrad claims to have paid $7,506 of the total $12,506 of the wagon road (Star 1/9/11).
Work continues over the winter with 35 men, including teamsters. Planning to haul the materials for the tramway. Conrad raises $460,000 for Big Thing, Venus and Dail & Fleming properties.
By this time, Big Thing is the major property of interest (Brock 1909).

1910 Work continues with shipments being made to smelters in Tyee and Tacoma, Washington. The crew down to 15. White Pass freight rates killing operation.

1910-11 Busy time hauling ore to Carcross.
Listed as part of the Big Thing group were Pride of the Yukon No. 2, Eureka No. 2, Pride of the Yukon, Eureka, Caribou, Nipper and Vanguard all under the British Yukon Gold Mines Ltd., owned by Conrad and Mackenzie.
A power plant was installed on McDonald Creek to supply power and light for the mine (NWMP 1911, Star 8/9/11, 15/9/11). Over 100 men were employed at the mine and on the electric power plant. Two crews working on the wagon road to Carcross (NWMP 1911).

1912 Conrad seems to have run out of money. No ore shipped. Mackenzie takes over the mining properties in return for money owed. No work is done for next four years (Cairnes 1916).

1916 The Alaska Corp. of Seattle (Cairnes says Skagway, 1916) obtained a working lease from Mackenzie and Mann and did some work. Cairnes notes that there was considerable equipment brought in and power was supplied from a generator at the mouth of McDonald Creek on Bennett Lake. "Comfortable buildings" were erected as well as a blacksmith and repair shop.

1917 Made ore shipments between April and December

1918 Closed

1936-37 Some surface trenching done by Inca Mining Co. Ltd.

1965 Arctic Mining and Exploration Ltd. did some exploration work.

1968 Back in operation with a mill of 300 ton/day capacity. The mill was located below timberline, not at the mine site. Mill operated between May and December 1968 and March to October 1969 (MinFile 1991). Closed due to poor returns.

1970s Stockpiling took place

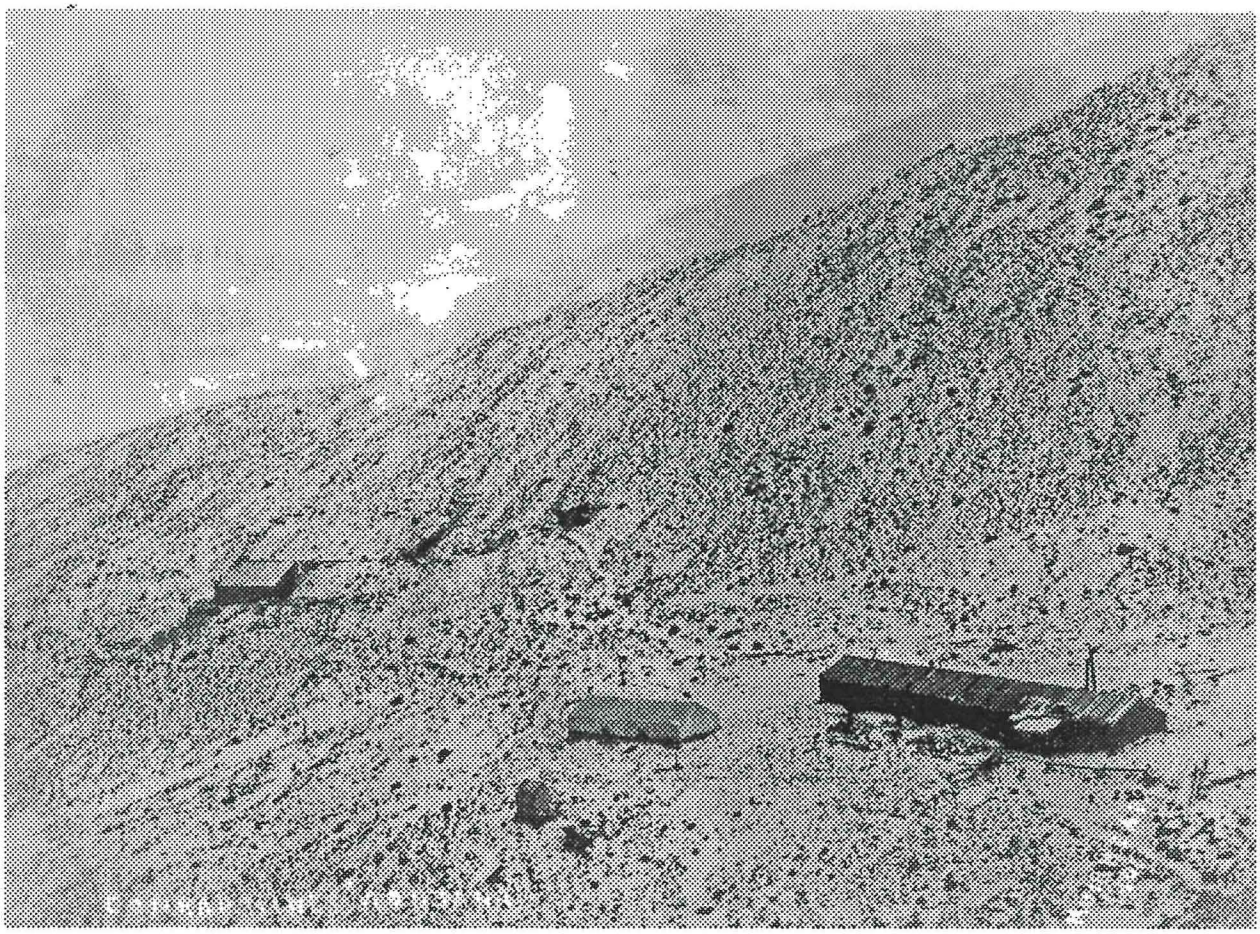
1980s Some trenching took place

Physical resources

There are two distinct sites associated with the Big Thing Mine. The mining itself took place quite high up on the hillside. The buildings supporting the mine were constructed lower down on the slopes of the hill. To the west are two stone houses and remains of an outhouse. To the south of the hill are the remains of the later mining operations. On the south side, however, there are also some stone foundations down on the floor of the Big Thing Creek valley which were associated with earlier workings. Of these remains, only the large stone house on the west side of the hill is mentioned. Muirhead's 1906 photograph (YA 6419) on page 8 shows the large stone house, the smaller, uphill structure and an outhouse. A second Muirhead photograph of the Big Thing group (YA Phelps/Scott Coll. 89/31 #205) shows what appear to be tent frames where today there are stone foundations of approximately the same size. Most of the remains on the south side of the mountain date from the time of Arctic Gold and Silver Mines operations (1968). Photographs published in *Western Miner* (September 1968, Vol. 41, No. 9), show the trestle tracks in use and maintenance buildings located where we found concrete foundations. We could not confirm whether the tracks and trestles dated from an earlier period.

Mountain Hero

The Mountain Hero site never did work out as a producing mine. This was unfortunate as Colonel Conrad chose it as the upper terminus for his aerial tramway which cost somewhere between $80,000 and $90,000. Prospects for the mine must have looked good because one of the large stone houses was also built at the site and a gas-powered compressor was installed to service the mine. It was evident by 1906 that Mountain Hero was not going to produce. As it was just around the shoulder of the Mountain from Montana, however, it was used as a camp and, while the tramway was in operation, served as a distribution point for activities at Montana and Thistle.



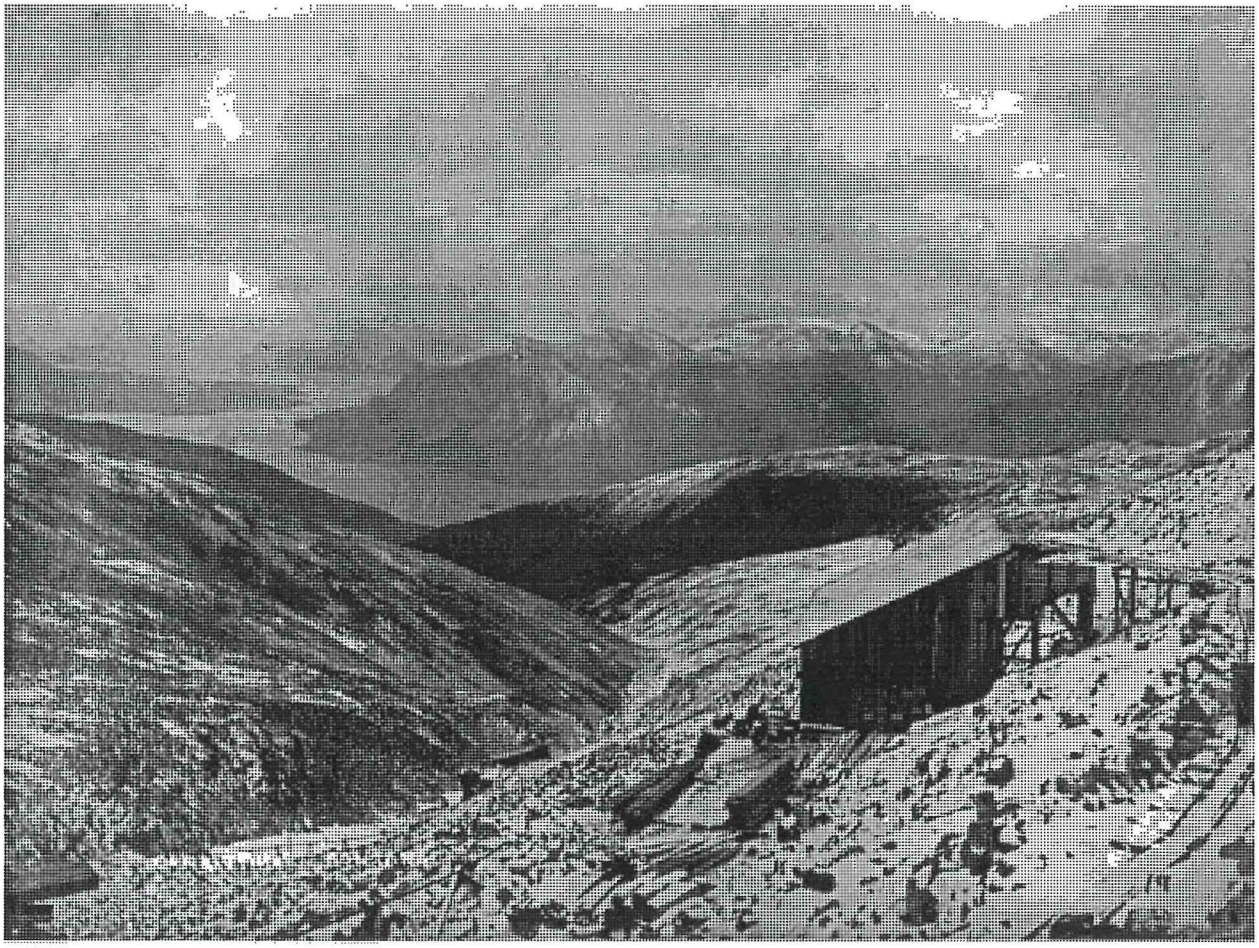
"Mountain Hero, 1906" Yukon Archives, Muirhead Coll. 6420

Key Dates

1900 Staked by W.R. Young and John Mervin Pooley
Sold to Ira Petty

1905 Stone houses built (Cairnes & Tyrrell). Cairnes notes that they were used for offices, bunkhouses and cook houses (Cairnes 1907).
Construction of tramway begins (MinFile 1994).

1906 Became tramline terminal but never produced.
Tyrrell reported in 1906 that the site was located 3,500 feet above the lake. While three drifts had been driven over the past two years, no veins of any value had been found. He also notes that the tramway was installed followed by a "compound Layner Air Compressor driven by a 50 H.P. gasoline engine. A 6 H.P. engine and fan was also installed but was removed to the Vault.



"Mountain Hero, 1906" Yukon Archives, Muirhead Coll. 6419

While Mountain Hero showed no values, the camp was used by the men working Montana. Supplies were brought up via the Riblet Tramway from Conrad (Tyrrell 1906).

Physical Resources

This site consists of the remains of the tramline terminal, a tent frame, the compressor on a concrete pad and one of the large stone houses (also see Montana Tramway). Harrington's photographs from the 1970s show a more intact tramline terminal (YA Harrington 79/27 Pho. 102). This was bulldozed flat when a new cat road was cut in the 1980s (Wray 1994). While the towers of the tramway still stand and are strung with cable, the buckets have disappeared since the 1970s (YA Harrington 79/27 Pho. 102). The 1906 photographs of the site, (YA Muirhead, 6420 & 6419) on page 10 & 11, show that this was the extent of the buildings, save for a small outhouse. The mine portal has collapsed and been buried under a rock slide.

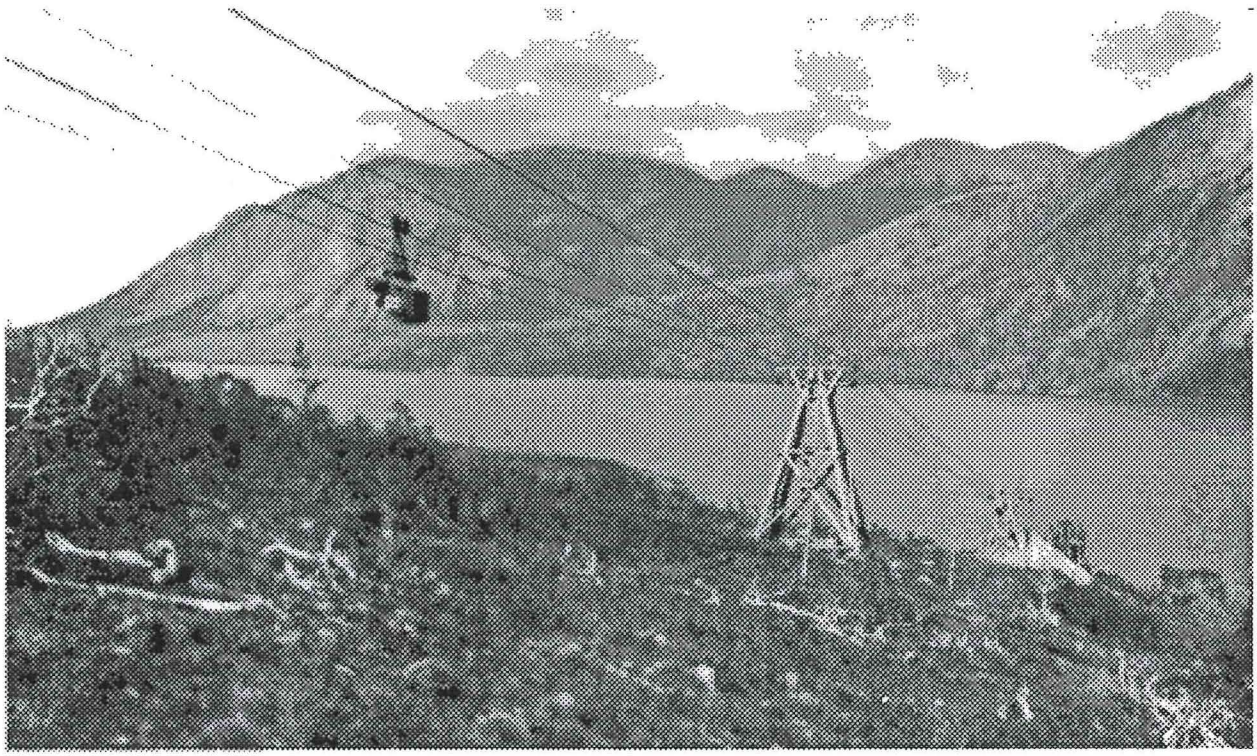
Montana Tram

The Montana tramline was built from the townsite of Conrad to the Mountain Hero mine in 1905-06. Mountain Hero never did provide enough ore to justify the expense of the tramway and it was used to supply the mines at Montana, Thistle and Big Thing. Even this did not prove profitable, however and the tramline ceased operating only a few months after it began. This was the longest and most expensive of the three tramlines built on Montana Mountain. It is also the earliest and longest of the large tramlines constructed in the Yukon.

Key Dates

1905 Waterfront purchased for a tram terminal. Construction began in September.

1906 The Tram was a Riblet Cable Tramway, 18, 600 feet long (18,697 Cairnes 1907: 21, 120 feet Carson) installed at a cost of $80,000 (Tyrrell 1906) to $90,000 (Cairnes 1907). Completed and begins operation on June 8th (Tyrrell 1906B). Operated by



National Archives of Canada, PA39988

gravity and, since no ore was discovered at Mountain Hero, waste rock was sent down to bring up supplies from the shore. Tyrrell estimated that 1000 to 1200 pounds of material had to be sent down in order to bring up a weight of 200 to 250 pounds. Cairnes was optimistic about its future in 1906 and notes that the tram was supplying Mountain Hero, Montana, Big Thing, Aurora and Thistle. He con-

cludes that "the tramway will continue to carry up supplies and to bring down the Montana ore."

Tyrrell was less optimistic.

> "As there is no ore for it to carry this tramway now stands as a monument of erroneous judgment and reckless and wasteful extravagance" (Tyrrell 1906).

The tramway was abandoned by the end of 1906 and horses were used to transport supplies up the mountain (Tyrell 1906b).

Physical Resources

The tramline now consists of a series of towers that range in condition from totally collapsed to almost perfectly intact with cable still strung on the pulley wheels. The structures consist of a pyramidal timber frame tower, braced with lumber, and topped by twin armatures carrying wheels and cable. Each tower has a ladder running from the ground to the top. Unfortunately, the upper terminal of the tramline is now destroyed and the tramway buckets are missing. At least two intact towers are visible from Mountain Hero.

Montana

As there are many groupings of mines that often assume the same name, it is sometimes difficult to determine which particular property people were referring to when talking about "Montana". This was the first property staked on the mountain when W.R. Young and John Mervin Pooley went prospecting in 1899 (MinFile 1994). There is some confusion in that "Mountain Hero" was sometimes referred to as "Montana" (Muirhead photograph, 1906. YA Phelps/Scott Coll. 89/31, 207) and is usually grouped with it in mining reports (MinFile 1994). In later years, the Joe Petty property was included with Montana. Testing was done around Montana over the years but it does not appear that any serious development work was undertaken until Arctic Gold and Silver drove a new adit in 1967. After that, it was again left unworked.

Key Dates

1899 Staked by W.R. Young and John Mervin Pooley.

1900 Sold to Ira Petty.

1904 Sold to Conrad Consolidated Mines Limited.

1905 Development work shows important veins.

1906 Active.
Tyrell notes quite extensive work done on the site in 1906. He did not have confidence in its ability to produce much of value. The mine was equipped with "an 8 H.P gasoline engine and hoist with a tipple and car, these latter running on 12 lb. iron rails."

1908 Transferred from Lackinaw & Tagish to Yukon District Gold (MinFile 1994).

1915 Surveyed and taken to lease (MinFile 1994).

1916 Under bond to the Harper Syndicate. They spent the year trying to get ice out of the shaft (Cairnes 1916).

1960 Held by L.C. Leggat when it was optioned to New Imperial Mines Ltd.

1965 Reoptioned to Tagish Lake Silver.

1967 Transferred to Arctic Gold and Silver which drove a new 244m adit near the old workings.

1978 Transferred to Rex Silver Mines.

1979-81 United Keno Hill offered an option on the property and underook mapping and sampling. No action was taken due to closure of Venus.

1988 Some testing done by United Keno Hill on Joe Petty but no specific mention of Montana.

Physical Resources

The remains include a head frame with tipple, winch house and blacksmith shop. As well, there is a rail tramway. The lower (southern) part of the site includes an adit which was apparently dug in 1967 by Arctic Gold & Silver (Wray and MinFile 1994).

A 1906 photograph (YA Scott/Phelps 89/31 208) shows the blacksmith shop in place. There is a medium gable roof building to the southwest of the shop, which appears to be the winch house. This is no longer intact though enough remains to identify it as the same structure. The winch and chute over top of the shaft is shown in this photograph but there is no building covering it as there is now. Judging by the aging of the wood on the covering building, it probably dates from early in the site's history as well. The tracks for the tram car are also in place by 1906 and are fairly intact today.

Thistle

The Thistle site is sometimes referred to as Thistle & Aurora (Scott & MinFile 1991). It was staked by J.M. Pooley in 1905. Pooley transferred the properties over to Conrad's British Yukon Gold soon after. There is little record of the work done here though it is the proud owner of the most intact of the stone houses.

"Thistle," Yukon Archives, Muirhead Coll. 6422

Key Dates

1905 Staked as Thistle & Aurora by J.M. Pooley (MinFile 1991)
Stone houses built (Cairnes).

1906 Claim group consisted of Glacial Lake, Columbian, Shamrock, Thistle, Excelsior, Fair Play, Rose, Aurora, T&B, and Westover (Tyrrell 1906). He describes "A good stone house a hundred feet long, sixteen feet wide and seven feet high, inside measurement has been built on or near the group of claims and a telephone line to Conrad has been installed."

1910 Surveyed (MinFile 1991).

1964 Restaked as Stewart by J. Scott and C. Eminger (MinFile 1991).

1969-70 Mapping and geophysical work (MinFile 1991).

1979 Restaked by United Keno Hill (MinFile 1991).

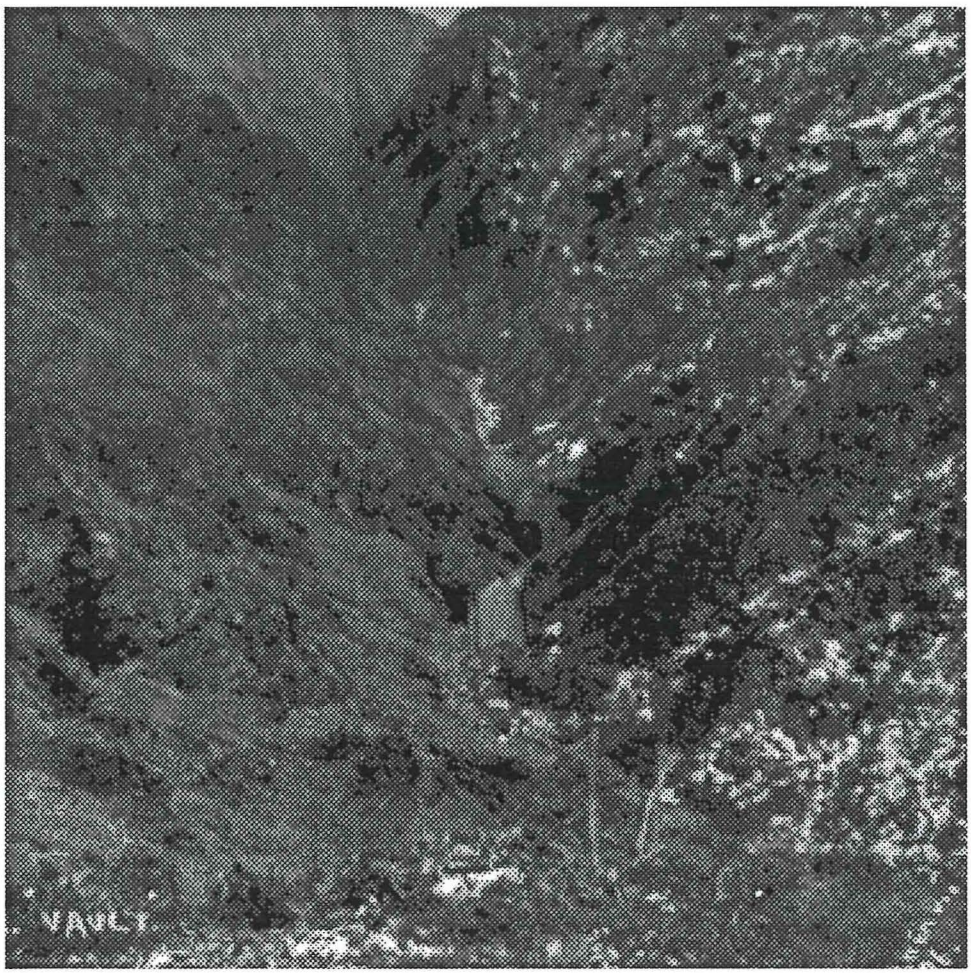
Physical Resources

The Thistle sits by a small alpine lake in a bowl at the head of a stream feeding into Pooley Creek. There are two large tent frames which served as bunk houses as evidenced by the bed frames crammed into every available space. To the west of these lies a stone foundation which, according to John Scott, served as a stable for the horses used to haul supplies to the camp. This shows as a tent frame structure in Muirhead's 1906 photograph of the site (YA Muirhead 6422) on page 17. This photograph also shows a small tent frame situated between the larger two. There is little evidence of this remaining. While there are horses in the photograph, none of them are conveniently situated in the tent frame where the stone foundations are today. The most prominent feature on the site is the stone house which measures about 30 metres long. While not in good condition, it does have more of its walls intact than the houses surviving at Mountain Hero and Big Thing. To the southwest of the stone house are the remains of an outhouse built on a stone foundation. We found little remaining of the various mine portals which were in the region.

Vault

Of the many remote and difficult-to-get-at sites on Montana Mountain, this is surely outstanding. Located in the steep and crumbling Pooley Canyon, early miners had to blast a platform large enough to put up even a small tent. The site could be reached by steep trails either by going north from the Venus properties or east and south from Thistle and Aurora. A small tramway was built to move in lumber and supplies in 1906 and a larger, permanent Riblet tram was completed by the end of the season. After 1906, there were no records we could find of activities at this site. According to geologist Mike Burke, the Vault was working the same vein as Venus. Activity shifted to the Venus as access was much easier. The Vault was closed down by World War I (Burke, 1994).

The Vault is an outstanding example of the extreme lengths miners would go to extract gold and silver from the ground.



"The Vault", Yukon Archives, Phelps/Scott Coll. 89/31 185

Key Dates

1905 Large house built in the canyon (Cairnes 1907). Once the tramway was installed, the workers at the Vault were able to build better accommodation and facilities than the tents they had been living in. Cairnes notes that a frame bunk house and cook house had been constructed and a blacksmith shop had been built "at the mouth of the tunnel."
Cairnes thought this was the most promising property on Windy Arm.

1906 Temporary tram put in branching from Montana to transport wood and supplies (Cairnes 1907, Tyrrell 1906B). By end of season had installed permanent Riblet Standard Aerial. Thought by Tyrrell to be a folly as Vault was not producing (Tyrrell 1906C).

1916 Lakinaw and Tagish Mines take a lease on the property but no work is reported.

Physical Resources

The main clue we have to the original buildings on the Vault site come from Cairnes 1907 report and Muirhead's 1906 photographs. On the site today, there is a frame structure at the mine entrance and a larger frame structure, directly below it at the creek. Between these is a small platform which likely served as a tramline terminal. To the west, near a small waterfall, is the blacksmith shop and the remains of a larger frame building immediately to the west.

From the photographic evidence (YA, Scott/Phelps Col. 89/31, #203 by Muirhead, *see cover*), only the blacksmith shop is clearly identifiable as an original building. Cairnes refers to the blacksmith shop as being at the mine portal. The small building near the waterfall, however, contains an anvil post, forge hood and some debris and tools common to a smithy.

The building to the west of the blacksmith shop, the cook shack, has collapsed. We could not tell whether Cairnes meant there was a cook shack *and* a bunkhouse or if these were all contained in one building. Another Muirhead photograph, page 21, shows some ghostly apparitions but the cook shack stands out clearly as does the building at the mine portal (YA, Scott/Phelps Col. 89/31, #189 by Muirhead). The roof of the blacksmith shop is just discernible slightly above and to the right of the cookshack in this photograph.

In this same photograph, high on the cliff, a frame building can be seen with a white tent pitched to the east. This would be Cairne's *building at the mouth of the tunnel.* Just discernible in this photograph is a small platform with an X shaped tower on a log frame. This looks to be the platform we recorded that might have served as a tramway terminal. These structures, and the cookshack, are also visible in another Muirhead photograph (YA, Scott/Phelps Col. 89/31, #185) page 19. The building at the portal has collapsed, its gable end lying on the slope below the mine entrance (Heritage Branch photo 94.08.100.25).

On the creek bed today there stands a long, shed-roofed structure. No such a structure appears in the 1906 photographs and we had no later information to identify it. This may be the bunkhouse Cairnes referred to or it may be a later structure. The only early photograph we found that shows all the buildings was undated (YA, Phelps/Scott Coll 89/31, #158).

A few of the tramway towers still stand on both sides of the canyon. They were too far away and difficult to reach to make a proper assessment of their condition but they look to be miniature versions of the Montana tramway towers. One can just be made out in one of Muirhead's 1906 photographs on the ridge line at the centre left of the image (YA, Scott/Phelps Col. 89/31, #189 by Muirhead). We were told by Paul Wray that the building in the canyon bottom was supposed to be a tramline terminal but that it never was operational. John Scott noted that one tramline ran from a woodcamp located on the north side of the canyon. This spot is visible in slide 94.08.106.13 on the ridge line in the centre of the image. It also appears in another of Muirhead's 1906 photographs of the area (YA Muirhead Coll., 6454). We did see tramline towers running from that spot but they are not visible in any of the photographs as they were too far away and the same colour as the rock.

"The Vault", Yukon Archives, Phelps/Scott Coll. 89/31 189

Venus

Along with the Big Thing, the properties in the Venus group were the most extensively worked on Montana Mountain. Venus may be thought of more properly as a vein rather than a site. It extends over 1.6 km along the eastern face of Montana Mountain (MinFile 1994). This vein system was originally staked as Venus and Uranus but quickly expanded along the vein to include the Dail and Fleming properties, Venus, Uranus, Venus Extension, Nipper, Beach, Red Deer, Ruby Silver, Humper 1 & 2. It eventually grew to include the above plus Peggy, GHI, Mars, Gold, Columbia, Red, Piercy, Rainbow and Sandpiper (MinFile 1994). For the most part, the site consists of numerous test pits and shallow or collapsed adits which represent the extensive work done on the vein. The cabin where Pooley and Stewart spent two winters is on this property. They staked Venus in 1901. After a brief period, the original Venus was abandoned and work transferred further north along the vein to the Uranus and Venus #2 sites. Work in the later years was concentrated at Venus #2 where a loading shute and tramway were constructed. Attempts to revive the Venus workings over the years were also focused at this site though work in the 1980s apparently moved south to the Venus Extension (New Venus). In 1980, construction began on a new mill to concentrate the ores from Venus. Once again, failing metal prices scuttled the project. More recently, the high levels of arsenic found in the mill tailings has caused serious environmental concerns, decreasing the likelihood of a Venus revival.

When considered in conjunction with the mill, tramway and lakeshore buildings, Venus also has the most extensive historical resources of all the Montana Mountain sites. They are also the most accessible.

Key Dates

1901 Venus staked by J.M. Pooley, Arthur Borden Palmer and Josephus Moore Stewart (Min File 1991).

1902 Venus #2 staked.

1905 Venus properties transferred to Conrad Mines (MinFile 1991). Development work shows important veins.

1906 Tyrrell reports that the veins of ore on these properties were "uncovered by several open cuts and shallow shafts." This explains the numerous old test pits and openings on the mountain. Apparently, work was abandoned on the Venus property by 1906 and the camp moved to Uranus (Tyrrell 1906).
Work shifted from Venus #1 to Venus #2 in order to catch the vein at a lower level. Tyrrell notes the vein was "strong and well defined " but no shippable ore had been recovered yet.

In August the 1,850 foot long Riblet 2-bucket Tramway is installed at a cost of $5,329.73. The gasoline compressor was replaced by a Pelton Water Wheel at a cost of $5,283.04. This was located "on the beach" which likely means the mill site. Cairnes notes that the tramway was 1,525 feet long from the lower Venus tunnel to the beach. He also notes that there was an engine house, bunk house and cook house on the beach that year.

1907 Venus #1 closed.

1908 Mill constructed.
Conrad sells Venus Extension to Yukon District Gold Mining Co. Ltd.

1909 60 men working at the Venus #2 mine and mill.

1910 Work continues.

1916-18 Under bond to the Harper Syndicate. Lakinaw and Tagish Mines working and had some small shipments of ore (Cairnes 1916).

1919-20 Worked by the Yukon-Montana Mining Co. Only four men working and no ore (Walton).

1919 Venus investigated by Treadwell Yukon Mines Ltd. (MinFile 1994).

1922 Hollinger Co. take lease on the site (MinFile 1994).

1928 Yukon Gold Mines take lease (MinFile 1994).

1940-60 Properties were consolidated by Tagish Lake Syndicate who sold them to Venus Mines Ltd. in 1966. Venus Mines Ltd. built the road to Carcross (MinFile 1991).

1963 Giant Yellowknife Mines take lease (MinFile 1994).

1966 Venus Mines Ltd. began development. Insufficient ore, lack of capital, low prices and environmental problems forced the closure of the mine (Walton, 1987).

1975 Claims were acquired by Tagish Lake Syndicate (Walton, 1987).

1979 Property optioned to United Keno Hill Mines Ltd. who resampled old workings and began an exploration program (MinFile 1991).

1980-81 100 ton per day mill constructed in response to rising metal prices (Walton, 1987).

1981 Falling metal prices force closure (Walton, 1987).

1983-84 Some surface exploration conducted on Venus and Uranus veins (MinFile 1994).

1994 "A feasibility study on remediation of the mine tailings was planned in summer 1994 under the Federal Arctic Environmental Strategy" (MinFile 1994).

Physical Resources

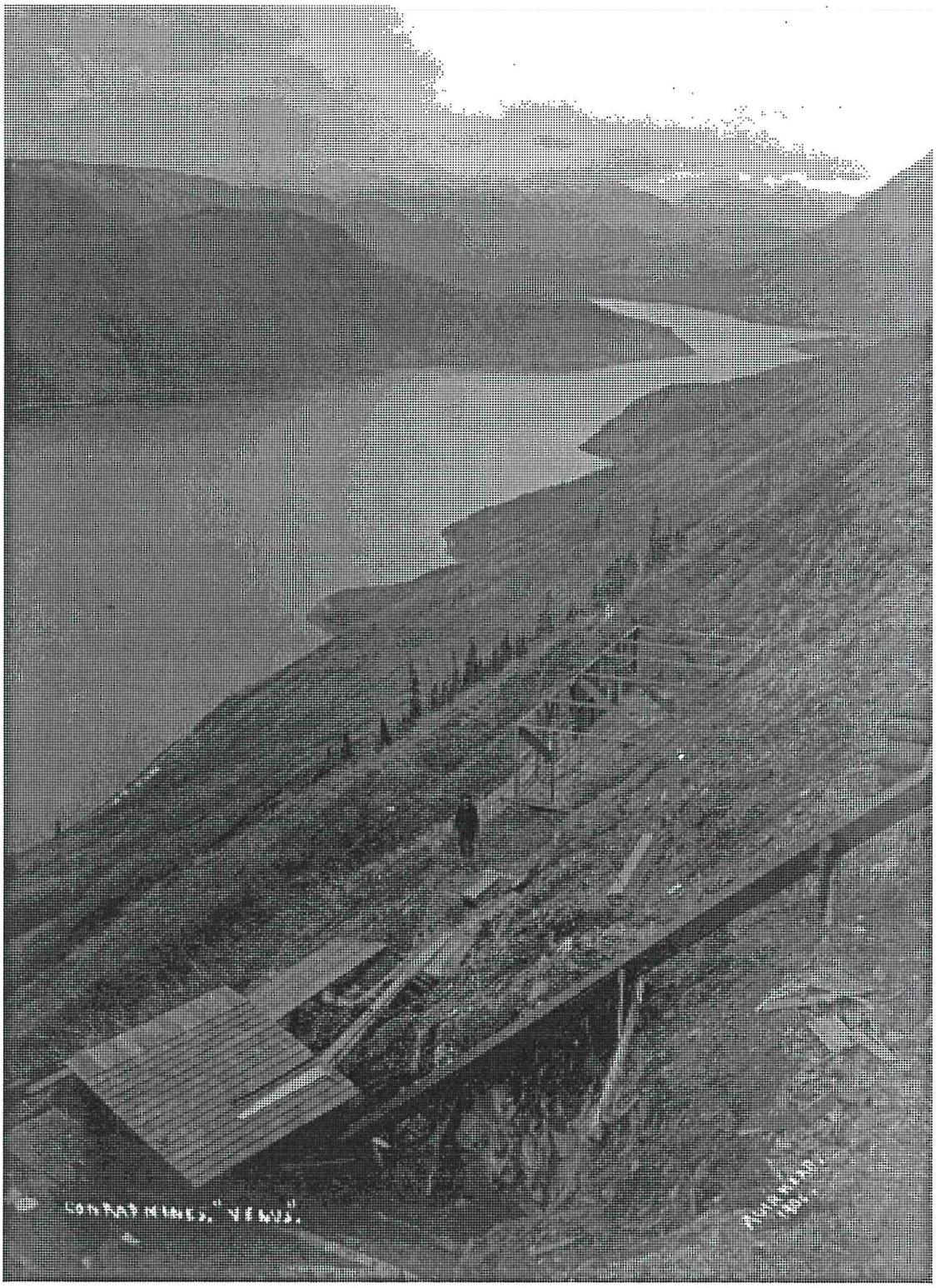
The features associated with the Venus group of properties are extensive. They extend almost the entire length of the vein. For the most part, the resources consist of abandoned adits and test pits. There is some timber shoring, twisted track and a scattering of metal artefacts associated with some of these sites but, for the most part, they are simple adits and collapsed workings. Underground, the workings may tell a different story. They run up and down through the mountain following the Venus vein.

As mentioned in the Field Report portion of this study, we could not positively place these adits and test pits without a proper geodetic survey. Also as we noted, the properties at the southern end of the vein were reworked from the 1960s to the 1980s. This resulted in a good deal of new building on old workings. Save for timber shoring and cribbing, which may date from the historic period or may not, there was nothing clearly identifiable as *historic* save for the features noted below.

Most of the identifiable resources are at Venus #2. The site consists of the adit and its portal, a blacksmith shop, remains of a cookshack, rails and ore dump. The mine is also connected directly to the Venus Mill by a 1,500 foot tramway (estimates of the size vary). Although, the features on the lakeshore are treated here as a separate site complex, eventually they were all part of the same operation *(see Venus Mill)*.

Once again, 1906 seems to have been a big building year. We have Muirhead's photograph, page 25, from that year that shows the cookshack near the portal under construction (YA Muirhead Coll., 6428). Another of his 1906 photographs shows a log frame structure to the south of the portal that can be identified as the blacksmith shop (YA Tyrrell 82/15 M.1906.64). The ore dump does not seem to be in place at this time. Rather there is a flume or open shute feeding into a small shed roofed structure from above. This was the tramline terminal (YA Phelps/Scott Coll. 89/31, #192). We could not determine when the ore dump was constructed.

The tramline tower closest to the Venus #2 workings is still in place and strung with cable. It differs markedly from the towers on the Vault and Montana tramways which were pyramidal with an extending cross bar on the top carrying the cables outside of the tower. The Venus tramway tower is framed like a swing set and carries the cables through the frame of the tower.



"Venus", Yukon Archives, Muirhead Coll. 6428

Venus Mill

The Venus mill is the most technologically complex of the sites on Montana Mountain. While it was not the only mill of this capacity (110 ton/per day) built in the Yukon, it is the earliest of the large mills. The fineness of the minerals on Montana Mountain meant that quite a bit of waste material had to be extracted along with the valuable ore. Digging this was trouble enough but then it had to be bagged and shipped at a high cost per pound. In an attempt to make the Montana properties more viable, Conrad ordered a concentrator and began building a mill in 1907. The mill only operated for a couple of years before attention switched to Big Thing and the Venus operations were abandoned. The mill was running off and on again from 1917 into the 1920s. During this time, it saw several upgrades in equipment. We do not have a final closure date for the mill but 1920 was the last year there was a report of shipping concentrated ore (MinFile 1994).

Key Dates

1903 J.M Stewart and J.M. Pooley apply for land to build a mill (YRG 1952f448). Together with A.B. Palmer they applied to divert water from Pooley Creek to their mining claims. The idea was to use the water for milling and concentrating (YRG 1952, f448).

1905 WP&YR establishes steamer landing on the shore below the Venus #2 (Star 14/8/1905).

1905 Camp for Venus #2 built on beach. Engine house, bunkhouse, and cookhouse (Cairnes 1907).

1906 Tyrrell reports that the gasoline compressor was replaced by a Pelton Water Wheel at a cost of $5,283.04. This was located "on the beach" which likely means the mill site.
Tyrrell reports " a Riblet two-bucket Tramway, 1,850 feet long, was built from the mouth of the lower tunnel... to the beach of Tagish Lake."
Tyrrell notes that the water wheel that was supposed to run on Pooley Creek failed when the water level dropped. It was replaced by a 50 hp. gasoline engine in a cement foundation on the beach.
Cairnes describes the tramway as 1,525 feet long and 958 feet above the lower terminal (Cairnes 1916). Note also that his engine is 75 hp.

1908 Concentrator imported. Mill completed in October. Described by Cairnes (1916):
"It is said to have a capacity of 100 tons a day. The equipment includes a 100-horsepower boiler and a 75-horsepower engine, for generating the motive power, also a partly installed hydraulic plant to obtain power from Pooley Canyon. The concentrating equipment embraces a grizzly, Blake crusher, trommels, high-speed rolls, a Huntington mill, jigs, four Callow screens, six Callow settling tanks, three Wilfley tables, and two Frue vanners. "

Weekly Star (4/12/08) described the operation:

> "An aerial tramway carries the ore from the mouth of the mine tunnel to the top of the concentrator building where, by an automatic dump, it is discharged in a flume which carries it to the first portion of the treatment which is a powerful crusher having the capacity of thirty stamps. On leaving the first crusher the ore is carried by gravitation and heavy flow of water, the discharge of a five inch pipe, through several other crushers and ore segregators, all the pulverized rock being carried on and discharged in the bay, only the concentrates remaining. Even the flue sand is all machine washed and the finest particles of minerals saved."

A light plant was installed in the mill and extended to the Venus Mine and the messhouse. A steam heating plant was installed to heat the entire mill as work continued into the winter.

1909-10 Likely this is when the mill shut down as efforts were redirected to Big Thing.

1917 Mill operated under Lakinaw and Tagish Mines. *S.S.Tutshi* making two trips a week here hauling ore.

1918 New Harding's Mill and two double-deck Diester sliming tables ordered for the mine (DDN 1/7/18)
Montana-Yukon Mining Company take over the property in September.

1919 New Ball mill arrives to replace the old Huntington plant (DDN 16/6/19).

1920 Remodeled and reopened. Did not intend to start up again in 1921.

1968 New 300 tpd mill opened, north of the original mill site, and operated between May and December 1968 and March to October 1969 (MinFile 1991). Closed in 1971(Oulette).

Physical Resources

The site consists of the mill itself, assay office, cook house and an unidentified log building, possibly a bunkhouse. The mill has both a structural component: the building itself, and the operational component: the equipment relating to crushing and concentrating the ore.

Southerly Buildings

The clues we have to the construction of these buildings are few. By the time the mill was built in 1908, the intense photographic recording had ended. We know from Cairnes' reports and Muirhead's interior photograph that a cook house was constructed by 1906 on the lakeshore (YA, Muirhead Coll. 6415). Looking at the background of Muirhead's 1906 photographs of Venus #2, we can see tents along the shoreline (YA Muir-

head Coll. 6428 & 6424). These are located to the south of the future mill site. In photograph 6424 on page 29 (which was printed reversed), we also see two rectangular buildings oriented roughly parallel to the shoreline. These would appear to be south of the future mill site where the remaining buildings are today. Since the interior photograph of the cookshack (6415) looks very similar to the building standing today (94.08.109.7S), we can assume this was one of the two buildings standing on the shore. The cookhouse was likely the more southerly building as the northern structure seems to have two windows flanking a central door on the north wall which do not appear on the existing structure.

The most southerly building on the site at present is a simple rectangular log structure. Judging by remnants of the gable end, it was a medium gable roof. The building is oriented end-on to the lake. Nothing similar shows up in the 1906 photographs but that is not to say it was not there later in the year.

Between the southerly buildings and the mill, there is a steep rubble slope (94.08.104.34 & 94.08.109.8). It is littered with planking and twisted metal. These may be crushed buildings, beach wrack, dumpings from higher up the slope, or a combination of all three. The two 1906 photographs we have of the shore line do not show this area.

Assay Office

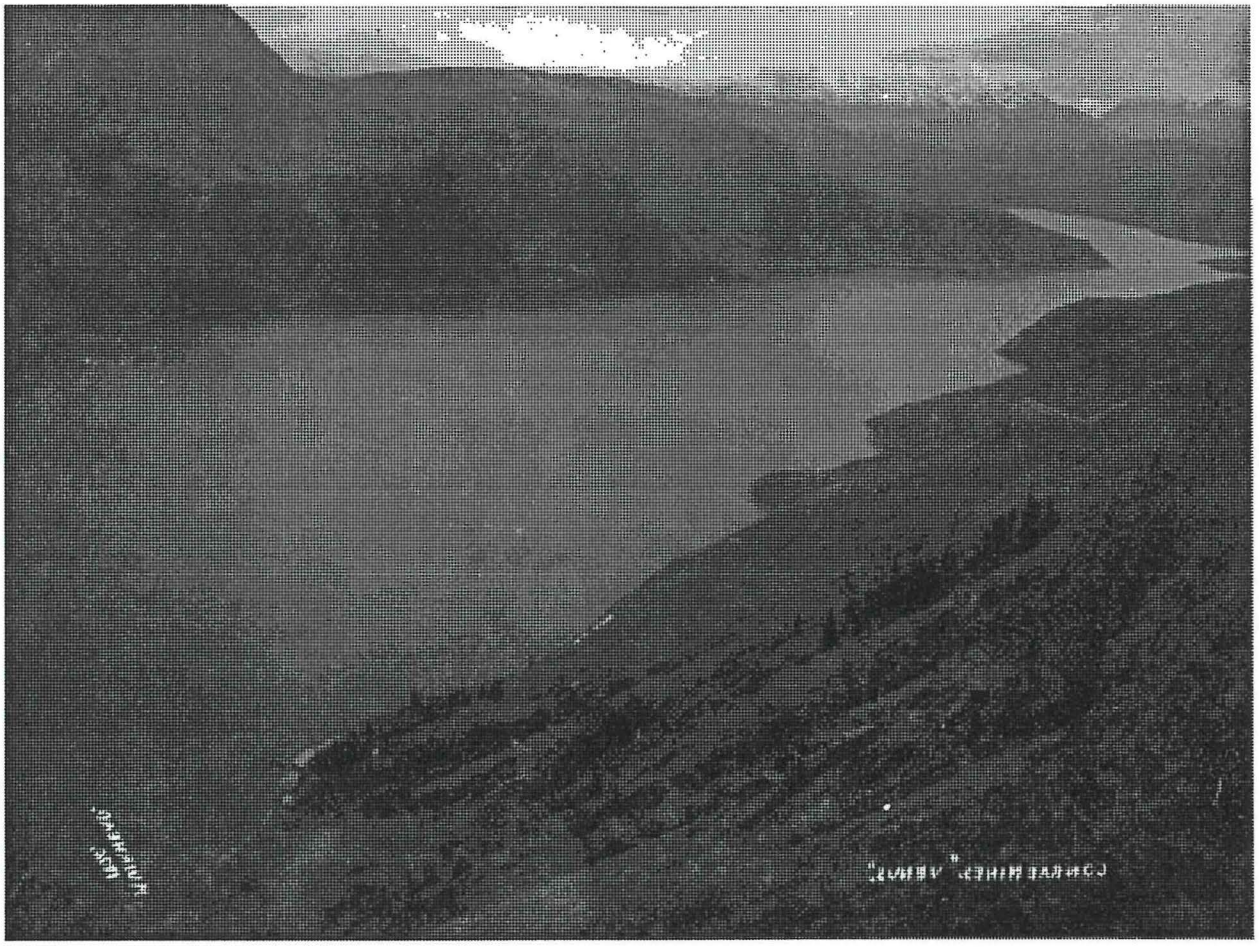
Slightly to the south and east of the mill stands a small, two-storey frame house or office (94.08.105.0-4 & 94.08.109.9-11). According to Mr. Scott, this was the assay office for the Venus mines (Scott, 1994). Apparently many of the rough pottery cups used in assay have been found in the waters in front of the building (Boris Dobrowolsky, Yukon Underwater Diving Association, 1994). There is nothing intrinsic in the design of this building to suggest its purpose. There were no surface artefacts to point to its use either.

Wharfage

Although mostly flooded, there is still clear evidence of wharfage between the house and the mill, and lakeward of the mill. Anchor pins in the rock between mill and house are of the type used for mooring sternwheelers. The log cribbing of the wharf is in poor condition where it runs out into and under the water. There is a heavy cable running to turnbuckles down near the shore. This may have been a tramline terminus used to move materials up and down to the lakeshore. There are regular reports of the *Gleaner* and the *S.S. Tutshi* landing at this site to haul away ore. A steamer landing was established on the site by 1905 but the one at the foot of the mill may have been constructed later.

Mill

The mill, or concentrator, is constructed of heavy timbers, in a post and beam fashion, covered with vertical and diagonal planking. It runs about seven distinct levels (94.08.105.8,9,16-24 & 94.08.109.15-19).



Yukon Archives, Muirhead Coll. 6424

There is still a fair bit of machinery and hardware remaining in the mill. Rollers, chutes, hoppers, a pump and boiler are evident. While most of these are not intact, they are in situ which could provide excellent clues in determining their functions and the mill's concentrating process.

Mill machinery

The following is a description of the equipment listed by Cairns that was used at the Venus Mill. The descriptions are taken from Taggart (1927). Many of the machines were produced in varying sizes. There were other machines, not listed by Cairns, so the complete process of milling at Venus is sketchy at this point. To better determine the process and to ascertain the milling capacity of equipment at the Venus Mill, the equipment remaining in the mill needs to be checked for model numbers or measured and compared to the tables provided in Taggart (1927).

CRUSHING STAGE

Blake Crusher: a type of jaw crusher that was available in different sizes. Large primary jaws were almost always this type. It had a fixed jaw and a movable jaw pivoted at the top.

Rolls: two types, rigid and spring, are described by Taggart. We are not sure which type were used at Venus, though possibly they were rigid rolls as Taggart states that these were the older type. Need to examine machinery for type and brand.

GRINDING:

Huntington Mill: a type of wet grinding machine with the potential capacity of between 8 and 185 tons per day. Wet grinding seems to have been a less common technique than dry grinding. Dry grinding may also have been used.

SCREENING:

Grizzly: a type of fixed screen with heavy screening surfaces usually made of parallel bars. These were used for coarse material. There were various types and sizes.

Trommels: a type of rotating screen that was made in different shapes, including cylindrical, hexagonal and conical. Various makes of trommels were available.

Callow Screens: a traveling-belt screen. The screen is cloth with rubber edgings. "Feed is distributed over the width of the belt by means of a distributor, pulp is washed by sprays...." Larger material is separated off from smaller material. Sizing, washing and scrubbing machines are usually found at this stage of milling.

GRAVITY CONCENTRATING STAGE

Jigs: "a mechanical concentrator that effects separation of heavy grains from light by utilizing differences in the abilities of the grains to penetrate a semistationary bed. Essentially it is a box with a perforate bottom and no top, in which a relatively short-range separating bed is formed by pulsating water currents." There were numerous types and brands of jigs.

Wilfley Table: a type of a slide-slope shaking table riffled over somewhat more than half the surface.

Frue Vanners: " a concentrating machine adapted to the treatment of fine sands." The Frue vanner was an early type, being an oscillating side-shake vanner that was end sloped. The capacity of feed for a Frue vanner was 5 tons per day per vanner.

There may have been other equipment for separation and concentration.

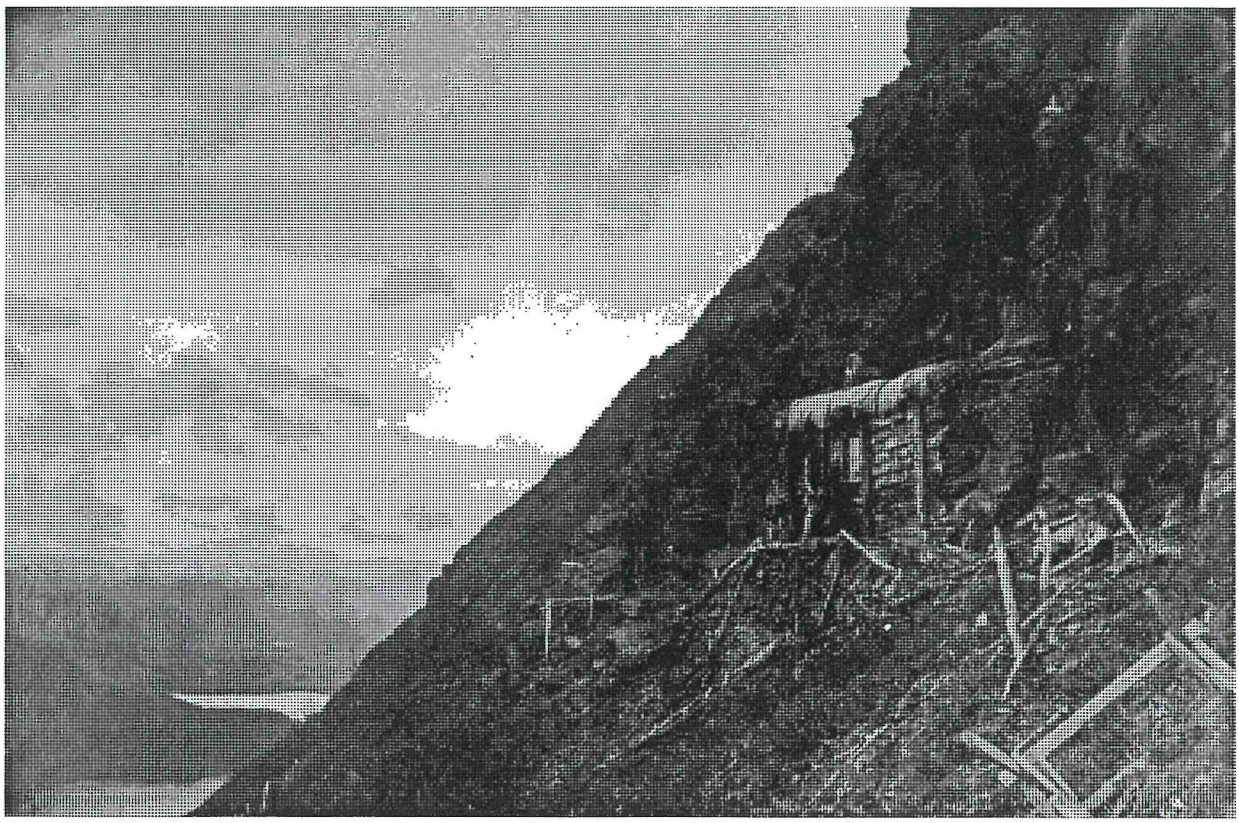
FLOTATION STAGE

There are many variables in the process of oil flotation. Without knowing what equipment was used at the Venus, it is difficult to describe what technique was used.

Pooley Cabin

When W.R. Young and John Mervin Pooley staked the Montana claim in 1899, the history of mining on Montana Mountain began. This shack, 1700 vertical feet above the waters of Windy Arm, is supposed to be the place where two early prospectors spent two winters to safeguard their claim. It would be wonderful and romantic to think that this was where the first prospectors spent the first winter of the first staking on Montana Mountain. This cabin, however, is no where near the Montana claim, it is on the Venus claim. Venus was staked in 1901 (MinFile 1994) by Pooley, A.B. Palmer and J.M. Stewart. According to John Scott, it was Pooley and Stewart who spent two winters in this cabin. He also states that their 40 foot shaft, sunk with handsteels, was the first working on Montana Mountain (Scott 1994). It seems likely then that this cabin is more closely associated with the Venus staking of 1901 rather than the original staking of Montana. It is hard to see a reason for building in this particular place other than the fact that it was very close to a claim. By 1906, the cabin has an air of abandonment (YA Phelps/Scott Coll. 89/31 #193, *see below*).

The building itself is an unusual structure which has utilized native wood and a hollow in the rock in its construction. It is crude yet it boasted a glass window, sills and flooring. There are similar sites on the slopes around Dawson City and Klondike City where level spots for small cabins and tent frames were constructed from rubble.



Yukon Archives, Phelps/Scott Coll. 89/31 193

Physical Resources

The cliff house is constructed of horizontal slabs and logs over an unpeeled aspen log frame. It has a shed roof constructed of poles, which was covered with brush at one time. Judging by Muirhead's 1906 photograph, the roof was also covered with canvas or some other sheeting. There was a fair scattering of mining and food-related artefacts in the area. Below the cabin on the talus slope are the remains of what may have been another cabin or, perhaps, a collapsed mine portal. Since Pooley and Stewart apparently spent the winter right beside their property, this may indeed have been the original 1901 Venus mine.

Transportation and Communications

Part of the infrastructure of the Montana Mines development was the road and communication system. There was also enough ore being shipped that Conrad City became a regular stop for steamers on Windy Arm. There is a network of fading trails connecting the mine sites to the lakeshore. The main access to the mines now is via the road built from Carcross to the Big Thing in 1907. This has undoubtedly been changed several times and is still in use by mining operations such as Feathergold (Wray 1994). The trail from Big Thing to the head of Pooley Canyon through the Montana, Thistle and Uranus properties was also recut to make a modern cat road. Similar upgrading took place on the east side of the mountain along the Venus vein.

The road which eventually became the South Klondike Highway was not built until the late 1960s when Venus Mines Limited was working the Venus vein and opened their new mill in 1968 (MinFile 1994 and Oulette 1995).

Telephone Lines

1905 Lines strung between claims and Conrad City.

Roads

1905 Government began construction of Windy Arm Road between Conrad and Montana, Thistle and Uranus.

1906 Trails to the major claims completed. Windy Arm road completed.
A road was built from Carcross to Big Thing (Cairnes 1907).

1907 Government road along the beach from Carcross to Conrad completed (Cairnes 1907).

Steamers

1905 White Pass establishes a steamer landing at Conrad and below Venus #2. There are scattered reports by the newspapers and geologists of steamers stopping at these sites on a regular basis during the years the Venus and other properties on the east side of the mountain were active.

Thematic Analysis

Economic - Industrial/Primary - mining - gold & silver, prospecting

In the Yukon, the mining of placer gold in the Klondike tends to overshadow all other gold mining operations. In the Southern Lakes area, the mining of placer gold around Atlin also stands out in its scale and longevity. Montana Mountain, however, was a hardrock mining development which differed significantly from placer operations. It involved a different technology and geology and, in this case, a very different geography from these other operations. It was, all in all, a much more painstaking process.

Similar hardrock operations in the Yukon would include the Whitehorse Copper belt and Keno Hill. The former, of course, was focused on copper, though it was getting some returns in gold and silver. The developments on the Copper Belt and Montana Mountain took place during the same time period and used similar technologies. Keno Hill, on the other hand, saw most of its growth during the 1930s and '40s, a different era in mining technology. Much of the very early work at Montana Mountain and the Copper Belt was hand digging. All three operations worked under the handicap of high freight rates and a great distance to the nearest smelter though Montana Mountain and the Copper Belt were both quite close to the railway. All suffered the vagaries of the international metals market. Copper prices fluctuated more radically than gold, however, and made mining the Copper Belt even more marginal than Montana Mountain. Both the Copper Belt and Montana Mountain suffered several boom and bust cycles. It is in the early infrastructure of the two operations that the greatest difference can be seen. There was more money and effort spent on developing these lofty properties on the Montana mountainside than on any other hardrock operation of its time. While the Copper Belt mines built short roads, a railway spur, and there were discussions about building a smelter on the White Horse Rapids, they came nowhere near the scale of development on Montana Mountain. Here, little expense was spared in constructing roads, trails and tramlines through very difficult terrain. A concentrating mill was built containing the most modern equipment of the day. Several camps and an entire town were built and abandoned in response to mining on Montana Mountain.

This is similar to the boom and bust cycles and resultant ghost towns throughout the Yukon from the Klondike goldfields, through small operations like Livingstone Creek to modern equivalents such as Clinton Creek. Montana Mountain was a one-company operation, for the most part. When Conrad went bankrupt, mining activity on the mountain came to a grinding halt. Successive attempts to restart operations on Montana Mountain have also been undertaken by large companies or syndicates such as United Keno Hill. This is not to say that smaller interests have not continued in their efforts to make a profit from Montana Mountain, but whether from lack of financing or technology, the veins of Montana Mountain do not seem to pay.

In the lives of the Montana Mountain properties we can see an exaggerated case of the ups and downs in the Yukon's mining industry. It does not differ so much from places like the Whitehorse Copper Belt or other early mining operations save in the scale of its failure. It was different as well in that it was a very early example of outside economic interests investing in the Yukon's economy.

In terms of the region, there were other mining operations in the Wheaton River district at the time. As noted in the general history, this area was discovered and staked before Montana Mountain. It was never developed to the same extent with the infrastructure of settlements, tramways and mill.

All of the resources on Montana Mountain taken as a single development depict this theme. The sites that saw their evolution during the 1905 to 1912 period, the Conrad years, portray the theme most poignantly. These were amongst the earliest hardrock mining sites in the Yukon and were certainly part of the largest hardrock development in the early decades of the century.

In terms of extant resources, however, the Venus properties perhaps provide the single best representation of the theme. This was the most extensively-mined vein on the mountain along with Big Thing. In particular, the complex which includes the structures around Venus #2, the tramway, Venus Mill, assay office and cookshack portray all the processes, technology and support structure involved in mining on Montana Mountain. In terms of interpretation, it is the most visible and accessible site on the mountain with the most structural remains.

Prospecting

The small cliff hugging cabin where Pooley and Young supposedly spent two winters on the Venus claim can be associated with the prospecting theme. While Colonel Conrad was the main motivating force in the development of mining on Montana Mountain, Pooley, Young and Stewart were the prospectors who staked the initial claims. Again, it is a site which shows the hardships early miners and prospectors were willing to endure in their search for mineral riches. It is also closely associated with two of the first stakers on Montana Mountain. It is difficult to find sites representing this theme as prospectors, by their nature, tended to be itinerant and left little in the way of a built legacy.

Transportation - land - track/trail, road, tramway

The Yukon is a difficult place to build roads. This is mainly due to the presence of permafrost but the mountains of the territory provide their own challenges. The Montana Mountain roads are not the earliest in the Yukon by far. Neither are they the engineering triumph of the White Pass and Yukon Railway nearby. They are, however, a monument to the persistence of man in search of mineral wealth as they do traverse some very difficult and unstable terrain through an alpine and subalpine environment that had heavy snow conditions and, in places, permanent snowfields .

The tramways perhaps belong more properly under the mining theme as an adjunct to that industry. They were used as a conveyance, however, for transporting both ore and supplies and so are being treated separately here. The Montana Tramway is the most notable of the three built on Montana Mountain. Since it ran for a very short time, its significance as a conveyance is minimal. Its construction, however, is quite remarkable. It is the longest tram in the Yukon (over 18,000 feet) and the earliest of the large tramways. Other early trams were constructed at Elsa and Keno. The first was Lucky Queen (3,000 feet) built around 1930 by the Painter Tramway Company of San Francisco. The second was 14,000 feet long, built at Calumet in 1938 by John Scott and the mine staff. It used materials from the first tramway and some imported from Juneau (Scott 1995).

The tramways built to the Vault were equally short-lived and almost as useless, if less costly, than the Montana tram. They did last long enough to supply lumber for the buildings and firewood for the camp. The towers were erected on some extremely steep cliff faces making the construction, in its own way, quite as remarkable as the longer Montana tramway.

The third tramway was the short, 2-bucket line serving Venus #2, also built by the Riblet Tramway Company. There is no indication that it shut down before the mill so perhaps it was useful in transporting ore. Venus #2 was worked quite extensively unlike the Vault or Mountain Hero properties where the other tramways ran. As noted above, it is appropriate to consider this tramway as part of the Venus complex where it is more significant than a stand-alone feature.

As a group, the tramways of Montana Mountain represent a technological adaptation to the environment. Like the roads, their construction is impressive if only for the difficult terrain they had to conquer. Had the mines they serviced been more productive, the tramways may have proved their worth. As it turned out, however, the Montana tramway in particular represents a gambled investment in expensive infrastructure that did not pay off. This cannot be said of tramways in general as many did prove useful. It is noteworthy that the Riblet Tramway Company is still in business today.

While not a main theme associated with Montana Mountain, the mines should also be considered relevant to the theme of *water* transportation as they were a significant customer for the ships and boats plying the headwater lakes. The closure of the Montana operations did not spell the end for shipping on the headwater lakes but the general decline in mining in the area meant the ship owners had to turn more to tourism to support their industry. This dichotomy is still typical of the Yukon economy.

Settlement and Community Development - buildings - functional type - industrial

The main resource under this theme is the concentrator mill. The period in which the mountain saw its main development is also an important consideration in this theme. The mill was constructed early in the Yukon's hardrock mining history. As well, the slop-

ing, hillside design of the mill reflects the technology employed in the concentration process, that is, gravity.

It would appear that the machinery used in the mill was state of the art and went through at least two upgrades.

The Venus Mill (100 ton/day built in 1907) was one of only a few early mills built in Yukon. Other early mills include: Werneke (120 ton built in 1924), Elsa (160 ton built in 1935/36, 300 ton built in 1946), Laforma (10 ton mill built in 1936), Mt. Anderson (two stamp mill built in 1912) and Engineer Mine (B.C.). There were also a number of mills built in the Yukon during the 1960s.

There were several mills in Alaska, perhaps the most well-known ones were at Juneau (turn of the century) and Kennicott (1911), which were much larger operations than the early Yukon mills.

The ore dumps at Venus #2 and Montana may also be considered here though, having no basis for comparison, their relevance to the theme is unknown.

Settlement and Community Development - buildings - material - stone

As far as we could determine, the three large dry masonry stone buildings at Big Thing, Mountain Hero and Thistle are the only ones remaining in the Yukon. They may have been the only ones ever built. They represent, therefore, a design and construction mode which is very rare in the territory. The style of construction is well adapted to the treeless landscape in which they were built. The dry masonry construction was likely necessitated by the difficulty and expense of transporting lumber and building materials to the site and the availability of suitably sharp rock for this type of work. They are reminiscent of stone buildings in the outer islands of Scotland or perhaps Iceland where the builders are supposed to have come from (Scott 1994).

The Pooley cabin can also be considered in this theme as it shows an unusual use of natural features in its design. The Pooley cabin is similar to other temporary dwellings built about the same time. It uses local materials without much concern for longevity. Perhaps the most outstanding feature of this particular structure is its use of the declivity in the cliff face as a back wall and its location on a very steep slope at tree line. It is sort of a cross between a cave and a cabin. There may have been others of similar primal design in the Yukon. This would require further study to confirm.

Settlement and Community Development - patterns

The main contribution to the area's *settlement pattern* was Conrad City which has been discussed in the *Carcross Region Heritage Report*, (Carson et al). Also under this theme are the mining camps dotted over the mountain. The pattern is fairly typical of large scale mining development where mines were worked from base camps which supplied

accommodation and meals. The satellite effect during the Conrad years is quite interesting with the individual mines served by base camps, served by Conrad City which in turn was supplied through Carcross. The dissolution of Conrad following the collapse of the Montana Mountain operation is not unusual in the Yukon either. Many of the buildings from Conrad were shipped to Carcross and are there still. Mayo was similarly supplied with structures from Calumet and Dawson City from the goldfields and, more recently, Clinton Creek.

Ownership

The sites on Montana Mountain are a mixture of mineral claims, privately-owned lots and Crown land (Please refer to the Quartz & Placer claim sheet 105 D-2 accompanying this report). As the Venus consisted of so many mine sites, we have included all the ones in the area we inventoried and some on the periphery. Where we were sure of a recorded site being on the property or claim, it is duly noted.

Venus

Titled properties

Name	Legal	Title Holder	Site of
Venus	Lot 20 Group 6	United Keno Hill	Pooley Cabin?
	Lot 22 Group 6	United Keno Hill	
Ruby	Lot 23 Group 6	United Keno Hill	
Venus #2	Lot 24 Group 6	United Keno Hill	Venus #2 mine
Maybell	Lot 78 Group 6	United Keno Hill	
Beach	Lot 142 Group 754	United Keno Hill	
Nipper #2	Lot 21 Group 754	United Keno Hill	
Humper #2	Lot 145 Group 754	United Keno Hill	
Kluane	Lot 144	Crown	

Mineral Claims

74717	United Keno Hill	1908 Mill
74718	United Keno Hill	
74719	United Keno Hill	
74720	United Keno Hill	
Big Tree 81769	United Keno Hill	
YA48044	United Keno Hill	1960s Mill
YA24156	United Keno Hill	

Vault

Titled properties

Vault CG	Lot 26 Group 6	United Keno Hill	Vault mine?

Mineral Claims

Y98412	United Keno Hill	
Y98411	United Keno Hill	
YA24155	United Keno Hill	Vault tramway

Thistle & Aurora

Mineral Claims

Stewart 90614	John Delbert Scott	
YB27829	John Michael Scott	Stone buildings
YA48048	United Keno Hill	
YB54499	John Phelps	
Rob	Jim Robb	

Mountain Hero

Mountain Hero	Lot 35	Leon H. Milot

Montana

Montana	Lot 34	Leon H. Milot

Big Thing

Titled properties

	Lot 61&62	BYG Natural Resources

Mineral Claims

YA86620	Larry Barrett
YA86622	Larry Barrett
YA86607	Larry Barrett
YA86610	Larry Barrett
YA86612	Larry Barrett
YA86614	Larry Barrett
YA86624	Larry Barrett
YA86626	Larry Barrett

Montana Tramway

Mineral Claims

YA85202	Larry Barrett
YA85203	Larry Barrett
YA85204	Larry Barrett

Other property

unreserved crown	
R-7 land	land claims selection zone
Conrad Lot 17	Commissioner of the Yukon

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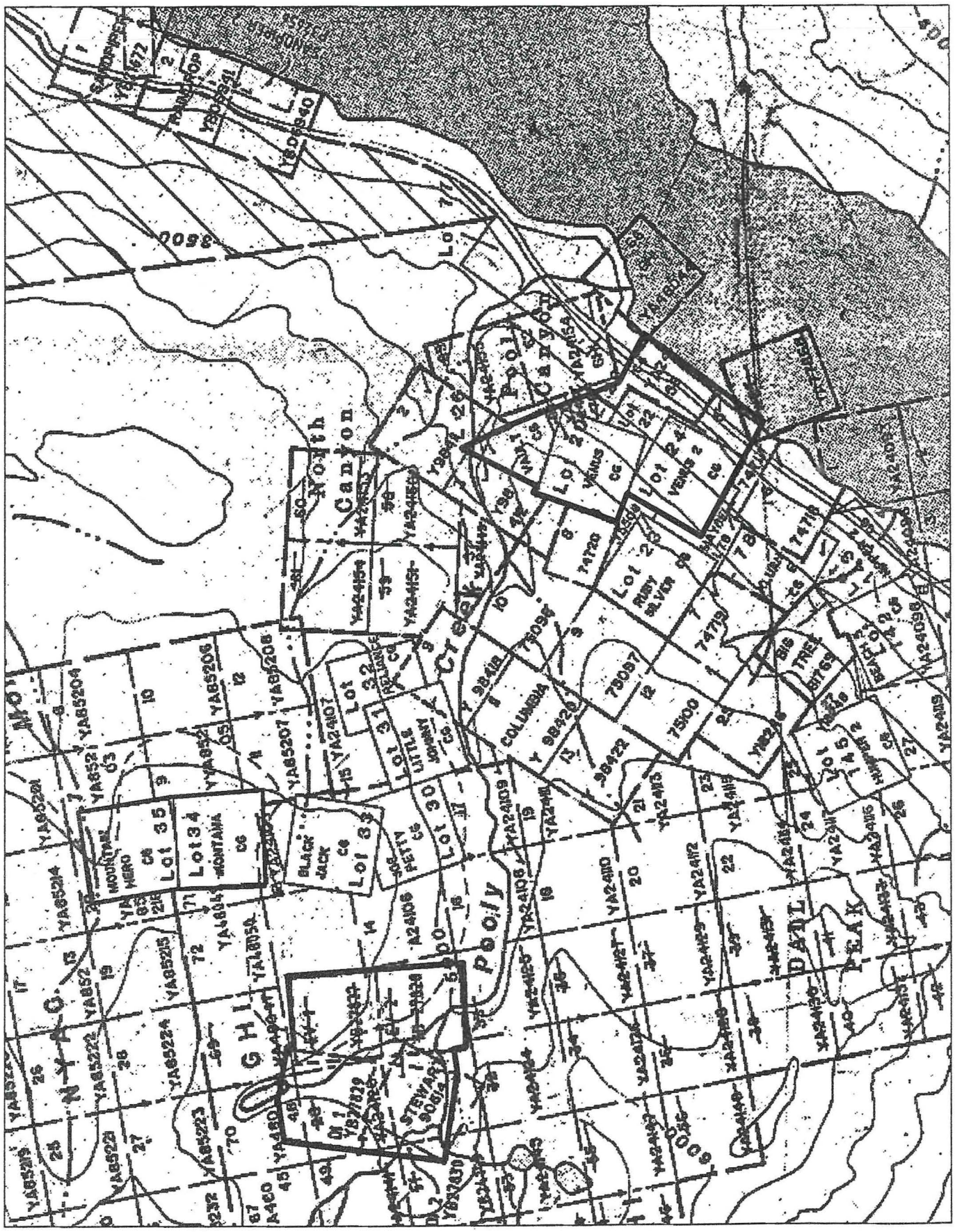
Appendices

Quartz & Placer claim sheet 105 D-2



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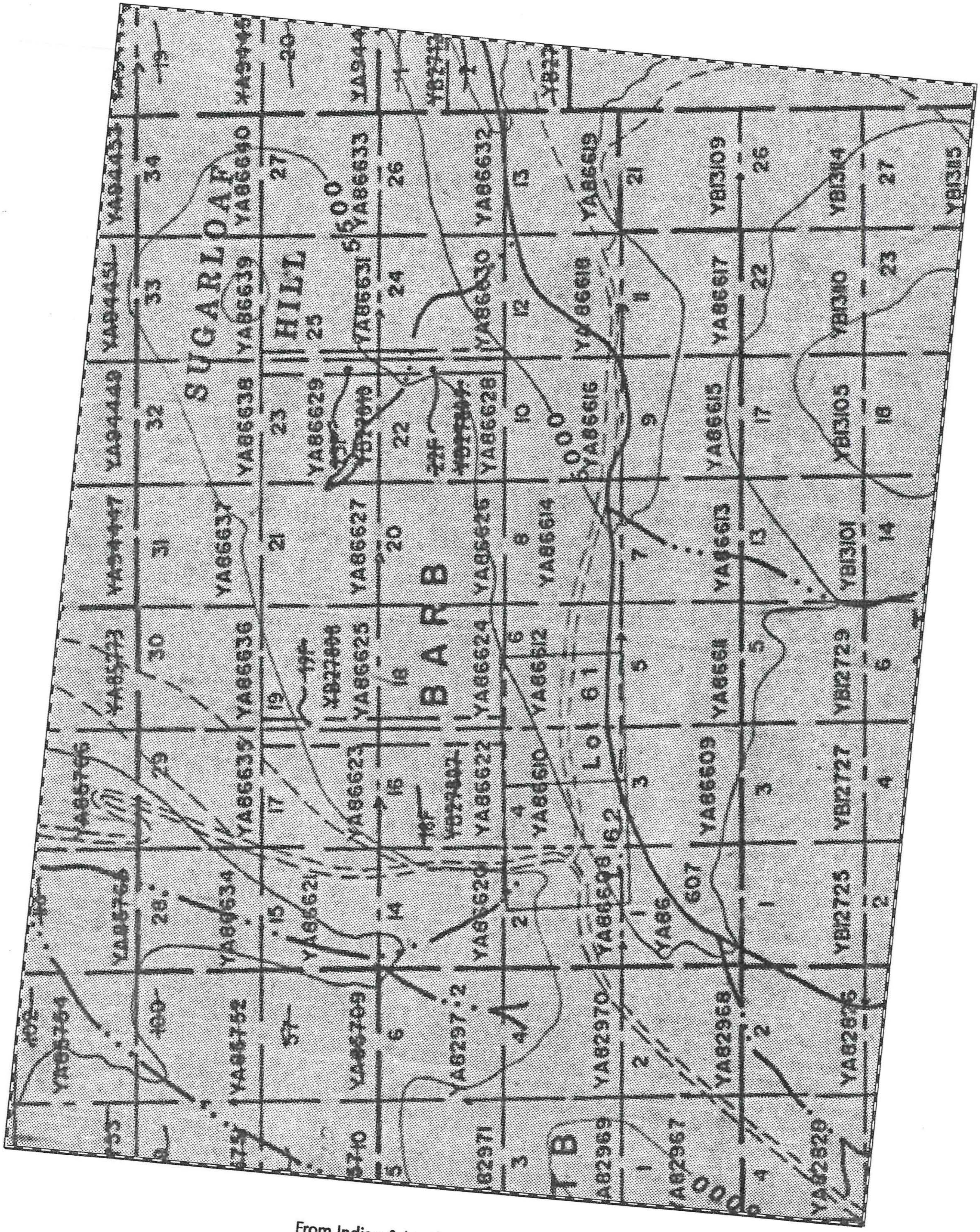

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