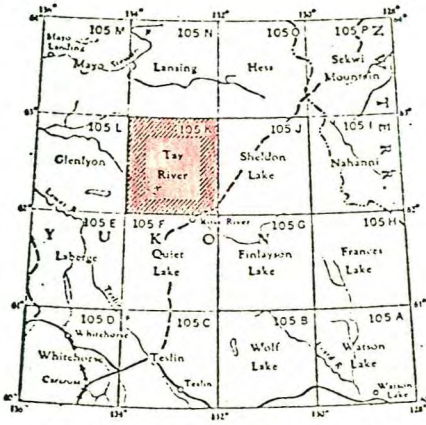


105 K TOPOGRAPHIC  
Tay River  
1" = 4 mi.

015097



# TAY RIVER

YUKON TERRITORY

NOTE: On the above index the sheets published are shown noted green.

SHEET 105 I  
FIRST EDITION

# LODE OCCURRENCES

GLENLYON RANGE AREA

(Silver-Lead-Zinc)

NTS 105 K 1

#1 Kerr Addison Mines Limited (Little Salmon Lake Property) (62°12'N,  
132°09'W).

References: Cockfield (1929, pp. 1-10)\*; Campbell (1960).

The property consists of <sup>1</sup>32 claims covering a lead-zinc showing (Carol 1-8 optioned from A. Kulan, of Whitehorse, Y.T., and Carol 9-32 held by Kerr Addison Mines Limited, but included in the option). The showing is an old one (Cockfield, 1928), and previous to the present work was explored in 1955 and 1956 by Prospectors Airways Company Limited, now merged in Kerr Addison Mines Limited. The property, 7 miles east of the east end of Little Salmon Lake, is reached by a trail about 1 1/2 miles in length that leads from the small lake about 1 mile north of Magundy River. With suitable wind conditions this lake can be used by float-equipped Beaver and Supercub aircraft. Work carried out in the 1963 field season consisted of magnetometer, electromagnetic and self-potential surveys, and in 1964 of 4 diamond drill holes, totalling about

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\*Reprinted in Geological Survey of Canada, Memoir 284 (Bostock, 1957, pp. 586-595).

1,200 feet. When visited by the writer in late July 1964 a crew of 5 men were engaged in diamond drilling. The drill was moved to and from the property by helicopter. Results of the drilling were discouraging and the option was later dropped.

Two showings occur on a north-facing slope above a pot-hole lake — an upper vein deposit referred to as the Cliff showing and a lower contact deposit referred to as the Lake showing. The showings are about 150 feet apart in elevation.

The Cliff showing consists of a vein up to 3 feet in width that is exposed in a 30-foot cliff of thinly banded silicated rock. The vein strikes about S70°E and dips steeply southwest and the enclosing rocks strike S60°E and dip 35°SW. Vein matter consists of quartz with minor siderite, sphalerite, galena, and pyrite. A specimen rich in sphalerite assayed\*: 0.02 ounces of gold and 0.86 ounces of silver per ton, 0.4 per cent lead, 22.5 per cent zinc, and a trace of copper. A sample of the same vein taken by Cockfield (1929, p. 9) across one foot of the best mineralized zone observed assayed: no gold, 23.53 ounces of silver per ton, 48.76 per cent lead, and 1.60 per cent zinc.

The Lake showing is exposed on the face of a small cliff above the pot-hole lake. Here, about 60 feet of quartz-feldspar porphyry is overlain by 20 feet of rusty weathering, magnetite-rich rock, which in turn is overlain by pale brown weathering silicated rock similar to that of the Cliff showing. No sulphide minerals were observed in the natural exposure, although much of the magnetite-rich rock contains abundant gypsum, suggesting that sulphide minerals have weathered out. A gypsum-rich specimen assayed\*: 0.05 ounces of gold and 0.36 ounces of silver per ton, 0.3 per cent lead, 0.2 per cent zinc, and 0.37 per cent copper. The magnetite-rich rock is not exposed to the west, but a magnetometer survey indicated that it extended about 1,400 feet in this direction. Four drill holes were used to test the showing along this length. In general, the drill holes encountered a magnetite-rich zone about 20 feet thick underlain by quartz-feldspar porphyry. Most of the magnetite-rich rock contained some sulphide minerals, chiefly pyrrhotite and pyrite, and in the two eastern holes a zone up to 20 feet thick and rich in sulphide minerals occurs in altered rock between the magnetite-rich rock and unaltered porphyry. The sulphide minerals are up to 10 mm in grain size and include galena, sphalerite, pyrrhotite, pyrite, and chalcopyrite. In addition, some fluorite was observed. A small amount of a black amorphous substance present in Hole No. 1 at 138 feet was identified as anthraxolite by the Coal Research Laboratory of the Geological Survey.

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\*Assayed by G. Spalding, Whitehorse, Y.T.

The thinly banded silicated rock in the vicinity of the showings has irregular, contorted, green and white bands a few mm in thickness. The rock is essentially quartz-free and is composed of fine feldspar, chiefly orthoclase, and diopside. It may have originated through metamorphism of a limy tuff.

The quartz-feldspar porphyry shows a considerable colour variation between pink, light grey, and light green, the colour being controlled, in part, by the amount of alteration. It contains up to 15 per cent phenocrysts to 5 mm in size, including euhedral grey quartz, pink orthoclase, and white to pale green albite. The groundmass is composed of fine grains of the same minerals present in about equal amounts. The feldspar of both the phenocrysts and the matrix shows considerable alteration to indeterminate fine-grained minerals and, in addition, considerable secondary calcite is present in the matrix. One drill-hole cut a skarn band next to a quartz-feldspar porphyry contact. The skarn is composed of calcite and garnet, with minor amounts of chlorite, the latter in very fine ragged grains, and scheelite.

One specimen of the magnetite-rich rock was examined and found to contain dolomite and diopside in addition to the sulphide minerals.

Exposure in the area is not complete enough to determine the shape of the quartz-feldspar porphyry but, in the author's opinion, it is probably a sill and the magnetite-rich rocks are developed on the contact between it and a silicated rock, probably originally a limy tuff.

#2 Silver Arrow Explorations Limited (about 62°10'N, 132°43'W)  
(Lead-Zinc)

1966

Silver Arrow Explorations Limited holds a total of 49 claims in the Vangorda area, about 4 miles east of Swim Lakes. During 1966, airborne electromagnetic and ground magnetic surveys were conducted over the property. On the basis of the geochemical and geophysical results, a 5-hole drilling program was completed in late 1966 and early 1967. The property was not visited

Dynasty Explorations (62°11'N, 132°54'W)

Reference: Roddick and Green (1961a).

Sea

#### 1964

Dynasty Explorations, a private group, carried out an extensive exploration program in the vicinity of the Vangorda Mines Limited deposit. At year-end, Dynasty Explorations held 805 claims, the majority of which were to the southeast of the Vangorda deposit. Exploration carried out during 1964 included geological mapping, geochemical surveys, geophysical surveys (including both ground and airborne magnetometer work), stripping, and diamond drilling. An extensive program of drilling, using an overburden type drill, is planned for early in 1965. Up to 20 men were employed during the 1964 season.

When visited, late in 1964, a diamond drilling program was underway to evaluate a magnetic anomaly on the Sea group of claims about 11 miles southeast of the Vangorda deposit. A total of 6 holes, with a total length of 1,500 feet, was drilled before the camp was shut down in mid-December. Surface bulldozer cuts near the drilled area contained considerable amounts of the secondary iron salt, melanterite\*, which alters rapidly to rozenite\* on exposure to air. In addition, a small amount of lead-zinc mineralization was uncovered.

The rocks cut in the drilling consist principally of dark to light grey, quartz-muscovite-chlorite phyllite. The rock has strong foliation and banding. The latter, which probably represents bedding, has frequently been folded into small S-shaped folds by movement along and adjacent to the folia ("Gleitbrett" structures). Fine cross-cutting quartz veinlets are common. Sulphide minerals, chiefly pyrrhotite, but with minor chalcopyrite, occur replacing coarser grained quartz-rich layers in the phyllite and to a lesser extent in the quartz veinlets.

The phyllite from the drill cores on the Dynasty property is similar to some of that on the Vangorda property, about 11 miles to the northwest, although considerable amounts of graphitic phyllite are also present at the latter. Both occur within a band, up to 8 miles in width, of altered quartzite, schist, and phyllite that extends northwest between Tintina Trench and granitic rocks to the northeast (Roddick and Green, 1961).

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\*Identified by X-Ray powder photograph, X-Ray Diffraction Laboratory, Geological Survey of Canada.

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Swim Lakes

NTS 105 K 3

#4 Swim Lakes Property (Kerr Addison Mines Limited) (62°12½'N, 133°  
(Lead-Zinc) 02'W)

References: Green (1965, p.36; 1966, p. 50).

1966

During the 1966 season, Kerr Addison Mines Limited continued the drilling program begun last year on their 72-claim Swim Lakes 'A' group property, located about 6 miles southeast of the original Vangorda Creek property of Vangorda Mines Limited. The program has involved 30 holes totalling about 14,500 feet. During 1966, 4 machines were utilized and up to 24 men were employed in the operation. Early in 1967, the company announced (Northern Miner, March 9, 1967, p. 5) that the drilling had largely delineated a zone containing approximately 5,000,000 tons of ore, averaging about 9.5 per cent combined lead and zinc, 1.5 ounces per ton silver, and with minor copper and gold values.

ROSS RIVER AREA

NTS 105 K 3

#4

Swim Lakes

(Lead-Zinc)

Kerr Addison Mines Limited (Swim Group) (62°12½'N, 133°02'W)

Reference: Green (1965, p. 36).

1965

The Swim "A" group of 72 claims held by Kerr Addison Mines Limited, was partly staked in late 1963 following an airborne magnetometer survey carried out by the company and an additional 24 claims added in 1965. During the 1965 field season a limited amount of drilling was completed on the group. At year-end, the company announced (The Financial Post, 1 January 1966, p. 13) that 3 holes located 200 feet apart had cut massive sulphide mineralization that, in part, contained values of lead, zinc, and silver similar to those of the Vangorda property, some 6 miles to the NW. The company plans to resume drilling in the spring of 1966.

ROSS RIVER AREA

Vangorda Creek and Swim Lakes

(Lead-Zinc)

#4 Kerr Addison Mines Limited (62°13'N, 133°02'W)

NTS 105 K 3

References: Chisholm (1957, pp. 269-277); Roddick and Green (1961a);  
Green and Godwin (1964, pp. 31-32).

1964

In addition to controlling interest in the lead-zinc property of Vangorda Mines Limited (for descriptions see Chisholm, 1957, and Green and Godwin, 1964) Kerr Addison Mines Limited holds 3 groups, totalling 82 claims, located between 4 and 11 miles southeast of the main property. The three groups, the Swim, BS, and JB, were staked in late 1963 and early 1964 following an airborne magnetometer survey carried out by the company in late 1963. The groups are all close to the main Swim Lake, which is suitable for use by float-equipped aircraft.

During the summer of 1964, a crew of up to 6 men were employed carrying out magnetic, electromagnetic, self-potential, and gravity surveys on the three groups. In addition, one diamond drill hole, 250 feet in length, was completed on the Swim group.

The only work on the main Vangorda property consisted of two diamond drill holes, each 250 feet in length, to obtain samples for mill tests.

(20)  
1051

Vangorda Creek

#5 Vangorda Mines Limited (62°15'N, 133°12'W) NTS105 K 3,6  
(Lead-Zinc) 1966

Inactive; see Green and Godwin (1964, pp. 31-32).

(Lead-Zinc)

Dickson Yukon Syndicate (near 62°15'N, 133°12'W)

1051

#5 Reference: Roddick and Green (1961a). NTS 105 K 6,3  
1964

Dickson Yukon Syndicate holds a number of claim groups, adjoining those of Vangorda Mines Limited on the northwest, east, and southeast. A total of 200 claims was staked in late 1963 and an additional 12 claims in the summer of 1964. At the end of 1964, the company retained 126 claims. Work done during the 1964 field season consisted of diamond drilling on the Lake group, southeast of the Vangorda showing, and preliminary geophysical (magnetometer), geochemical, and geological surveys on the Rose group, a large block of claims extending about 10 miles northwest of the Vangorda showing. A crew of up to 6 men was employed.

Diamond drilling on the Lake group consisted of 3 holes with a total length of 617 feet drilled to test a magnetic anomaly. The anomaly was found to be caused by magnetite-bearing rocks and no sulphides of potential economic interest were encountered. The three holes are located about 62°13 1/2'N, 133°09'W, some 2,500 feet east of Shrimp (or Jackknife) Lake, which is suitable for lightly loaded, float-equipped aircraft.

#5 Vangorda Creek Property (62°15'N, 133°12'W)

References: Northern Miner (22 March 1956; 8 April 1957);  
Roddick and Green (1961).

The Vangorda Creek <sup>1963</sup> property extends from the southwestern base of Mt. Mye southward to a small unnamed lake (locally referred to as Shrimp or Jackknife Lake) that is 6 miles south-southwest of Mt. Mye. Access to the property, which is 125 miles northeast of Whitehorse, is either by Shrimp Lake, suitable for float-equipped aircraft, or by an airstrip near the main deposit. A 12-mile access road that, in part, follows Blind Creek from the Pelly River was used during development of the property.

The original showing on this property was staked in July 1953 by A. Kulan and associates. Prospectors' Airways Company Limited optioned the claims in 1953 and explored the property. Vangorda Mines Limited was formed on 26 September 1955, with Prospectors' Airways Company Limited holding the controlling interest. Since a merger in November 1963 the controlling interest is held by Kerr-Addison Gold Mines Limited. On the Vangorda property, at the date of the merger, Vangorda Mines Limited owned 48 claims and 5 fractions, Prospectors' Airways Company Limited owned 34 claims and 5 fractions, and Kerr-Addison Gold Mines Limited owned 64 claims. A total of 41 claims had been surveyed.

Early development work on the property included: a magnetometer survey, a geochemical soil survey, a gravimeter survey, a self-potential survey, and vertical diamond drilling.

Four major geochemical anomalies and numerous magnetic anomalies were discovered on the property. The main deposit occurs near the edge of the largest geochemical anomaly. This anomaly is elongated to the west away from the deposit in the apparent direction of drainage. Numerous magnetic anomalies also occur near the main deposit. The drilling that was done in 1954 and 1955 indicated 9,400,000 tons averaging 3.16 per cent lead, 4.96 per cent zinc, 0.27 per cent copper, 1.06 ounces of silver per ton, and 0.02 ounces of gold per ton (The Northern Miner, April 1957). Exploration in the area was continued to 1956, but no large tonnage was added.

During a brief visit to the property in September 1963, the writers examined drill core and a three-dimensional model of the drilling stored on the property, and the surface showing on Vangorda Creek.

The model shows the main deposit to be about 3,000 feet long by 480 feet wide. The sulphide deposit lies just below the unfrozen overburden at depths from 20 to 80 feet. The thickness of the sulphide zones averages about 50 feet, but ranges from 25 to 300 feet, suggesting lens-like replacements.

The drill core indicates that most of the property is underlain by black graphitic schist and light greenish grey quartz-chlorite-sericite schist (Roddick and Green, 1961, unit 7). The rock has strong foliation and banding. The latter, which may represent bedding, has frequently been folded into small S-shaped folds by movement along and adjacent to the folia. Where present, sulphides have partly or completely replaced the schist parallel to its foliation. Disseminated sulphides seem to be concentrated in quartz-rich bands of the schist and massive sulphides retain a banded appearance. Sulphide minerals include: dark brown sphalerite, pyrite, pyrrhotite, galena, and chalcopyrite. Other rock types noted in the core are white quartz-feldspar porphyry, fine-grained basic dykes, and magnetite-bearing serpentine.

1963

The main surface showing outcrops immediately north of the base camp along a tributary of Vángorda Creek. It consists of massive fine-grained sulphides exposed for a length of 120 feet and a vertical height of about 12 feet. Distinctive, recent, rusty conglomerate consisting mainly of schist fragments cemented by iron oxide occurs near the showing. Other outcrops include granitic rocks (Roddick and Green, 1961, unit 11) that have intruded and altered the schists in the northern part of the property, and a dense green siliceous rock and limestone with skarn bands in the southern part of the property.

ANVIL RANGE AREA

(ROSS RIVER-VANGORDA AREA)

(Lead-Zinc)

General Description

References: Chisholm (1957, pp. 269-277); Roddick and Green (1961); Green and Godwin (1964, pp. 31-32); Green (1965, pp. 36-37; 1966, pp. 47-50); Aho (1966, pp. 127-149); Roddick (1967).

Since the discovery of the Faro lead-zinc deposit by Dynasty Explorations Limited in 1965, the Anvil-Vangorda district, 130 miles northeast of Whitehorse, has been the most active exploration region in Yukon. At the end of 1966 some 70 companies and individuals held a total of nearly 10,000

claims in the area lying north of Tintina Trench (Pelly River) and extending from Ross River at the southeast to Anvil Creek, 55 miles to the northwest. The announcement in March, 1967 that the Faro deposit will be brought into production will undoubtedly spur continued extensive exploration activity in the area.

The Anvil area first attracted serious attention in 1953 when Prospectors Airways Company Limited optioned the original Vangorda Creek sulphide discovery (Green and Godwin, 1964, p. 31) from A. Kulan and associates. In 1955, Vangorda Mines Limited was formed, with controlling interest held by Prospectors Airways Limited, and by that year an extensive drilling program had indicated an orebody of 9,400,000 tons averaging 3.16 per cent lead, 4.96 per cent zinc, 0.27 per cent copper, 1.06 ounces per ton silver, and 0.02 ounces per ton gold. Two smaller sulphide bodies, the Champ and Firth were also discovered during the program. Following these initial discoveries, interest in the area declined until 1961-1962 when Kerr Addison Mines Limited, having absorbed Prospectors Airways Limited, began working in the Swim Lakes area, southeast of the original Vangorda Creek discovery.

In 1964, Dynasty Explorations Limited began an extensive exploration program in the vicinity of the original Vangorda deposit, and in adjacent areas. In 1965 the company entered into a joint venture with Cyprus Mines Corporation, and an overburden drilling program was commenced to test magnetic, electromagnetic, and geochemical anomalies outlined during the initial exploration program. Early in the 1965 season, drilling of an electromagnetically and geochemically anomalous area near Rose Creek, about 10 miles northwest of the Vangorda deposit, resulted in discovery of the Faro No. 2 zone, containing encouraging sulphides. Subsequent drilling intersected the main Faro No. 1 deposit, now known to contain 40 million tons of ore averaging 10 per cent combined lead and zinc with over 1 ounce per ton of silver. Following the discovery, the partners in the joint venture formed Anvil Mining Corporation Limited, as the operating agency for the Faro and other properties in the area. Ownership of the company rests 60 per cent with Cyprus Mines Corporation and 40 per cent with Dynasty Explorations Limited.

Elsewhere in the Anvil area, Kerr Addison Mines Limited carried out an extensive drilling program during 1965 and 1966 on its Swim Lakes property, six miles outeast of the Vangorda deposit. This program has outlined a zone containing an indicated 5,000,000 tons of ore averaging about 9.5 per cent combined lead and zinc and 1.5 ounces per ton silver. Numerous other companies were active in the district during 1966; most being occupied with line cutting, airborne and ground geo-physical surveys, and geochemical surveys. Several companies, amongst them Jaye Explorations Limited, Silver Arrow Explorations Limited, Kamloops Copper Limited and Cominco Limited

carried out reconnaissance drilling programs.

The geology of the Anvil district consists essentially of sequences of folded and metamorphosed volcanic and sedimentary rocks of probable Mississippian or younger age that have been intruded by granitic rocks (granodiorite, quartz monzonite) of the Cretaceous (?) Anvil batholith (Roddick and Green, 1961). Smaller, locally porphyritic granitic to dioritic stocks may be equivalent to or younger than the Anvil intrusions. Serpentinized ultramafic rocks occur locally within metavolcanic members. The Anvil belt lies adjacent to, and directly northwest of Tintina Trench, marked in this area by Pelly River valley. Tintina Trench is a major fault lineament extending about 600 miles from southeastern Yukon into Yukon Flats, Alaska. Right-lateral displacement along the fault is estimated at 220 to 260 miles by Roddick (1967). North of the fault, rocks of the Anvil belt are cut by a system of northeast-trending subsidiary fractures, some of which occur in the vicinity of the known ore deposits.

The principal sulphide occurrences of the district are contained within rocks of unit 7, (Roddick and Green, 1961a). This unit comprises quartz-sericite schist, hornfels, phyllite, chlorite schist, and greenstone, and is probably divisible\* into two crude sub-units, one essentially sedimentary, the other volcanic, with local intercalated ultramafic sills. The known ore deposits lie within the sedimentary assemblage; in the case of the Faro and Vangorda deposits, the host rocks are quartz-biotite-sericite schists and quartz-sericite-chlorite schists respectively. Superposed on the regional greenschist metamorphic grade of unit 7 rocks, are effects of a second stage of metamorphism, probably related to intrusion of the Anvil batholith. The biotite-rich zones in rocks on the Faro property, and elsewhere along the southwest margin of the batholith are probably of contact metamorphic origin. The ore bodies show some characteristics of syngenetic (conformable, preferential host), and replacement (details of ore mineral assemblages, replacement features, possible associated alteration halo, etc.) deposits.

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\*Information from Anvil Mining Corporation Limited.

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#6 Faro Property (Anvil Mining Corporation Limited) (62°21.5'N,  
(Lead-Zinc) 133°22'W)  
1966

The Faro property is located at an elevation of about 4,000 feet just above Rose Creek valley and about 8 miles north of Pelly River. The property is now accessible by a 24-mile road leading from the ferry crossing (ice-bridge

during winter) at Pelly River upstream from Blind Creek mouth, to the main Faro camp on a bench above Rose Creek valley. An all-weather, 3,800-foot airstrip is maintained by the company at Faro camp. The Faro No. 1 deposit lies about 1 mile north-east of the camp and immediately west of Faro Creek, a tributary of Rose Creek. The Faro No. 2 zone, site of the initial discovery, lies about 4,000 feet southeast of Faro No. 1, and east of Faro Creek. The Faro No. 3 zone appears to date to represent the southeast extension of the No. 1 zone.

During the 1966 season principal exploration efforts were directed toward delineating the Faro No. 1 deposit through diamond drilling. A total of 56 holes were drilled bringing the cumulative footage on the No. 1 zone to 37,349 feet. In addition, drilling was carried out over geochemical and gravity anomalies lying between the Faro No. 1 and No. 2 zones, with the result that the No. 3 zone was partly delineated. Other work on the property included drilling for millsite foundation testing southwest of the No. 1 zone and drilling to test potential dump site areas. As many as 60 men were employed during the 1966 operations.

Late in 1966, work was started on an adit into the No. 1 orebody for bulk sampling purposes. The portal was located at an elevation of 3,920 feet at point about 2,000 feet south of the southwest margin of the orebody and driven on a heading N 05° E. Design length of the adit is about 2,700 feet, which will allow sampling through the entire orebody. After initial tunneling difficulties due to the shallow slope of the bedrock surface beneath overburden which resulted in several cave-ins and mudslides through the back of the adit, underground work progressed steadily and by mid-March, 1967 the orebody was entered and bulk sampling began. Samples were trucked to Whitehorse for shipment via rail and ship to Golden, Colorado, for milling and metallurgical testing.

On March 20, 1967, the company announced that, subject to satisfactory arrangements concerning senior financing, market contracts, transportation, townsite construction and hydroelectric power supply, the Faro deposits would be brought into production by the winter of 1969. Estimated pre-production costs are about \$56 million, and plans call for a 5,500 ton per day concentrator to produce 370,000 tons of lead-zinc concentrates annually from open pit mining operations. Currently, ore reserves are stated as 50 million tons averaging in excess of 10 per cent combined lead and zinc and over 1 ounce per ton silver (Northern Miner, March 27, 1967, p. 1). It is anticipated that initial shipment of concentrates will be via the Ross River-Carmacks road, scheduled for completion in 1968.

The Faro No. 1 orebody comprises a northwest-striking shallowly southwest dipping lens-like mass about 2,400 feet long by 1,200 feet wide. The plunge of the body ranges from 35° southeast to nearly horizontal. Overburden depth ranges from 40 to 60 feet. The body has a weak magnetic and electromagnetic expression, and a moderate geochemical anomaly expressed as a downslope copper-lead-zinc train. Principal metallic minerals are pyrite, pyrrhotite, galena, sphalerite, and chalcopyrite. No systematic mineral zoning has been recognized in the ores. Host rocks are light grey, finely laminated impure quartzite, quartz-sericite schist and quartz-biotite schist.

Anvil Mining Corporation Limited  
(General exploration - Anvil District)  
1966

NTs 105 K 6

In addition to development work on the Faro property, Anvil Mining Corporation Limited carried out extensive exploration on others of its 2,500-claim total holdings in the Anvil district. Essentially all of the company properties have been covered in previous years by airborne magnetic and electromagnetic surveys, (in past done by Dynasty Explorations Limited) and during 1966 a program of ground geophysical and geochemical surveys was continued as follow-up to the airborne work. Reconnaissance diamond drilling was carried out on the Ace group property (about 62°20'N, 132°48'W) (4 holes totalling 1,966 feet), on the Ivan group (about 62°35'N, 133°15'W) north of Mount Mye (4 holes totalling 1,553 feet), and on the Dea and Sea (Swim Lakes) properties (about 62°12'N, 133°02'W) (7 holes totalling 2,977 feet). Three holes totalling 1,497 feet were also drilled on the Bill group property of Pelly River Mines Limited, now controlled by Anvil Mining Corporation Limited. In addition, a program of detail geologic mapping (1 inch to ½ mile) along the south flank of the Anvil Range was initiated. A total of up to 50 men were employed on these various outside exploration projects.

Rose Creek

NTS 105 K 6

(Lead-Zinc)

#6 Dynasty Explorations Limited (Anvil Mining Corporation Limited)  
(about 62°08'N to 62°35'N, 132°40'W to 133°45'W)

References: Chisholm (1957, pp. 269-277); Roddick and Green (1961); Green and Godwin (1964, pp. 31-32); Green (1965, pp. 36-37); Aho (1966, pp. 127-149).

1965

Dynasty Explorations Limited, succeeded by Anvil Mining Corporation Limited late in 1965, carried out an extensive exploration program in the Swim Lakes, Vangorda, and Rose Creek areas in 1965. Late in June 1965, a lead-zinc deposit was discovered by drilling on the Faro property (62°21½'N, 133°22'W) and early in 1966 the successor company announced that the deposit contained a potential of at least 40 million tons with a probable average grade of 10 per cent combined lead and zinc with some silver (The Northern Miner, 24 March 1966, p. 3). Diamond drilling of this deposit is currently underway.

The exploration program, commenced in 1964 (Green, 1965, p. 37) included airborne geophysical surveys (both magnetometer and electromagnetic), ground geophysical surveys (magnetometer, electromagnetic, and gravity), geochemical surveys, and geological mapping followed by rotary drilling in an attempt to discover deposits similar to the Vangorda lead-zinc deposit (Chisholm, 1957; Green and Godwin, 1964, pp. 31-32). As a result of the preliminary work, principally airborne geophysical and geochemical surveys, a large number of claim groups were staked and at year end the successor company held about 2,500 claims. Late in the year a major staking rush took place and much of the ground, between the groups staked by Dynasty Explorations Limited, is now held by other companies and individuals.

Rotary drilling, using Howdell-mounted equipment, was used to test anomalous zones between March and December 1965 with the discovery of lead-zinc mineralization on the Faro group on 26 June 1965. Groups drilled previous to this included the Sea group (62°11'N, 132°48'W) with massive sulphides of sub-marginal grade, the Nasty group (62°14'N, 132°47'W) with inconclusive results, the Cub group (62°13'N, 132°42'W) with sulphide minerals with a trace of zinc, and the Beta group (62°16'N, 132°54'W) with traces of sulphides (Annual Report, Dynasty Explorations Limited for the year ending August 12, 1965). A number of other groups were drilled subsequently.

Initially, exploration in the district was confined to altered sedimentary (units 7, 9a\*, and 9b; Roddick and Green, 1961) and volcanic rocks (unit 8) between granitic rocks (unit 11) of Mount Nye batholith and the Pelly River. The sedimentary and volcanic rocks (7, 8, 9) are believed to be of Mississippian (?) and/or later age based on a comparison to other areas, although fossil evidence is lacking. Subsequent staking has extended far to the southeast and northwest along the strike of units 7 and 8, southwest of the Pelly River to the Tintina fault and to Upper Devonian and Lower (?) Mississippian sedimentary rocks (unit 5b) to the northeast.

Outcrop is poor in much of the staked area with talus and moss cover at higher elevation and a veneer of glacial deposits on the lower slopes. Three base metal deposits (Fero, Vangorda, and Swin) are now known over a distance of about 15 miles and definite controls for the deposits either stratigraphical or structural are unknown. Factors that have been suggested include favorable horizons within unit 7, proximity to the granitic rocks of Mount Nye batholith, proximity to NE striking faults suggested by lineaments such as the lower portion of Blind Creek, proximity to the Tintina fault or other subsidiary NW striking faults, and a general association with quartz or granite porphyry dykes.

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\* More recent mapping by Roddick (personal communication) has resulted in unit 9a being included within unit 7.

The Faro property is located at an elevation of about 4,000 feet in an area with little outcrop, near a tributary of Rose Creek. Two base metal deposits were discovered by rotary drilling, the Faro No. 1 zone and the No. 2 zone some 1,500 feet to the southeast. In addition, copper float has been found about 1,500 feet south of No. 2 zone and high grade silver-lead mineralization in a vein zone in schist on the north side of No. 2 zone.

Subsequent to the discovery, an airstrip was built in the valley of Rose Creek, about 1½ miles southwest of the deposit, and camps erected at the airstrip and near the showing. The camps were connected to a landing on the Pelly River about 1½ miles upstream from the mouth of Blind Creek by a road about 24 miles in length and suitable for four-wheel drive vehicles. During the winter, the camp was connected to the Canol Road at Ross River by tote-road, ice bridge across the Pelly River, and a portion of the partially completed Ross River to Carmacks development road. Diamond drilling of the Faro showing commenced during the summer of 1965 and is expected to continue through much of 1966. Up to 80 men were engaged in the 1965 operation.

Some of the first diamond drill cores were examined on a visit to the property in September 1965. Host rock for the deposits appeared to be mainly thinly banded, grey to green, phyllite (unit 7, Roddick and Green, 1961). Most of the rock is fine grained but some patches of coarser grained metamorphic minerals were present. In addition to the phyllite, minor amounts of granite porphyry, with phenocrysts of biotite and feldspar, and highly altered greenstone of probable volcanic origin were observed. There is little outcrop near the showing but one bluff near the Faro No. 1 zone exposed a greenish breccia of phyllite fragments. The Faro No. 1 deposit contains much pyrrhotite (Aho, 1966, p. 147-148) with pyrite, sphalerite, galena and minor chalcopyrite. The Faro No. 2 lacks pyrrhotite and gave no response to magnetometer surveys, either ground or airborne (Aho, op.cit.).

Mount Mye

NTS 105 k 7

#Jaye Explorations Limited (62°22'N, 132°53'W)  
(Lead-Zinc) 1966

During 1966 this company carried out geological, magnetic, electromagnetic and gravity surveys over its 76-claim property on the northeast flank of Mount Mye in the Anvil Range area. Geological mapping indicated the presence of an east-west trending belt of metasedimentary and metavolcanic schists of unit 7 (Roddick and Green, 1961) on the property. The belt contains intercalated limestone members and graphitic schist horizons. Four AX diamond drill-holes ranging in depth from 469 feet to 752 feet and totalling 2,521 feet were put down on targets outlined mainly by gravity anomalies, with negative results. It seem probable that the local gravity anomalies present are in part caused by relatively massive greenstone lenses or sills intercalated with the quartzitic schists

NTS 105 K7

#Stay River Mines Limited (about 62°15'N, 132°45'W to 62°22'N,  
(Lead-Zinc) 1966 133°15'W)

The company holds a total of 287 claims in four separate properties in the general area between Mount Mye and Swin Lakes in the Anvil Range district. The properties are underlain by granitic rocks of the Anvil batholith and by metasedimentary and metavolcanic rocks of probable Mississippian age. During 1966, ground magnetic and electromagnetic surveys, and mapping and prospecting programs were conducted over the company holdings. Geochemical soil and silt sampling programs were carried out in selected areas. The results of the work were not encouraging and no further work is planned in the immediate future.

#7: Silver-lead vein; 1 foot wide, 200 feet long  
(max.); best mineralization: 40-50 oz Ag,  
40-50% Pb. Reported by Gordon Dixon - also found by John French?

#8: Silver-lead vein ?; 12% Pb, 8 oz Ag; reported  
in this vicinity by John Shorty. (Could be  
from White Creek, Ketzka River) ~ check location? 105 F

→ No. 202

## PROPERTY SUBMITTED

105 K

DISTRICT: Whitehorse N. D.

DATE: July 7/54

NAME OF PROPERTY: Toy Group - 12 claims

OWNERS: Folly River Explorations

# 9

LOCATION: On mountain at the head of the north fork of Anvil Creek, approximately eight miles (airline) from the Folly River.

PRESENTED BY: K. Sanders

PREVIOUSLY EXAMINED BY: Not examined before

PRICE &amp; TERMS: Not discussed.

GEOLOGY: The area generally is underlain by a series of interbedded sediments and volcanics that have been intruded, on the south and east by fairly fresh coarse grained granite.

In the vicinity of the sulphide mineralization, the sediments consist of quartzite, limestone and argillite lying relatively flat but with local undulating folds. The folds plunge N 70°E at angles PRE DEPOSIT 12° to 20°.

Sulphide mineralization is in the form of massive lenticular pods in the crests of the folds and adjoined by progressively decreasing disseminated mineralization in the sediments.

The interbedded volcanics are unmineralized.

The sulphide bearing area is cut off on the south by a strong N-S fault. Dip-slipment could not be determined but the sulphide was not observed on the south side of the fault.

South of the fault and 1500 feet distant from the sulphide there is an outcrop of garnetized limestone containing a small amount of chalcopyrite and some scheelite. There is considerable horizon quartz float in the fault zone.

## COMMENT:

Additional work on the property is not recommended because of its location. There is a fair possibility that there will be repetitive beds in which sulphides are replacing the rock minerals.

TEDDY  
# 10

SUMMARY REPORT ON THE JAKE PROPERTY, YUKON

- by -

V.S. Papezik

Location and Access:

The Jake property lies on the Yukon Territory at 62°-33'N and 132°-45'W, about 3 miles northeast of the Tay River and about 25 miles north-northeast of the Vangorda Creek camp. At present the only practical access to the property is via aircraft, landing on Lockie Lake, a lake about 1 mile long, situated 2 miles west of the claims. A good camp site used during this exploration programme, lies on the eastern shore of the lake and a blazed trail connects the camp with the property.

Claims and Their Standing:

The Jake group consists of 16 claims and 3 fractional claims. The 16 full claims were staked for the Company on September 10th, 1956 by K. Willison and E. Sommer. The claim lines are fairly straight and either coincide with or lie close to the 2 base lines cut for a geophysical survey this year. Some of the claims (particularly Jake 11 and 12) exceed 1,500 feet in length, and internal fractions exist. The two groups of 8 claims which form the Jake group do not overlap, leaving a 300-500 foot wide fraction in the middle. A greater part of this was staked on August 24th, 1957 by R. Macrae as the Bonanza 1-3 fractional mineral claims. The remaining part covering steep cliffs near the top of the mountain is not considered valuable and was not staked.

All claims except those of the 3 fractional claims are tagged, and sufficient work has been done on the claims to keep them in good standing for more than a year.

Topography:

The claims extend from the valley of Teddy Creek to and over the top of Chert Mountain. The mountain is a prominent topographic feature in the area. It is only about 3,500 feet high, but the side covered by the claims is steep with precipitous cliffs in places, and a difference in elevation between the lowest and highest point of the claim group is in the order of 800 feet.

Teddy Creek, a tributary of the Tay River, meanders across the claims. It is twenty to thirty feet wide and two to five feet deep. A bridge built of two logs crosses the creek at the end of the trail leading from the lake to the property and various logs and beaver dams a few hundred feet apart provide fair crossings.

The greater part of the property is covered by thick moss, buck brush, spruce and cottonwoods, with but a few outcrops. Only the top of Chert Mountain and the cliffs show larger areas of bare rock.

Geology:

Almost the whole property is underlain by sediments.

(a) Chert - Chert underlies most of the claims. The rock occurs in beds 1-5 inches thick that strike easterly to south-easterly and are usually steeply folded. Major folds several tens of feet high are visible in the cliffs of Chert Mountain. The mountain consists almost entirely of this rock. The Chert in the southern part of the group is predominantly black, fractured and stained with red ironoxide, while the whole mountain and outcrops to the north show light gray to white chert without iron stain.

(b) Siltstone and Shale - Siltstone and shale occur mainly in two large areas 2,000 feet apart on Jake 1 and 3 and on Jake 6 mineral claims. Except for the small differences in colour and grain size, the rocks in both areas are very similar, and both contain some disseminated pyrite and minor pyrrhotite. The amount of pyrite is greater in the eastern area, where rock is darker and finer grained. Both areas of outcrops are separated by a wide zone of spruce and thick moss without rock exposures. But because of the similarity of the rocks and because both areas are connected by a prominent magnetic anomaly, which will be considered later, they are believed to be parts of one siltstone bed 400-600 feet thick. Moreover, this bed would trend  $145^\circ$  while almost all outcrops show a strike of  $110^\circ$  to  $120^\circ$ , so that a different interpretation may be possible.

Light gray siltstone grading into quartzite occurs also on the Jake 15 mineral claim, where it forms prominent outcrops and cliffs. Although this rock is locally rusty, it does not contain pyrite in any noticeable amounts, and appears to be a different form than that described above.

(c) Chert Conglomerate - Medium grained chert conglomerate interbedded with quartzite and siltstone in the northeastern corner of the property. It consists of small rounded pebbles of chert imbedded in quartzitic matrix.

The three rock types mentioned appear to belong to one sedimentary formation similar in attitude and lithology to unit #7 of Mississippian Age, described by Campbell in the adjoining Glenlyon District (Glenlyon Sheet G.C.S., Paper 54 - 12).

(d) Biotite Quartz - Plagioclase Porphyry - On Jake 3 mineral claim, the sediments are intruded by a small porphyritic rock, consisting of crystals of biotite quartz and plagioclase feldspar in a very fine biotitic matrix. Outcrops of the porphyry were seen only in a very restricted area; it may form a small plug or dike of undetermined attitude.

(e) Rusty Conglomerate - An area of rusty conglomerate was found on Jake 4 mineral claim about 100 feet from the claim line. The rock outcrops were over 400 feet in the banks of a small creek completely dry at the time of examination; it is thin bedded, dips flatly to the north, and consists of pebbles of chert, siltstone, porphyry and some magnetic rocks,

cemented loosely by iron oxide. The pebbles are mostly less than 2 inches in diameter, but some boulders up to 2 feet long are present. No metallic minerals were found in any of the pebbles examined. Drilling has indicated that the conglomerate is less than 10 feet thick and overlies unconsolidated gravel.

(f) Mineralization - There are few visible signs of mineralization on the property. The rusty conglomerate indicates the presence of some quantity of iron bearing minerals above the outcrops. The siltstone and shale, lying topographically above the conglomerate, contain crystals and specks of pyrite up to 5% by volume in places. Quartz and pyrite fill narrow fissures in the siltstone and the rock also contains sparse pyrite bearing vugs up to one inch in diameter. But the amount of iron sulphide in the siltstone as seen on the surface does not appear sufficient to account for the limonitic matrix of the conglomerate. Unfortunately, the area above the rusty outcrop lies on a steep dry slope and is too far from water to be drilled with our present equipment; and attempted trenching was stopped by permafrost 2 feet below the surface so that the origin of the limonite remains unknown for the present.

A small pebble of sedimentary hematite was found in a deep gully near the southern boundary of the property. Although the bedded chert on the claims does not seem to be iron bearing, this find may indicate the presence of some iron rich beds in the sediments nearby.

*where?*  
Heavy iron stain was found in a 2 foot creek one half mile outside the claims, about 500 feet upstream from where the creek is crossed by the camp trail. This zone of iron oxide is several hundred feet long but the iron stain did not show any high content of base metals when tested, and may be derived from the iron rich igneous rocks (basalt?) found abundantly in the creek. For this reason no further attention was paid to the area, but it could be checked more thoroughly during any eventual future work.

(g) Geochemistry - the whole property, except for the top of the mountain and the cliffs, was covered by a geochemical survey. The method of sampling and testing was described in an earlier report on the Gal group.

① Two major chemical anomalies were found on the claims. One situated on Jake 1, 2, 3 and 4, spreads out from the area of the rusty conglomerate downhill to Teddy Creek. The base metal ions probably come from the same source as the limonitic matrix of the conglomerate; while this source is probably connected with the siltstone bed, it has not yet been located.

② The other anomaly, lying mainly on Jake 11, 12 and 14, has again the typical fan-like shape due to drainage, and appears to originate on Jake 14 mineral claim. The ground here is thickly covered by vegetation and overburden, and no visible sign of mineralization was detected.

Other more scattered high values appeared near Teddy Creek and the adjoining swampy lakes in the northern part of the property, and in some higher lying areas in the south. A large part of the latter area is too steep and dry to reflect accurately traces of the possibly underlying base metals; for this reason, even the comparatively low anomalies (100 - 300 ppm), such as the one on Jake 5 mineral claim may have a considerable significance.

(h) Geophysical Survey - The claims have been surveyed with an Askania magnetometer, using lines spaced 400 feet apart.

① The results showed ~~two~~ major magnetic anomalies. One is long, relatively narrow, and extends in an arc from Jake 1 through Jake 3 and 6 to Jake 7 mineral claims. This was found to coincide remarkably well with the bed of pyritic siltstone and shale mentioned earlier. Although this has not been traced continuously, the fact that the highest readings were obtained over outcrops of this rock (on Jake 1, 6 and 7), strongly suggests a connection between the siltstone-shale and the magnetic anomaly. The rocks themselves were found to be non-magnetic, and although pyrite is common in surface exposures, the amount of pyrrhotite seen near the surface is negligible. Therefore, the magnetic high is believed to be caused by a concentration of pyrrhotite in a siltstone bed farther below the surface. This theory has been partly confirmed by drilling; in Hole J-2 drilling on the magnetic anomaly on Jake 1, the rock becomes limy with depth and the amount of pyrrhotite increases. Grains of massive pyrrhotite up to 10 m.m. across, appear in the rock 40 feet below the surface. Drilling continues at the time of writing, and the final results will be described in a supplementary report.

② The second magnetic anomaly lies on Jake 11 and 12 mineral claims. It is broad, roughly elliptical and much less sharply defined than the first. The cause of this anomaly is not apparent. This area is almost devoid of outcrops, but it is believed to be underlain by chert. Although the magnetic high coincides with a part of the chemical anomaly, it lies near the base of drainage (Teddy Creek), not in the topographically higher area where the source of the chemical anomaly is to be expected. No magnetic high was found in the higher ground. Thus, the sulphide body responsible for the high chemical values may be non-magnetic. An E.M. survey of the property is planned to start in a few days and will be reported on later.

(i) Drilling - At the time of writing one hole has been completed and one is in progress. Hole J-1 drilled in the rusty conglomerate, was stopped at 18 feet without reaching bedrock. It penetrated 3 feet of loose rusty conglomerate and 15 feet of glacial till, in that order. Hole J-2, collared on the magnetic high on Jake 1, has to date penetrated 45 feet of pyritic siltstone becoming more limy and showing increasing amounts of pyrrhotite with depth.

(j) Conclusions & Recommendations - Our work to date has indicated the presence of an unknown quantity of base metal sulphides, associated with a magnetic mineral, probably pyrrhotite. These lie on or near the

siltstone-shale bed in the southern part of the property. The latest drilling results suggest the possibility of a replacement deposit in the more limy parts of the siltstone. Although the indications in the northern part of the property are less definite, the strong and persistent chemical anomaly there may mean the presence of non-magnetic sulphides in that area.

The writer considers this property sufficiently interesting to warrant further work, and recommends deeper drilling in the accessible areas and trenching in the higher and less accessible parts (such as Jake 7) as the best means of exploration. A detailed programme involving a minimum of 3,000 feet of drilling will be submitted separately. These recommendations are subject to revision when the results of the E.M. survey are known.

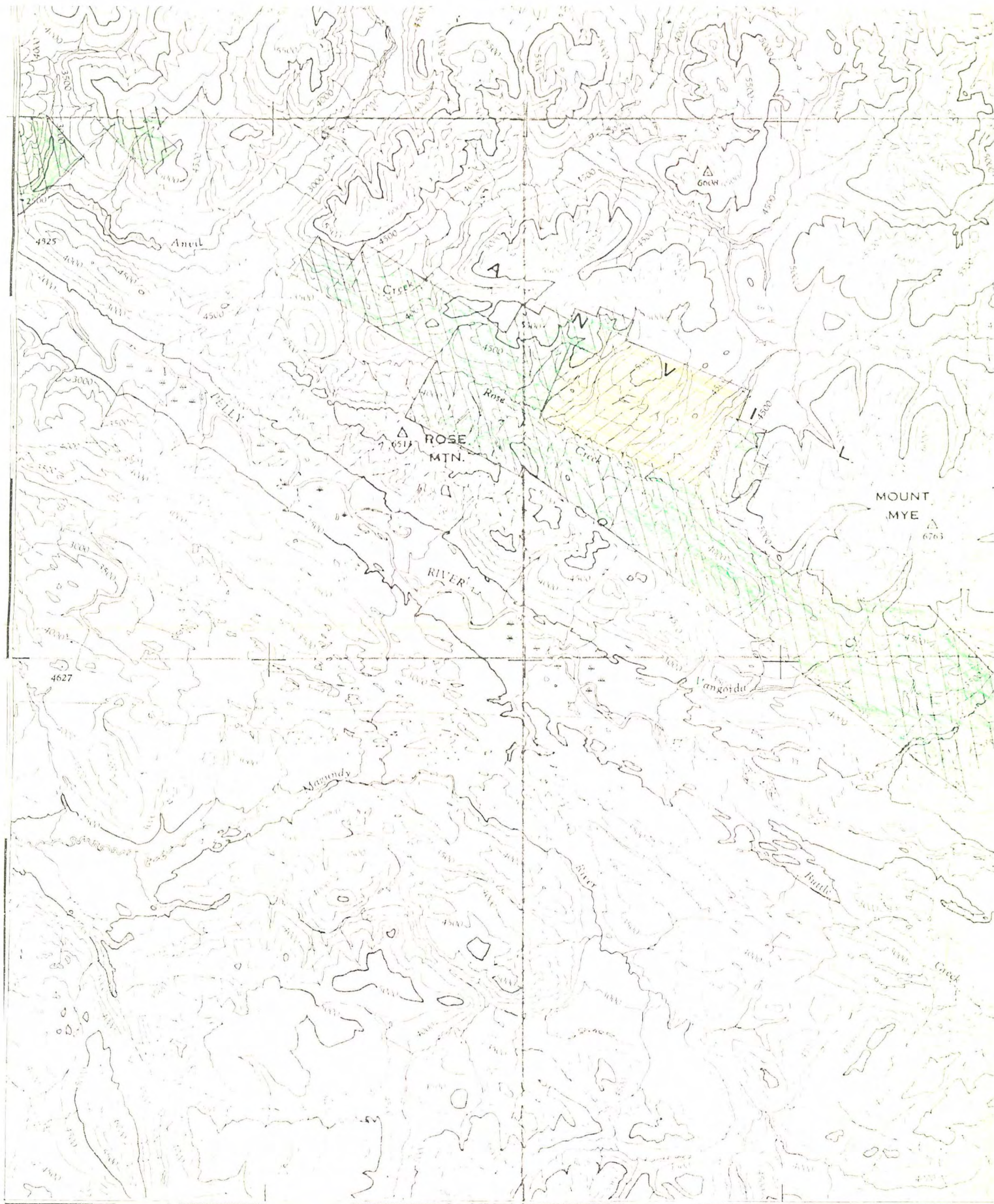
(k) Acknowledgments - Douglas A. Lockie, geologist, and Gunnar Pen-  
nikis, geophysicist, rendered efficient assistance during the exploration  
of this property.

August 30th, 1957  
La Lockie, Y.T.

V.S. Papezik

# PLACER OCCURRENCES

#1: Traces of placer gold reported to be widespread  
in gravels of Pelly Valley by J.R. Johnsen, 1935.  
Should be traced upstream (to Big Cambell Creek?), then  
follow glaciation to source (if any).



<u>NTS &amp; Occur.</u> <u>Number</u>	<u>Reference</u>	<u>Name of Occurrence</u>	<u>Date</u>	<u>Lat. &amp; Long.</u>	<u>Metals</u>
<u>TAY RIVER</u>					
<u>105-K</u>					
105K1-1		Kerr Add.	1964	62°12' N 132°09' W	Pb, Ag, Zn
105K2-2		Silver Arrow	1966	62°10' N 132°43' W	Pb, Zn
105K2-3		Dynasty	1964	62°11' N 132°54' W	Pb, Zn
105K3-4	59 GSC P67-36	Kerr Add.	1966	62°12½' N 133°02' W	Pb, Zn
105K3-5	61 GSC P67-36	Vangorda	1966	62°15' N 133°12' W	Pb, Zn
105K3-7	63 GSC			62°03' N 133°03' W	Pb, Ag
105K4-8				62°09' N 133°48' W	Pb, Ag

Host Rock  
(with age)

Alteration, Gangue  
and Control

Remarks

Limy tuff  
some skarn  
S60°/35SW

Vein, Qtz.

Magnetom.E.M., self pot., 4 d.d.  
(1200') 2 showing 150' diff. in  
elevation

1. 3' wide S70°E/steep SW- qtz-  
siderite, sphal. gal. and py.  
best 1'-23.53 oz. Ag.  
48.76% Pb, 1.60% Zn.
2. Oxidized Pb,Zn,Ag over Qtz-fel  
porphyry.

Aeromag. ground mag. 5 d.d.h.

Qtz. Musc.  
chlor-phyllite

Ground & Aeromag 6 d.d.h. (1500'  
pyrr. cpy, in fine cross cutting  
veinlets.

30 d.d.h. (14,500') delineated  
5 M.tons - 9.5% Pb, Zn, 1.5 oz.  
Minor Cu and Ag.

Graphite sch. Repl.bodies in Sch.&  
& Qtz-chlor. dissem.sulphides-  
sericite schist. controlled by folia-  
tion nearby granitic  
rocks

d.d.h.- indicate 94 M.tons -  
3.16% Pb; 4.96% Zn; 0.27% Cu;  
1.06 oz. Ag; 0.02 oz. Au(3000'x  
480')

Vein 1'x200'

Best assay 40-50 oz. Ag.  
40-50% Pb.

12% Pb; 8 oz. Ag.

<u>NTS &amp; Occur.</u> <u>Number</u>	<u>Reference</u>	<u>Name of Occurrence</u>	<u>Date</u>	<u>Lat. &amp; Long.</u>	<u>Metals</u>
<u>105-K</u> <u>Contd.</u>					
105K6-6		Faro (Anvil)	1966	62°21½'N 133°22'W	Pb, Zn
105K10-10		Jake	1957	62°33'N 132°45' W	Zn
105K12-9		Tay Group	1954	62°33'N 133°54'W	Pb, Zn
105K6-11		Cam (Mt. Mye)		62°18'N 133°05'W	Pb, Zn
105K9-12		Hess #27	1968	62°35'N 132°20'W	Pb, Zn

<u>Host Rock (with age)</u>	<u>Alteration, Gangue and Control</u>	<u>Remarks</u>
Imp. quartzite qtz. sericite & qtz. biotite sch.	Contact Meta. origin.	Extensive drilling-over 50 M. ton of more than 10% comb. Pb-Zn and over 1 oz. Ag.
Chert, siltstone shale.	Dissem. sulph. in siltstone. Inc. in sulph. with depth. Beds becoming more limy. Intruded by small porphy. stock.	
Quartzite Limestone Argillite	Lenticular pods at crest of fold and disseminated adjacent to these	Generally flat sediments with local folds plunging 74° NE at 12°-20°.
	Vein	Galena, sphalerite, rock chip .06 Cu, 3.35 Pb, 11.8 Zn.

TAY RIVER 105 K.

a) 105K-1. Check unit 7 out of Ross R.  
for orientation.

Probably base of slope Geschem.