

Dynasty Explorations Ltd.,  
Geology Report  
ANVIL RANGE PROPERTIES

September 10, 1965

Douglas D. Campbell Vancouver, Canada

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Geology Report

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Pelly River, Y.T.

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Douglas D. Campbell

Consultant

Vancouver, Canada

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September 10, 1965.

CERTIFICATE

I Douglas D. Campbell, with business and residential addresses in Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geological engineer.
2. I am a graduate of the University of British Columbia, (B.A.Sc., Geological Engineering, 1946), and of the California Institute of Technology, (Ph.D., Economic Geology and Geophysics, 1955).
3. I am a registered Professional Engineer of the Province of British Columbia.
4. From 1946 until 1957 I was engaged in mining and mining exploration in Canada and the United States as geologist for a number of companies. I was chief geologist for Eldorado Mining and Refining Co. Ltd. when I retired in 1957 to begin private practice as a consulting geologist.
5. I personally have visited this property and reviewed all the available reports, maps and drill results.
6. I have not received, nor do I expect to receive, any interest directly or indirectly in the properties or securities of Dynasty Explorations Ltd.

Respectfully submitted,



Douglas D. Campbell, B.A.Sc. Ph.D., P.Eng

Vancouver, B.C.

## INTRODUCTION

Dynasty Explorations Ltd., presently hold 1108 mineral claims and fractions in sixteen groups located between the southwest flank of the Anvil Range of mountains and the Pelly River, approximately 100 miles northeast of Whitehorse, Yukon Territory. The claim groups are distributed over an area sixteen miles in width and thirty-two miles in length, in a southeast direction, with the west corner of the area lying on Rose Mountain near the Pelly River, sixteen miles northwest of the Kerr-Addison property on Vangorda Creek. The area is accessible by land plane to an airstrip between Rose and Faro Creeks, by float or ski plane to the Swim Lakes, in the middle of the area, and by barge or river boat down the Pelly River from Ross River. Ross River can be reached via the Canol Road. The Ross River-Carmacks road is presently brushed out from Ross River to Vangorda Creek on the southwest side of the Pelly River.

HISTORY: The Vangorda deposit was discovered in 1953 and drilled by Prospector's Airways Ltd to reveal ten million tons of metal-bearing rock grading 8 percent combined lead and zinc, 0.3 percent copper and 2 ounces of silver per ton. The deposit is a gently plunging replacement body comprised principally of pyrite, pyrrhotite, arsenopyrite, sphalerite and galena in graphitic-chloritic schist. It lies beneath a few feet of cover. The area of the deposit is 3000 x 400 ft. It is presently owned by Kerr Addison Mines Ltd.

Magnetometer reconnaissance and prospecting revealed many similar anomalies to that of the Vangorda deposit to the southeast and northwest of it and in 1963-65 most of these anomalies have been staked by Dynasty Explorations. The entire area has been surveyed by aerial magnetometer; most of the anomalies have been prospected and checked by ground magnetometer and geochemical surveys.

### PROPERTY:

The sixteen claim groups of Dynasty Explorations are:

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INTRODUCTION (Cont.d)

				<u>Claims</u>
DY	Claim Group	1 - 148	Tag Nos. 85882 - 86012	97
SUN	Claim Group	1 - 20 21 - 74	Tag Nos. 86030 - 86049 92665 - 92720	74
SEA	Claim Group	1 - 72 73 - 88 89 - 96	Tag Nos. 86133 - 86204 90397 - 90412 90475 - 90482	96
	Sea Fractions	1 - 8 10 - 16	Tag Nos. 90413 - 90420 90422 - 90428	15
DEA	Claim Group	15 - 22 28 - 55	Tag Nos. 86219 - 86226 86232 - 86259	34
LEA	Claim Group	1 - 20	Tag Nos. 86260 - 86279	20
PEA	Claim Group	1 - 24	Tag Nos. 86296 - 86319	24
BEA	Claim Group	1 - 16	Tag Nos. 86117 - 86132	16
NASTY	Claim Group	1 - 16	Tag Nos. 86280 - 86295	16
ACE	Claim Group	11 - 44 47 - 88	Tag Nos. 90965 - 90998 90999 - 91040	76
BETA	Claim Group	1 - 164	Tag Nos. 90873 - 91379	164
CAM	Claim Group	1 - 12	Tag Nos. 90483 - 90494	12
KAY	Claim Group	1 - 26 31 - 34 37 - 42	Tag Nos. 92590 - 92615 92616 - 92619 92624 - 92630	36
CUB	Claim Group	1 - 72 75 - 88	Tag Nos. 91380 - 91449 51452 - 91465	86
CAROL	Claim Group	1 - 3	Tag Nos. 92737 - 92739	3
FARO	Claim Group	1 - 150 157 - 192	Tag Nos. 91467 - 92514 92515 - 92550	186
GAL	Claim Group	1 - 153	Tag Nos. 92021 - 92589	153
<b>TOTAL</b>				<u>1,108</u>

INTRODUCTION: (Cont.d)

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All of the claims held by Dynasty have been covered by aerial magnetometer and E-M surveys and many of the resulting anomalies have been checked by ground magnetometer and geochemical soil surveys. The claims have been generally prospected and in some places geologically mapped as well. Most of the work in 1964 was concentrated on the SEA Group of claims located between the Swim Lakes, four miles north of the Pelly River and eleven miles southeast of the Kerr-Addison deposit on Vangorda Creek. To the end of November about ten miles of bulldozer road had been put on this group of claims. Six bulldozer trenches and three diamond drill holes had been completed to investigate magnetic highs of the main Sea anomaly. In 1965 the work has been concentrated on the FARO Group, located ten miles northwest of Vangorda Creek. To the end of August, 1965, nearly ten miles of bulldozer and truck road have been constructed on this property. An airstrip has also been built on the property. Fifteen rotary holes had been drilled on the property at the time of the writer's visit and all cuttings examined by him.

REFERENCE:

The Dynasty property is new, with only government field mapping as reference. The writer visited the property on September 12 and November 21-23, 1964, and saw the trenches and logged most of the diamond drill core from the first three holes on the SEA Group. On August 28-31, 1965, the writer visited the FARO Property and examined exposures, maps and drill cuttings on that claim group.

CONCLUSIONS: (Cont.d)

On the basis of the above-described encouraging preliminary results and favourable geological factors the writer recommends the following program:



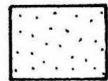
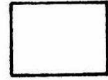
<u>FARO:</u>	15,000 feet of diamond drilling @ \$7/ft	-	105,000
	Stripping and geochemical surveys etc	-	30,000
<u>ACE:</u>	2,000 feet of rotary drilling @ \$7.00	-	14,000
<u>DEA and SUN:</u>	2,000 feet of rotary drilling @ \$7.00	-	14,000
<u>OVERHEAD, ASSAYING ETC.,</u>		-	40,000
			<hr/>
		TOTAL	<u>\$203,000</u>

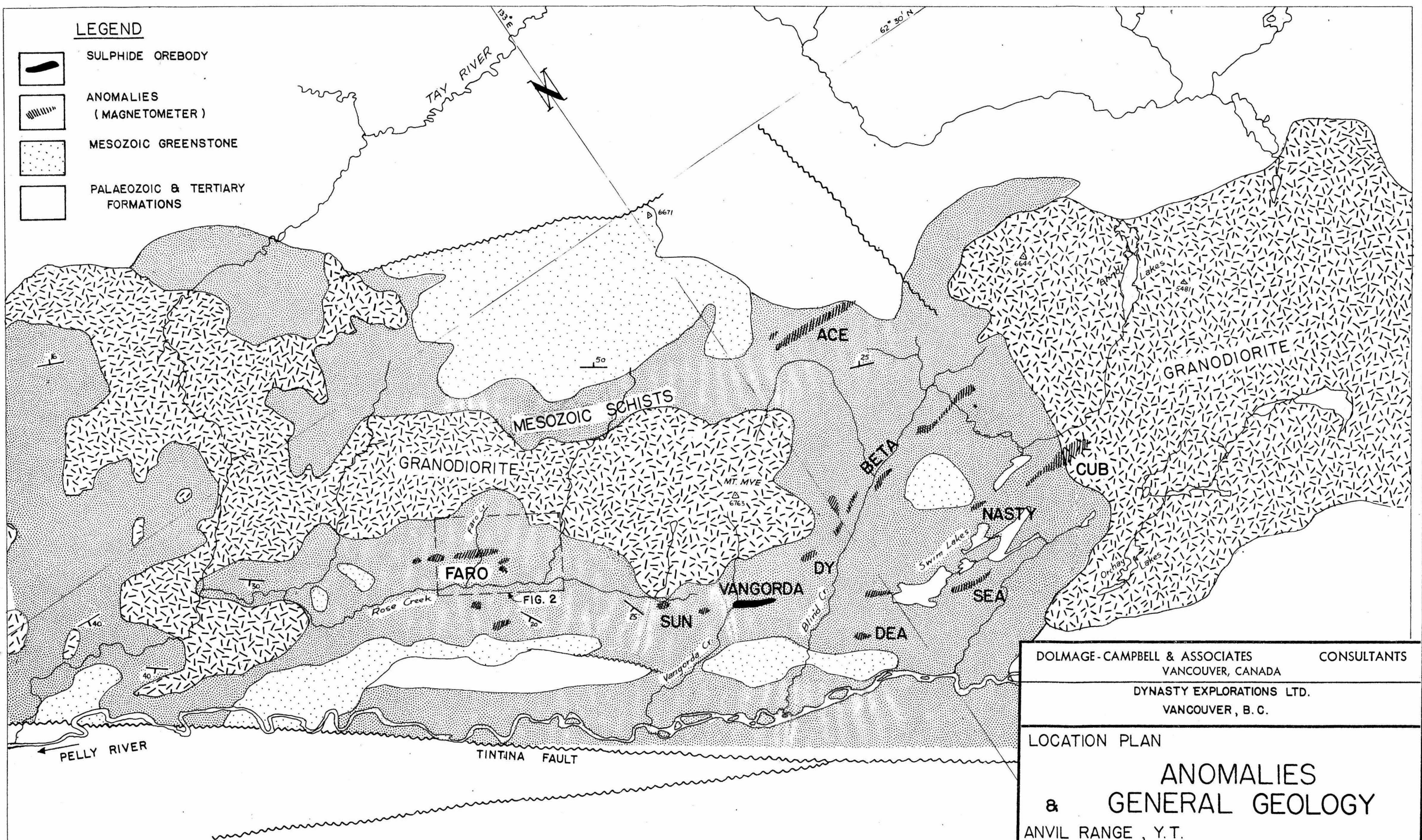
Respectfully submitted,



Douglas D. Campbell, P.Eng. PhD.

**LEGEND**

-  SULPHIDE OREBODY
-  ANOMALIES (MAGNETOMETER)
-  MESOZOIC GREENSTONE
-  PALAEOZOIC & TERTIARY FORMATIONS



DOLMAGE-CAMPBELL & ASSOCIATES CONSULTANTS  
VANCOUVER, CANADA

DYNASTY EXPLORATIONS LTD.  
VANCOUVER, B. C.

LOCATION PLAN  
**ANOMALIES & GENERAL GEOLOGY**  
ANVIL RANGE, Y.T.

SCALE: 1" = 4 MILES      SEPT. 1 1965      FIG. 1

## GEOLOGICAL SETTING

GENERAL: The Vangorda deposit and all the Dynasty anomalies occur within moderately dipping schistose rocks which locally grade into skarns, andesitic volcanics and granulites etc. These metamorphic rocks comprise the central portion of a belt of Mississippian formations that trends west-northwesterly along the northeast side of the Tintina Fault trench along which flows the Pelly River. The belt of Mississippian rocks is about 10 - 20 miles in width and extends for at least 40 miles to the northwest and southeast. Included with the aforementioned metamorphic rocks in this belt is a wide section of andesitic flows and a relatively thin slice of micaceous quartzites and schists. The entire belt of Mississippian formations appears to be an anticline with the metamorphic rocks being deepest and central, the andesites lying above them and appearing intermittently along the flanks of the belt, and the quartzitic rocks being uppermost and appearing only as slices along the southwest side of the belt against the Tintina Fault, (Figure 1.)

In surface outcrop the central portion of the above-described belt is occupied discontinuously by irregularly shaped bodies of intrusive quartz monzonite and granodiorite up to eight miles in width and 20 miles in length. East of Swim Lakes the intrusives are porphyritic and appear to be younger than those to the northwest. Thus the anticline is in effect formed by the uplifting of the Mississippian formations by the intruding granodiorite core which erosion has exposed. Most of the central peaks of the Anvil Range are underlain by granodiorite. In most exposures in the Vangorda area the intrusive rocks are in contact with the central metamorphic rocks. It could be that these rocks are more metamorphosed than the flanking andesites, on a regional scale, by reason of their proximity to the intrusives.

PROPERTY AREA: The Anvil Range is broken at Blind Creek by a low-lying basin entirely underlain by metamorphic or andesitic rocks. This subdued basin of rolling hills is host to the Swim Lakes and is drained by the Blind Creek system. Most of the known sulphide bodies and anomalies occur in two rude belts about five miles apart that trend eastward from the Tintina Trench across the Blind Creek - Swim Lakes basin. The most continuous belt of anomalies lies to the north, along the south slope of Mt. Mye between elevations of 3000 and 4000 feet, from Vangorda Creek to nearly the headwaters of Blind Creek. The Kerr-Addison deposit is the westernmost of this string of six anomalies. The south line of anomalies lies along the Swim Lakes area and is not as well defined in that eight anomalies are very irregularly distributed along a broader belt and the individual anomalies are considerably different in shape and orientation one from another. A central anomaly of this belt, the Sea, has been the target of the Dynasty drilling in 1964-65. Four anomalies, at the west end of the belt, are on Kerr-Addison claims, the remaining anomalies are on Dynasty claims. The Faro anomalies occur

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northwest of the Vangorda deposit near the intrusive contact at a pronounced reentrant in that contact. The Ace anomaly occurs at the northeast corner of the map area, relatively far removed from the intrusive contact and on the very outer edge of the Mississippian schists.

All of the anomalies occur within very gently southwesterly dipping schistose rocks of the metamorphic suite which lie between the two main masses of intrusive bodies that form the core of the Anvil Range to the northwest and to the southeast. The anomalies appear to be localized in more competent bands of the schistose sequence of rocks.

MINERALOGY: The Kerr-Addison sulphide deposit on Vangorda Creek is comprised of disseminated pyrite, galena, sphalerite and minor chalcopyrite replacing bands in locally skarnized sericitic schists. The average metal content of the orebody is 8% Pb-Zn, 2 oz. Ag and 0.3% Cu per ton. Similar mineralization has been found as float, and in place, at or near the Dynasty anomalies. The Sea anomaly, which has been drilled and trenched, centres on a replacement body that is apparently comprised predominantly of pyrrhotite and pyrite with minor sphalerite, galena and chalcopyrite. Magnetite is locally concentrated in this body as well.

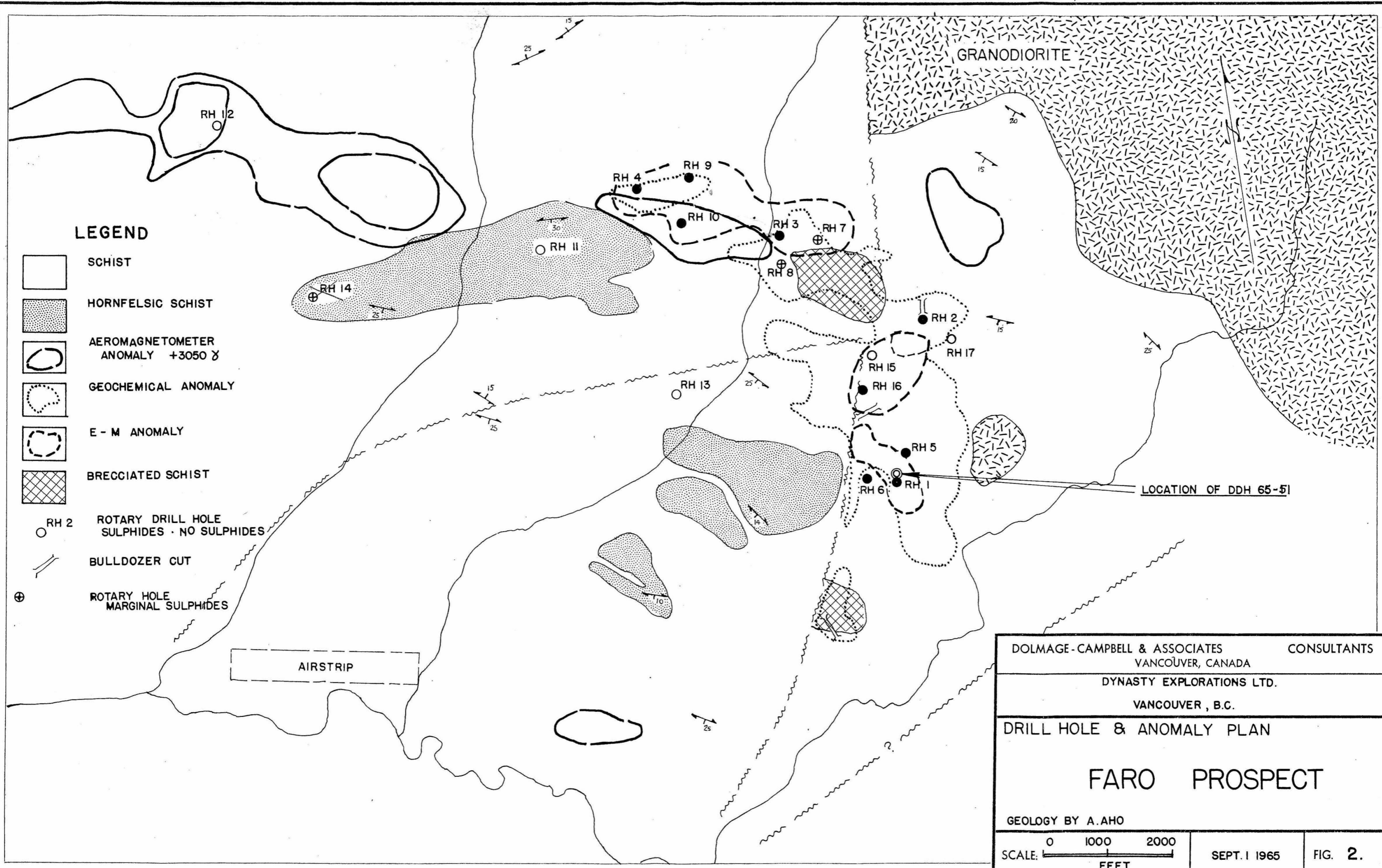
Logging of DDH #2 on the Sea anomaly, plus a study of six thin sections of specimens from that hole, indicate the existence in this area of two general types of schistose rock:

- 1) A grey-white, medium to coarse crystalline, hard and soft, irregularly laminated phyllitic schist comprised principally of quartz, sericite and/or talc with variable amount of calcite. The calcite equals the quartz in quantity in some bands.
- 2) A black-green, fine grained, soft, finely and evenly laminated schist comprised principally of quartz, sericite-talc and chlorite with minor carbonate. An important constituent of this rock is extremely fine grained magnetite disseminated throughout all the laminae. In the sections examined, the magnetite comprises up to ten percent of the rock. This amount of magnetite in the chlorite schists probably contributes to the magnetic effect of the anomaly.

Thin section study indicates that the sulphides replace the coarse crystalline quartz and the calcite preferentially. In the fine grained, finely laminated quartz-sericite or chlorite schists sulphide replacement is negligible.

The best host for sulphide replacement is the grey-white, quartz-calcite (minor sericite) schist. Generally the sulphides (pyrite and pyrrhotite) are more concentrated and more coarsely crystalline in the calcite-rich bands of the host rock. Because of the high quantity of quartz and calcite versus sericite, chlorite etc., in this type of host rock the rock has a granular texture, in contrast to the more laminated schists.

Drill cuttings from the rotary holes on the FARO group indicate that the galena and sphalerite occur in fine grained pyrite replacement bodies within schists similar to the SEA-type as well as within a siliceous, hornfelsic schist.



DOLMAGE-CAMPBELL & ASSOCIATES		CONSULTANTS
VANCOUVER, CANADA		
DYNASTY EXPLORATIONS LTD.		
VANCOUVER, B.C.		
DRILL HOLE & ANOMALY PLAN		
FARO PROSPECT		
GEOLOGY BY A.AHO		
SCALE:	0 1000 2000	
	FEET	
	SEPT. 1 1965	FIG. 2.

## ECONOMIC GEOLOGY

The objective of exploration of the Dynasty claim groups is to locate sulphide replacement bodies of comparable, or better, size and grade to the Kerr-Addison deposit on Vangorda Creek. Considering that of the 15 or so anomalies found on Dynasty claims are all in the same general host rock as the Vangorda deposit, and most are as large as or larger than the anomaly over that deposit, then there is a good geological chance that at least one of these anomalies will indicate a commercial base metal deposit.

A number of the anomalies in the southeast claim groups have been investigated by diamond and rotary drills with negative results other than the indication that most of the anomalies are caused by sulphide replacement bodies but with very low values in lead and zinc. These deposits are primarily pyrite and/or pyrrhotite. These anomalies include, from east to west; (1) the CUB, five rotary holes, (2) the NASTY, three rotary holes, no sulphides in the sericite schist, (3) the five BETA anomalies, three rotary holes, and (4) the SEA, six diamond drill holes and a number of trenches indicating about 2% combined lead and zinc in a pyrite-pyrrhotite body with 3% magnetite.

Yet to be investigated in the south and east portions of the area are; (1) the ACE anomaly, the largest in the area, 4.5 miles in length, with a good aeromagnetic indication and a geochemical anomaly near its west end. This anomaly lies near the eastern edge of the favourable Mississippian host schists, about four miles from the granite contact; (2) the DY anomaly, ground magnetometer and geochemical anomaly; (3) the DEA anomaly, a magnetometer anomaly in gabbro but with a zinc geochemical anomaly along one flank; (4) the SUN group of anomalies, located immediately west of the Vangorda deposit, good magnetometer and E-M response.

The most encouraging results to date in the investigation of the anomalies has been on the FARO claims, 16 miles <sup>west</sup> northeast of the Vangorda deposit, at an indentation in the intrusive contact. (Fig. 1). Fifteen rotary drill holes have returned sulphide cuttings from two main anomalous areas flanking Faro Creek about one mile northeast of Rose Creek. These cuttings have returned assays in lead, zinc and silver approximately equal to the average grade of the Vangorda deposits, (8% combined lead and zinc); however, because these are cuttings taken from deep, wet holes the dependability of these assays is questionable, therefore the sulphide bodies are presently being diamond drilled. Details of these deposits are as follows:

## FARO DEPOSITS:

The general geology of the Faro area as mapped by Dr. Aho and generally confirmed by the writer, is shown in Figure 2. The predominant country rock is comprised of quartz-sericite-chlorite schists which strike north-westward and dip at low angles to the southwest. Within these schists occur zones of a dense, siliceous, dark green schistose hornfelsic rock which is possibly a contact phase of the normal schist. To the north the granodiorite contact is indented nearly a mile to the north directly opposite the Faro anomalies.

Near the southeast prong of the granodiorite indentation there is an oval area within the schists wherein the schists have been severely brecciated and then tightly healed by fusing. Within this breccia the schist has been entirely fragmented into pieces up to 15 feet in diameter, all of which lie in a chaotic, unoriented jumble. The fragments are tightly fused together even though the foliations are perpendicular in adjacent fragments in many places. There is essentially no fine comminuted fraction in the breccia. The breccia is not unlike some breccia pipes believed to be caused by the explosive localized injection of hot, high pressure gasses into rock formations.

Four thin sections of two specimens of this breccia material reveal on microscopic inspection that there has been considerable distortion of individual fragments as well as fragmentation of them at their ends where ragged foliation is exposed. The predominant rock is a hornblende-chlorite schist with variations to sericite and to augite etc., There are many schist fragments that are entirely foreign mineralogically to their surrounding fragments, indicating transport and mixing of fragments. Fragment interfaces are tightly fused with and without a chloritic selvage. Where fragments lie free in a matrix the matrix is generally a light greenish chlorite-calcite assemblage. The entire rock is impregnated with calcite microscopic veinlets and matrix. Judging from the size and shape of the breccia area, the form and size of the fragments, as well as the fused interfaces of the fragments and the ubiquitous introduction of carbonate throughout the breccia the writer feels that the available evidence strongly indicates an explosive pipe as the origin of the breccia, accompanied by the injection of calcareous solutions or gasses.

If the Faro breccia is an injection pipe then it would be obvious that the surrounding host rocks will have been fractured or loosened at least locally in the vicinity of the pipe and that the pipe would probably have been injected along or close to deep faults. Such conditions would then comprise a favourable site for the subsequent deposition of hydrothermal replacement bodies within the dilated areas.

As shown in Figure 2, there is a general grouping at Faro Creek of the aeromagnetometer anomalies, the geochemical anomalies and the E-M anomaly around the breccia pipes, and generally over-lapping one another.

Rotary Drilling: As shown in Figure 2, 15 rotary holes were drilled in the area of the anomalies and of these the cuttings from 1 to 11 were logged by the writer. Holes 9 and 11 had no sulphide zones in their cuttings but each of the other nine holes had a layer of sulphide replacement in it. The intersections in holes 1, 5 and 6 probably represent the same layer, 50 to 100 feet in thickness, lying beneath about 50 feet of overburden and 25-50 feet of schist. The intersections in holes 4, 10 and possibly 2 represent a higher layer of about 50 feet in average thickness. The lower sulphide layer appears to be within a dark, siliceous hornblende schistose rock, whereas the upper sulphide is within pale coloured quartz-sericite-feldspar schists.

Assay results from the rotary drill cuttings are:

Hole	Elevation of Collar	Depth of Sulphides	Pb - Zn	Ag
1	3919	75-125	8.03	1.82
5	3954	40-60 75-115	9.30 No Assay	1.50
6	3967	150-180	7.5	0.98
2	?	170-220	4.5	No Assay
3	?	260-425	2.67	"
4	4290	70-120	10.9	2.19
8	?	255-315	No Assay	
10	4200	280-350	7.22	1.23
7	?	475-515	2.7	No Assay

The true significance of these assays cannot be assessed without diamond drill confirmation, however, they do strongly indicate that further investigation of these deposits is warranted. Using the thicknesses of the sulphide zones intersected in the rotary holes in the (2) areas of holes 4, 10, 3 and 8 and of holes 1, 5 and 6 it is possible to outline at least 10 million tons of sulphide replacement rock. It is essential that the exact outlines of these sulphide bodies, and their true grade, be determined now by an extensive diamond drilling program. At the time of the writer's examination such a diamond drill program had just begun and DDH 65-51 had been drilled 30 feet northwest of Rotary Hole #1. This diamond drill hole intersected a pyrite replacement zone from 64 to 116 feet depth within which there are local concentrations of sphalerite, galena and chalcopyrite. This interval of core assayed 11.9% combined lead-zinc. The cuttings in the corresponding interval of the adjacent rotary hole (RH 1, 75-125 ft) assayed 8.03% combined lead-zinc. This preliminary verification of the rotary results is most encouraging but until more diamond drill holes are completed it will not be known whether the increase in grade in the diamond drill hole versus the rotary hole is an erratic or a feature that can be extrapolated throughout the deposit.

Conclusions: The extent of the sulphide replacement zones distributed around the breccia pipe (?), as indicated from the rotary holes, suggests a possible potential tonnage of 10 million tons or more. The assay results from the rotary hole cuttings and the core from the one diamond drill hole drilled to date indicate a possible grade of the sulphide zones in excess of 8% combined Pb-Zn with about 2 oz Ag/ton. With these encouraging results of exploration to date a continued program is definitely warranted on the Faro deposits of Dynasty Explorations Ltd.,

RECOMMENDATIONS

The known FARO sulphide deposits definitely warrant further diamond drilling. In addition, the area in the general vicinity, across Rose Creek, should be covered by a geochemical survey and stripped wherever feasible.

The ACE anomaly should be probed by rotary drill holes.

The DEA and SUN anomalies should be probed by rotary drill holes.

The above recommendations are given in order of priority and an approximate budget for them is as follows:

<u>FARO:</u>	15000 feet of diamond drilling @ \$7.00	-	105,000
	Stripping and geochemical surveys etc	-	30,000
<u>ACE:</u>	2000 feet of rotary drilling @ \$7.00	-	14,000
<u>DEA and SUN:</u>	2000 feet of rotary drilling @ \$7.00	-	14,000
			<hr/>
			163,000
	<u>OVERHEAD &amp; EQUIPMENT RENTALS</u>	-	20,000
	<u>ASSAYING AND CONTINGENCIES</u>	-	20,000
			<hr/>
			\$203,000

Respectfully submitted,



Douglas D. Campbell, P.Eng., PhD.