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GEOLOGICAL MAPPING

and

ECONOMIC APPRAISAL

of the

INDIAN RIVER SECTION OF THE BRITANNIA CLAIMS

Britannia Beach, British Columbia, Canada

The Anaconda Company

Paul A. Lindberg

September 29, 1975

MAPS IN SEPARATE FOLDER

Map No. 1, 1" = 400', Geology, Indian River Sheet

Map No. 2, 1" = 400', Assays, Indian River Sheet

INTRODUCTION

From July 22 to August 16, 1974 the writer mapped geology in the Indian River portion of Anaconda's Britannia claim group. One week of this period was lost due to a trip back to the Shasta claim assessment supervision.

Anaconda mapping had taken place in the same location in the summers of 1963 and 1964, with minor drilling also taking place during the second season. I had mapped in detail the so-called "London Slide" area in 1963 and was impressed by the initial results. During the summer season of 1974 it was decided that I should do additional mapping on this ground now that the trees had been logged off and rock exposures were at their best. Survey preparations for the work had been carried out the Fall before, and a base map of sorts was available to me at the start of the program. A few days of mapping were carried out by Barton Stone in the Fall of 1973, but due to engineering road plot errors and minor amount completed, I began from scratch and carried on from where 1" = 200' mapping had left off in 1963.

I was provided a Toyota land rover and a helper, Roy Ramage, who was lent from the Britannia operation. Rick Ramseier provided all necessary assistance possible, and Cathy Aimone provided drafting assistance on the preliminary maps.

LOCATION OF INDIAN RIVER CLAIMS

The Indian River claims are situated 10½ miles east of the Britannia Beach townsite on Howe Sound at tidewater. They are also about 12½ miles by logging road from the head of Indian Arm north of Vancouver, British Columbia. It is 25 road miles from the Roy claim to Mamquam River bridge and then northwesterly to Squamish and Britannia. This road is in rough condition where it crosses the watershed from the Indian River drainage into the Stawamus River drainage. Due to a late Spring and heavy snow cover, this road was impassable until it was dug out on August 8, 1974. This condition required the jeep to be ferried in to the Weldwood camp at the head of Indian Arm.

During the mapping period my partner and I stayed at this camp with the loggers. Good road access was available to within the immediate area of the Roy claim. With minor work this road was opened to the high grade chalcopyrite vein area. Above this point, however, considerable work would be required to open the road up due to heavy winter and spring runoff.

The elevations of the Indian River claims range from 750 to 1800 feet along the course of the drainage, and up to 4200 feet on the northeast and 4800 feet on the southwest side. The ridge on the southwest side marks the boundary of the Greater

Vancouver City Watershed. This watershed covers a considerable portion of the Britannia group of Crown Granted claims. It effectively divides the Anaconda claims into three groups: a) the Britannia mine area, b) the Bank of Vancouver area, and c) the Indian River area. During 1963 I mapped in the Indian River claims as well as in the Bank of Vancouver breccia pipe area.

CLAIM OWNERSHIPS

At one time, apparently, the Britannia group of claims once extended from tidewater at Britannia Beach to 1½ miles east of Indian River. At some point in time prior to Anaconda's aquisition of the Britannia property some of the claims in Indian River changed hands. As a result the Anaconda claims are not contiguous, but are separated along the course of Indian River. The index map in Figure 1, page 3, shows this separation.

Map No. 1, Geology, shows the disposition of the claims. It will be noted that the principal owner in relation to the claims discussed in this report are owned by Falconbridge and lie immediately below the Roy and Don Fraction claims. These are the only ownerships regarded as important in any future exploration in the region.

PURPOSE OF 1974 MAPPING EXERCISE

During the examinations of Anaconda personnel during 1963-1964, the Indian River area was heavily covered by dense forest. Mapping was difficult, at best, and the 1963 season was not the best from a weather standpoint. In addition, it became very obvious that the volcanogenic models which best fit these deposits was not fully appreciated during this period. Among others, Lindberg (1) pointed out in a memo that some of this early work be re-evaluated. John Payne, Jim Bratt, Rick Ramseier and others also recognized the need to map the area since logging had bared the countryside. An attempt had been made during the Fall of 1973 to survey in the road network and begin a mapping program. This came too late to have been effective, and there were obvious problems with the survey data, as spelled out below.

BASE MAP PREPARATION

No adaquate base map has ever existed for the Indian River area. Coverage from Britannia Beach eastward to the 123° 00' Longitude was good from a topographic standpoint, but very crude east of that. Since this was the area of the Indian River group of claims, several makeshift maps were produced at various times by various people.

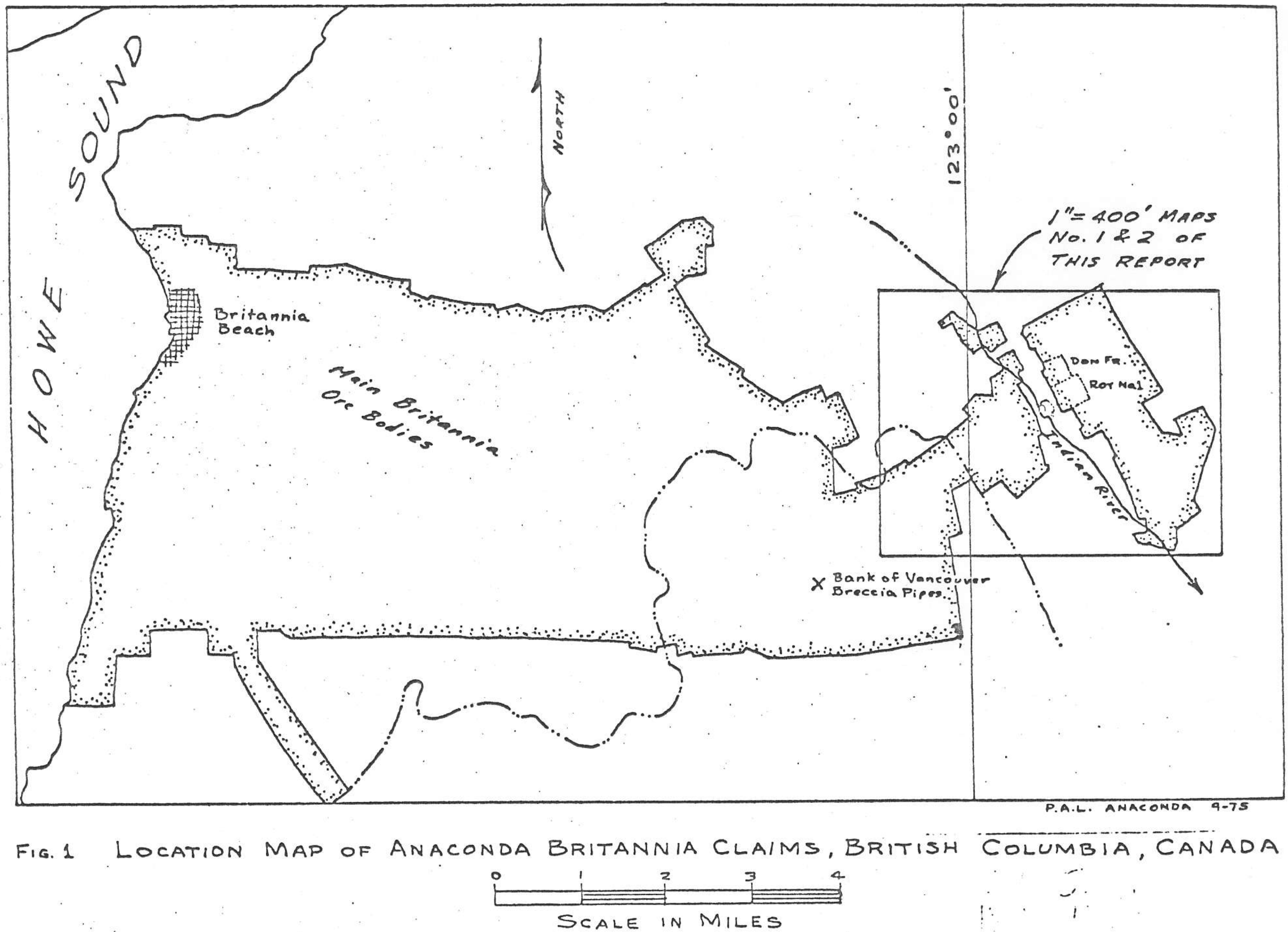

FIG. 1 LOCATION MAP OF ANACONDA BRITANNIA CLAIMS, BRITISH COLUMBIA, CANADA

During the 1963 season I looked into the availability of base map information and found that the only accurate data came from the plat maps showing the claim surveys made at the time the claims were Crown Granted. These maps were on 1" = 300' scale and I used the information relating to bearings and distances in the field during 1963 to establish proper fixes on geological points of interest. My own survey tied-in a loop which fixed the mine workings on the Don Fraction and Roy No. 1 claims and, with the aid of some magnificent carved inscriptions on massive witness trees, established the geology relative to the claims.

This old survey proved to be invaluable, because today there is no clue as to where the old corners are. The present map is basically "built" around the claim map with the location of roads, workings, power lines etc. added onto this network. Topography, as best as can be obtained, is lastly added to the base map.

During the Fall of 1973 some surveyors from Britannia came over to Indian River and began a transit survey from B.C.Hydro Tower No. 512-3. This high tension power line was installed sometime after our 1963-1964 field season, at which time the whole valley was virgin timber. The survey was intended to track out the roads and leave pickets every 100 feet along the survey. At first glance this looked great, and I thought the results would be of immense help in getting the mapping done quickly and efficiently. However, it became immediately obvious that there was something radically wrong with the survey, and the angles were wrong from the start. It looked as though the survey had been carried out with a magnetic compass, since the course of the survey passed under the high tension lines at many points, and was also close to many of the towers. As I studied the matter further, however, it was obvious that the whole thing was un-usable. The only thing that could be salvaged was the 100 foot pickets which were properly corrected for the horizontal distance.

As a result, I spent some time doing my own surveying and tying things together. Because my field sheets were laid out in advance on the survey network, The road bearings on the field sheets are not the same as the final rectified map. The base map was the best I could construct under the adverse conditions available. The accuracy from the Main Roy Trenches to the north-west, west, and southwest is very good. Above the Roy Trenches, I have less certainty of positions, partly because during this final mapping period the weather closed in and was very foggy and visibility was poor. However, the map is also consistent with the Weldwood Company road locations. I believe the base map is the best and most accurate made to date in Indian River.

PREVIOUS GEOLOGICAL AND EXPLORATION WORK

The earliest phase of work in the Indian River seems to have culminated in the 1918-1919 period in which many adits, trenches, and drill holes were completed. Old Britannia reports indicate that Paul Billingsley consulted on this work, and several interesting features were noted on the Roy claim work. A drill hole going northeasterly from the portal of the Roy No. 3 Tunnel encountered "pyritized granodiorite with 0.5% Cu" towards the end. This hole is shown on the 1" = 200' inset map on Map No. 2 with this report. The description of this unit sounds like the "siliceous pyritic rock" described further in this report.

Early work was not confined to the Roy and Don Fraction claims. There are numerous pits and adits scattered over a wide section of the valley. On the Bell group of claims on the opposite side of Indian River to the northwest there are a lot of old diggings. Also on the Noyon claim. A continuous series of widely scattered workings can be found all the way from the Bank of Vancouver breccia pipes to the Indian River area near London Creek canyon.

The Belle group of claims appears to have shared with the Roy claim the distinction of being a lively prospect during this early period. Excerpts from the 1917 B. C. Minister of Mines Report (2) indicates that a number of promising occurrences were found there. H. H. Cohen in 1954 (3) also reported on the Belle Group and discussed vein and disseminated copper mineralization. Peter Crone discusses the 1963 work by New Jersey Zinc on the Belle claims (4) and includes the results of drilling. This information would have been included in my final map if time had permitted examination of some of these workings. The work performed seems to be of good quality, and looks reliable for a better understanding of the Indian River geology. The Belle claims are shown on Map No. 1, Geology.

The only report of consequence on the "London Group" of claims (Presumably the whole area at one time was regarded as the London Creek area) was by Charles M. Campbell, Jr. He reported on the known showings and earlier regional mapping by Schofield throughout this area. This reference (5) is included in the Appendix ~~B~~ along with Bill Reed's 1966 report of Anaconda drilling (6).

While the old work opened up a number of vein and disseminated deposits, none of the old work by itself showed significant concentrations. Also lacking was any clear-cut definition of ore controls. The obvious granodiorite contacts, shear zones, etc. gave little hint that the descriptions could also fit an intruded volcanogenic rock system, and it is this thesis which the author has seen in the findings.

The most ambitious mapping program in the Indian River claims was by Leon Hanson in 1964 for Anaconda. While his field sheets show a meticulous attention to detail, the results are very difficult to translate into a volcanic and sedimentary stratigraphy. If time had permitted more of this might have been correlated with my present work, but as it stands, the results have not been incorporated in the present map. Much of the geologic exposure overlaps, and the poorer wooded field condition interpretation has been superceded by the present outcrop condition. His report and map (7) should be consulted should further work be done in Indian River. Caution should be observed in the layout of the base map, however, as there are some serious errors of positioning.

Bill Reed reports on the results of the follow-up drilling done by Anaconda (6) and this brief report is incorporated in Appendix B of this report. Analysis of this data is probably correct as stated by Reed, in that no veins or concentrations of copper were encountered to provide encouragement. These results do not negate the potentials discussed in this present report, and in fact, they augment the results. More work could have been done using these drill results, as they would provide excellent cross sectional information relating to the spatial position of the targets recommended in this present report. Any serious future Indian River work should utilize this data for which I did not have sufficient time to analyze.

1974 FIELD MAPPING

During the brief 3 week period of field mapping I was able to re-establish the old locations of survey work I had done in 1963. This proved invaluable, since a large portion of the "London Slide" area was covered by newly created talus from a sheer logging road rock cut. There were a lot of new rock cuts due to the construction of the logging roads, but in general the amount of outcrop did not change. It was now easier to find, and was not covered by moss. Second growth and fireweed is beginning to encroach and will rapidly make conditions difficult in a few years.

I had time to only complete the geology mapped in the area shown on Map No. 1, Geology. I believe this to be the most critical area, since I have had a chance to have a reconnaissance look at most of Indian River and the Vancouver Water shed over the years. Based on this map, a future program can be planned, should the economic considerations be considered favorable. Map No. 2, Assays, shows the positions of points that were sampled. In most cases the samples are "character samples" rather than strict, accurate samples as would be taken in a mine face. This does not apply, however, to the chip sampling across a continuous face of siliceous pyritic rock over 783 feet.

GEOLOGIC SETTING

The geologic setting for the Indian River area is somewhat like Britannia, but there are some notable differences. To my knowledge I am the only geologist in recent years who has worked across the property from one end to the other. My general impressions are as follows.

The Britannia claims as shown in Figure 1 show a general restriction between the main body of claims and Indian River. This is underlain by some of the "Coast Range Intrusives" which effectively separate the Britannia mine rocks from a sub-parallel volcanic belt through Indian River. The two areas must represent separate but similar volcanic centers. The center of the Roy claim mineralization is clearly at the center of a volcanic pile, with extensive volcanic units grading into tuffs and sediments to the southeast, but mainly to the northwest toward the McVicar claims. I interpret the Indian River mineralization to be proximal to the volcanic vent areas, while the McVicar area is more like the Britannia sequence which is somewhat distal from the volcanic source.

What distinguishes the Indian River rocks from the Britannia sequence is the fact that few sediments or bedded tuffs are seen there. In contrast, the Britannia mine is situated within water lain tuffs, restricted argillites, and a number of fragmental rhyodacites and andesitic members. If a volcanic vent area is suggested for the Britannia orebody, it should lie near the extreme southeast end of the string of ore bodies. Also a notable difference is the shearing. Since the Indian River sequence has little in the way of planar rock units, little or no schist has developped. At Britannia, the bedded tuffs and sediments caught up in the folds became highly fissile quartz-sericite-chlorite schist. This schist is after the volcanogenic ores were developped as part of the volcanic stratigraphy and are the result of superimposed folding on the system. The old view that the mineralization was introduced along the Britannia "shear zone" should be abandonned.

Much confusion has been generated in the literature by the concept that Britannia rocks are caught up in the Coast Range intrusions and form a septum or roof pendant within this mass. The Geologic Survey of Canada has done a lot of work on these rocks, and their results are illuminating. Instead of a single mass of "intrusive" these rocks run the gamut from diorite to aplitic granite. There are so many cell-like masses in the Britannia vicinity, that one is forced to accept the fact that many of the units are granitized from basement material, and <u>most</u> of these so-called intrusives are actually gneisses.

A wide disparity of age dates has resulted from these rocks and it is clear that no one intrusion was involved. I suspect that a portion of the Britannia volcanic sequence is resting upon a granitic or granite/gneiss basement, and that this sequence was in turn intruded later during the period when the main "Coast Range Intrusives" occurred. This has an important relationship to the Britannia area, since the geologic field evidence favors this approach.

About midway between the two volcanic belts is the Bank of Vancouver breccia pipe cluster. These breccia pipes are heavily mineralized and I would interpret them as volcanic vents which fed Britannia and Indian River type volcanics. The breccia pipes cut granodiorite, which in turn cuts an older quartz diorite. The quartz diorite contains numerous xenoliths indicating an even older basement.

The Bank of Vancouver breccias are but one set of a chain of breccias and pods of disseminated mineralization that trends northeasterly and connects to the two northwesterly trending volcanic belts. This trend is considered very important and, of course, was apparent to the old prospectors. It is easily seen by the neck of claims connecting the eastern and western sections of the Britannia claims.

This trend impinges on the Indian River group at about the position of London Creek canyon. It is in this location where my best gold assays were found. It is also the locus of a pronounced copper-molybdenum soil anomaly from work in the valley by Leon Hanson. The volcanic center near the Roy claim is considered to be the best remaining area for future mineral discovery in the Britannia region.

VOLCANIC ROCKS

The volcanic rocks in Indian River range from rhyolites to andesites. There is a fine distinction between rhyolites, rhyo-dacites, and dacites which are very difficult to sort out in the field sometimes, and the general use of the Britannia-type dacites may not apply as well in Indian River. The "Roy rhyolite" is clearly a rhyolite flow complete with glassy, swirl banded rinds. It is very fine grained, and often contains no visible phenocrysts. Its distribution suggests a viscous and restricted dome shape (pre-folding) and a close relationship to mineralization. There is a large amount of fragmental dacite units, but these are in general younger than the rhyolite flow.

It is difficult to construct a geologic column on the restricted data in hand, but it is suggested that the oldest rock in the area is andesite. These occur as flows and fragmental units, but the fragmental nature is sometimes so well healed that it is observed only on a weathered surface. Minor amygdaloidal flow tops have been observed, but are not common. Also seen are poorly developped flow pillows locally. As with the dacites, these types have tuff equivalents that are only rarely bedded. Most tuffs are granular and range from fine to coarse textures.

High in the mapped section of the volcanic pile is a white rhyolite which exhibits glassy texture, swirl flow rinds, and flanking talus breccias. Once in a while fine quartz phenocrysts can be observed in this rock, and it is possible that it is fed by the micro quartz porphyry intrusives that are described later. It is more likely, however, that the white rhyolite is separate from the micro porphyry.

SEDIMENTARY ROCKS

While sedimentary rocks are not common in the Indian River area, those which are seen are considered very significant. Deep in the section is an exposure of quartzite exposed along the river on the Giant and London No. 2 claims. It is clearly a water laid sediment composed of coarse silica sand. It is not a tuff, in my opinion. The next highest sediments observed is a thin lense of black argillite at the contact between the Roy andesite and the overlying Roy rhyolite. This sediment was not sampled, but it may well contain some gold values when this is considered in context with the resulting assays higher up. Rock samples are available, but it is not certain whether enough is present to provide a proper assay. See southwest edge of the Roy No. 1 claim.

The most important unit with respect to a potential bedded massive sulfide deposit (theoretical only) is a thin sedimentary layer found in the northeastern half of the Don Fraction claim. This unit may also extend well into the mountain in a depression on top of the siliceous pyritic rock unit, and it looks similar to an occurrence of copper oxide stained argillites near the south end of the Wallace Fraction claim.

At the top of the London Slide the new logging road has exposed a very good exposure of the graphite rich sediment which acted as a parting plane for the intrusive quartz porphyry dikes and sills. The quartz porphyry dilated the graphitic sediment which formerly laid directly on top of the siliceous pyritic rock. Further along strike up hill this unit exhibits cherty and non-cherty quartzites, argillites and graphitic argillites. While none of these units contains more than minor pyrite, the assemblage looks strikingly similar to the Kidd Creek graphitic horizon in the Ecstall open pit in Ontario. On Map No. 1, Geology, I have indicated a position for possible drilling in the future. This site is directly above the top of the projected "bowl" shape which is suggested by the sedimentary outcrops.

None of the past drilling work by Anaconda or others has penetrated the sedimentary horizon on top of the siliceous pyritic rock pile. Erosion has not yet bared the core of this area, and I believe the possibilities of mineralization at this site are very good. If there are any bedded massive sulfides in this part of the volcanic pile, I feel they would be in this position. While this is theoretical, there is evidence of nearby high grade chalcopyrite veins deeper in the section. The richness of these veins suggests that a higher blanket of the massive sulfide types might be expected in the indicated position. This possibility is discussed further under Copper Mineralization.

IGNEOUS ROCKS

An interesting and important constituent of the Indian River sequence is the complex of intrusive igneous rocks. It is possible in some cases to separate and assign age distinctions on some of these units, but not in all cases. It is clear that the intrusives affect the distribution of gold values as will be discussed further under Gold Mineralization. The intrusives will be discussed in approximate order from oldest to youngest.

Dacite and rhyolite dikes cut the Roy andesite and higher volcanic beds and are probably feeder dikes to the pile. Some dacite dikes, however, are pre-micro quartz porphyry and post-diorite Later dacites and rhyolites are almost impossible to assign in a time frame, and are generally small and unimportant.

The next apparent intrusive system is granodiorite- quartz diorite- diorite. I call it a system because they often appear intimately together as is the case of the northerly trending dike swarm passing near the outlet of London Creek canyon. The granodiorite is probably the oldest of the three, with quartz diorite next. The whole system is probably cut by the diorite. It is likely that the whole system represents various stages of contamination with wall rocks. The units are quite fresh and apart from minor disseminated pyrite are barren of any mineral values. They are definitely later than the bulk of the volcanic pile.

Large irregular pods of diorite occur in the Roy No. 7- Wallace Fraction claim area and Roy No. 1 - Bow Fraction claim area. In both instances where the diorite cuts the volcanic units there is evidence of granitization in the wall rocks. Where andesite is cut, the gneissic granitized andesites are difficult to tell from igneous rocks. Where it cuts dacites, they become recrystallized and coarser grained. The degree of granitization falls off away from the contact area so that within a hundred feet or so no visible effect can be seen. Places within the Wallace Fraction claim that have recrystallized dacite probably overlie a subjacent diorite plug.

Cutting the diorite are some small dacite dikes which are in turn cut by micro quartz porphyry dikes. These rocks are characterized by tiny quartz phenocrysts, but the rock is similar in makeup to the regular quartz porphyry with quartz eyes of about 1/8" in size and equally large feldspar laths. The relationship between the two porphyries cannot be delineated with certainty, but it is likely they are connected to the same magma chamber. They probably also are injected at about the same time. The micro porphyry is dike-like in the southern part of the mapped area, but forms large imposing outcrops in the northern part, particularly on the Hercules claim.

The coarser quartz porphyry is found as dikes and sills closely related to the siliceous pyritic rock that will be discussed under Gold Mineralization. A very important quartz porphyry feeder dike/sill system is seen at the top end of the London Slide near the northwestern corner of the Don Fraction claim. At this point the sill of porphyry has dilated the section lying above the graphitic sedimentary horizon which lies on top of thin fragmental dacites which in turn lies on top of the siliceous pyritic rock. The easily parted graphite surface provided an easy plane of relief for the sill to intrude along. It is not known what, if any, result this intrusion would have on a volcanogenic sulfide mass except to recrystallize it. The gold in the siliceous pyritic rock, however, appears to have been remobilized by these dikes, and hence the post-volcanic dikes are believed to represent an extremely important ore control for secondarily enriched gold occurrences. See later discussions under Gold Mineralization.

As in the case of the Britannia mine, there are also a swarm of late dikes which cut through the area. They are composed of andesites, a distinctive feldspathic andesite, and several types of lamprophyre. Their relative ages are probably unimportant, and it is probable that their small volumes did not have an significant effect on remobilization of minerals.

COPPER MINERALIZATION

Copper deposits are, of course, the reason for all the past and present activity in the Indian River area. But in the long run they may not be the most important. It is a fair estimate that there is little likleyhood of finding vein concentrations of copper as is found on the Roy claims. Subsequent drilling have confirmed the findings of long ago, and the results are discouraging. The volcanogenic model, however, makes the area above the top of the London Slide favorable for a potential copper deposit. All of the necessary ingredients are there. It would be relatively easy and inexpensive to drill one or several drill holes into the hillside from the site marked on

Map No. 1, Geology. The purposes of this drilling would be to a) investigate the top surface of the siliceous pyritic mass where a massive sulfide environment may occur, and b) to test the siliceous pyritic rock layer for gold mineralization.

It should be stressed that any copper targets are based on theoretical considerations. The conditions for the development of such a possibility looks ripe, and the attendant vein material deeper in the section are here considered of little importance.

GOLD MINERALIZATION

Ever since I studied the London Slide area in 1963, the peculiar rock which came to be known as the "siliceous pyritic rock" has been a puzzle. Originally I thought it was an altered intrusive, but it is more likely a volcanic unit, possibly dacitic and of tuffaceous origin. Whatever its parentage, the rock is now almost totally silica and pyrite. Pyrite is relatively uniform at about 10-15% and there are local veins of quartz cutting the mass. The present rock appears to be a highly silicified volcanic. Figure 2, Page 13 shows the distribution of gold values across the continuous face of freshly exposed road rock cuts. The road must have been expensive to make for the amoun of logs removed, and the uphill face is much like the bench in an open pit. Surface oxidation is minimal in this glacially scoured valley.

At the time of the investigation I had no way of knowing what, if any, gold values would exist in this rock. Examination of the distribution of values shown on Figure 2 indicate quite clearly to me that the relatively high background values of gold within the siliceous pyritic rock (about 0.018 oz Au) have been locally increased more than 4 times near the margins of the dikes. Had I known this I would have sampled close to the edges of the dikes, since it is possible that narrow margins of very high gold values may exist. Two samples of similar material collected 1300 feet to the north-northeast also showed high gold values. Both IRA 8 & 9 samples were siliceous pyritic rocks from the same formation and they contained 0.136 and 0.232 oz Au/ton respectively These last two named samples were collected at no special place, and I am almost certain that enough of this material is suggested to indicate a viable gold concentration. Certainly the tonnages of material available are large, and in some cases are amenable to open pit access.

My overall impression is that a gold concentration somewhere within this mass of siliceous pyritic rock is a certainty. Test of this theory would best be made by a series of drill holes from the upper side of the hill where access and coverage would be relatively simple.

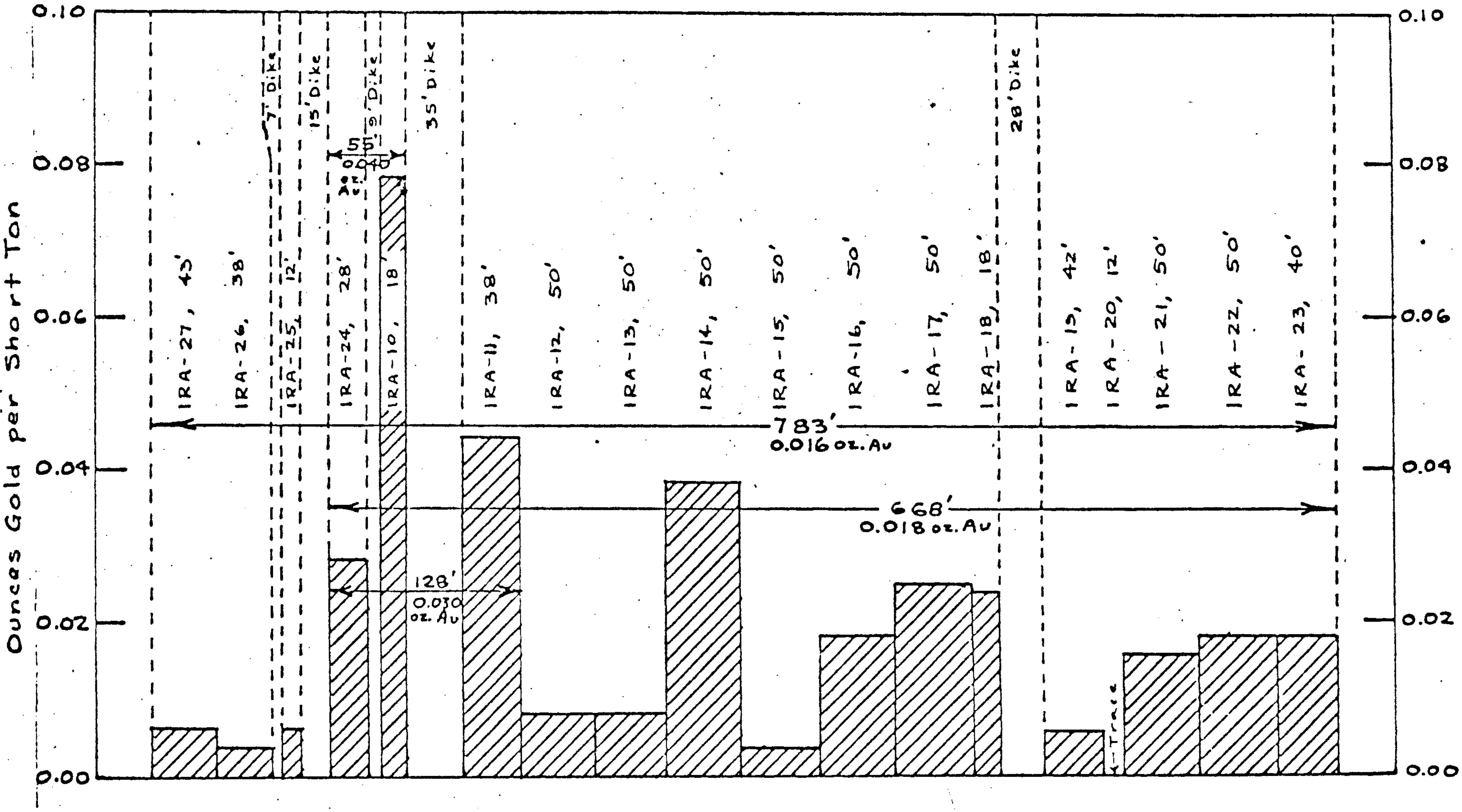

Figure 2 - Distribution of gold values across horizontal logging road cut in "Siliceous Pyritic Rock", Don Fraction Mineral Claim, Indian River Area, Britannia Beach, British Columbia, Canada

Maximum true thickness of dipping mineralized volcanic sheet is approximately 250 feet. Dike rock was not sampled.

CONCLUSIONS

I regard the Indian River setting as a potentially important one from the standpoint of economic mineralization. In the context of the volcanogenic theories of sulfide generation in ore bearing quantities, this rock suite has all of the necessary requisites. While the copper potential is more speculative, the gold potential is a certainty, in my opinion. Gold values are suggested in the economic range, particularly for large volumes of low grade ore. No one has attacked the camp from this standpoint to the best of my knowledge.

Access to the point of the suggested drilling sites would not be difficult. Large barges capable of hauling the biggest of logging equipment could off load drills and equipment at the landing at Indian Arm for this operation. Or the rigs could be driven over the hill from the Squamish side without difficulty. Drilling costs would vary on the number and spacing of holes, but a carefully selected fan of 3 holes, each about 800 foot minimum, would be sufficient to either turn the program on or shut it off. Perhaps a Canadian partner could be interested in this development work to earn an equity in the property at no financial cost to Anaconda.

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(4) Crone, Peter, October 1963, Notes on the Bell Property near Squamish, B. C. in the Vancouver Mining Division.

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(6) Reed, William M., February 9, 1966, Report on the Indian River Project, Britannia East Claims Area, Vancouver Mining Division, B. C. (Copy of text only included in Appendix B).

(7) Hansen, Leon A., February 1964, Indian River Project Britannia East Claims Area, B. C. Canada; and Hansen, Leon A., January 1965, 1964 Progress Report (Supplementary to February, 1964 Report). (Copies included in Appendix B, less maps).

Sample Numbers		Type of Samples	Width	% Cu	% Zn	oz Au	oz Ag	% As	% Mo
IRA 1	(IR 103)	Vein chalcopyrite, Trench C	Var. to 1'	16.47	0.30	0.008	2.25	0.02	0.001
IRA 2	(IR 104)	Vein chalcopyrite, Trench E	Var. to 2'	19.37	Tr.	0.056	1.82	0.02	0.001
IRA 3	(IR 105)	Vein chalcopyrite, Trench I	Var. to 1'	23.17	Tr.	0.048	1.99	0.02	0.001
IRA 4	(IR 106)	Vein chalcopyrite, Trench I	Var. to 1'	27.08	Tr.	0.036	2.08	0.02	0.001
IRA 5	(IR 107)	Vein cp with high quartz, Trench Q	" to 2'	2.34	Tr.	0.030	0.22	0.02	0.001
IRA 6	(IR 108)	Float sample; sch. rhy; py-cp-cov? Sta. 22		1.93	Tr.	0.040	0.26	0.01	0.001
IRA 7	(IR 153)	Paul's vein chalcopyrite	3-8"	8.69	Tr.	0.078	1.78	0.02	0.003
IRA 8	(IR 154)	Siliceous Pyritic Rock, Upper London Canyon		0.23	Tr.	0.136	Tr.	0.01	0.001
IRA 9	(IR 155)	Siliceous Pyritic Rock, London Canyon (grab)		0.05	Tr.	0.232	Tr.	0.01	0.001
IRA 10	(IR 156)	Sil. Py. Rock, Station 88, 9-27' S.	18'	0.03	Tr.	0.078	Tr.	0.01	0.001
IRA 11	(IR 157)	" " " 62-100' S.	38'	0.05	Tr.	0.044	Tr.	0.02	0.002
IRA 12	(IR 158)	" " " 100-150' S.	50'	0.06	Tr.	0.008	Tr.	0.01	0.003
IRA 13	(IR 159)	" " " 150-200' S.	50'	0.07	Tr.	0.008	Tr.	0.01	0.006
IRA 14	(IR 160)	" " " 87, 0-50' S.	50'	0.10	Tr.	0.038	Tr.	0.01	0.005
IRA 15	(IR 161)	" " " 50-100' S.	50'	0.06	Tr.	0.004	Tr.	0.01	0.004
IRA 16	(IR 162)	" " " 100-150' S.	50'	0.07	Tr.	0.018	Tr.	0.01	0.002
IRA 17	(IR 163)	" " " 150-200' S.	50'	0.08	Tr.	0.025	Tr.	0.01	0.005
IRA 18	(IR 164)	" " " 86, 0-18' S.	18'	0.13	Tr.	0.024	Tr.	0.01	0.002
IRA 19	(IR 165)	" " " 46-88' S.	42'	0.06	Tr.	0.006	Tr.	0.02	0.001
IRA 20	(IR 166)	" " " 88-100' S.	12'	0.08	Tr.	Tr.	Tr.	0.01	0.002
IRA 21	(IR 167)	" " " 100-150' S.	50'	0.14	Tr.	0.016	Tr.	0.01	0.002
IRA 22	(IR 168)	" " " 150-200' S.	50'	0.09	Tr.	0.018	Tr.	0.01	0.002
IRA 23	(IR 169)	" " " 85, 0-40' S.	40'	0.17	Tr.	0.018	Tr.	0.01	0.001
IRA 24	(IR 170)	Sil. Py. Rock, Station 88, 0-28' N.	28'	0.08	Tr.	0.028	Tr.	0.01	0.003
IRA 25	(IR 171)	" " " 43-55' N.	12'	0.26	Tr.	0.006	Tr.	0.01	0.003
IRA 26	(IR 172)	" " " 62-100' N.	38'	0.04	Tr.	0.004	Tr.	0.01	0.005
IRA 27	(IR 173)	" " " 100-143' N.	43'	0.05	Tr.	0.006	Tr.	0.01	0.004
IRA 28	(IR 174)	Massive pyrite vein, 130 NE, Lond. Cany.	3"	0.20	0.10	0.012	0.16	0.01	0.005
IRA 29	(IR 175)	Vein chalcopyrite, Main Roy trench,	3-7'	15.75	Tr.	0.032	Tr.	0.01	0.001
IRA 30	(IR 176)	Siliceous Pyritic Rock, small outcrop, grab		0.23	Tr.	0.018	Tr.	0.01	0.003
IRA 31	(IR 177)	Vein chalcopyrite, Roy Cr. S. side,	1-2'	4.14	Tr.	0.016	0.44	0.01	0.019
IRA 32	(IR 178)	" " " N. side,	1-3'	6.76	Tr.	0.020	0.73	0.02	0.007
IRA 33	(IR 179)	Copper oxide gossan, Sta. 129, folded	2'bed	0.71	Tr.	0.006	0.14	0.01	0.016