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Memorandum to Mr. Andre' Dorfman

In earlier discussions I have expressed the opinion that the casual employment of prospectors or financing of prospecting syndicates was extremely speculative and was not disposed to recommend participation in such ventures. We have subscribed from time to time for units in prospecting syndicates as a goodwill gesture to the prospecting fraternity but without any real anticipation for results.

It would appear that most of these projects lack any particular direction and with rare exceptions but little concentrated effort is applied. The readily accessible virgin areas that remain to be prospected are few and methodical search of well known districts is largely done by companies conducting detailed geological and geophysical surveys.

There are areas in Canada that have received little if any exploration and in some cases geological information available suggests they have much more than average potential for the occurrence of mineral deposits. However, the location of these areas is such that it is beyond the means of the ordinary prospector or small prospecting syndicate to explore them.

The exploration of these remote areas can be done best by well financed companies, capable of employing the necessary technical and prospecting personnel with adequate equipment and facilities for servicing.

As large expenditures are made for the organization and in preliminary reconnaissance of such projects, companies usually try to secure prospecting concessions to protect themselves. Although the granting of such concessions has been common practise in some of the crown colonies, they are only secured with considerable difficulty in Canada, being resisted by the prospecting fraternity. Concessions have been granted to mining companies in Labrador and

the Northwest Territories, while certain paper companies and railroads have been conceded mineral rights.

It is not proposed to argue here the pro and con of the granting of concessions but to point out that certain areas will merit investigation and it would appear they can only be adequately explored by company financed work.

Appended hereto is a condensation of the pertinent information contained in a bulletin of the Geological Survey of Canada titled, "Potential Mineral Resources of Yukon Territory" - by H. S. Bostock - 1950.

Mr. Bostock sets out the various reasons for the limited amount of prospecting done in the Yukon. It is apparent that very few prospectors have been attracted to the territory since the original stampede following the discovery of the Klondike placer deposits. However, the construction of the Alaska highway and subsidiary roads and the rejuvenation of the Mayo silver-lead district, has aroused more interest and several companies have entered the field.

Conwest and Ventures have confined their attention largely to the Mayo district but the former proposes to enlarge its operations. An application is now pending with the government for the grant of two large concessions about 200 miles north of Mayo where it is proposed to search for oil. It is also suggested that general exploration will be done elsewhere in the Yukon by reason of certain changes in staff organization.

Ventures has made an investigation of the old copper mines around Whitehorse and has done some desultory prospecting.

Springer-Sturgeon and associates did some underground exploration on a small gold prospect in the Carmacks area but withdrew in 1948.

Hudson Bay Mining has been continuously active since 1943 and so far

as known their exploration has been in the vicinity of the Alaska highway. However, I was told by Mr. Bostock of the G.S.C., that Hudson Bay prospectors had made an important find along the route of the Canol road. The company ~~have~~ has requested the government to do some work on the road which has been closed since the pipe line was abandoned. The latest annual report of H.B. M. & S. Co. states that a lead-zinc showing was staked in the Yukon on which work is planned this year.

In a recent conversation with Mr. Bostock, he told me that he was somewhat surprised by the enthusiastic manner in which Conwest was following up his remarks on the oil potential north of Mayo. He considers the mineral potential of other areas, described in his report, possibly more favourable and expected that when Conwest's interest became generally known others would be attracted to the territory.

It is my suggestion that serious consideration should be given to a planned program of exploration in the Yukon over a period of several years.

Until a general reconnaissance is made of the favourable areas described by Bostock, no intelligent application could be made for concessions, assuming that they would be granted. However, it is possible that an early decision could be reached on one possible concession area mentioned under the Selwyn Mountains area. The iron formation reported here is to be investigated by a G.S.C. party this summer and if action is to be taken on my proposal, it would be advisable to be in close contact with the government geologists. It is very likely that Conwest engineers will be following this investigation.

The major problem in undertaking the work suggested is the acquisition of an experienced personnel. The peculiar prospecting conditions, involving the use of packhorses and possibly a helicopter, will require

men accustomed to work in the cordillera.

The organization should be done by a geologist or engineer with a background of experience in the Yukon or British Columbia. It would seem that Mr. Bostock is an ideal man for such work, having had over 20 years experience in the Yukon. However, his long connection with the G.S.C. makes it very unlikely that he would be available unless a leave of absence could be arranged.

In addition to the senior geologist, three or more junior geologists will be required at the outset. These men would be used to head reconnaissance parties to make the preliminary investigation of the promising areas during the first season. Their recommendations would determine the employment of prospectors for detailed search of favourable sections in subsequent seasons. Obviously these men would have to be of more than ordinary caliber.

As a preliminary estimate it is suggested that a minimum average annual expenditure of thirty to thirty-five thousand dollars be considered for a period of five years. This would be subject to revision dependent upon the results obtained.

If this proposal is of interest to you, the next move should be to visit Mr. Bostock again for further discussion, after which more detailed plans can be made.

Chas. L. Coleman

Toronto, Ontario.
April 30th, 1952.

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An Extract of Information contained in "Potential Mineral Resources of Yukon Territory" - by H. S. Bostock

The effective prospecting season is short. The percentage of rock exposure, everywhere small in the cordillera, is even less in the Yukon, where bedrock is commonly covered by thick moss. Prospecting for lode deposits is largely confined to bedrock exposures, as trenching is hindered by the persistence of frost in the overburden.

The climate of the Yukon is the best of any area in the same latitudes in North America except, perhaps, the coastal region of the Gulf of Alaska. The geology of its terrain is favourable. The main part of Yukon is within a 400 mile radius of Skagway, which is an ocean port, offering ease of access to world commerce throughout the year.

The Yukon river and its tributaries form a great branching system of waterways connecting railhead at Whitehorse with most parts of the Yukon plateau. However, these waterways are only open for a brief summer season.

A road system that will be in use throughout all normal seasons is required. The entire territory south of the 65th parallel is well adapted for such a system. It is traversed by more numerous and easier routes for roads and railways than other parts of the Canadian Cordillera.

The Yukon plateau and the bordering mountain areas are underlain largely by ancient rocks that are largely Precambrian. The fact that such a large proportion of the Yukon is underlain by these rocks as compared with other cordilleran regions is in itself a strong measure of its mining possibilities. The Yukon is favoured by coal measures conveniently distributed in its southern and central parts, and by potential oil reserves in its northeastern part.

St. Elias Mountains Area

About half of this area is composed of great ice-bound ranges. Some prospecting has been done of the glacier valleys but the interior requires prepared expeditions.

The construction of the Alaska highway has made this area more accessible and heavy machinery has been brought in to exploit gold placers. A great variety of metallic minerals have been found among the heavy placer concentrates including those of copper, lead, silver and platinum. Lode prospecting has located some copper, which occurs abundantly in the placers in native form. These lode prospects occur in the White river part of the area, between Donjek river and Kluane lake and south of Kathleen lakes. It is significant that the great Kennecott copper deposit in Alaska lies in the western extension of the area.

Coast Mountains Area

Two mineral belts follow the southwest and northeast contacts of the Coast Range batholith, and are distinguishable in the developed areas of British Columbia and southeastern Alaska where they contain many great mines. These belts continue into southwestern Yukon.

The southwestern contact belt in the Yukon has yielded some placer gold. Practically no lode prospecting has yet been done on this belt, although in southeastern Alaska it has yielded considerable mineral wealth and similar possibilities can be expected in the Yukon.

The northeastern contact belt has produced some lode copper in the vicinity of Whitehorse. Numerous mineral prospects have been found that are accessible from the White Pass and Yukon railway. Where the northeast contact belt crosses the Alaska highway it has received little attention, but

is known to contain copper prospects similar to those of the Whitehorse copper belt. As the Coast Range batholith continues northwest in the Yukon it passes into an area of nearly continuous drift and thence, beyond Aishihik lake, into a mountainous region difficult to explore by the individual prospector. This is an unprospected area with good geology.

Cassiar Mountains Area

Where these mountains are crossed by the Alaska highway, numerous prospects have been found in the last few years by individual prospectors and by company prospecting organizations. These are showings of silver, gold, lead and zinc. Tungsten and tin have also been reported. Until the highway was built no lode prospecting had been done and at present it is only being prospected near the road.

Pelly Mountains Area

This is a large mountainous area of almost unexplored country projecting into the Yukon plateau. Except along its borders, it has been difficult to reach and hard to penetrate. Since the construction of the Canol road much of it is now relatively accessible for prospecting. The area contains granitic bodies and also basic and ultrabasic rocks. It is with the latter rocks that the Cassiar asbestos deposit of Northern B.C. is associated. Deposits containing copper, gold and asbestos have been found on the Teslin slope. Large veins of barite outcrop near the Canol road on the northeast border of the Pelly mountains.

Klondike Area

None of the lode gold prospects explored in this area have proved economic. Silver-lead and antimony veins of good grade have been found in several places. Asbestos has been found in serpentine bodies north of Fort Selkirk.

Pelly Plateau Area

This area was entered by white men more than 100 years ago and has been traversed by five parties of the G.S.C. In spite of the fact that all these parties discovered gold-bearing quartz veins and other metalliferous deposits, few prospectors have concentrated their work within this area. No feature of its geology, however, invites a pessimistic attitude towards this area. Until the building of the Canol road, the area was relatively remote.

Mayo Area

A very large production of silver and lead has been recovered from the Galena and Keno hills of this area.

Cassiterite occurs in the gold placers of the area. Tin has also been found, spectroscopically, as a constituent of granodiorite. The distribution of tin in the Mayo area suggests that it occurs with intrusions to the eastward in the Selwyn mountains. This leads to the belief that workable lode tin deposits will be found associated with one or other of these stocks.

A road has been built to connect the Mayo district with Whitehorse. A hydro-electric power scheme has been explored with favourable results.

Selwyn Mountains Area

This area can be divided into three parts, Hyland plateau and Logan mountains in the south, Hess mountains in the middle and Wernecke mountains in the north.

The Hyland plateau and Logan mountains have never been traversed by a geologist. There are known to be scattered granitic intrusions. South of the 62nd parallel, some lead and copper prospects have been found and tin has been reported. During the last few years some companies have been exploring discoveries along the accessible southern fringe of the Hyland plateau.

The Hess mountains are little known. There has been some prospecting in the area but no mineral discoveries reported. The Canol road traverses the southern portion of the area.

Very little is known of the Wernecke mountains area as a whole. Scattered geological explorations show that the formations along its southwest side are very similar to those of the Mayo area and the same types of mineral deposits may be expected in it, including tin deposits. Important prospecting zones are anticipated around some of the many granitic stocks scattered in its mountains.

Bedded hematite iron formation extends from the 141st meridian in the Ogilvie mountains area, in the northwest, to South Nahanni river in the southeast, at intervals along a broad arc about 550 miles long. Northeast of Mayo between Wind river and the head of Stewart river the iron formation is said to be of good grade. Some of the specimens brought out are nearly pure hematite. No one has described this ore in place northeast of Mayo except the late Mr. Wernecke, who stated that the iron formation near the head of Bonnet Plume river was several hundred feet thick and could be traced from the air for 130 miles southeasterly through the mountains. By following the best grades, a railway to this locality from Skagway would be less than 500 miles long. So far as known this iron formation constitutes the one great, possible, iron ore reserve within 500 miles of the Pacific Ocean in either north or south America.

West of Wind river trappers have reported a belt of greenstone. Chalcopyrite occurs in the greenstone. Nothing definite is known of the size of the belt, but its existence points to the possibility of economic copper deposits.

Ogilvie Mountains Area

Most of the area constitutes one of the least explored parts of western Canada and all parts of it are difficult to penetrate.

Petroleum in northern Yukon Territory

The region north of Ogilvie, Selwyn and Mackenzie mountains was almost ignored in the search for oil during the period of the Canol project in 1942 and 1943, chiefly due to remoteness from the Canol pipe line.

Bitumen veins and petroliferous strata have been described by Camsell along the Peel river below the mouth of Wind river. However, this locality is not regarded as a prospective oil reserve. To the northeast, however, between Peel river and Richardson mountains, there is a broad unexplored area in the Peel plateau with structure suggesting oil possibilities.

Eagle Plain lies west of the Richardson mountains and is believed to be underlain by formations that contain petroliferous beds on Peel river to the southeast, but it is vertually unexplored. Its drainage pattern plotted from air photographs, suggests gently undulating structures that may form oil reservoirs.

Other potential oil areas are described but the locations mentioned above are regarded as the most favourable.