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Ottawa, Ontario,
18th October, 1952

Mr. C. L. Coleman,
Managing Director,
Prospectors Airways Company Limited,
Suite 1616-44 King Street West,
Toronto, Ontario.

Dear Sir:

Following your instructions on the 14th, I went to Ottawa and obtained the following information regarding operations in the Yukon Territory. The information is set forth under the name of the person who provided it.

Dr. H. S. Bostock, Geologist, Department of Mines
and Technical Surveys

Dr. Bostock was asked if any finds of importance had been made by survey personnel this summer. He stated that he had not gone over all the work done by the Yukon geological staff as yet but assured me that nothing had been turned up that was of immediate economic importance. He further stated that he would be in a better position to advise on areas in the Yukon that warranted detailed prospecting in a month's time at the completion of the preliminary reports of the field men. He suggested that one of our men visit him in Ottawa at that time and compare notes on our findings in the Yukon this summer, so that he would be in a better position to advise us.

Regarding the exploration party headed by Dr. John Wheeler, that was checking the reported iron ranges in the Wernecke and Selwyn Mountain area, he stated that no finds of economic importance had been made and corroborated the report of Dr. Wheeler

in this regard. More detailed information on this is given below. Dr. Bostock thinks that the sources of the hematite float that gave rise to the "iron range" story have not yet been located and that further detailed investigation is warranted.

When asked what he considered the next most important area in the Yukon beside the St. Elias range for detailed prospecting, Dr. Bostock tentatively proposed the area northeast of Fairweather Lake in the Hess Mountains recceid by F. A. Campbell this summer. Wheeler had outlined five granite stocks in this area and reported some copper, and scheelite mineralization along the margins of one of these stocks. Although nothing of immediate economic importance had been found by Wheeler it was suggested that the area was a good geological bet. This area is marked on the accompanying map and further details were obtained from Wheeler regarding the location of the mineralization and the position of the intrusives.

Bostock suggested that the Glenlyon Range also warranted further investigation. This area was surveyed by a geological party headed by Dr. Campbell this summer, and is comprised of a series of roof pendants intruded by granitic rocks. Considerable skarn material and carbonatized sedimentary rocks are present. Bostock located a piece of float material carrying seams of pyrrhotite and sphalerite mineralization at location (2) on the accompanying map.

A preliminary map of the area will be out before spring.

Bostock also mentioned that an exploration trip south from Mt. Sheldon southward to the Liard River might be interesting in that nobody had yet explored this area.

He also stated that the British Columbia end of the Cassiar Mountain belt was geologically interesting.

He thought the McQuesten area was of interest as well, and mentioned that he had panned galena in the sands at the mouth of Boulder Creek. Some of this sand was reported to contain 5% monazite.

Two detailed survey parties are planned in the St. Elias range next year. One to work in the Alsek River area and one in the White River Area.

Regarding areas in the Yukon of interest for oil exploration Bostock mentioned the Eagle plains area where it is understood Conwest Exploration and Anglo-Huronian are at present participating in a venture. He also stated that E. D. Kindle thought well of the Liard Plateau area. Reports on this area are available and have been ordered. They are Geol. Recce. paper 4522, by C. L. Haig, and 4416 by E. D. Kindle.

Dr. John Wheeler, Geologist, Geological Survey Branch,
Department of Mines and Technical Surveys

Dr. Wheeler was questioned regarding his exploration trip through the so called "Iron Range" in the Wernecke Mt. area and provided detailed information on his route and findings. This is shown on the accompanying maps.

He stated that hematite had been found in narrow 3 inch bands in quartzite three miles east of Pentiguila Lake, but was quite definitely of the opinion that it was of no economic importance. He did think that it was important however to do detailed exploration of these quartzites for larger deposits. The red beds that gave credence to the story of an "iron range" were quite misleading and of no importance where examined along his route this summer, he stated. He thought that the original hematite float that was responsible for the story might have originated in iron bands in the quartzites similar to the one he examined at Penguicula Lake.

The hematite found by Wheeler at location (1) on the accompanying detailed map (A) was described as follows. "Bands of dense, fine grained, hematite from 3 to 4 inches thick in pale green to purplish colored quartzite, aggregating 12 inches to 14 inches of hematite over a total width of 700 feet of quartzite. The showing is on a hill slope and drift covered above with no exposed length. No extensions were found in neighbouring gullies along strike. Three hundred feet to the north of the hematite band a seam of siderite, 1 foot in thickness is exposed in a limestone bed, in two locations several hundred feet apart. Hematite bands up to 4 inches thick were found in pieces of float at three locations downstream from the showing.

Wheeler mentioned an area of similar quartzites several miles to the west of the above location and to the west of Gillespie Lake (see accompanying map), that he thought would bear detailed

investigation for hematite. Camsell has mentioned finding hematite float at a fork on the Wind River to the northwest of this area.

Regarding the granite stocks in the Hess River area, Wheeler provided detailed information on the location of chalcopyrite, scheelite, and molybdenite mineralization discovered by his party. The mineralization occurred in pieces of float at the bottom of a cliff. He thought the material could be readily found in place and warranted further investigation although the mineralization was disseminated and did not appear to be in economic quantities in the float. He described the float as having scattered chalcopyrite and scheelite in carbonate veins, material, and trachytic diorite with scattered small flakes of molybdenite and pyrrhotite. Scattered chalcopyrite and pyrrhotite was noticed in pieces of quartz vein material 6 inches thick, at the same locality.

Dr. E. D. Kindle, Geologist, Geological Survey Branch,
Department of Mines and Technical Surveys

Dr. Kindle mentioned a copper find he had made on Kathleen Lake, Dezdeash Area several years ago and which he had noted in his preliminary report of this area that is to be published shortly. The showing which is marked at location X on the accompanying Desdeash Sheet is not economic as it stands but deserved further detailed work. The showing was described as follows. "Small bornite rich veins on the south side of Bornite Creek, 2 miles SE of Sockeye Lake. Two intersecting quartz veins were noted at an elevation of 3,550 ft. about 50 feet above the stream bed. One strikes S60 W and dips 70 SE, the other strikes N55W and dips 65 NE

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Both are less than 50 feet long and range from 3 to 15 inches in width. They occur as small faults in massive fine-grained, green andesite. They are sulphide veins largely bornite, with minor pyrite and chalcopyrite, and in places vein quartz. The NE trending vein disappears as a fan shaped shear zone which is sparsely mineralized with bornite across widths of 5 to 6 feet.

About 100 feet further west another diverging shear is exposed in the andesite. It ranges in width from 6 inches where it emerges from the drift, to 6 feet at a distance of 30 feet along strike. The bornite is heavily concentrated in the narrow part of the shear but becomes more sparsely disseminated as the zone widens.

At 100 feet still further east and 50 feet higher on the slope a massive sulphide pod 12 feet long and 2 feet wide composed of bornite and brecciated, partly replaced, andesite. A 2 pound representative sample was assayed at Ottawa and gave the following results. Gold, trace; silver 1.62 oz; copper 29.92%. About 30 feet higher up slope is a quartz vein 3 to 12 inches wide exposed for a length of 20 feet containing 5 to 25% bornite. Further detailed prospecting along the shear zone is recommended."

Dr. Kindle was asked if he thought the native copper discovered in placer operations, etc., in the St. Elias region was primary or secondary in nature, and he stated that he agreed with Cairns idea that the large native copper floats were mainly secondary, and derived from reduction of chalcocite veins undergoing surface weathering. This checks with my own observations in the area. He did state, however, that he had observed some primary native copper present as fine wires in the patches of epidote alteration

that often accompanies vein formation in the lavas.

Dr. John Mueller, Geological Survey, Dept. of Mines
and Technical Surveys

Dr. Mueller was head of the party that has been mapping the Quill Creek area for the past two seasons. Mueller's map covers the present area under investigation by our company and Hudson Bay Mining and Smelting Company and will be out in preliminary form this winter. All geological information on the map pertinent to our claims and that of Hudson Bay Company was furnished by Dr. Mueller on a scale of 1 inch to 4 miles and will be included in my report on the Quill Creek area under separate cover. The location of additional peridotite showings discovered by the survey party was provided and should be helpful in guiding prospecting next season. Dr. Mueller stated that no additional showings of copper-nickel sulphides were discovered by his own party in the map area.

C. W. Jackson, Assistant Deputy Minister, Dept. of Development
and Natural Resources

Mr. Jackson was interviewed regarding proposed changes in the staking laws governing the Yukon Territory and the possibility of mineral concessions being granted in the Yukon Territory.

Regarding Staking Laws: The staking regulations governing the Yukon are coded under the Yukon Quartz Mining Act and are inflexible. No change can be made in the laws without repealing the act as a whole. This is under consideration at the present time and may be submitted to the House of Commons this year. Any announcement regarding this will be duly published in

the Northern Miner. It is proposed to repeal the present act and substitute the mining regulations that at present are in force in the Northwest Territories. This will mean that cairns will be allowed in the Yukon and the four post staking system adopted. If the present Act is repealed an ordinance may be substituted in place of the act. The essential difference is that an ordinance may be altered as exigencies arise, by Order-in-Council, while in the case of an Act, changes cannot be affected except by a vote on the floor of the House. An ordinance will thus provide greater flexibility.

Regarding Mineral Concessions: Mineral concessions in the Yukon are not provided for under the present quartz mining act, and therefore cannot be granted. Jackson stated if the act was repealed consideration would possibly be given to granting concessions for exploration for iron.

Oil concessions may be granted at present in the Yukon as oil and gas do not come under the inflexible Quartz Mining Act.

Regarding the Canol Road: Jackson stated it was the policy of the department that the building of roads was dependent on mineral discoveries being made of sufficient value to warrant the building of a road, and that purely development roads would not be considered. He thought that, if Hudson Bays finds along the Canol Road proved of sufficient importance, then the Yukon Portion of the Canol Road would be maintained.

K. J. Christie, Chief Mining Inspector Yukon Territory
and Northwest Territories

Mr. Christie was questioned on the potential oil areas in the Yukon and corroborated Dr. Bostock's statement that the

Liard plateau area in the southeast corner of the Yukon Territory was an important area from a geological point of view. He stated that all the ground to the west of the Yukon boundary in the territories was at present staked. Apparently no staking has taken place in the Yukon yet. The area in question is marked on the accompanying map.

The regulations governing the acquisition of oil and gas lands were discussed. The highlights of these regulations are as follows:

Permits consists of rectangular areas, usually square, 10 miles by 10 miles to a side. This encompasses 64,000 acres.

A company or an individual can stake out 8 permits (or claims). In practice 1 man stakes out 8 claims in his own name and 8 in a companies name. Thus one man can tie up 1,024,000 acres.

A permit is staked on the ground by means of a 2,000 foot reference line that must be cut out 6 feet wide in timbered country or marked by cairns otherwise. The reference line must run in one of the cardinal directions and serves as witness for the entire permit area, or may serve for 4 contiguous permit areas. The description of the location of the areas claimed and the reference line or lines of course accompanies the application together with an affidavit of staking.

A letter of intent for the development of the area must accompany.

A bond at the rate of 5 cents per acre plus a fee of \$250.00 per individual permit must also accompany the application. Thus to acquire 64,000 acres a bond of \$3,200 must be posted and a fee of \$250.00.

A sum of money equivalent to the amount of the bond must be expended in the permit area within 18 months to hold the ground. No extensions will be granted.

Within the second 18 months period a surety bond of 25 cents an acre must be put up.

At the end of the third year 35% of the whole area may be taken up anywhere within the original acreage applied for. This area must be then surveyed and a lease applied for. Royalties are paid on this on a sliding scale.

Additional information obtained from other sources

Regarding the Hudson Bay Mining and Smelting Companies nickel property on Quill Creek, reliable information was obtained from a person who had examined the core of the first two drill holes on the main showing. The first hole located at the edge of the sulphide outcrop and drilled horizontally was satisfactory and apparently gave similar results as to sulphide content as to the surface.

The second hole was drilled down dip to cut the sulphide body at an estimated depth of 300 feet. Sulphides were intersected over a true width of between 50 and 60 feet, and the hole was described as being better than the first hole above it.

No information as to grade, or additional holes was obtainable.

Regarding the nickel showing of International Nickel Company on Ferguson Lake NWT, a man who had examined the work to date stated that there is a narrow band of copper and nickel sulphides at the contact of a 10 mile long diabase dike. The mineralized zones are narrow and would grade in the neighbourhood of $\frac{3}{4}$ of a percent nickel, and some copper. They are at present drilling geophysical anomalies in the hope of encountering wider zones of mineralization. INCO has a concession on the area and under the terms must drop half the acreage this summer. Asked if he considered it worthwhile to pick up some of the acreage dropped for our company, my informant stated he did not think it was worthwhile on the basis of the present results.

Regarding survey maps and geological reports, a full set of all topographical maps published to date were obtained in triplicate, on the Yukon Territory. Duplicate copies (Oce) of all the original tracings of topographical maps completed but not as yet at the printing stage, were obtained and will be sent on to this office within a week's time. These maps will be very valuable for field work sheets as they are on half mile and mile scales. These maps were obtained from R. E. Palmer, Chief Topographic Engineer, Topographical Survey and Mapping Branch, Department of Mines and Resources, Ottawa.

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18th October 1952.

E. O. CHISHOLM, P. Eng.