II.

PRELIMINARY CONFERENCE, APRIL, 1939

The members of the Commission, Honourable Charles Stewart, Brigadier-General Thomas Tremblay, Mr J.M.Wardle, Mr Arthur Dixon and Mr J.W.Spencer, held a preliminary meeting in Victoria on April 27th, 1939, and conferred with the Premier of British Columbia, Honourable T.D.Pattullo, the Surveyor-General of British Columbia, Mr F.C.Green, the Deputy Minister of Mines of British Columbia, Dr J.F.Walker, Mr C.Frank of the Ingenica Mines, and Mr C.E.Webb, District Chief Engineer, Dominion Water and Power Bureau.

Hon. T.D.Pattullo — Mr Pattullo described the history of the project to build a road through British Columbia and the Yukon to Alaska and his own interest therein. He made it clear that such a highway would be valuable in opening up the northern part of British Columbia, and would be equally important to the United States as a means of communication between the State of Washington and Alaska. The United States desired a highway mainly as a tourist route. He did not believe there was any demand for it as a military road. No suggestion of military use had entered into his conversations with the President or any other official of the United States Government. Mr Pattullo also outlined his negotiations with the Dominion Government.

F.C.Green — Mr Green said that survey work in the area through which the highway might be built had been mostly confined to the region south of Prince George, but that there was a net of triangulation on the Stikine river to Telegraph Creek, and from Prince George north to the Ingenica river. Beyond this the Geological Survey had done a little work in the vicinity of Dease Lake.

"At the time of the former Commission in 1931" he said "all the discussion was concerning a route northward from Hazelton, and two survey parties were sent out, one by airplane and the other by pack horse. Rolston worked south of Telegraph Creek and did a certain amount of flying, taking a series of views which are not of very great value for topographical purposes. Mr Gray obtained

some information north of Telegraph Creek as to the route across to Atlin.

"We have very definite information from Prince George north to the Sifton Pass. From that point northward the best information is obtained from the report of Inspector Moodie of the North-West Mounted Police who went through in 1898 locating a waggon road to the Yukon, and in one of the Ottawa Sessional Papers there is a day to day description of the route that he found down the Kechika river almost down to the Liard. He went from there up to McDame and down the Dease to Lower Post, thence up the Liard and Finlayson Rivers to the Finlayson Lake, which is close to the Liard-Yukon Divide. The altitude of Dease Lake is about 2,500 feet roughly, and to go west to Atlin Lake the altitude is probably over 5,000 feet. There are lower altitudes to the south, down to possibly 4,000 feet, but the country is not covered by any survey."

Mr Green said that Gray's investigations had been west of Dease lake. All reports obtained were on the "A" route. The far western route was inside the Coast Range but in a country of heavy snowfall. The Nass River had a wide estuary, very open to the Pacific, and there was heavy snowfall up the Nass valley. The Iskut was also open to the Pacific and was therefore subject to wet winds, precipitation and snow. Precipitation was much heavier south than north of Telegraph Creek. Precipitation on the eastern route, or "B" route, was comparatively light throughout, nineteen inches a year at Prince George, and thirteen inches at Dawson. The western route went from Hazelton up the Nass river for some distance on the west side of the valley in favourable country, then over a divide into the Iskut valley and thence north-east into the Stikine valley. The eastern route was about 209 miles shorter than the western route from Vancouver to Dawson, which would probably affect the volume of traffic. The eastern route was also close to the Peace River area, it being only forty miles from Finlay Forks to the end of the existing roads in the Peace River Block.

There was also a road running north from Vanderhoof to the east end of Stuart Lake, and a mining road from there up to Manson Creek. This latter was a joint undertaking of the Dominion Department of Mines and the Provincial Department of Mines. It had been built a little to the eastward of the route originally

intended in order to get a lower pass, and reached an altitude of 3,800 feet. The highest point on the Summit Lake route would be 3,150 feet, and it would pass through a moderate precipitation belt. The altitude was lower than in the Cariboo country. A trail could be very easily built to get to the Telegraph Creek country from the headwaters of the Finlay river, but it would reach an altitude of about 4,500 feet.

The Finlay and Kechika valleys were wide and flat, and there was no very marked divide. Inspector Moodie had referred to muskeg but had said that it was very easy to get around. The country was one of glacial drift, with a good foundation. It was true that the eastern route would not touch Telegraph Creek and Atlin, but these were very small towns. The Hazelton route would go through coal country. The Coast Range had a granite core, and most mines were on the eastern contact, which was on the eastern edge of the Coast Range batholith. The coal was said to be anthracite but access to it was difficult and costly. Considerable locating and prospecting had been done about 1912-14 and the Provincial Government had made surveys in the Groundhog country at that time.

As to his views on the scenic possibilities of the two routes, Mr Green said: "Route "A" passes through jack-pine, low foothill country and goes over a divide into the Skeena valley, which is heavily timbered, mostly hemlock. There would not be very interesting scenery until the Klappan river is reached. The distant view of the Coast Range would not be very scenic. North of Telegraph Creek is very uninteresting plateau country, but the Atlin country is very beautiful. On the eastern "B" route there is not much scenic value until towards Finlay Forks, where the Rocky Mountains are visible to the east. Finlay Forks is just at the western gateway to the Rocky Mountains. It is a very fascinating trip down the Peace River from Finlay Forks. The Kechika valley has been described as the most beautiful valley in British Columbia."

Mr Green added that the eastern route was close to an agricultural area which would be a cheap source of food supply. There was good farm land in the lower Finlay valley to a point about 35 miles north of Finlay Forks. The valley was four or five miles wide and low enough for agricultural purposes. The Omineca

and Ingenica valleys were limited in area. The country north of Sifton Pass was a lower altitude country. This was the greatest game country in British Columbia.

In regard to flying conditions, Mr Green pointed out that airplanes would have better flying weather on the eastern route. As to refueling there was no cheap way of getting in supplies on the western route midway between Hazelton and Telegraph Creek. On the eastern route supplies could come in by Hudson Hope.

Replying to other questions, Mr Green said that there would be no serious obstacles to the construction of a highway through the Yukon, as the route would follow river valleys. As to the question of cost, he said that the difference between the "A" and "B" routes would run into millions.

Mr Green commented on the precipitation at Dawson, which was 13 inches, and at Prince George, 19 inches, and that apparently the Kechika area in between was drier.

Mr Green filed a Memorandum which will be found in the Appendix as 5.

Dr J.F.Walker — Dr Walker discussing the mineral possibilities of the two routes said:

"The westerly part of Route "A" is, on the whole, a little too far east of the Coast Range. The road would have to go still further west, through absolutely impossible country, in order to reach our known mineral districts. Route "A" would be in touch with the Groundhog coal field, but would be too far away for any real value at the moment. There is enough coal near the Skeena river at Smithers to supply all that is needed along the Canadian National Railways; in fact, most of the coal going to Prince Rupert actually comes from Alberta.

"The easterly route is the logical route as far as construction goes. That route would tap an area we are opening up now with the Manson Creek road some 50 miles to the west. There is a mineralized belt lying along the mountains to the west of the easterly route which we think is very promising. Manson Creek is a mining aid road. That route, as far as mineral resources are concerned would be as good as the other one and might be better. I do not figure

on finding much to the east, but the west is better country and branch roads could be built to the west."

In regard to snowfall, Dr Walker said that if you could keep away from summits of 3,600 feet, the snowfall was not bad. In parts of the road the Province was building east from the south end of Dease Lake, there was only a three months open season on a 4,500 foot pass. They were swinging west to some known mining property. The road to Manson Creek would be only forty miles from Finlay Forks this year,and construction was fairly easy. Reports as to the territory from Finlay Forks to Fort Grahame were to the effect that it was all easy going on gravel benches all the way up the valley and over into the Yukon. The highest altitude would be 3,100 or 3,200 feet, and going down the trench to the international boundary the highest point would be about 3,000 feet.

If the highway should be constructed on the "B" route the present mining roads would probably be converted into winter roads. The mineral area would be a little to the westward and is nearer the east route than the west route. Route "A" would tap the area where we are building east, from the south end of Dease Lake, but Dr Walker thought that transportation would be by the river out to the coast rather than along the road to Hazelton. The natural outlet in the Coast Range was by river and ocean transport.

As to the Hazelton-Atlin route, the height of the summits was a difficulty. On the old Telegraph Creek - Yukon trail between the Stikine and the Yukon, there was muskeg at 5,000 feet, and on the high summits it was a continuous fight to keep horses on the surface. The road going in from the south end of Dease Lake was very much the same. The ground was very wet during the three months frost was out of the ground. The eastern route would be the driest.

In regard to conditions in the Yukon, Dr Walker said that whether route "B" came in on the Pelly or the Lewes, either would be easy going. The only thing would be one or two big bridges. The Pelly would seem to be the easiest way through. To the objection that this route would not reach Whitehorse, Dr Walker said that it would be possible to build from the Liard over to the Teslin,but the summit would be about 5,000 feet.

In reply to various questions Dr Walker said that from the point of view of the mining industry, the eastern route would be best. The Pelly river was navigable for some distance by small stern paddle boats. There were only a few places in the Rockies where there were known to be minerals. Some of the finest coal in the country was in the Peace River area.

In regard to gold mining, Dr Walker said "One of these days they are going to find lode gold in the area east of Dease Lake where we are building a winter road. We have been getting extremely coarse placer gold during the past two years. This area may or may not develop into a placer area, but it is one of the best spots in British Columbia for lode gold. Freight rates on material going into Atlin are high but rates on concentrates coming out are very reasonable. The whole area attributary to the Stikine is accessible to the coast. The Taku area can be opened up by river transportation and local roads.

C.E.Frank — Mr Frank described mining activities in the northern part of British Columbia. He said:

"The Omineca valley is an important part of the district for mineral resources. Our Company has expended about $400,000.00 and crown granted about forty mineral claims. We sent an exploration party further up the valley to Ruby Creek, close to Sifton Pass, but they did not go beyond Sifton Pass. We have information from trappers that there is considerable placer gold left in the Turnagain river. As far as we know the pass is fairly low, about 3,000 feet. For a number of years we had prospectors north of the coal belt on the Hazelton route, towards Klappan Pass, and they reported that the country is mainly slate formation with no mineralization until the Iskut river. The mineralization was mainly gold and copper.

"The divides are very high, around 5,000 feet, and the snow would be very heavy, about fifteen feet in July. I think that the interior belt would be the most suitable and would be open for several months longer. From a mining man's standpoint the mineral resources in the country following the Omineca batholith are most important. On the eastern route the distance between Vancouver and

Fairbanks is several hundred miles shorter; cost of construction would be less; the Peace River area could be linked up; at Finlay Forks there are 300,000 acres of good agricultural lands; there are vast mineral resources. The snowfall at Fort Grahame averages about 4 feet, and is about the same at Finlay Forks. Further north the snowfall gets very light."

In regard to the character of the timber between Fort Grahame and Sifton Pass, Mr Frank said that it consisted of spruce, balsam and some pine, very small, about 18 inches. The country was of bench formation over which bulldozers could go into work. The valley of the Ingenica averaged about two miles wide. The main Rocky Mountain trench was about 70 miles wide. There was plenty of room for a highway on the benches, and the eastern side of the valley would be the best. Scows left Summit Lake about May 10th, but the Peace river proper was open about one month earlier. The Finlay closed about November 10th. There was considerable gold in the northern country around the Liard. As far as his information went the whole gold country was more or less of a bench country and fairly heavily wooded in places. There would be no difficulty in the road construction from Prince George to Sifton Pass.

J.E.Webb — Mr Webb said: "I spent six weeks continual travelling between Whitehorse and the international boundary and went up all navigable streams to the east of the Yukon river, including the Pelly. I went up the Pelly from Selkirk on the Yukon, to some miles above Macmillan. The river is navigable for small boats, which drew about 3 feet of water in June, and we had no trouble to about twenty miles above Macmillan. The Pelly is navigable by canoe up to the Ross river. There are windings in the river and in spots there would be sluggish water. There would be no construction difficulties in the valley and no difficulty in obtaining a reasonable crossing of the Pelly river. Difficulties would be encountered unless you stayed well away from the river itself because it is so winding. The valley is fairly wide and sparsely timbered. It is quite dry in this section.

"The high water period is during the latter part of June on the Pelly. This is a wonderful country for trout and grayling, and there are lots of moose, bear and mountain sheep. The amount of driftwood might interfere with the landing of planes, depending on the type of freshet. There are bases for summer supplies at the Hudson's Bay posts at Whitewater, Finlay Forks and Fort Grahame."

III.

PUBLIC HEARINGS

Prince George

The Commission met in Prince George, British Columbia, on July 6th, 1939. The Chairman explained the purpose of the investigation and said that the Commission was anxious to have the views of everyone interested as to practicable routes for the proposed highway to Alaska, their respective advantages and disadvantages, what interests would be served by a highway, and the resources of the country through which it would be built.

H.G.T.Perry, M.L.A. Mr Perry made a statement on behalf of the Prince George Board of Trade. "Our interest in the Alaska Highway" he said, "was first stimulated in 1930 when the late Premier Tolmie of British Columbia organized an international Alaska Highway Caravan, from the State of Washington and the cities of Victoria and Vancouver to Prince George and Hazelton, accompanied by men high in the public service of the United States and British Columbia. ... Prince George has long been a strategic point in the transportation problem of northern British Columbia, first as water route, then as railway junction, and highway and air centre. .... Prince George is a key point on highway transportation already and must be so considered in regard to the Alaska highway."

Mr Perry pointed out that Prince George offered several alternate routes south, of which two were already built and two others under active construction. In the first class was the Cariboo highway to Vancouver and the United States, and the road by way of Cash Creek to Kamloops and Okanagan and the United States. In the highways under construction, one leads to the Yellowhead Pass and south over the Jasper-Banff highway, and the other to Tête Jaune and Kamloops.

From Prince George, Mr Perry continued, a road under construction would connect by Yellowhead Pass with Edmonton and the highway system east of the Rockies. Another route would reach Edmonton by way of Finlay Forks and the Peace River

highway, if the easterly route should be selected for the Alaska highway. A third possible route to the east would be available by way of Kamloops and Revelstoke. There would also eventually be a route from Prince George west to Prince Rupert by Hazelton.

Mr Perry told the Commission that the Prince George Board of Trade did not feel that it was its duty to criticize any of the proposed routes. Technical information no doubt would be provided by competent engineers. The point to be emphasized was that the Alaska highway must serve certain purposes and the route selected "should be one which, meeting the purposes for the highway in the first place, also possesses distinct advantages over any other route."

The Board of trade felt that as the objects of the proposed road were not of a local nature, it was of little importance whether or not any particular town was on the route selected. The purposes of the highway could be defined as for tourist traffic, development purposes, defence and international goodwill. Of these it was felt that the first two would be its principal justification. Tourist traffic meant a highway connecting the United States with Alaska, the Yukon with British Columbia, Mexico with Alaska,and possibly some time in the future, North America with Asia and Europe by way of a tunnel or ferry under or over Bering Strait. Development purposes meant the opening up of a vast territory in northern British Columbia and the Yukon, thereby adding new wealth and creating employment as well as serving the present and future communities. There were also mining and agricultural possibilities.

As to the routes proposed, that is the "A" route via Hazelton, Dease Lake, Atlin, Whitehorse, Pelly Crossing and Dawson, and the "B" route via Prince George, Summit Lake, Finlay Forks, Sifton Pass, the Liard River and Pelly Crossing, the Board of Trade was of the opinion that the "B" route had advantages over the "A" route in several particulars. It was shorter by 290 miles, the elevations were lower, there were lower costs of construction and maintenance, it had greater resources, it afforded extra outlets to Alberta, and better connections with air routes.

John A.Fraser — Mr Fraser, a resident of Quesnel, and formerly a Member of Parliament for the Cariboo district, concurred in general in the position taken by the Board of Trade. He described the historical associations of the "B" route, which went back to 1792 when Alexander Mackenzie travelled that way as far as the site of Prince George. In regard to the cost of maintenance, Mr Fraser pointed out that the snowfall on the "A" route was sometimes as high as the tops of the telegraph poles built by pioneers on the old Telegraph Creek trail. "There will be difficulty" he said "in maintaining a road when you encounter an elevation that is over 4,000 feet, but snow is known to mount as high as 25 to 30 feet."

Grant McConachie — Mr McConachie, who is President of the Yukon Southern Air Transport Limited of Edmonton, said that he had had four years experience of active flying in the territory through which both the "A" and "B" routes would pass. He was thoroughly familiar with the conditions of snowfall and of elevation. When his Company had had under consideration the best air route to Whitehorse, the western or "A" route had been disregarded as undesirable. If it was unsatisfactory for an air route, it would be still more so for a highway. The elevations were higher, up to 4,000 feet, and the snowfall deeper. There was at least double the depth of snow on the western route.

Mr McConachie also pointed out that the expenses of both construction and maintenance would be greater by the Hazelton route. It would be extremely expensive to freight into the territory by that route, while by the "B" route there was water transport all the way to Fort Grahame and the Liard river. Mr McConachie considered that the resources of the eastern route were much greater, particularly in minerals. One of the largest bodies of anthracite was known to exist at Hudson Hope, and there were also larger timber resources on the "B" route. The fine gardens maintained at Fort Nelson and Lower Post proved the agricultural possibilities of the "B" route.

Louis Bower — Mr Bower told the Commission that he was a farmer in the Prince George district, and had travelled as a trapper and prospector

many times from Fort Grahame to Whitewater. He said that there would be no heavy construction work by way of Sifton Pass. He agreed with Mr McConachie that the eastern route would involve for the most part gravel foundation and very little muskeg. There was very little snow between Finlay Forks and Sifton Pass. The route ran through a valley 15 to 25 miles wide, a country rich in mineral resources. Sifton Pass was low and at least three or four miles wide, with from two to two and a half feet average snowfall. Dr G.M.Dawson in his report on northern British Columbia and the Yukon (published by the Geological Survey of Canada in 1888) had recommended the eastern route for a railway. Mr Bower also referred to the report of Inspector J.D.Moodie of the North West Mounted Police on his expedition from Edmonton to the Yukon in 1897, where he spoke highly of the facilities for a road in parts of northern British Columbia that would be included in the "B" route.

J.G.Turgeon, M.P. Mr Turgeon, Member of Parliament for Cariboo, described some of the advantages of the Prince George route and emphasized the fact that there were on it no deep river channels, and road construction would otherwise be relatively cheap. "The run of waterways" he said "gives us a clear indication of the terrain through which the road would travel. In parts of the north country the rivers cut deeply into the glacial clay, and road construction is costly. This is not the case with respect to the suggested Finlay river route of the proposed Yukon-Alaska highway. The nature of the soil and the run of the rivers, create a condition that brings about comparatively low-cost road construction. This is an important consideration because not only the cost of construction but also the cost of maintenance is affected.

"I wish to point out to your Commission, however, that the people of the north country desire this highway ardently and will finally accept any route decided to be best by competent authority."

H.H.A.Robertson Judge Robertson, of Prince George, enlarged upon the geographical advantages of the "B" route, which would

traverse a wide plateau and would result in lower construction costs. The Hazelton route, on the other hand, had to cut across many rivers running through deep valleys, which would involve heavy costs for bridges.

Briefs — The tabular matter included in the Brief filed by Mr Perry will be found in the Appendix.

Vanderhoof

The Commission held a public hearing in Vanderhoof, British Columbia, on July 6th.

H.V.Taylor — Mr Taylor as President of the Vanderhoof and District Board of Trade, welcomed the Commission to Vanderhoof.

George Ogston — Mr Ogston, Secretary-Treasurer of the Vanderhoof and District Board of Trade, presented a Brief signed by himself and the President. He said that the Board of Trade did not propose to go into the many details of the suggested routes; they were of the opinion that such matters should properly be left to the Commission's engineers. Mr Ogston discussed in a general way what he described as the Hazelton and Vanderhoof - Finlay Forks routes.

The Hazelton route, he said, had much to commend it and was undoubtedly worthy of the most careful consideration. Here you had an already established road serving the largest number of people in central British Columbia. It involved no new construction as far as Hazelton, and the Board saw no objection to its adoption.

If, for any reason, the Hazelton route was not feasible, then the Board felt that the Vanderhoof - Finlay Forks route should be carefully examined. On this route, by the end of the present season, a road would be available to within less than forty miles of Finlay Forks, and before the end of 1940 the road would

probably be completed to that point. At the end of this season (1939) the Federal and Provincial governments would have spent between them about $500,000 on this highway.

North of Finlay Forks the route would run through the heart of an already established mining field of proved possibilities, and would open up in addition a very rich mining area. It would also make accessible a very attractive tourist region with some of the finest fishing on the continent. The route from Vanderhoof would have the additional advantage that it could be linked up to the south with the old Telegraph Trail between Vanderhoof and Quesnel (not now in use) which would be shorter by forty miles than the road now used from Vanderhoof to Quesnel via Prince George.

In regard to the other possible route, from Prince George to Finlay Forks by way of Summit Lake, McLeod Lake and the Parsnip River, the Board of Trade pointed out that it would traverse a country practically devoid of farming or mining resources, and that toward Finlay Forks it would for a considerable distance practically duplicate the existing highway from Vanderhoof.

Lieut.Col.Edward J.Ryan — Mr Ryan, a contractor, who had done considerable construction work in the district, said that the revised route of the Manson Creek road via Gaffney Creek involved a summit of not more than 3,600 feet as against 4,200 or 4,500 feet on the original Manson Creek location. On the Gaffney Creek route the maximum amount of snow would be from three to four feet. On the latter route roadwork could begin shortly after April 1st, and on the original Manson Creek route about May 1st.

Mark M.Connelly and others — In the discussion that followed, Mr Mark M.Connelly (M.L.A. for Omineca) took the same general view as the Board of Trade in favouring the Hazelton route, or if that was not practicable, the route north of Vanderhoof. Mr W.D.Fraser, Vice-President of the Fort St James Board of Trade, also supported the statement of the Vanderhoof Board. Mr Taylor emphasized the importance of linking up the proposed Alaska highway with the Peace River country, and stated that there was a certain amount of good

agricultural land along the route. Mr Samuel W.Cocker stressed the saving in distance that would be made possible by adopting the Vanderhoof route. There were no engineering difficulties on the old Quesnel-Blackwater route to Vanderhoof. Mr Harold M.Perison of Fort St James testified as to conditions in his district. He said that there was a passable road for 85 miles north of that point. Mr J.W.Myers, British Columbia District engineer, Public Works Department, said that snow conditions were favourable on the Vanderhoof route; there was usually not much snow before December and it was gone between the middle of March and April 1st. The Vanderhoof route was somewhat longer than that by Prince George. Mr Turgeon felt that the questions of distance and the character of the route were largely engineering problems and might very well be left to the engineers. Mr Taylor said that there was quite an extensive farm area around Vanderhoof. Not much lumbering at the present time. The mining developments in the north had been a great help to the district, but the lack of road facilities had held back mining development. It was a splendid country for tourists and sportsmen, picturesque, good fishing, and big game hunting. Mr E.C.McGeachy testified that the resources in agriculture were extensive; there was good land from Vanderhoof to Fort Fraser, a distance of twenty-five miles, and excellent prospects for ten or more miles north of that. Mr Stephen Holmes spoke briefly on the resources of the district, as did also Mr Lawrence R.Dickinson of Fort St James, with particular reference to mining development. Mr T.G.Ludgate said that the ground in many places was admirably adapted to the establishment of flying fields. It was mentioned at the hearing that there were Cinnabar claims of considerable potential value in the vicinity of Fort St James.

Burns Lake

The Commission held a public hearing at Burns Lake, British Columbia, on July 7th.

P.V.Tallon — Mr Tallon, President of the Burns Lake and District Board of Trade, read a statement to the Commission on behalf of the Board in which the following facts and opinions were embodied:

"1. The Province of British Columbia has an investment of $1,000,000.00 in roadways and bridges already constructed, (at a cost approximately of $4,000 per mile between Vanderhoof and Hazelton), consisting of an established roadbed with feeder roads and ferry connections both north and south of the highway, which we believe should be used as part of the proposed highway system in order to save a like amount in the total cost of the finished highway.

"2. In making the trip from Prince George to the Alaskan border it is necessary to travel westward approximately 300 miles in addition to the distance to be covered northward. The road from Prince George to Hazelton travels west and north for a like distance, leaving only that portion which will run due north still to be constructed.

"3. By using the Prince George to Hazelton highway as part of the Alaska highway system, the road travels through the centres of greatest population and development in northern British Columbia, namely Prince George, Vanderhoof, Fort Fraser, Burns Lake, Smithers, Hazelton and their respective districts.

"4. If any other route were chosen the yearly upkeep of the existing highway, together with the proposed road over any other route, would greatly exceed the requirements were only one road in existence.

"5. From a military point of view the route which makes the nearest approach to the Pacific Coast ports should, we believe, be given first consideration. A road connection to Prince Rupert from Hazelton would be invaluable.

A line of lakes suitable for aeroplane landings extends in all four directions from Burns Lake, making it an ideal aviation centre which would be used in conjunction with the Alaska highway.

"6. As a tourist attraction this route proves a veritable sportsman's paradise. The numerous lakes provide the best fishing to be found anywhere on the North American continent. Bear, moose, deer, elk, caribou, mountain goat and mountain sheep, as well as upland birds and waterfowl are found in great numbers throughout the whole district. Another asset to be considered is that this is the gateway to the Tweedsmuir Park, created two years ago by the Provincial Government, and which would be a point of interest to be visited by tourists.

"7. The route suggested has, we believe, already been chosen as the logical one by engineers of previous construction projects.

"8. This route will open up a country rich in natural resources and ideal for farming; the coal fields in the Groundhog area, where anthracite coal is found in large quantities, to mention only one natural resource.

"9. This route follows a belt of light snowfall, paralleling as it does the line of the Canadian National Railways, while a parallel route of even 100 miles northward is in a belt of much heavier snowfall. Whether the route chosen is due north from Hazelton or far to the eastward, the snow and other problems are equal; none of them are insurmountable to modern engineers equipped with suitable machinery.

"10. The route proposed by us follows the Canadian National Railways as far as Hazelton, thus making the distance necessary to haul supplies for construction a great deal less.

It would take at least two years less time to complete the same road via Hazelton than any other route because of the length of road already constructed which would be available for bringing in up-to-date construction machinery.

"11. In the vicinity of Burns Lake, that is from Endako on the east to Topley on the west (a distance of 65 miles), and Wistaria to the south (a distance of 50 miles), we have at the present time approximately thirty-five stores, hotels and places of business; twenty-two post offices and about the same number of schools, serving the public within this area. The people of the district, mostly connected with agriculture, are having difficulty making a success by being handicapped in marketing their products. We consider that the construction of the road would assist greatly in this direction."

Olof Hanson and others

In the discussion that followed, taken part in by Olof Hanson, Member of Parliament for Skeena, J.G.Turgeon, Member of Parliament for Cariboo, Mark M.Connelly, M.L.A. for Omineca, E.T. Kenney, M.L.A. for Skeena, and A.M.Ruddy, M.F.Nourse, W.C.Saunders, J.S.Brown, Artmur Wood and L.K.McLeod, Secretary Treasurer of the Board of Trade, the statements supported in general terms the representations made on behalf of the Board of Trade. Emphasis was placed upon snow conditions, mineral resources, fish and game, the tourist point of view and the importance of the road as a means of furthering international relations.

Smithers

The Commission held an informal meeting at Smithers, British Columbia, on July 8th, and discussed the proposed highway with a number of representative people in that town. No formal statements were presented at Smithers on behalf of the Board of Trade or individuals in that place, it being felt that the interests of Smithers and Hazelton being identical, the former could more conveniently be represented at Hazelton.

Hazelton

The hearing at Hazelton, British Columbia, was held in the afternoon of July 8th.

James Turnbull

Mr Turnbull, President of the Hazelton District Chamber of Commerce, submitted briefs and a map explaining and illustrating the views of the Chamber of Commerce, which were commented upon by E.T.Kenney, M.L.A.

E.T.Kenney, M.L.A. Mr Kenney pointed out that the construction of the Alaska highway would provide work for thousands of unemployed men at a time when it was most urgently needed. Discussing the purposes that the highway would serve, Mr Kenney said that the people of the United States were keen on travelling and were constantly on the look-out for new places to visit. There was a definite movement toward seeing as much as possible of their own country, and any highway that would connect isolated portions of the United States would receive their support. There was also an increasing interest in Alaska and the only obstacle was the difficulty of getting there with their cars, a difficulty which would be overcome by the building of this highway. Canada should be equally interested as it would mean an annual influx of tourists. It should also be borne in mind that the United States was Canada's only neighbour and best customer, and that it would be a gesture of good will and a neighbourly act to cooperate with them in providing a road through British Columbia to Alaska.

"Statistics show" said Mr Kenney, "that during the past ten years we have expended on unemployment relief some $900,000,000 and there are very few if any major projects completed to show for such an expenditure. Here we have a definite objective, with industries all along the line proposed, which in time will be self-sustaining and revenue-producing, and where such work is undertaken there should be definitely revenue-producing industries to justify such expenditure."

In regard to route, Mr Kenney said that it was of extreme importance to choose the right one. Not only should existing conditions be taken into account but the development of the future might be anticipated. Of the 2,100 miles of road necessary to make this project a reality, by using the western or Hazelton route some 900 miles were already built, or nearly half the entire highway. The points of accessibility for construction purposes should also be a determining factor, as building costs might be considerably reduced in using

the Hazelton route, water transportation being available at many points for the carrying of equipment and supplies, which would also make it possible to carry on the work at various points at the same time. Mr Kenney mentioned as water transportation routes, the Nass river, the Portland canal and the Stikine river.

He also argued that it was important to have the highway definitely connected with coast water transportation, as few if any motorists cared to back-track over a long highway once they had gone to the end of the road. By the Hazelton route it would be possible when the road had been completed to have connections with Prince Rupert and Stewart, as well as Hyder, Alaska; also by means of a branch road down the Iskut river with Wrangell, and by road and ferry with Juneau, and still farther north, from Atlin to Skagway. The Hazelton route would also serve such places in northern British Columbia as Premier, Telegraph Creek, Dease Lake and Stikine. It was also important to remember that the Hazelton route would best serve the towns farther north in Alaska.

Mr Kenney said that the Hazelton route would be best so far as the interests of mining were concerned, as there was untold mineral wealth in the coastal area.

He was inclined to discount the statements as to excessive snowfall along the Hazelton route. In any event, with modern machinery for snow removal, depth of the snow was not so serious a problem as it had been in the past. The annual snowfall on the highway south of Hazelton was in many cases in excess of what had been reported in the north, and there had been no difficulty in handling it.

He thought that in distributing the cost of construction of the highway between Canada and the United States, consideration should be given to the fact that the major part of the road would lie in Canada, while the maximum benefit would go to the United States.

Mr Kenney filed with the Commission engineering data supplied by P.M. Monckton, B.C.L.S., and a Brief prepared by the Hazelton District Chamber of

Commerce, which will be found in the Appendix as 2 and 3.

George Beirnes — Mr Beirnes (Hazelton, B.C.) testified that he had been over the proposed routes north of Hazelton several times with dog teams and pack horses. The easterly of these two routes ran by way of Kispiox and the westerly through Kitwanga. From his knowledge of the country he would favour the eastern of those two routes, as there was less snow and the pass over to the Skeena was only 3,500 feet. The distance was somewhat greater but there was a perfect grade from Hazelton to Stikine, and very few bridges would be needed. There was good commercial timber, spruce, white fir and balsam, and it was a wonderful country for big game. The snowfall was not serious, less than on the more westerly route. The snow was gone about May 10th. The benches were gravel, very suitable for road construction. There was very little muskeg, and wide valleys. There were no abrupt summits in the Atlin district, and from his knowledge of the Yukon, conditions there would be good for a highway.

Charles Barrett — Mr Barrett (of Barrett, Bulkley Valley) stated he had had experience on northern trails for about forty years, and favoured the Kispiox route. The most snow he had seen was eight feet in March at Nass. He was familiar with the Bell Irving route in winter but not in summer. There was no summer trail. In 1899 he had taken a cargo to Dease Lake to relieve Klondikers. You might think that the farther east the less snow, but that was not true. There was some muskeg but not much. He did not think there were any agricultural possibilities on any of the available routes. There was good timber on the Bell Irving river. South of Teslin lake, was a flat plateau. The distance from Telegraph Creek to Teslin lake was 150 miles.

George Little — Mr Little, of Terrace, British Columbia, spoke in favour of the Kitwanga route. In regard to the Yukon, generally speaking it was good territory for road building. The snowfall averaged not more than a foot. There was plenty of gravel and road building

would be comparatively inexpensive. The west side of the Yukon would be best all the way to Dawson. The route he recommended would follow Teslin lake and river and Lewes river down to the Yukon, crossing the Yukon just below Dawson.

Frank M.Dockrill — Mr Dockrill, of Telkwa, discussed in general terms the routes north of Hazelton and said that while the snowfall varied, precipitation was lighter on the easterly slopes of the mountains. The average precipitation at Hazelton was less than at Prince George. Snowfall inside the Coast Range was much lighter than farther east. The route via Prince George was impracticable. The Hazelton routes were much better from every point of view. He recommended a road to Telegraph Creek and Atlin, and following the east bank of the Yukon to Dawson. He considered a route following the Tahltan river to Nahlin, the Sheslay, Big Salmon and O'Donnel rivers as the best location from Telegraph Creek to Atlin. This route would serve southern Alaska better than a more easterly route. The western routes would be of use to a considerable present population, whereas a route by Prince George would reach no population in British Columbia north of Fort St James. Mr Dockrill said that 10,000 prospectors had tried to reach the Yukon during the stampede of 1898 by way of Edmonton and Finlay Forks, and had to back-track and take the westerly route via Hazelton.

S t e w a r t

The Commission held a hearing at Stewart, British Columbia, on July 10th.

Edward T.Applewhaite — Mr Applewhaite, on behalf of the Stewart Board of Trade, said that in their opinion the Alaska highway should be built by the most westerly possible route. He urged that a careful

survey should be made of this route before any final decision was reached. Stewart, as the most northerly seaport in British Columbia, was vitally affected. At the same time they made no special claims for consideration. The decision must be based on its benefit to all interested communities. It must be a permanent link in the transportation system of the continent.

In a memorandum filed with the Commission by Mr Applewhaite for the Board of Trade, the following reasons for adopting the most westerly possible route for the highway were set forth and elaborated:

1. The western route is the only route practical to serve coastal communities, both Alaskan and Canadian.

2. The western route would serve that part of British Columbia (north of the Canadian National Railway) which is most settled.

3. The western route would provide an all-Canadian means of communication and transportation for Canadian communities situated behind the Alaskan Panhandle, which communities are at present entirely dependent upon Alaskan ports.

4. The western route would give better and greater service to our neighbours in Alaska.

5. The western route would result in a greater volume of traffic on the highway because a much larger number of Canadian and Alaskan communities would be reached.

6. At least four coastal connections can be built to the western route, affording access to tidewater as follows:

(a) Stewart, British Columbia, Hyder and Ketchikan, Alaska.
(b) Wrangell and Petersburg.
(c) Juneau.
(d) Skagway.

7. The western route being followed, short roads can first be constructed from points on the coast and economical bases can first be established from which the construction of the highway can be pushed both northerly and southerly at the same time.

8. The western route has already a good start in that a road is already constructed as far north as Hazelton, British Columbia.

9. The western route is the only route which would be of use in bringing supplies to the coast in time of war.

10. The western route would facilitate the establishment of aeroplane bases along the route, which, by virtue of their location near the coast, would be of great value, both commercial and military.

11. The most westerly possible route is sufficiently far inland to be beyond possible naval bombardment.

12. The western route would open up for development and settlement what is known to be a very rich country.

13. The western route would be of great practical value and assistance to the mining industry, by making available for prospecting and development the large and favourable area which would be traversed by the said western route.

14. The western route will afford economic access to the famous Groundhog anthracite coal fields.

15. The western route, by an easy connection to Hyder, Alaska, would make motoring to Alaska possible some years earlier than any other route.

16. The western route, allowing access to the coast, would enable the tourist to take advantage of the extensive road-work done by the Alaskan and British Columbia governments in coastal sections, and would enable the tourists to visit some of the scenic wonders of the world to be found in the coastal section.

17. The western route would enable the tourist to take advantage of the extremely low transport costs on automobiles available from Stewart, Hyder and Prince Rupert to Vancouver, and would permit tourists to return to the south by steamer through the famous Inside Passage.

18. The western route, affording access to the Alaskan Panhandle, would enable tourists to visit some of the most attractive scenic areas of Alaska over a much shorter route than by way of the Yukon, proving most attractive for those with limited time or means.

19. The western route throughout its length would present really great scenic attractions with excellent hunting and fishing possibilities.

20. Construction of the highway by other than the western route would defeat

the purposes for which the road is desired.

H.J.M.Rolston — Mr Rolston submitted, on behalf of the Board of Trade, information in regard to the proposed most westerly route, which he said was compiled from government reports and similarly authentic sources. He said that the route they suggested was as follows:

"Starting from Kitwanga on the Skeena river, and going north up the river of that name over into the Nass, following it to its confluence with the Bell Irving river, continuing up it and over the Nass-Stikine divide, elevation 2,050 feet, down the Ningunsaw river and up the Iskut to its head at Howdade and the Mowchilla lakes, crossing the divide about 3,100 feet to Kakiddi lake and continuing down the stream of the same name to about its confluence with the Klastline river, then tracking westerly past Buckley lake following suitable country down to and crossing the Stikine in the vicinity of the old trail at a point where the Tahltan river joins the Stikine from the north, or following the contours, and grading down to a crossing of the Stikine at the outlet of the canyon or the vicinity of Telegraph Creek. North from the Stikine up the Tahltan river, and down the Hackett to the Sheslay and following down it for about fifteen miles below Egnell Creek to a pass bearing north-easterly to a small lake that drains into the Dudidontu river (summit elevation 2,900 feet) and down to Atlin."

The maximum snowfall on this route, Mr Rolston said, was six feet at Iskut-Telegraph cabin, with snow lying from October 15th to June, and one foot at Echo Lake from November 15th to April 15th, as disclosed by Yukon Telegraph weather reports over a period of years. He added that horses wintered out in the vicinity of Buckley Lake. The route throughout its entirety had ample road material and was free of snow slides.

As an alternative route Mr Rolston mentioned one starting from Hazelton or Kitwanga up the Nass and over the Anthony and Beirnes Creeks divide to the Skeena, and following the old trail over the Skeena-Little Klappan divide, and down it to the vicinity of Ealue lake, striking westerly to and down the Klastline river to the Stikine near the mouth of the Tahltan, and from there

following the first-mentioned route. The highest altitude on this alternative route would be 4,500 feet at the Skeena-Little Klappan summit. The only major bridge problem on either route would be the Stikine crossing, and material for that could be brought up the Stikine.

Charles Walker — Mr Walker said he was raised along the Skeena and had packed over a good deal of the surrounding country. The westerly route had less snow and lower summits than those farther east. The route proposed by Mr Beirnes at Hazelton had favourable snow conditions but higher summits. He had not been in the country north of Telegraph Creek. Snow was gone at the latest the first week in June, and some years by May 10th. There was good timber for culverts, balsam, spruce and hemlock.

Paul Meger — Mr Meger said that he had spent two winters in the Bell Irving district. The average snowfall was six feet at the most. There would be no difficulty in building a road along the side hills as the surface was mostly gravel. The highest summit in the valley was about 500 feet. He had not been above the Bell Irving river.

Prince Rupert

The Commission held a public hearing at Prince Rupert, British Columbia, on July 12th.

James T.Harvey — Mr Harvey, President of the Prince Rupert Chamber of Commerce, submitted a statement on behalf of that body. He said that the people of Prince Rupert and the surrounding district were enthusiastically in favour of the building of a road through British Columbia and the Yukon to Alaska. There were many arguments for such a project, but particular attention was drawn to opening up the northern interior of British Columbia with its very rich natural resources. The members of the Chamber

of Commerce were also of the opinion that the western route from Hazelton to the Yukon was not only the most feasible but the best route.

This route, said Mr Harvey, offered considerable advantages over other proposed routes. Advantage could be taken of existing roads in the Atlin and Whitehorse areas. Materials for construction could be brought in at a number of intermediate points such as Telegraph Creek, Dease Lake, and Atlin. The snowfall according to responsible authorities was less than on routes farther east. It would follow low, easy grades. There was already a considerable body of information available as to the characteristics of the western route. It would be of tremendous strategic importance both to Canada and Alaska, and yet would be far enough inland to be practically out of danger from airplane attack. From a commercial point of view it would serve the main centres of population in British Columbia, the Yukon and Alaska. It offered substantial attractions to sportsmen, game hunters and tourists. It was the only route that would connect Atlin, Whitehorse and Dawson. From the tourist point of view it offered an alternative way of return by steamer. Branch roads could be run to it from Prince Rupert, Stewart and towns in the Panhandle. It would open up a country rich in natural resources, and particularly in gold, as well as the Groundhog coal deposits.

S.E.Parker — Prince Rupert, Mr Parker said, was not directly interested, and was therefore in a position to take an impartial view as to the route to be followed by the highway. There had been some misunderstanding as to snow conditions on the westerly route, which were not so severe as had been represented. The route proposed by Mr Beirnes at Hazelton seemed the best to serve all interests. The highway was not solely for the benefit of British Columbia but was also for the Yukon and Alaska, and undoubtedly the people of Alaska would favour the westerly route.

Rodney McRae — Mr McRae said that he had made a trip eight years ago following the telegraph line from Atlin to Hazelton. It took five weeks. The country north of Telegraph Creek was easy

going. They made the distance in twelve days, and found no difficulty south of Telegraph Creek as far as the Divide between the Stikine, Iskut and Nass. The region between Atlin and Telegraph Creek was a plateau country, dry, gravelly ground mostly, with several rivers to cross such as the Nahlin; the banks not too steep; there were no deep canyons or gorges, and fairly wide valleys. It was a little swampy south of Atlin Lake. The timber was mostly jackpine. They made the trip in the middle of August and had no snow.

D.McN.Lowe — Mr Lowe, who has been engaged for several years with the British Columbia Department of Public Works on location and other engineering work, and has personal knowledge of the country of which he speaks, filed a statement with an accompanying sketch map. The main issues, so far as the people of British Columbia were concerned, were, he said, the economic value of such a highway to the Province, and the most desirable route to follow. Apart from the question of where the money was to be obtained to build the road, the main problem was one of maintenance. Would the value of the highway to British Columbia repay the high cost of maintenance through five hundred miles of virgin territory?

Undoubtedly the Alaska highway would be a great tourist attraction, but it was doubtful if the additional revenue derived from tourist traffic would alone meet the expense of maintenance, particularly in the first years after construction. A more stable and unquestionable benefit would be the opening up of the vast area north of the Prince Rupert branch of the Canadian National Railway. At the southern edge of this region, the rich Germansen Creek district was under development, and in the north-western corner the Atlin gold deposits had made the government agency there the fourth largest revenue producer in the province.

Between these two extremes were 500 miles of country, much of it potentially as rich, but inaccessible for lack of transportation facilities. The recent rich discovery on Boulder Creek, draining into Turnagain river, was an example of the possibilities of the country. Here there had been found

in 1937 the largest gold nugget yet discovered in British Columbia, weighing fifty-six ounces.

Transportation to-day still meant highways, for the airplane, while of inestimable value in the development of the country, was not suited to the purpose of the prospector. It was too expensive for the individual prospector.

In regard to the routes, Mr Lowe thought that the strategic value of the highway would be of primary importance to the Government of the United States. It was also to be remembered that a large proportion of the population of Alaska lies in what is known as the Panhandle. Physical characteristics preclude any road connection to Juneau, Wrangell, Ketchikan and Hyder, except at prohibitive cost, but the people of the Panhandle would not be satisfied with a route which did not offer this possibility.

Four alternative routes were, Mr Lowe thought, worthy of consideration. The farthest east would head north from Prince George and follow the Parsnip and Finlay rivers to Sifton Pass and thence down the Kechika and Liard rivers and north to the Yukon. This would probably be the most economical to construct, though the increased length and cost in the Yukon would offset this as far as the total cost was concerned. It would traverse a heavy snow belt, and Sifton Pass was reported to be subject to heavy snowfall and to be snow-blocked late in the season. This route would also entirely miss Atlin and Whitehorse and would be of no service to the towns in the Panhandle.

The second route would leave the existing highway in the neighbourhood of Topley, and go north by way of Babine and Bear Lakes and the upper Skeena to the head of Dease Lake, serving the rich Dease Lake area, thence to Atlin, Whitehorse and Dawson. While probably a little greater in cost of construction than the first route, it would traverse a country of equally great possibilities, with generally lighter snowfall, and would link up the existing producing areas of British Columbia and the Yukon. It would also offer opportunities for connecting with the Panhandle.

Further west the best known and most discussed route would go north from Hazelton by way of the Skeena and Nass rivers to the Klappan and Dease lake, at

which point all the western alternatives meet. From a British Columbia point of view, this route had the advantage of directly tapping the rich Groundhog district with its immense deposits of anthracite. It also offered the shortest connection to the head of the Portland canal, along the projected location of the Canadian North Eastern Railway. The length of new construction in British Columbia would be slightly less than the Bear Lake route, and the total cost approximately the same.

The fourth route would run from Kitwanga north to Kitwankul and the line of the old Grease Trail to the Nass and Bell Irving rivers. While a feasible route, this was unlikely to be adopted. It would strike through a heavier snow-belt than either routes two or three, and the cost of construction would be greater. This route, as well as routes two and three, would take advantage of existing roads in the Atlin and Whitehorse areas, and offer opportunities to bring in material for construction at such points as Telegraph Creek, Atlin and Whitehorse.

Summarizing his testimony, Mr Lowe said that it would appear that the Bear Lake or Hazelton routes offered the greatest advantages to British Columbia and also to the Yukon and Alaska. Either of these routes, while opening up prospecting country, would also give access to the proved Dease Lake and Atlin areas of British Columbia, and would provide connection between Whitehorse and Dawson, as well as eventually with the Panhandle. He did not think that a western route would be in danger of airplane attack in the event of hostilities. The type of plane carried by an aircraft carrier was not suitable for heavy loads of bombs on long distance flights. Nor did he think there was any material difference in the cost between the eastern and western routes.

George B.Ball — Mr Ball, of Telegraph Creek, British Columbia, a big game hunter and guide familiar with northern British Columbia, submitted information gathered at first hand during twenty-six years' experience in the Cassiar district and the country around Atlin. He supported in general

terms the views expressed by Mr Harvey on behalf of the Chamber of Commerce.

Discussing routes, he recommended that the highway, after ascending the Skeena to the Spatsizi, should follow up Mink Creek and take either of two routes via the head of Eaglenest Creek and down it and the Klappan to near Klappan Crossing, or by way of Upper Cullivan Creek through Ford Pass and down Four Mile, and cross the Klappan near Klappan Crossing; from there go up Two Mile Creek and follow along the edge of Ealue Lake, taking the north-east side, and continue along Klugahon lake, avoiding Klappan Summit, which is about 4,000 feet, and via Canyon Lake (not on the map), down the Second South Fork, now called the Klastline river, and along its right limit to within about forty miles of the Stikine, and cross there to the left limit, gradually leaving the river and continuing on between Buckley Lake and the South Fork, hitting the Stikine about thirteen miles above Telegraph Creek, at the forks of the Tahltan and Stikine on the left limit. From there he would follow up the Tahltan for twenty-eight miles to the head of Salmon Creek and follow the Yukon Telegraph Line to Sheslay and down that stream about fifteen miles to McDonald's Portage, then along the base of the east side of Heart Mountain, a good level route, and hitting the Telegraph Line again about twenty miles south of Nahlin. Cross the Nahlin at Nahlin Station and follow Victoria Lake and the east slope of Spruce Mountain, a very low timbered mountain, and the old pack trail route to Teslin, which has practically no change in elevation. Or if the route is to go through Atlin, it might follow the Yukon Telegraph Line north of Nahlin for thirty-seven miles to Little Nakina, and along its right limit, and cross the main Nakina to the right side of Paddy's Lake Mountain, and after crossing O'Donnel river, connect with the present motor road to Atlin.

In regard to snow conditions, Mr Ball pointed out that horses range out all winter at Spatsizi, and at other places south of Telegraph Creek, and on the south fork of the Stikine, as well as on the Tahltan and twenty miles south of Nahlin. One of his horses had wintered with a trapper on Upper Teslin Lake in 1930. Packing into his post at Spatsizi in 1931, and returning to Telegraph

Creek in December, he had not found more than five inches of snow, and that was on Klappan summit. Another advantage of this route was that spring came from three weeks to a month earlier than on the eastern route and winter arrived about that much later. Elevations were nowhere over 3,000 feet.

The proposed route, Mr Ball pointed out, would follow the old Telegraph trail. It would be of great strategic importance, offering every facility for seaplanes. Prince Rupert and towns in the Panhandle could be connected with it by branch roads at not too great expense. Commercially it would be closer to the only centres of population in the north country, which would not be the case if the highway ran north of Prince George. The westerly route had definite scenic attractions, and would connect up with Atlin, Whitehorse and Dawson. There were great mineral and other resources along this route.

W.C.Crisp and others

Mr Crisp, Secretary-Treasurer of the Telegraph Creek and Cassiar Board of Trade, said of the several men whose testimony follows: R.Hyland - came into the Cassiar in 1898 in charge of a large pack-train and had traversed the territory thoroughly. He had also been in constant contact with surveyors, big game hunters and prospectors travelling in the district. T.E.Hankin had been with the Yukon Telegraphs for forty odd years and had made numerous prospecting trips east of the Telegraph line. Ira W.Day had also come in in 1898 over the old Ashcroft trail and had travelled the route he described from Hazelton to Teslin lake. J.C.Hope was for some years hauling mail from Telegraph Creek to Atlin in the dog-team days. After the advent of the airplane he had built up a transportation business on the road between Telegraph Creek and Dease Lake, and had trapped for many years between Telegraph Creek and Atlin.

R.Hyland

Mr Hyland, of Telegraph Creek, described that part of one of the westerly routes with which he was personally

familiar, and which he said he knew was feasible. From Caribou Hide at the head of the Stikine river, his route would go west down the Stikine valley, crossing Spatsizi river about forty miles from Caribou Hide, continuing to Klappan river near its mouth, crossing it there, then on down Stikine valley to about fifteen miles above Telegraph Creek, crossing the Stikine there at Lava Beds, thence northwesterly along Tahltan river to the old Teslin trail at Saloon Cabin. Then north to Sheslay and by McDonald portage and the Teslin trail to Nahlin telegraph station, crossing Nahlin river and on to Teslin lake and twenty miles along the lake, thence turning west to Atlin. The total distance would be about 300 miles. Mr Hyland recommended this route in preference to that via Iskut and Nass rivers, because of heavy snowfall on the latter. He testified that the route he recommended had only light snowfall, horses having wintered for years on the Spatsizi range without feeding hay, as well as on the Tahltan range, and the range between Shedlay and Nahlin. His route would also reach the best game and fishing districts in British Columbia, as well as a number of undeveloped mines.

T.E.Hankin — As the result of many years' experience, Mr Hankin, Telegraph Creek, said that the route he recommended would run from Hazelton up the Skeena to its source, or better still along the Telegraph Line trail to Second Cabin, about fifty miles from Hazelton. There was already a road for the first thirty miles. By following the Telegraph trail, the Babine river would be avoided, and a mountain which involved big snowslides. He would follow the Telegraph trail to a point five miles north of Fourth Cabin, where the Telegraph line leaves the Skeena river, then across the mouth of a small river called the Kilankis, which was once bridged by the Mounted Police. From the Kilankis river the most feasible route would be up the Skeena to the source of the north branch, Kluayaz lake. Snowfall along the Skeena from Second to Fourth Cabins averaged about four feet, but north of that was very much lighter, six inches to two feet. From the north fork of the Skeena, the road might follow Skelhorne Creek, and cross

the Spatsizi near its junction with the main Skeena, thence over the Klappan summit at Spruce Island and down the Klappan to the Stikine. The country from the head of the Skeena to the Klappan, about twenty-five miles, was mostly open and gently rolling, a famous summer range for caribou and an all-year range for other game. It was a most beautiful country. From the Stikine, about fourteen miles above Grand Canyon, the route would follow the wide valley of the Stikine to the Tahltan. The Stikine valley had an abundance of good spruce timber, jack pine and poplar. Horses had wintered here. The soil was very good. All kinds of vegetables, grains and small fruits had been successfully grown by Mr Morgenstein. The Tahltan river could be followed to the Telegraph Line and thence to Atlin. A road was built for a hundred miles north from Telegraph Creek in 1898, and was still quite good in places.

Ira W.Day — Mr Day, Telegraph Creek, said that he had travelled over the old Ashcroft trail from Hazelton to Teslin lake in 1898. From Groundhog mountain along the valley of the Second South Fork of the Stikine and north to Sheslay via Tahltan river valley, there were no high summits and a very light snowfall. The Stikine would be the only large river to cross, and there were numerous places where it could be bridged with a single span with an easy grade on either side.

J.G.Hope — Mr Hope, Telegraph Creek, said that he had travelled from the head of Little Klappan to Atlin and Teslin Lakes in both winter and summer, and there was no place where there was more than four feet of snow, or an altitude of more than 3,000 feet. His opinion of the best route would be from the head of Little Klappan down the Klappan to the Crossing and from thence to Ealue lake, Eddontenajon lake and down the Klastline river to the Stikine river. The route would cross the Stikine river at the Lava Beds, thence ascend Tahltan river and down Salmon Creek to the Sheslay, down the latter to McDonald Portage, from McDonald Portage to Nahlin, and from there either to Atlin or Teslin lakes.

Whitehorse

The Commission held a hearing at Whitehorse, Yukon Territory, on July 14th.

George Wilson — Mr Wilson welcomed the Commission to Whitehorse, on behalf of the District, and introduced the speakers.

H.Wheeler — Mr W.D.MacBride, of Whitehorse, read a statement on behalf of Mr Wheeler, President of the White Pass and Yukon Railway, in which he expressed his opposition to the proposed highway, for the following reasons:

1. It is not necessary; there is no possibility of through traffic to warrant the expenditure.

2. The cost of construction is out of all reason; the distances are great and the population very small.

3. Annual cost of repairs and maintenance will be very heavy and unless crews of men are sent out each spring to clean out ditches and culverts, the spring run-off will do lots of damage.

4. Numerous ferries will have to be installed to cross the bigger rivers, more expense.

5. It will take many years to build a road that will be passable, particularly in the tundra country. The ground is frozen and it is a case of more gravel every year, and it takes half a lifetime to get a bottom in the road.

6. The road could only be kept open for a short period in the summer and at that time it is not needed. The river is a good highway for five months, and the air is available at all times.

7. This is a placer mining country, with unfortunately a very limited life. Some of the camps will be worked out in ten years or less, though Dawson is probably good for twenty years. The history of worked-out placer mining camps is too well known to repeat.

8. The Yukon is amply supplied with transportation facilities now and the proposed road would serve no useful purpose.

Mr Wheeler argued that the highway was not needed to develop the country as the airplace was already serving the needs of the prospectors and others, and there were innumerable landing places on the lakes. The road would be of no use to tourists as there were no good stopping places and during the entire tourist season the country was plagued with mosquitoes, black flies, horse flies, sand flies and other insect pests. He was not opposing the road because he was an official of the White Pass road. He believed in building roads where they were needed and where the volume of traffic would warrant. He did not believe there was any justification for a highway from Seattle to Fairbanks. The scheme was visionary and impractical and would serve no useful purpose.

John Gregg — Major Gregg, of the Hudson's Bay Company, gave the Commission information as to the nature of the alternative routes from his personal knowledge. He said that the Hazelton route ran through a heavy snow belt and involved steep grades. There was sometimes as much as one hundred feet of snow around Echo Lake, and the Nass summit was at least 6,000 feet. Telegraph Creek to Atlin was practicable but Hazelton to Telegraph Creek was not. He recommended a route from Prince George to Fort St James and Manson Creek, then swinging west at Takla and Thutade Lakes via Bear Creek to Dease Lake and Telegraph Creek and thence to Atlin. He had been over this route and was familiar with it. Major Gregg said that there was little snow east of the Klappan river and he thought the snow belt did not extend that far east. The only man he knew of who had travelled from Fort St John on the Peace river to Telegraph Creek and back again was Mr Lamarque, who had made the reconnaissance trip for the Bedeaux expedition in 1935.

J.Knapp — Mr Knapp, an old-time prospector, gave the Commission information in regard to routes in the Yukon. The present

trail from Whitehorse to Dawson had been made when only horses were used. He thought it would make a practicable route for the highway but strongly recommended that it should be built entirely on the west side of the Yukon river. The present trail, which now crosses the Yukon from west to east at Yukon Crossing, was approximately 365 miles from Whitehorse to Dawson. This distance could be substantially reduced if the highway were built only on the west side. He pointed out that it would only be necessary to bridge the White River, which would not be difficult, while on the other hand several bridges would be needed if the highway followed the present trail on the east side of the Yukon. Mr Knapp gave the Commission his experience of conditions for a road from Whitehorse to the head of Tenana river in Alaska, which he thought quite practicable, though not by the existing route. He said that a good route was available up the Kluane, as the ground was all gravel.

P.Martin — Captain Martin, another old-timer, said that there was no difficulty in building a highway in the Yukon if funds were available. Automobiles could travel without serious difficulty between Whitehorse and Dawson. Snow conditions were much more serious in the Valdez area in Alaska than in the Yukon. The present trail to Dawson had been built to meet emergency conditions, when only horses were in use, but it had given good service and had been in continuous use for forty years with little or no government money spent upon it except to keep it in passable condition. He pointed out that however good the airplane service might be, it would never supplant the roads. He added that there was a practicable road for automobiles from Whitehorse to Carcross.

H.E.Moore — Mr Moore, Editor of the Whitehorse Star, urged the importance of transportation to the Yukon. He reminded the Commission that up to the present time the Yukon had produced $225,000,000 in gold, $14,000,000 in silver, and over $3,000,000 in lead, without mentioning other base metals. He also referred to the quartz mining

operations now being carried on in the Carmacks area, and said that there was a probability that these operations would be widely extended. Dr Bostock of the Geological Survey of Canada had told him that it was hoped the topographical survey of the Mayo and McQuesten area would be completed in the season of 1939, and would be continued in the southern part of the Yukon next year. Dr Bostock had said that he hoped to commence his geological survey in 1940.

Charles H.Baxter — As a guide and big game hunter, Mr Baxter was pretty thoroughly familiar with the country through which the highway could be built in the Yukon. He was strongly of the opinion that it should be constructed on the west side of the Lewes and Yukon rivers. That part of the overland trail could easily be put into proper condition and maintained. There would be no serious difficulty about bridges. Only the White river need be crossed. The experience that had been had with the Richardson highway in Alaska proved that maintenance offered no serious problem. He believed the highway would be of the greatest possible benefit to the Yukon.

Kluane Lake Route — A discussion followed between Mr MacBride and one or two other Whitehorse residents on the existing trail from Whitehorse to Kluane lake. Mr MacBride said this trail was very poor and went into low, soft ground, and it was difficult for cars to travel it. He said this indicated the route was not practicable. Two or three residents disputed this opinion stating that the trail was not properly located in the first place and that a good road could be built on good gravel ground.

A t l i n

The Commission held a public hearing at Atlin, British Columbia, on July 14th.

H.F.Glassey — Mr Glassey, President of the Atlin Board of Trade, said that he had personally covered by pack-horse and dog team, as well as by air, the route which the Board of Trade considered the most practicable for the Alaska highway. They felt that the starting point from the existing highway should be Vanderhoof. From there the recommended route would follow the present road to Fort St James and on to Manson Creek, diverting from this road at the proper point to follow the east shore of Takla lake to its head, and then following Driftwood river for approximately 25 miles. At this point the route would leave the Fraser river watershed, crossing over to the Skeena river watershed, the distance between the two watersheds being about a hundred and fifty paces with very little elevation. It would then continue along the shores of Bear lake and down the Bear river to Sustut river, which would be followed downstream to the confluence of the Skeena. The Skeena would be followed up to its headwaters and thence across a low divide to the Klappan valley.

This route Mr Glassey said he had covered in its entirety and was in a position to say that it would involve only easy construction. The snowfall was dry and powdery and ran on an average from two and a half to four and a half feet. The season was similar to that in the Hazelton district and winter temperatures were not nearly so severe as between Prince George and Endako.

The divide between the Skeena and Stikine watersheds, Mr Glassey said, was low and the owners of horses in Telegraph Creek had wintered them there for years past. It was also important to note that this route would follow the eastern contact of a heavily mineralized belt and would give access to a territory of untold wealth. It would also pass through the Groundhog anthracite coal field, which at present lies undeveloped.

Mr Glassey said that another route would be from Hazelton, following the Skeena to its junction with the Kispiox and along this river to its head, crossing the Nass river watershed, then to the Blackwater valley between the fifth and sixth cabins on the old Yukon Telegraph Line. This route would then cross the valley to the Skeena watershed and tie in with the route already described at a point near the confluence of the Sustut and the Skeena. The upper reaches of the Nass valley, through which such a route would run, were subject to coastal precipitation and heavy snowfall.

A third route, said Mr Glassey, would follow the Skeena river from Hazelton to the fourth cabin on the Telegraph Line, and thence along the old Canadian Mounted Police trail to the confluence of the Sustut river. It would present no great hazards in road construction other than building costs because of more extensive rock work, and bridges of greater length than on the route to Vanderhoof.

Mr Glassey was of the opinion that the first described route would be proved by engineering reconnaissance to be the most satisfactory. He added that there would be no difficulty in completing a road from Atlin to Carcross.

L.E.Cook — Mr Cook, Secretary of the Board of Trade, and a veteran airplane pilot of northern British Columbia, said that in the course of three years continuous flying between Hazelton and Dawson he had made a study of the territory from the air and had taken some photographs around Klappan, Skeena and Spatsizi, copies of which were furnished to the Commission. He confirmed Mr Glassey's statement that the first described route would be most satisfactory from every point of view. The routes north of Hazelton would involve wet snow of considerable depth, while the first-mentioned route involved not more than two to four and a half feet after settling and was a dry powdery snow. The divide between the Skeena and the Stikine was low with no construction difficulties. The greatest altitude up to the head of the Klappan would be 3,100 to 3,200 feet.

The Taku valley was 75 miles long and there was not more than 20 to 30 feet elevation between the two watersheds, whereon on some of the other routes the passes were quite high. Also there were no large streams to cross. He was sure a feasible route existed from the Liard river valley across to Atlin in the vicinity of Blue river. He did not think that the passes would be over 3,000 feet, although he had not taken any elevations on the ground.

Mr Cook said he had flown over the Bell Irving valley, which he said was pretty deep with heavy snowfall up to the summit east of the Nass river. The highest summit between the Little Klappan and the head of the Skeena would be about 3,500 feet. All along the banks of the Nahlin there were gravel benches and no signs of muskeg. From Nahlin north it looked like a good bed for a road; in fact they had picked out several emergency landing fields in that area. The pass west of Tuy. river was the lowest point from the height of land that runs up to Ross river and the Pelly. Mr Cook added that it was 72 miles from Telegraph Creek to Dease lake. In the Yukon he recommended following the east side of Atlin lake, then the west side of Little Atlin lake, and down the Lewes to Whitehorse.

Other Witnesses — McLeod White, John Nolan and Clarence Sands confirmed the statements of Mr Glassey and Mr Cook. The latter pointed out that a highway through Atlin would attract American tourists who delighted in the scenery, hunting and fishing of that district. Alvin Graves, a trucker in the Atlin district, said he thought the most feasible route would be through Dixie lake and Paddy lake. He believed there were great possibilities in the Atlin district as all the creeks carried gold. A.Turnquist described weather conditions in the Atlin district where he had lived for twenty-two years. There was very little snow and the winters were comparatively mild. In answer to questions Mr Glassey said that there was not a great deal of arable land in the Atlin district. As to a highway out to Carcross, he did not think it would be at all difficult if the money was provided. The distance was 65 miles by lake and 100 by land.

Carcross

The Commission held a brief hearing at Carcross, Yukon Territory, on July 15th, Mr Spencer and Mr Dixon conducting this hearing while the Chairman and Mr Wardle were holding one at Atlin, British Columbia.

Matthew Watson — The people of Carcross were interested in the highway and particularly in that section of it between Atlin and Carcross, if the route selected should run that way. Roads were very important for the development of the Yukon.

Other Witnesses — Mr H.Beatty, Mr Gilbert Skelly and Captain John McDonald also spoke, giving the Commissioners the benefit of their knowledge of conditions in that part of the Yukon Territory.

Vancouver

The Commission held a public hearing at Vancouver on July 20th.

G.Lyall Fraser — Mr Fraser, President of Vancouver Board of Trade, welcomed the Commission to Vancouver and introduced Howard T.Mitchell, Chairman of the Joint Committee of Mining and Transportation and Customs Bureaux.

Howard T.Mitchell — Mr Mitchell presented a brief setting forth the advantages of a highway through British Columbia to the Yukon and Alaska. The Vancouver Board of Trade felt that data so far available concerning the cost of such a highway and its division among the various governments concerned were as yet too meagre to justify the passing of judgment on the merit of building such a road at this time. The Vancouver

Board of Trade was, however, conscious of the necessity of a sound and progressive road policy in British Columbia and they realized the important part this policy must play in the development of the Province's resources both industrial and tourist. The advantages of the proposed highway must be weighed in relation to the costs, and as yet the probable costs were unknown.

Assuming that the results of the present investigation and of surveys by the Provincial and Federal governments in northern British Columbia should show that the project was both feasible and desirable, it became necessary to consider alternative routes. As between the "A" and "B" routes in British Columbia, the Board did not feel competent to express an opinion until the engineering investigations had been completed. The Vancouver Board of Trade was, however, firmly of the opinion that either of the routes through British Columbia was preferable to one from Northern Alberta and the North West territory to the Yukon and Alaska.

Mr Mitchell then discussed the highway problem from the points of view of cost, maintenance, population in territories served, development of natural resources, usefulness as a tourist road, and adaptability to defence purposes.

As to the first, any estimates of cost would have to be based upon engineering data, but it seemed reasonable to suppose that a highway through British Columbia, supplies for the building of which could be sent in at various points from the coast, would be cheaper than one built east of the Rockies.

As to maintenance, Mr Mitchell felt that little helpful comment could be made at this time by laymen. The Commission's technical advisers would no doubt provide it with information as to the length of the open season and winter maintenance by different routes.

In the matter of population served, there were two phases to be considered, those resident along the highway and those who would make use of it from outside.

It was pointed out that the people of Alaska would naturally favour a route that would most conveniently serve their communities in southern Alaska, including the Panhandle.

As to natural resources, the mining possibilities by either the "A" or "B" route in British Columbia, were considerable. It had been said that the next major forward movement of the mining industry in British Columbia would depend upon the provision of economical transportation in the northern part of the Province.

The tourist argument was a strong one for a route through British Columbia, since it would provide beautiful scenery, good camping and fishing and hunting. Any consideration of the proposed highway must recognize the fact that there were more potential motor travellers to Alaska in Washington, Oregon and California than in any other part of the United States.

As to the use of the highway for military purposes, it was not felt that any comments of the Board of Trade would be helpful to the Commission.

B.George Hansuld — Mr Hansuld, on behalf of the Vancouver Tourist Association, emphasized the importance of the proposed highway from the tourist point of view. Tourism had become an established branch of industrial life, particularly on the Pacific Coast, where it had grown to such an extent that thousands of people depended upon it more or less for their livelihood. In British Columbia itself there was an average tourist expenditure of $32,000,000 a year. Americans were interested in British Columbia and they were also interested in Alaska, which at present they can only reach by steamer. The provision of highways undoubtedly stimulated tourist travel. The opening of a new highway into Mexico in recent years had brought about a sudden surge of travel in that direction, yet Mexico's attractions could not compare with those of Alaska in the mind of the average American. Alaska was the United States's last frontier, a land of vivid history and romance, of unexploited natural wealth and of fish and game. Mr Hansuld believed that the building of the highway would not only

attract tourists but it would help to develop the resources of northern British Columbia. The popularity of the Cariboo Road offers some indication of what might be expected from the Alaska highway.

T.P.O'Kelly — Captain O'Kelly read a statement in which he argued that the snowfall on the route from Hazelton to Telegraph Creek would be excessive, and that a much more favourable route could be found by way of Prince George and Finlay Forks. The more westerly route might be preferable from a military point of view but even that was doubtful because of the importance of keeping the road open at all seasons of the year.

H.E.Myers — Mr Myers testified from personal knowledge as to the favourable character of the country north down the valley of the Pelly river for a highway. This country was rich in resources. There was oil and coal and a certain amount of agricultural land, as well as hot springs and more than a possibility of gold. That country might he thought see the next big strike. On the other hand, conditions on the Hazelton route were not at all favourable.

C.Wilmot-Madison — Mr Wilmot-Madison, Secretary of the Silver Association of Canada, spoke in support of the highway and felt that the north country was badly in need of better transportation facilities.

H.H.Clurgh — Mr Clurgh filed two statements in which he argued that the proposed Alaska highway was impracticable and undesirable particularly from a Canadian point of view. It would not be used as a tourist road and would be dangerous to Canada as a military highway.

C.E.Scanlan — Mayor Scanlan, on behalf of the City of Kamloops, the Kamloops Board of Trade and the Kelowna Board of Trade, presented a statement at the Vancouver hearing outlining a route for the highway through the central interior of British Columbia. This route would

connect at the international boundary with United States Highway No 97, entering British Columbia at Osoyoos, following the Okanagan-Cariboo trail through Penticton, Kelowna and Vernon to Kamloops, thence up the North Thompson highway to Mount Olie, and by way of the Cariboo highway to Prince George. No opinion was expressed as to the relative advantages north of that point of the Prince George and Hazelton routes.

Weather conditions would be very favourable by the proposed route from the international boundary to Kamloops, the road being open all the year round with a minimum cost for maintenance. The topography was also very favourable, the route running through wide, low valleys, with no steep slopes likely to cause slides or washouts. Mr Scanlan said there were also alternate routes in the event of any portion of the suggested highway being out of commission, for any reason. He also noted that if the highway were built as suggested, it would intersect the southern provincial highway through the Kootenay, the trans-provincial highway, the trans-Canada highway and the proposed North Thompson highway, and would also give close connections with the Kettle Valley railway, the Canadian National and the Canadian Pacific, as well as the Pacific Great Eastern. It offered unequalled tourist attractions and would run through a country with great potential resources.

Noel Humphrys — Mr Humphrys, a civil engineer and surveyor, who has had over thirty years' experience exploring and surveying, and was thoroughly familiar with the country through which the proposed highway would be built, submitted a report, which will be found in the Appendix as 4.

IV.

VICTORIA CONFERENCE, July, 1939

On July 24th, 1939, the members of the Canadian Commission, Honourable Charles Stewart, Brigadier-General Tremblay, J.M.Wardle, J.W.Spencer and Arthur Dixon, conferred informally with the members of the United States Commission, Congressman Warren G.Magnuson (Chairman), Dr Ernest Gruening, J.W.Carey and Donald McDonald.

Hon. T.D.Pattullo — The Commission was welcomed to Victoria by Premier Pattullo, who briefly outlined his part in the movement for the highway through British Columbia and the Yukon to Alaska. He hoped that the investigations being carried out by the two Commissions would convince the Governments of Canada and the United States of the importance of creating such an international road, and that satisfactory means of financing the project would be devised.

J.M.Wardle — Mr Wardle described the alternative routes through British Columbia and the Yukon, and particularly what is known as the "B" route over which he had recently flown with Mr Mitchell and Mr Burpee. He said that they had covered some 3000 miles, and that the purpose had been not so much to definitely locate a particular route as to study the country generally so that unfavourable routes might be eliminated. A detailed description of the various routes will be found in the engineering section of this Report.

Warren G.Magnuson — Mr Magnuson said that the American Commission was keenly interested in the possibility of routing the road through the Atlin District to Whitehorse and then following the airplane route into Alaska. This would not directly serve Dawson, but the scenery on the proposed route was magnificent and the country rich in mineral resources. Ketchikan, Juneau and Prince Rupert were anxious to have an outlet through the highway, and it was reported that Stewart could be reached over a distance of twenty-one miles through a practicable pass. Mr Magnuson thought it very desirable

to tap the coast towns if possible. Steamship companies were supporting the project because they believed it would increase their traffic if tourists could travel by road to Alaska towns and return by boat.

In regard to snowfall, Mr Magnuson did not see any problem, with modern snowplow equipment. There was tremendous interest throughout the United States in the highway and he did not anticipate any difficulty in securing Congressional approval. The benefits to be derived by both countries would far surpass the cost of building the road. Something had been said about the military value of the road, but that was a secondary consideration. Another factor was the aid that would be afforded to air services. Landing fields could be built in conjunction with the highway.

Hon. Charles Stewart — Mr Stewart explained that the Canadian Commission had not been asked to report upon methods of financing the highway. Their duties were confined to investigating and reporting upon the feasibility and approximate cost of such a highway. He thought that it would be possible to have the report of the Canadian Commission prepared by the end of the year.

He recognized that the western route, or Route "A", might be of more service to Alaska since it would permit access to certain Alaskan coast towns through the construction of branch roads to the main highway. However, the difference in cost would have to be taken into consideration. A route through the Yukon via Whitehorse and the Kluane Lake and River, mentioned by the United States Commissioners for consideration, had the disadvantage of omitting Dawson from the main highway. While the Provincial Government was most interested in that part of the road through British Columbia, the section through the Yukon Territory would of course be controlled by the Dominion Government.

Dr Ernest Cruening — Discussing the type of road construction that might be adopted, Dr Cruening thought that what was needed was not the sort of highway that people could rush over at seventy-five miles an hour, but rather one on which it might be possible to drive in leisurely

fashion, travelling from seventy-five to one hundred miles a day, and spending nights in camps or cabins. The American Commission would not expect a very expensive type of highway to begin with. In regard to the relationship with airplanes, the air service question was being handled by other Commissions, and it was not necessary for the Highway Commissions to deal with it.

Donald McDonald — Mr McDonald was particularly interested in the practical question of the type of road most suited to the highway, as well as where it should be built. He thought that an 18-foot roadbed such as had already been built in Alaska, and that could be done quickly with graders, would be ample for the present; that is to say, a usable roadbed of 18 feet between shoulders, or 34 to 36 feet between ditches. In regard to grades, Mr McDonald said that six per cent was the rule in Alaska, but it was quite frequently more than that. As far as curvature was concerned, tourists preferred a line of curves. They had a maximum limit of 120 foot radius for curves, six per cent grade going up to eight per cent if necessary.

Mr McDonald said that Alaska had cooperated with the Yukon Government in building a road to Dawson, a distance of forty miles. The Alaskan authorities had built the road out to the boundary and had used Canadian machinery and workmen to build twenty miles on the Alaskan side. He thought if the highway was constructed it would be very helpful both to Alaska and the Yukon, if a free zone could be established along the Alaskan boundary.

J.W.Spencer — Mr Spencer discussed the cost of construction of the proposed road. He felt that there was an inclination to underestimate the cost. There was involved not only the projected road through northern British Columbia and the Yukon, but also a thousand miles of the existing Cariboo highway, and it would cost a lot of money to bring that highway up to a standard that people would be glad to travel over. The present road to Hazelton was adequate for existing conditions but would not meet the needs of increased traffic.

Ottawa meeting The meeting adjourned on the understanding that the members of the two Commissions would have a further conference in Ottawa in December, when results of 1939 field investigations would likely be available. This joint meeting was deferred for a month and the Canadian and United States Commissioners met in Ottawa on January 24th, 1940. The results of the Canadian Commission's hearings and field work in 1939 were discussed at some length, and an exchange of views followed in regard to the advantages and disadvantages of various routes. There was agreement by the members of both Commissions that the westernmost or Coast Route might be eliminated as impracticable. It appeared that much more complete information was so far available in regard to the "B" Route than to the "A" Route, and the Canadian Commission agreed to have further field work by Dominion and British Columbia engineers carried out during the season of 1940. Dominion engineers would also obtain for the Canadian Commission additional information as to practicable routes in the Yukon.

Another conference of members of the Canadian and United States Commissions was held in Washington on March 28th, 1941. At this meeting Adolf A. Berle, Assistant Secretary of State of the United States, expressed the interest of the United States Government in the work of the two Commissions. He said that he assumed the discussions at this meeting would centre around the fact that not only was the proposed highway feasible and highly desirable but that it would be of mutual benefit to both countries.

The results of field work in 1940 were put before the meeting and discussed at length. There was general agreement that it was entirely feasible to build a highway through British Columbia and the Yukon to Alaska, and that it could be done at a reasonable cost. It was further agreed that, while each Commission had its preference as to the most desirable route for a highway, both Commissions were agreed that the "A" Route and the "B" Route were both practicable. The Canadian Commission

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undertook to expedite as far as possible the completion of its report to the Canadian Government, in order that the Government might have all the available facts before it when negotiations were entered into between the two Governments at the instance of the United States.

V.

THE CARIBOO ROAD

Something has already been said in the first part of this Report about the existing highway from Vancouver to Prince George and Hazelton, and southern connectionw with that highway from the United States. The present road, as the Trans-Canada Highway, follows the Fraser River valley from Vancouver, 103 miles to Hope, where the direction turns from east to north. Still following the Fraser the highway continues to Lytton, 176 miles from Vancouver. Here it leaves the Fraser and ascends the valley of the Thompson river to Ashcroft, where the Cariboo Road proper begins. The Cariboo Road then follows the Bonaparte river to Lac La Hache. From Lac La Hache it parallels the San Jose river, returning to the Fraser at a point about 376 miles from Vancouver. From there the highway follows the Fraser to Quesnel and Prince George, the end of the Cariboo Road, and then the provincial highway runs north-west to Vanderhoof, Burns Lake, Smithers and Hazelton. From Hazelton the road has been continued a few miles to Kitwanga, and eventually will be carried down the Skeena to Prince Rupert.

At Hope the Trans-Canada Highway connects with a road, approaching completion, that follows roughly the international boundary to Trail, Nelson, and through the mountains to Lethbridge. At Ashcroft it turns east toward the Rocky Mountains. At Prince George a road leads east that will eventually connect with the road through Jasper Park to Edmonton, and another extends north toward the valley of the Finlay. From Vanderhoof another road runs north to Fort St James and Manson Creek. The highway is at present paved from Vancouver to about 25 miles beyond Chilliwack, and it is the policy of the British Columbia Government to gradually pave the remainder of the present gravel highway and widen it to 24 feet.

Historic Ground — The Cariboo Road runs through historic ground of the days of exploration and the fur trade. Alexander Mackenzie travelled west by way of the Peace River in 1793, ascended the Parsnip to Giscombe Portage, continued down the Fraser (which he mistook for the Columbia), as far as the place now known as Alexandria, and then returned upstream to the mouth of the Blackwater which he followed west to Dean river and the Bella Coola, completing, at a point on Bentinck Arm, the first overland expedition to the Pacific. Fifteen years later Simon Fraser made a daring journey through the gorges of the river that

bears his name, and almost down to the sea. One of his companions, Jules Maurice Quesnel, gave his name to the town of Quesnel on the Fraser, and another, John Stuart, had Stuart Lake named after him. Fort St James, on Stuart Lake, Fort Fraser on the Nechaco, and Fort George, which stood where the town of Prince George is to-day, were all built by Simon Fraser in 1806 and 1807.

James Douglas The history of the Cariboo Road goes back to 1858, and its construction was the direct result of the discovery of gold in the sand-bars of the Fraser river. Fur traders, who hitherto had had British Columbia, or New Caledonia as it was then called, almost entirely to themselves, scoffed at first at the suggestion that the story of Californian gold would be repeated in this northern region of the Pacific slope. And when they realized that they were wrong, and that New Caledonia was facing just such a Gold Rush as California had enjoyed, or endured, since 1848, they were none too well pleased. A mob of undisciplined gold-seekers in the valley of the Fraser would do no good, and might be disastrous, to the fur trade.

In 1858 the mainland of British Columbia - it had only in this year been given its new name by Queen Victoria - was scarcely organized. The capital, then as now, was at Victoria, on Vancouver Island, and the man who controlled the destinies of the colony was James Douglas, afterwards knighted, a man of unusual ability and unbounded energy. He had been for many years in the service of the Hudson's Bay Company, and was now in the odd position of representing the Crown as Governor in the colony of Vancouver Island, which had been divided into electoral districts and possessed a legislature, and filling the same office in the mainland colony of British Columbia, where he reigned as an autocrat with no representative institutions.

The Gold Rush The discovery of gold in British Columbia, which led to the building of the Cariboo Road, goes back to 1856 or 1857, when according to A.G.Morice, in his History of the Northern Interior of British Columbia, gold was found in rocky crevices on the banks of the Thompson river. The gold-diggers were Indians and the nuggets were shipped by the local agent of the Hudson's Bay Company to Governor Douglas in Victoria, from where they were sent early in 1858 to the Mint in San Francisco. As soon as word got about that

gold had been found in British Columbia a party of prospectors left San Francisco for the north, and after reporting at Victoria, made their way up the Fraser to Hill's Bar near Fort Yale, where they were so successful that a much larger party left San Francisco in April for the north, - and the gold rush to Cariboo had begun.

E.F.Townsley, in an historical sketch of Canadian mineral discoveries entitled Mine-Finders, says: "In May, June and July of that year (1858) it is estimated that twenty-three thousand gold seekers left San Francisco by boat and about eight thousand overland. The worm-eaten wharves of San Francisco trembled with the hordes of prospectors, and all manner of water craft were put into service. The flow of immigration was tremendous. In one day alone, one thousand, seven hundred and ninety-two left San Francisco. Vessels bound to Puget Sound for lumber were deserted as the crews joined the gold rush. Employees of the sawmills did likewise. From all along the coast the migration started, while inland settlers left their farms; even Europe and Australia joined in the rush.

"Those who took the overland route from the Northern States found the Indians most hostile and in self preservation were obliged to travel in large caravans. A gold train of waggons from Portland crossed the Columbia River at Okanagan. They had to swim the oxen with the waggons, freight and canoes lashed together. On reaching the journey's end, the oxen were sold for meat, and the hides tanned for leather."

Mr Townsley says that the gold recovered from the Fraser river below Lytton up to 1858 was valued at $705,000, while the following year it amounted to $1,615,072. By 1860 the tributaries of the river farther north had added considerably to the production of gold, and in 1861, when the Cariboo came in, its value had increased materially, reaching in 1863 a peak of $3,913,563.

As soon as Governor Douglas was convinced that the colony was confronted with an influx of thousands of more or less irresponsible miners from the United States, he appealed to the Colonel Secretary in London, Sir E.Bulwer Lytton (the novelist) for a detachment of Royal Engineers, who would assist him not only in keeping order but in building roads.

Lillooet Trail — Even before he attempted to build a highway up the Fraser, Governor Douglas had made provision for a trail into the interior by way of Harrison Lake and the Lillooet River. This primitive highway was built in 1858 by five hundred miners, divided into twenty companies of twenty-five men, each company under the command of a captain. They received no wages for their labour, but were given free transportation from Victoria to the point of operations, and were provided with their food and lodging. The trail was completed in record time and the settlement at its southern end became known as Fort Douglas. Its entire length, including portages over the lakes, was about one hundred miles.

Cariboo Road — While the Lillooet Trail was useful, it was only a makeshift, and as more and more miners poured into the country, discovering richer and richer deposits as they made their painful way up the valley of the Fraser, the Governor realized that a much more ambitious road must be built. What trail existed was extremely rough, there were no facilities of any kind along the route, and food prices were enormous. Fortunately Douglas had adequate technical assistance in the Royal Engineers, and between 1862 and 1865 the highway was carried north into the heart of the mining country around Barkerville.

It is hard to-day to realize the magnitude of the task of building a practicable highway through such an exceedingly difficult piece of country, with very limited financial or other facilities. Agnes Laut in her book The Cariboo Trail describes it as "the boldest undertaking in road-building ever launched by any community of twenty thousand people". She adds, "the Cariboo Road became to British Columbia what the Appian Way was to Rome. It was eighteen feet wide and over four hundred and eighty miles long. It was one of the finest roads ever built. (Presumably she means, under the circumstances). It cost the country only $2000 a mile, as against the $40,000 a mile which the two transcontinental railways spent later on their roadbeds along the canyon. It was Sir James Douglas's greatest monument."

What conditions were like on the route to the gold-fields, before the building of the Cariboo Road, is suggested by the same writer: "At first there was nothing but a mule-trail hacked out of the rock from Yale to Spuzzum; but miners went

voluntarily to work and widened the bridle-path above the shelving waters. From Spuzzum to Lytton the river ledges seemed almost impassable for pack animals; yet a cable ferry was rigged up at Spuzzum and mules were sent over the ledges to draw it up the river. When the water rose so high that the lower ledges were unsafe, the packers ascended the mountains 800 feet above the roaring canyon. Where cliffs broke off, they sent the animals across an Indian bridge. The marvel is not that many a poor beast fell headlong 800 feet down the precipice. The marvel is that any track animal could cross such a trail at all.

Bridges — Of the two original bridges on the Cariboo Road, Winnifred M. Futcher, in The Great North Road to the Cariboo, says:

"The Alexandra suspension bridge, approved and opened in September, 1863, was of course, a toll bridge; well constructed and highly satisfactory. It was the first bridge on the suspension principle to be built in the colony. Its span was over three hundred feet. When tested for use, a four-horse team with a load of three tons was driven over, and the deflection was inappreciable, being less than a quarter of an inch. After being in constant use for over half a century, it has only recently been replaced by a bridge similar in principle and design to the original.

"The other bridge was to replace Cook's ferry across the Thompson river, and was built by Thomas Spence in 1864. The cost was approximately $15,000, and the bridge, once completed, was the last link from Yale to Alexandria. This bridge was also a toll bridge."

Life on the Road — Still another writer, Judge F.W.Howay of New Westminster, has described the Cariboo Road as it appeared after its completion in 1865, and as to a considerable extent it appears to-day:

"Here the road is supported by piling, there built upon immense masonry 'fills', sometimes on gigantic crib-work, the ruins of which yet remain, sometimes cut through a sheer rock-bluff, now almost at the water's level, and, anon, raised to giddy elevations when the river below seemed but a silver ribbon."

In 1865, however, life on the road would have seemed very different to what it is to-day. In place of automobiles, there would be "long lines of pack horses,

heavy freight wagons, six-horse coaches, with the well-known faces of their passengers, camels and traction engines; an army of men with pack straps, some going, some returning, some successful, some unsuccessful, men drunk and sober - all sorts and conditions of men - a motley crowd; hustling activity at the rough and ready road houses; such was the Cariboo Road in the palmy days of its greatness that are no more."

Camels in Transport — Of the rather extraordinary experiment of using camels in British Columbia, some further particulars are found in Miss Futcher's book. "They were introduced into the colony" she says "in 1862 by a prominent merchant and packer, Mr Frank Laumeister, who conceived the idea that the camel, because it could carry excessive burdens, forage for itself, and go for long intervals without water, would be a great boon to the packing industry. Accordingly, he purchased a band of twenty-one camels, which arrived in May, 1862, and were duly despatched for work on the portages, as the Douglas-Lillooet road was called.

"True enough, the camel could carry 1000 lbs. to the 400 lbs. of a mule, and he could travel from thirty to forty miles a day on very little food, but his one great drawback was his smell. Neither were his soft padded feet, accustomed to desert travel, entirely suitable to the rocky mountain trails. It was their strange smell that caused so much confusion, however. The other animals packing on the trails went wild when the camels were anywhere in the vicinity. Several serious accidents occurred, bringing in their wake lawsuits and trouble. After a year of steady packing their owners decided to dispose of them. A few were brought to the coast and sold, but the larger number were taken over the Thompson river and turned loose. For years these sneering, supercilious camels were the oddest animal of the Cariboo - a terror alike to horses and mules in the district. The last survivor died in 1905."

Mule Teams — Mule teams also had their day, and, although they were more successful than the camels and equally picturesque, they too were finally abandoned in favour of horses and waggons. "Mules were preferred to

horses (at first) because of their size and sure-footedness, also for their sturdy physical strength. A mule train usually consisted of from sixteen to forty-eight animals. A rough sort of leather sack, straw filled, and called an aparajoe, was strapped securely to the mule's back in place of a saddle. Upon this contruption was lashed the freight, weighing upwards of two hundred and fifty pounds, and secured with the celebrated diamond hitch. The leader of the train was usually a white mare, surefooted and canny. There were no connecting ropes or control of any kind over the mules while they were packing. Each knew its place and scrambled along at the leader's rate as best it could. The train crew consisted of a cook, a boss, and one man for about each eight animals."

The freight waggons and passenger coaches that followed, drawn by horses, made up the traffic on the Cariboo Road up to the appearance of the automobile. The route followed in the early days, according to Judge Howay, was roughly as follows: first day, Yale to Spuzzum; second day, Spuzzum to Lake House; third day, Lake House to Thousand Dollar Bill on the top of the hill from Boston Bar; fourth day, Thousand Dollar Bill to Butcher Flat; fifth day, Butcher Flat to Boothroyd Flat; sixth day, Boothroyd Flat to Kanaka Bar; seventh day, Kanaka Bar to Lytton; eighth day, Lytton to Nicomen; ninth day, Nicomen to Cook's Ferry. Four miles beyond Cook's Ferry the Thompson was left, and the remainder of the route to Quesnel Forks was made in seventeen or eighteen days.

Matters of Interest — The Cariboo Road has much to offer of interest to the traveller to-day, and will have even more if or when it becomes part of a great trunk highway from the United States through British Columbia and the Yukon to Alaska. Within easy reach of the southern end of the road is Garibaldi Park and not far from the northern end, in fact a few miles south of Burns Lake, is the new reservation known as Tweedsmuir Park - both of unusual interest to anyone attracted by natural scenery. Hell Gate and other points on the tumultuous Fraser remind the traveller of the extraordinary expedition of Fraser, Quesnel and Stuart in 1808, and Alexandria and the West Road river or Blackwater, carry memories of Alexander Mackenzie. Not far from Lillooet are the two largest gold-producing mines in British Columbia, the

Pioneer and the Bralorne, and a branch road from Quesnel leads to Barkerville, and its many associations with the Cariboo gold rush. Large and well-equipped horse and cattle ranches may be seen at Earlescourt, across the Fraser from Lytton, Pavilion, above Lillooet, Dog Creek, about forty-one miles from Williams Lake, Gaspard and other ranches in the same district, the "O K" Ranch at Big Bar, the "Flying U" on Green Lake, and the ranch owned by the Marquis of Exeter and Lord Egerton of Patton, near the Hundred Mile House, on the highway.

The big game hunter and sporting fisherman finds almost innumerable opportunities for sport within reasonable distances of the Cariboo Road. At one place or another it is possible to get moose, deer, caribou, mountain sheep, mountain goat, bear, and in some cases wapiti, as well as wild geese, grouse, and wild duck, while excellent fly or bait fishing is to be had in almost any of the numerous lakes and streams. It is also an interesting experience to watch the Indians on the Fraser river spear-fishing and dip-netting for salmon from their frail-looking platforms on the rocky banks of the river.

Early Highway Projects

Projects were brought forward from time to time in the early days of British Columbia for the building of roads to the Cariboo gold fields by shorter routes than the valley of the Fraser. Alfred Waddington, who was one of the first to advocate a transcontinental railway, proposed at one time the construction of a road from Butte Inlet to the Cariboo, which it was said would be 175 miles shorter than by the Fraser Valley. "His intention" says Father Morice in his History of the Northern Interior of British Columbia, "was to establish regular steamboat communications between Victoria and the head of Butte Inlet, and thence build a waggon road up the Humalhkhoh River, through the Chilcoten territory, whose exceptional resources in agriculture and grazing land would thus be opened to the settler. So sanguine was he of success that, even after the Fraser river route had been adopted, he organized a private company and, early in 1864, sent a force of sixteen men to battle against the innumerable difficulties presented by the Coast Range." Unfortunately most of the party were killed by Chilcoten Indians and the project was abansoned.

Another proposal was made about the same time to build a road by way of the route of Alexander Mackenzie from Bentinck Arms to the Upper Fraser, and a

party of the Royal Engineers, then stationed at Victoria, was sent to examine its practicability and make a report. Nothing also came of this suggestion.

VI.

NATURAL RESOURCES

It will have been seen, in the earlier part of this Report, that a number of witnesses at the various hearings offered evidence as to the resources of the country through which the highway would be built, whichever route should be finally selected. This evidence was for the most part very general in character, and it seems to the Commission desirable to supplement it with more specific and detailed information drawn from governmental and other authoritative sources.

Minerals
Forrest A.Kerr

Forrest A.Kerr, of the Geological Survey of Canada, in a summary report dated April,1932, said of the proposed Alaska Highway and its relation to mineral development in British Columbia:

"Northern British Columbia is known to contain two favourable zones for mineralization:

"The western zone lies in the eastern part of the Coast Range, stretching as a narrow belt from a point between Atlin and Stewart; the zone is accessible at present by the Stikine and Taku rivers, Portland Canal, Atlin, and to a lesser extent, by the Unuk river.

"These routes provide the necessary means, by improved water transportation of railway construction material, of developing any major mineral deposits which may require the moving of very large tonnages of ore and equipment.

"Some sections of the zone, however, remain inaccessible by these routes and although a road on the eastern flank of the range would provide a means of prospecting these areas and to some extent a means of developing any important discoveries, any long road haul would be prohibitive, except in the case of unusually rich deposits.

"There is little evidence to show that the area immediately north and east of the above-mentioned western zone is favourable for mineralization,although there may be some small areas deserving further study; hundreds of square miles are covered with lava and are likely to be entirely barren. Large coal deposits are known to exist in the Groundhog section. These may be of considerable value at some future date.

"There is an eastern belt favourable for mineralization, lying roughly to the west of the Parsnip river and the Finlay river and considerably to the east of Dease Lake, and is separated from the proposed route of the road by the Cassiar and Omineca Mountains, a formidable system extending from central British Columbia to central Yukon. Long feeders from the main highway would be necessary near the Cassiar-Omineca Mountains, but it is doubtful whether the main highway would be an important direct aid in the development of this zone.

"In the western part of the Cassiar-Omineca Mountains the zone known as the Cassiar-Omineca batholith, which is parallel to the above-mentioned eastern zone, is geological favourable for mineralization and is probably the source of some of the Yukon placer deposits. The Dease Lake area is the only deposit which has been examined geologically or extensively prospected, and is somewhat discouraging. Otherwise, practically nothing is known about this geologically favourable zone.

"it is thought that a third zone immediately west of the Cassiar-Omineca batholith may exist, though it appears doubtful that it has the potentialities of the other two. However, a route near the Cassiar-Omineca Mountains might be the means of opening up valuable mineral resources."

Minerals
J.D.Moodie

Inspector Moodie of the North-West Mounted Police in his Report of 1899 on the overland expedition from Edmonton to the Yukon, included some notes on the mineral resources of the region traversed.

"At Manson Creek" he said "between Stuart Lake and Grahame, mines are being worked and a considerable amount of capital invested. A large number of bench and river claims were staked out during April,1898, on the Finlay and Parsnip rivers. From one bar, about eight miles up the Finlay, a large amount of gold has already been washed. Horn Creek is also said to yield good prospects; it flows into the Peace River a short distance below the Parsnip. The Ingenica, Ospica and Omenica rivers give good colours in many places. In fact, as I have said, almost every creek and river will give "colours" in more or less paying quantities."

Inspector Moodie added: "Copper was found near Deadwood lake about forty miles east of McDame's Creek, and a good seam of coal near camp 50,north of the divide between the Finlay and Turnagain rivers."

Minerals
John D.Galloway

In 1931 John D.Galloway, Provincial Mineralogist of British Columbia, made a report to what was known as the Fact Finding Committee, set up in connection with the former Alaska Highway Commission. In this report Mr Galloway said:

"Geologically, this area is known to be mineralized in many places, but a large part of it is difficult of access. It has been penetrated by prospectors in many places, from Hazelton to the north, Atlin to the south, and from suitable points on the coast.

"The Eastern Contact zone of the Coast Range is known to be a well-mineralized zone. In this zone are contained the important productive mines of Stewart,B.C., notably the Premier. Other mineralized areas in this zone are Alice Arm, Anyox, Taku river and the Atlin placer area somewhat to the east. This Eastern Contact zone has only been intensively prospected where it could be reached from the coast, but long stretches are not accessible.

"The probable route of the road (as then proposed) will lie somewhat to the east of the Eastern Contact zone of the Coast Range, but would give much better access to parts of this area than is now possible from the coast.

"Further east from the Contact Zone metallic mineralization also occurs,as for instance in the Rocher deBoule Range at Hazelton, at Meziadin Lake and at Telegraph Creek.

"The proposed road would also pass somewhere near the Groundhog coal-field. This field was slightly developed in 1910 and 1911 but since has laid dormant. Good transportation might result in the best parts of the field being further tested. Ultimately, of course, no appreciable production of coal would be made without railway connection.

"The further development of the placer district around Atlin would not be advanced to any extent by this road, as the present transportation suffices. In connection with mineral resources, the following statement has been made by Dr J.T.Mandy, Resident Engineer for the District:

> 'Despite the exceptional mineral resources of this area, the region has remained comparatively inactive. The fact must be acknowledged that the development of the country is retarded by an inconvenient and expensive

transportation system, and it will not be fully developed unless this condition is alleviated. The remedy, apparent and logical, lies in the construction of a direct transportation system down the Taku river valley to seaboard, approximately 143 miles in length. With the developments that are now taking place in this latter area and the mooted Pacific-Yukon Highway, the hope for the materialization of this remedy to the struggles of the interior Atlin region may perhaps be fulfilled in the not distant future.'

"It is the policy of the Department of Mines to open up known mineralized areas for prospecting by good trunk trails. As a rule, roads are not considered, first of all on account of expense, and, secondly, because the exploration of a mineralized area is speculative and the possibilities cannot be appraised in advance as in the case of land and timber. The expense of roads for prospecting cannot therefore be justified. Following the finding of certain mineral showings, roads, as a rule, become necessary before adequate development can be carried out to determine the value of the properties. The Nation river - Manson Creek area is a case in point, which has been served by trails for years and now the Department is endeavouring to get a main sleigh-road through the area.

"The accleration of prospecting in the mineralized area from Hazelton to Atlin would in no way justify the proposed road but if built much additional mineral exploration will undoubtedly result with the incentive of possibly finding another Premier mine."

Mr Galloway's Report deals, as will be seen, particularly with the route from Hazelton to Atlin, and does not give consideration to the more easterly routes. It is also to be noted that transportation facilities in the Atlin district are much less adequate to-day than they were in 1931.

Forest Resources — The following Report, prepared for the information of the Fact-Finding Committee of 1931, also deals entirely with the region that would be traversed by the highway from Hazelton to Atlin:

"For descriptive purposes the region of the Province noted in the attached summary has been divided into five drainages. Two drainages, namely, the upper

Skeena and upper Nass river valleys are situated within the organized forest district of Prince Rupert. The three remaining drainages are in unorganized territory. While forest resources in all drainages described are principally suitable for manufacture into pulp, timber suitable for construction will be found in varying quantities when needed. Up to the present, due to lack of demand and distances from present day markets, there has been practically no exploitation of these resources. The only forest products that have been utilized are cedar poles from the vicinity of Hazelton and Kitwanga, mine timbers and a small amount of saw timber for local use in the vicinity of Atlin.

Upper Skeena River — "This region comprises an area drained by that section of the Skeena river east of the axis of the Coast Mountains. The headwaters of the Skeena rise in a pass that divides it from the Stikine river at an elevation of approximately 4,000 feet. From this point it bears a southerly course to its junction with the Bulkley near Hazelton, elevation 725 feet. The principal tributary streams are the Alankis, Kispiox, Shegunua, Sustut and Kitwanga rivers. Topographic features are very uniform and consist of a series of plateaux broken by high barren ranges rising to a maximum elevation of 7,000 feet and forming main divides. Forest growth is very uniform and is chiefly the hemlock-spruce type. Lodgepole pine found on the drier sites occurs both in pure stands and in mixtures with spruce and balsam. Cedar occurs along the upper benches of the Skeena, its northern limit being found 40 miles north of Hazelton. Burned areas are relatively small north of Kisgegas, an Indian village on the Babine river. These areas are restocking fairly satisfactorily. The only exploitation of timber in this drainage to date has been in cedar poles for eastern markets via Hazelton and the Canadian National Railway.

Upper Nass River — "This drainage adjoins the Skeena Valley to which it is similar as regards physical features and forest cover. The headwaters of the Nass rise in Lat.56° 50' - Long.130°opposite the headwaters of the Iskut river and flowing in a southerly, thence westerly direction through the Coast Mountains, emptying into Observatory Inlet at Lat.55° Long.130°. Important tributaries of the Nass are the east fork, the Bell-Irving, Cranberry,

Kuiskuch and Tseax rivers. Recent examination of the forests of this region show extensive areas of Crown timber, chiefly suitable for manufacture into pulp. Hemlock, balsam and spruce predominate, with extensively burned areas reproducing to lodgepole pine. Cedar is found only in the south western extremity of this drainage, namely in the Tseax valley.

Stikine and Iskut Rivers

"The drainage basins of these two rivers comprise the area that is situated between the axis of the Coast Mountains on the west and the Cassiar mountains on the east. As the axis of the Coast Mountains forms the boundary between British Columbia and Alaska, only the eastern slopes are within the Province. The altitude of the bottom of the Stikine Valley varies from about 4000 feet at its source to tidewater at its mouth. Topographic features vary and while main divides attain higher elevations than the Nass to the south, the formation of the valleys are similar. Whitford and Craig (1917) reported the climate differences at this latitude greatly influences forest growth; timber is smaller and is only found in commercial quantities on protected sites. Around Telegraph Creek the climate is arid and there are areas along the Stikine and its tributary the Klappan where conditions are too dry to support forest growth. The volume of timber suited to commercial purposes is small. The hemlock-spruce type prevails; balsam of an inferior grade is found throughout the region. Lodgepole pine stands occur in commercial quantities on the upper Spatsizi river. Excellent summer grazing is to be found on the plateau land of this region.

Taku River Drainage

"The drainage basin of the Taku river lies between the Stikine on the south and the Atlin region on the north. It contains portions of two physiographic units, namely, the slopes of the Coast Mountains and the Yukon Plateau. Two important tributaries are the Sloko and Inklin rivers. The plateau portion of this region has a general altitude of 4,000 feet. The Coast Mountains are high and rugged and covered with glaciers, some of which fill the small side valleys and reach nearly to the waters of the Taku. The portion of this valley in British Columbia supports a heavy growth of hemlock, spruce and balsam. Timber line occurs at an altitude between 1,500 and 2,000 feet. Of the 846 square miles below the merchantable timber line, 409

square miles is considered incapable of supporting timber. This area is composed of swamps, lakes and badly burned patches, which, not restocking, are covered with grass or willow growth, or are barren. The merchantable timber lies mostly along the lower reaches of the Taku, where the moist warm climate of the Alaska coast exerts a favourable influence.

Atlin Region "This region comprises that portion of north western British Columbia situated between the axis of the Coast Mountains on the west and the Dease Lake River divide on the east. There are two contrasting types of topography in the district: the Coast Mountains and the Yukon Plateau. The Coast Mountains consist of a rugged range partly covered with snow and ice throughout the year. The Yukon Plateau to the east consists of uplands and valleys. The uplands have a general elevation of between 4000 feet and 5000 feet, while valleys range from 2200 feet to 2400 feet. The valleys are steep-walled typically U-shaped depressions and are partially covered by lakes. Of these Atlin Lake is the largest in the Province. Although precipitation is similar to Kamloops in the southern part of the dry belt, conditions of temperature are unusually severe and to a great extent influence the forest growth in this region. The amount of merchantable timber is very small. The principal forest type of the region is spruce-alpine fir. Lodgepole pine occurs on the poor soils. Poplar groves and willow thickets occupy the richer soils where the original forest has been completely destroyed by fire.

"From the viewpoint of the coast of interior lumbermen of southern British Columbia, the forests in the vicinity of Atlin would not be considered as containing merchantable timber. The character of the timber growth is comparable to that found at an altitude of 5,500 feet in the southern part of the Province. It is of interest to note to what degree utilization of our forests can be practiced when records show that in former years seven small mills around Atlin Lake had an annual output of 750 M.B.M. of this grade of timber."

In addition to the foregoing Report on timber resources, the Commission has received from the Dominion Forest Service a Memorandum prepared by Mr

W.E.D.Halliday; and four sheets of tabulations of forest land classification and merchantable timber on the "A" and "B" routes, supplied by the Government of British Columbia. These will be found in the Appendix as 6 and 7.

Water Powers — The following statement on water powers, in the same area between Hazelton and Atlin, was prepared for the Fact-Finding Committee of 1931 by officers of the British Columbia Government.

"There are numerous water powers of many sizes within transmission distance by electrical energy of the projected highway but of which at present very little detailed information and data have been collected. However, of the larger rivers, such as the upper waters of the Skeena, the Nass and the Stikine, the information available indicated that the potential water powers are large and would repay further investigation. For instance, on the upper waters of the Skeena above Hazelton, there are four known power sites, i.e., the canyon at 4-mile bridge, the Old Kuldo Canyon, the Big Slide Canyon and the 4th Canyon 9 miles above the 4th Telegraph Cabin.

"On the Nass river the following sites are known to exist, i.e. Grease Harbour, 1½ mile, 14 mile, 15⅝ mile, at mouth of Tchitin river, just below mouth of the Kinskuch river, Flat Rock Point, just below mouth of Meziadin river, and at Big Bend (38 miles), Smoke House (30 miles), and Micks Isle (43 miles), besides the possibilities on the tributaries such as the Kinskuch river, Meziadin river, etc.

"Should the demand exist, developments totalling over 200,000 horse-power could be made from the waters of the Nass. Of the power possibilities of the Stikine river and its tributaries, little is known but as the river flows through several rocky canyons whose walls exceed 200 feet in height, it is more than likely that sites exist at which developments could be made."

United States Highway Report — In the Report of the Commission to study the proposed highway to Alaska, published at Washington in 1933, considerable attention is given to the question of natural resources in northern British Columbia, the Yukon and Alaska, as one of the justifications for the highway. It is to be noted that in this Report, as in the reports to the Fact-

Finding Committee already quoted, it is assumed that the highway would follow the westerly route north from Hazelton, and the resources described are those that would be available along that route.

These natural resources, says the report, consist of gold, silver, copper, lead, zinc, gypsum, coal, timber, furs, wild game and farm lands, and the principal attention is given to minerals. The report states that the most important gold deposits in British Columbia are in the northern half of the Province and can be reached now only with great difficulty. Development in the Telegraph Creek, Taku and Atlin areas had been greatly retarded by transportation difficulties which would be largely overcome by the new road.

Conditions in Yukon

It is observed that transportation facilities in the Yukon are pretty well confined to the Yukon river and its upper tributaries. These waterways offered adequate provision for through transportation of freight, but the development of the country could not be completed until a road system supplementary to the river was provided. A road from Whitehorse to Dawson, with branches tapping intermediate areas, would make it possible to move freight by truck more expeditiously and cheaply than by river steamers.

Gold in Alaska

The Report draws attention to the fact that the area in Alaska between Dawson and Fairbanks is known to contain gold in paying quantities. "In the Chicken Creek area particularly there are extensive low-grade deposits, which could be worked profitably if transportation difficulties could be overcome, as they would be by this new road. Investigations made by the United States Geological Survey show that conditions in the general area between the Tanana and Yukon rivers are favorable to the occurrence of valuable metalliferous deposits. Their development is practically impossible under present transportation difficulties, but if there were an autotruck road across this area, development of the resources would be feasible."

Changed Conditions

In the 1933 Report, it is emphasized that it is important to keep in mind the changed conditions in mining gold in the north country. "In the early days" it says, "rich concentrations of gold

were found in British Columbia, the Klondike, Tanana Valley, Nome and elsewhere. These deposits were so rich that even individual miners with no more equipment than they could carry on their backs or on dog sleds, could wash out gold in paying quantities. But these rich deposits have largely been exhausted and the remaining metal is so diffused that mechanical processes are necessary for its extraction. Where pans or crude rockers and sluices once yielded paying quantities, now dredges or powerful hydraulicking outfits are required. The machinery, the fuel, the supplies, the labour required for these operations cannot be brought to the site of the work economically without modern transportation. Even the prospecting and development work which precedes the production phase, demands economical transportation, which generally must involve the use of autotrucks. It is no longer generally possible for a couple of prospectors to go out and with pick and shovel uncover rich deposits of gold or other metals. The modern system of prospecting comprises a general observation of ground forms, geological investigations for the purpose of locating favourable conditions, extensive excavation, and sometimes tunneling so as to locate the deposits. All of this work must be done before a prospect is brought to a production basis,and cannot be done without the use of modern overland transportation. Unless roads are provided, work of this kind must be confined to the areas immediately adjacent to the navigable waterways, leaving untouched large areas not so favourably situated.

"In Alaska, and probably also in Yukon Territory, short roads have been built inland from various points on the navigable rivers for the development of nearby areas, and while these have answered the most urgent requirements the lack of a comprehensive trunk system has greatly retarded development. Under present conditions, the transportation of a shipment of freight from a Canadian or American supply point to the interior of British Columbia, Yukon Territory of Alaska frequently demands the use of an ocean vessel, a railroad, a river steamer, an autotruck or wagon road and a pack trail in turn. If the gaps between the existing isolated road systems were filled in, some of these expensive rehandlings of cargo could be avoided, thus reducing the total freight charge, which, under present conditions, is often prohibitive.

"In Canada the area between Kitwanga and Bowser Lake has been prospected and many claims staked. In 1930 it drew the attention of several large companies who sent their engineers in, and it is understood that the region is very promising. Lack of transportation has retarded development. In the Topley and Smithers districts mines are under development, and the mineral area extends northward into the Babine Mountains, where extensive claims exist. During 1930 several large mining companies have investigated extensively along the Driftwood, Bear and Omineca rivers and westward of Takla Lake. On the lower Klappan, claims showing high values have already been staked, and the upper Stikine offers a good field for further promising investigation. These areas are now beyond the field of the ordinary prospector, because of the expense and difficulty of entering the region. Large companies are exploring by plane. From the Stikine river northward, in the Dease Lake district and along Liard river, placer mines have been worked; but transportation costs of $160 per ton from Wrangell make profits doubtful."

Coal North of the Bear river, in the region between the upper waters of the Skeena and the Stikine, it is pointed out that the mineralized formation yields to the coal measures. In this district are found the Groundhog coal fields, valuable anthracite deposits, in which so far little development has been attempted because of the lack of transportation facilities. These coal fields lie on the Hazelton-Atlin route.

Timber It is reported that the lower Nass valley, in the region of the Cranberry and Bell-Irving rivers, carries a good stand of pulp wood, Engelman spruce, estimated by the Canadian forestry authorities at some two billion feet. A fair stand of pulp wood of the same species exists along the Skeena and in the valley of the Lower Babine river. These areas at present are without adequate transport outlet facilities. At Hazelton is centred a small cedar post and pole industry, which is floated down to tidewater on the Skeena. Ties from jack-pine have also developed into an industry. Tie timber is obtained along the Babine route to Bear Lake. A tabular statement of forest resources, based on a report of the Commission of Conservation of Canada in 1917,

shows four billion feet on the Upper Skeena, four billion on the Upper Nass, two billion on the Stikine-Iskut rivers, a quarter of a billion on the Taku river, and about two hundred million in the Atlin region.

Furs — The 1933 Reports points out that fur is an important resource in all the northern parts of the continent, and that a new highway would provide increased facilities for trapping and the production of furs. It might also be worth while to consider the possibilities of fur farming, in the region tapped by the highway.

Hunting — Attention is drawn to the attractions offered to big game hunters and fishermen throughout the region, where moose, caribou, mountain sheep and mountain goat are plentiful, and the many streams and lakes full of fish. At the present time owing to the excessive cost of transportation, the expense of a thirty day hunting trip amounts to about $3,000. This cost would be very much reduced if it were possible to travel most of the way on a highway.

Agriculture — The 1933 Report states that the popular idea that this northern country is a forbidden land of snow and glaciers, where agricultural development would be impossible, is without foundation. "The rich soil, the ample moisture, and long hours of summer daylight, produce surprising crops of many different kinds. In Alaska, adjacent to or even north of the Arctic Circle, grains, hay, vegetables, small fruits and flowers are grown successfully."

In support of the opportunities for farming in Alaska, the experience of the United States Department of Agriculture in conducting Agricultural Experiment Stations in 1929 at Fairbanks and elsewhere in Alaska, is cited. Spring wheat of good quality required from 98 to 109 days to ripen, and yielded 21 to 28 bushels per acre. Oats of good quality needed 96 to 111 days to ripen, yielding from 35 to 77 bushels per acre. Barley of good quality required 89 days to ripen, and yielded 28 to 49 bushels per acre. Flax was raised during a one-year test and believed to be well adapted to local conditions. Alfalfa survived the winter practically one hundred per cent and yielded at the rate of 6.2 tons per acre. Clovers survived about 30 per cent, as did also vetch, which yielded

about 6 tons per acre. Field peas yielded hay of high quality, at 1.3 tons per acre. Potatoes were planted May 24th and matured about September 20th. They were of fine quality and yielded from 193 to 214 bushels per acre. Other vegetables grown were spinach, kale, cabbage, celery, onions, parsnips, salsify, beets, carrots, turnips, radishes, cauliflower, brussels sprouts, tomatoes, sweet corn, leeks, Swiss chard, peas, head lettuce and rutabagas. All did well except tomatoes and sweet corn. The tomatoes made a large yield of green fruit, none of which ripened. Sweet corn grew slowly, tasselled and silked but produced no ears. Cranberries and blueberries grow wild in great profusion over a large part of the territory. Raspberries have been raised successfully and strawberries do well except in the Fairbanks region.

Dairying and Stockraising

It is noted that in the vicinity of Fairbanks, in 1933, eighty-seven dairy cattle were producing milk and cream for the local market. There were very considerable areas of good grazing land along the route from Hazelton to Alaska. The increase of the reindeer herds had been amazing. The herds had grown from a few thousand head when introduced from Siberia a few years ago to nearly a million. Experiments in raising domestic sheep had indicated that the industry was a promising one. Similar experiments with mountain sheep in captivity had been made near Fairbanks with considerable success. The hair was not suitable for wool but the meat was much superior to ordinary domestic mutton. Wild goat culture for the production of milk for cheese was also a possibility. Some areas in British Columbia, like the Klappan Valley, with its large meadows and bunch grass hillsides, afforded good winter feeding grounds. Caribou Mountain in this region was the wintering ground for thousands of caribou. The snowfall was light and bunchgrass flourished in early spring. Stock raising could be made as productive and successful an industry as in the Chilcotin Valley. Good land had been reported in the valley of the Lower Nass, as well as in the Bell-Irving Valley, the Babine and Takla lake region. Conditions were also favourable for agriculture in the vicinity of Dawson, Whitehorse and other parts of the Yukon. The principal obstacles to further expansion of agriculture in northern British Columbia, the Yukon and Alaska, were lack of roads and lack of markets.

Both obstacles would be overcome by the building of the proposed highway.

Water Power — It is also pointed out that major and minor water power sites abound throughout the region between Hazelton and the Yukon boundary. All the rivers were capable of development to some extent, at any rate for local purposes. No surveys had been made but the rivers usually had plenty of fall and the numerous lakes furnished natural reservoir sites. The Stikine river and Tuya Lake in particular offered great possibilities for power development.

Geological Survey of Canada — Since 1887 a number of reports have been made by officers of the Geological Survey of Canada on explorations in northern British Columbia and the Yukon Territory by G.M.Dawson, R.G.McConnell, W.W.Leach, S.S.Halloch, G.A.Young, George Hanson and others. A list of these reports, which contain a great deal of information on the mineral resources of this region, will be found in Appendix 8.