



BRITISH COLUMBIA-YUKON-ALASKA
HIGHWAY COMMISSION
CANADA

REPORT

ON

PROPOSED HIGHWAY THROUGH
BRITISH COLUMBIA AND THE
YUKON TERRITORY TO ALASKA

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REPORT OF COMMISSION

The idea of building a highway through British Columbia and the Yukon to Alaska had been discussed for some time, but took more definite shape in 1929, when International Highway Associations were organized in Fairbanks, Alaska, and Dawson, Yukon, for the purpose of furthering the project. In the same year the proposal was endorsed by various organizations in Alaska and the State of Washington as well as by several national associations in the United States. The Legislature of Alaska, in April, 1929, adopted a memorial in support of such an international road and requested that steps be taken toward a conference between representatives of the United States and Canada. The Government of British Columbia expressed its interest in the matter and an informal exchange of views took place between officials of British Columbia and Alaska. Conferences were also held between representatives of the United States and Canadian Governments, and the data at that time available were brought together.

Surveys in
British Columbia
and Alaska

Reconnaissance surveys were made in 1930 in northern British Columbia, under instructions of the Government of that Province, for the purpose of locating the most practicable route for a highway. The following year the Alaska Road Commission, after preliminary airplane flights over the general area in Alaska, conducted a survey to determine the best route from the Yukon boundary in the vicinity of Dawson to Fairbanks, Alaska. The reports of these surveys were afterwards published as appendices to the Report of the Commission to Study the Proposed Highway to Alaska, issued in 1933, of which something may now be said.

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Commission, 1930

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"That the President of the United States is hereby

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"That the President of the United States is hereby

authorized to designate three special commissioners to cooperate with representatives of the Dominion of Canada in a study regarding the construction of a highway to connect the northwestern part of the United States with British Columbia, Yukon Territory and Alaska, with a view to ascertaining whether such a highway is feasible and economically practicable. Upon completion of such study the results shall be reported to Congress".

In pursuance of this authority the President appointed as Commissioners to cooperate with representatives of Canada, the following: Herbert H. Rice, of Detroit, Michigan, Chairman; Ernest Walker Sawyer, Assistant to the Secretary of the Interior; Major Malcolm Elliott, Corps of Engineers, U.S. Army, President, Alaska Road Commission.

Canadian
Committee, 1931

A Canadian Committee, consisting of Hon. George Black, at that time representing the Yukon Territory in the Dominion Parliament, J.M. Wardle, then Chief Engineer of Canadian National Parks and G.P. Napier, Assistant Chief Engineer of the British Columbia Department of Public Works, was selected to act with the United States Commission as an International Fact Finding Committee and a joint meeting was held in Victoria in October, 1931, for the purpose of considering the practicability and particulars of the proposed highway. In 1933 the American Commission reported to the Government of the United States on the information obtained by itself and the Canadian Committee and submitted the following conclusions and recommendations.

Report of United States
Commission, 1933 --
Conclusions and
Recommendations

"1. The Highway is a feasible project and can be built at a reasonable cost, which should not exceed \$2,000,000 for the Alaska section and \$12,000,000 for the Canadian section. Considering the highway to begin at Seattle, Washing-

ton, and end at Fairbanks, Alaska, the approximate mileage of completed road and new construction needed for completion is as follows:

<u>Route</u>	<u>Completed Road</u>	<u>New con- struction needed</u>	<u>T o t a l</u>
	<u>Miles</u>	<u>Miles</u>	<u>Miles</u>
Seattle to Hazelton, British Columbia	882	0	882
Vancouver to Hazelton, British Columbia	830	0	830
Hazelton to Yukon Boundary	50	520	570
Yukon Boundary to Alaska Boundary	50	480	530
Alaska Boundary to Fairbanks	91	183	274
Seattle to Fairbanks	1,073	1,183	2,256
Vancouver to Fairbanks	1,021	1,183	2,204

"2. If the project is adopted, the stage-construction process is favoured. That is to say, the initial standard should be no higher than is required for the estimated traffic, and improvements to higher standards would be made as demanded by traffic and as funds may become available.

"3. Financing is primarily the responsibility of each of the nations concerned for the section of the road within its own jurisdiction, and any departure from this principle should be covered by international agreement. The Alaska section of the road should be financed in about the same ratio between federal and local funds as obtains under the Federal Highway Act in the sparsely settled States, resulting probably in about 90 per cent of the cost of construction being paid by the Federal Government.

"4. There are two general routes for the northern end of the highway, either of which would serve to open new Alaskan territory of importance and contribute to the general development. The Dawson-Fairbanks route possesses the advantage of a more comprehensive service to Yukon Territory and the Forty-mile and Chicken Creek mining areas in Alaska. The Whitehorse-Kluane Lake-Gulkana-Fairbanks route involves less new road construction in Alaska, saves several hundred miles of new construction, and also serves important mining territory in Alaska. Both routes are acceptable from the American viewpoint.

"5. The benefits to be gained from the project from the American point of view are:

(a) Development of Alaska through making the territory

accessible by highway, resulting in an increase of population and consequent increase of production and consequent increase in revenue from taxes, tending to decrease the present necessity for Federal appropriations for the support of the territory.

(b) The road would be a great contribution to the welfare of American citizens now living in Alaska under adverse conditions, by providing a physical connection with the vast continental road system.

(c) Opening of new country that is now practically inaccessible, giving opportunity for settlement, investment of capital and employment.

(d) The new road would make accessible to the continental highway system the existing road net in central Alaska comprising about 900 miles, providing a new and valuable area for exploration, for recreation, or for business purposes.

(e) The highway would foster air commerce with Alaska by furnishing a guiding landmark and providing service to aviators along the most practicable flying route to the interior of the Territory and to Asia.

(f) Promotion of friendly relations between citizens of the United States and Canada.

No attempt is made to evaluate the benefits Canada would derive from this project, but it may be mentioned that in addition to such direct development of new Canadian territory as might be brought about by the road, Canada would gain the business and commerce incident to providing service and supplies to motorists using the road for access to Alaska.

"6. Since the annual cost of operating Federal agencies in Alaska is about \$7,000,000 in excess of revenues, the expenditure of an additional \$3,000,000 - spread over several years - for the purpose of development of the territory to a more nearly self-supporting basis is not unreasonable.

"7. By the construction of about 200 miles of new road - in conjunction with about 1,000 miles of new construction in Canada - the territory would gain a physical connection with the vast continental system comprising hundreds of thousands of miles of road in United States, Canada and Mexico. From the Alaskan or American standpoint, therefore, the advantages are obviously more than commensurate with the cost."

Recommendations of The United States Commissioners submitted
United States
Commissioners. the following recommendations:

"(1) That negotiation be conducted with the Government of Canada, through regular channels, with a view to ascertaining the attitude of Canada with respect to entering into an agreement whereby each Government within its own borders would undertake the survey and locate the best and most practicable route for a highway which would connect the northwestern part of the United States with British Columbia, Yukon Territory, and Alaska, prepare specifications and reliable estimates of cost and resulting benefits of said project, and investigate plans for financing the project. The respective organizations should be authorized to communicate directly with each other for the purpose of coordination.

"(2) That if such agreement be reached, suitable allotments or appropriations should be made available to the Alaska Road Commission for carrying out the purposes of the agreement.

"(3) That the respective Governments in formulating their road construction programs conform so far as practicable in their own interests to the general route proposed for this highway so that as many as possible of the local projects will be available for and form a part of the main project.

"(4) That consideration be given by the road-building agencies of Alaska and Yukon Territory to the construction of the Fairbanks-Dawson road without waiting for the adoption of the entire project, in order to develop the intermediate territory and

provide an early connection between these two communities, as well as complete a vital link in the proposed through highway."

Routes Considered by
United States Commission,

It will be noted that the American Commission, while recognizing alternative routes through the Yukon, gave consideration to only one general route through British Columbia, though variants of parts of that route were admitted. The British Columbia portion of the highway would run north from Hazelton to the junction of the Stikine and Klappan Rivers. From the Stikine to the Yukon boundary one possible route would run to Dease Lake, Nahlin River, Atlin and the boundary, and the other from the Stikine to Dease Lake, Teslin Lake, Surprise Lake, Atlin and the boundary. Extracts from the reports of reconnaissance surveys by Colonel J.M. Rolston and J.H. Gray, in northern British Columbia, are printed as appendices to the report of the American Commission. Extracts from a report by J.H. McNeil on a route through the Yukon are also printed in the Appendix; as is also a report by Donald MacDonald on routes in Alaska. Mr. McNeil considers only a route through Dawson to the Alaska boundary. The Commission puts forward also alternative routes from Whitehorse to Fairbanks by way of the Tanana River, and via Kluane Lake and Gulkana. Information on these alternative routes is contained in Mr. MacDonald's report.

Broadly speaking, the American Commission appointed in 1930 reported in 1933 that a highway from the State of Washington through British Columbia and the Yukon to Alaska was both feasible and economically practicable.

Canadian
Conclusions

The Canadian Committee appointed in 1931, which, as already mentioned, consisted of Hon. George Black, J.J. Wardle and G.P. Napier, did not publish a separate report, but Mr. Wardle reported the results of its investigation and deliberations to the Department of the Interior, and the report published by the American Commission contained information collected by the Canadian Committee.

Type of Highway The estimate of the cost of construction, as given in the first paragraph of the American Commission's conclusions and recommendations (page 2) was based on a 14-foot gravel road similar to the type of highway then being constructed by the Government of British Columbia. It was felt that the Alaska Highway might very well be built to such a standard as would accommodate existing traffic, leaving for later consideration its improvement to meet the demands of the future.

There the matter rested officially for several years, though interests in Alaska and elsewhere in the United States continued to press for the building of the international road, and the Premier of British Columbia made no secret of his strong interest in the project.

Interdepartmental Committee In 1938 an Interdepartmental Committee in

Ottawa made a report to the Dominion Government, in which the proponents of the project were quoted as saying that the following benefits would follow the building of an international highway through British Columbia and the Yukon to Alaska:

- "A. It will provide an outstanding tourist attraction, thus increasing tourist revenue in British Columbia and in Canada as a whole.
- B. It will open new territory for settlement.
- C. It will make accessible for commercial development great natural resources in new areas.
- D. It will open a new and magnificent country for recreation such as hunting, fishing, etc.
- E. It will provide an all-Canadian overland route to the Yukon territory.
- F. It will be of great assistance to air traffic.
- G. If and when construction is commenced, beneficial results will immediately be obtained in the relief of the unemployment problem.

Order-in-Council, 1938. On the 22nd December, 1938, the following Order-in-Council P.C. 3252 was passed by the

Dominion Government:

"The Committee of the Privy Council have had before them a

Report, dated December 22nd, 1938, from the Secretary of State for External Affairs, stating, with the concurrence of the Minister of Mines and Resources, as follows:

That the Premier of British Columbia has repeatedly emphasized the important and beneficial results which, in his opinion, would follow from the decision to construct a highway which would unite the road system of British Columbia and the Yukon Territory with that of Alaska;

That representations have been received from the United States Government with regard to the desirability of providing for the construction of such a highway;

"That pursuant to the passage of a Bill through Congress instructing and empowering the President of the United States to appoint a Commission of five persons 'to cooperate and communicate directly with any similar agency which may be appointed in the Dominion of Canada in a study for the survey, location, and construction of a highway to connect the Pacific Northwest part of continental United States with British Columbia and the Yukon Territory in the Dominion of Canada and the Territory of Alaska', the President did appoint a Commission consisting of the following persons:

Congressman Warren G. Magnuson, Seattle, Washington,

Dr. Ernest Gruening, Director, Division of Territories and Island Possessions, Department of the Interior, Washington,

Donald MacDonald, Engineer, Alaskan Road Commission, Fairbanks, Alaska,

J.W. Carey, Public Works Administration, Portland, Oregon,

L.W. Riggs, Former Governor of Alaska, New York.

"That the United States Commission was further empowered to discuss 'plans for the financing of the construction and maintenance of the said road';

"That it is expedient that the Canadian Government should have before it a full report on all aspects of the proposed construction before any decision with regard thereto is taken;

"The Minister, therefore, with the concurrence of the Minister of Mines and Resources, recommends:

1. That a Commission of five persons be appointed to enquire into the engineering, economic, financial, and other aspects of the proposal to construct the said highway to Alaska and to meet for the purpose of discussion and exchange of information with the United States Commission appointed for that purpose, and subsequently to submit to His Excellency the Governor in Council a report setting forth the evidence received and the conclusions drawn therefrom;
2. That the following persons be appointed for this purpose:
 - Hon. Charles Stewart, Ottawa, (Chairman),
 - Brig.-General Thomas L. Tremblay, Quebec,
 - J.M. Wardle, Department of Mines and Resources, Ottawa,
 - Arthur Dixon, Department of Public Works, Victoria,
 - J.W. Spencer, Vancouver.
3. That authority be granted for the payment of the necessary and legitimate travelling expenses, during the current fiscal year, of the members of the Canadian Commission from Vote No. 530, S.E., 1938-39, of the Department of Mines and Resources.

The Committee concur in the foregoing recommendations and submit same for approval."

Preliminary Meeting.

The Commissioners held a preliminary meeting in Victoria, British Columbia, on April 27th, 1939, and considered plans for carrying out the task entrusted to them by the Government of Canada. They also conferred with Hon. T.D. Pattullo, Premier of British Columbia, and officers of his Government, and obtained material that would assist them in making their investigation. Mr. Lawrence J. Burpee was appointed Secretary to the Commission, and Mrs. J.L. Montgomery, Secretary to the Chairman.

A summary of what took place at this meeting will be found elsewhere in this Report.

Public Hearings.

Early in July the Commission began a series of public hearings at Prince George, British Columbia, at which the views were obtained of business men and others, particularly the views of men who had personal knowledge of conditions in northern British Columbia and the Yukon, as to the most practicable route for a highway, taking into account all the factors in the problem, the nature of the country, forest growth, elevation of land, and particularly the height of mountain passes, average snowfall, economic resources, relationship of the route to existing communities, picturesque qualities that would appeal to tourists, fish and game, and so forth.

This was followed by similar hearings at Vanderhoof, Smithers, Burns Lake, Hazelton and Prince Rupert, then at Stewart at the head of the Portland Canal, all in British Columbia, at Whitehorse and Carcross in the Yukon, and at Atlin in the extreme north of British Columbia. Finally a meeting was held in Vancouver, on the return of the party from Skagway. At Vancouver representatives appeared from Kamloops, British Columbia, and filed a brief outlining the interest of that town and neighbourhood in the proposed highway. Telegraph Creek, British Columbia, had asked for a hearing, but as it was not found practicable for the Commission to go there, authority was given for the filing of a brief, or to make representations at one of the public hearings already arranged.

A summary of what took place at these hearings will be found at a later place in this Report.

Requests were also received for meetings at Edmonton and Fort McMurray to enable the representatives of those places to present the views of their people as to the advantages of a route through Alberta to the Yukon and Alaska. The Commission found it impracticable to accede to these requests, the Order-in-Council creating the Commission specifically confining its consideration to routes through British Columbia.

Natural Resources.

From the reports of federal and provincial officers, and other sources, the Commission has gathered a considerable body of data relating to natural resources in northern British Columbia and the Yukon, the development of which would be facilitated by the building of the proposed highway to Alaska. In some cases these resources would be more readily served by a road following a westerly, and in others by an easterly route.

These resources include precious and base minerals, from gold to coal, timber, grains, fruits and vegetables, game, furs and water powers. Their extent is such as to make their prospective development an argument of some weight in favour of the proposed highway.

Information as to the nature and extent of these resources will be found elsewhere in this Report.

Air Reconnaissance.

At Hazelton, Mr. Wardle and Mr. Burpee with J.H. Mitchell, Construction Engineer of the Surveys and Engineering Branch, Department of Mines and Resources, left the party and proceeded by airplane to make a reconnaissance of the suggested routes through British Columbia and the Yukon. They flew from Hazelton to Fort St. James, on Stuart Lake, and from there north to Manson Creek and up the Parsnip River to Finlay Forks. From there they descended the Peace River to Hudson Hope to examine the nature of the valley for a road, and returned to Finlay Forks. Flying up the Finlay River they crossed Sifton Pass and followed the Kechika and Turnagain Rivers to the Liard, and ascended the Liard to Lower Fort of the Hudson's Bay Company. From there they flew by way of Tuya Lake and Jennings River to Teslin Lake and Atlin.

Returning to the Liard they went north to Frances Lake, and over the height of land to the upper waters of the Pelly, which they followed to Fort Selkirk, and then down the Yukon to Dawson. From Dawson they flew up the Yukon and the Lewes Rivers to Whitehorse, where they met the remainder of the Commission. Honourable Charles Stewart and Mr. Wardle flew from

Whitehorse to Atlin for the hearing to be held there, while the other Commissioners proceeded by railway to Carcross, where another meeting was held. The Atlin party flew to Bennett on the railway, and the Commission proceeded to Skagway and returned by steamer to Vancouver -- some eight days having been spent in aerial reconnaissance.

It will be noted that this reconnaissance followed in the main what is indicated as the "B" Route on the accompanying map. From Whitehorse, Mr. Mitchell returned south by air, examining and securing photographs of the "A" Route. His report, together with that of the engineering members of the Commission (both of which are incorporated in the Commission's report) cover the principal features of both these main routes, as well as of certain alternatives that combine portions of both "A" and "B".

Meeting with The
United States
Commission.

A meeting was held in Victoria on July 24th, 1939, with the United States Commission, at which the problem of the highway was discussed in some of its broader phases. It developed in the course of the conference that, while recognizing the advantages of the "B" Route from an engineering point of view, the American Commissioners felt that the "A" Route combined with one through the Yukon by way of Kluane Lake to the Alaskan boundary would best serve the interests of communities in southern Alaska. At the same time they recognized that the matter of the route to be selected through Canadian territory was primarily one for decision by Canada. (An account of the conference will be found elsewhere in this Report). Later conferences with the United States Commission were held in Ottawa on January 24th, 1940, and in Washington on March 28th, 1941.

United States
Approaches to
Highway.

To round out its knowledge of the problems involved in the Alaska Highway, the Canadian Commission travelled south from Vancouver to Bellingham, in the State of Washington, over what would be

one of the main approaches from the United States to the proposed highway. The portion of this road between Vancouver and the international boundary has been materially improved in character.

This Pacific Coast road is only one of several American approaches to the Alaska Highway, along routes that follow the valleys of the Okanagan, the Columbia and the Kootenay, west of the Rocky Mountains, and the eastern side of Glacier and Waterton Parks in Montana and Alberta, as well as various more easterly routes. It will be noted by a reference to the accompanying map that all these routes of travel from the United States north through Canada converge on Prince George, which may be looked upon as the point from which the "A" and "B" Routes separate -- one to follow a line nearer the Pacific, and the other a line nearer the Rocky Mountains.

These converging lines from the south include the highway from Vancouver to Prince George, and its southern extension to the international boundary near Blaine, Washington, where the Peace Arch stands as one of several substantial emblems of good-neighbourliness between Canada and the United States. (The Cariboo Road will be more particularly described later in this Report).

Another road from the American side crosses the boundary at Osoyoos, on the Okanagan River, and continues north first on the west, and then on the east, side of Okanagan Lake to Vernon, from which place it forks, -- one branch running west to Kamloops, and the other northeast to Revelstoke. The Kamloops road taps the Cariboo Road at Ashcroft. At Revelstoke the other branch connects with the Big Bend Highway, now completed. This magnificent scenic thoroughfare, which the Chairman and Mr. Wardle inspected on their way east from Vancouver, sweeps around the Columbia from Revelstoke to Golden, and not only fills one of the two remaining gaps in the Trans-Canada Highway between the Atlantic and the Pacific, but also forms another important link in a north-and-south route from the international boundary through British Columbia.

From Spokane two main routes lead north to the international boundary. The western crosses at Nelway to Nelson, British Columbia, and the eastern crosses at Kingsgate. A third route, still farther to the east, enters Canada near Newgate. These roads are linked together by an east-and-west road north of the international boundary from Lethbridge, east of the Rocky Mountains, by way of Crow's Nest Pass, Fernie, Cranbrook, Nelson, Vernon, Rossland and Kamloops to Vancouver. The route from Spokane that crosses the international boundary at Kingsgate, and the east-and-west road at Yahk, extends north up the valleys of the Kootenay and the Columbia to Golden, where it joins the Trans-Canada Highway.

Alberta Connections
with Highway.

The alternative north-and-south route mentioned above would also provide connections for several east-and-west routes through the Rocky Mountains from points in Alberta to Vancouver, and also to the north country. The southernmost of these has already been mentioned -- from Lethbridge through the Crow's Nest Pass to Fernie, Nelson and Vancouver. This road is tapped west of Lethbridge, but still in Alberta by the highway coming up from Glacier Park, in Montana, through Waterton Park, in Alberta. From Calgary the Trans-Canada Highway runs west through the Rockies to Banff and over the Kicking Horse Pass to Golden, where the newly completed Big Bend link is reached. At Castle Mountain, twenty miles west of Banff, the well known Banff-Windermere Highway, completed in 1923, leaves the Trans-Canada Highway and runs southwesterly to the Windermere Valley. Here at Radium Hot Springs it connects with the Columbia Valley road running northerly to Golden and southerly to Cranbrook.

At Lake Louise Station, thirty-eight miles west of Banff, the scenic Banff-Jasper Highway begins running northerly for 150 miles through the heart of the Rockies to Jasper.

Continuing through Golden the Trans-Canada route passes through Revelstoke and Kamloops to Vancouver. The road between

Calgary and Vancouver affords connection with the Alaska Highway no matter which route is finally selected. The Commission had an opportunity of satisfying itself as to the admirable character of both the Windermere and Kicking Horse Roads through the Rockies.

Northern
Routes from
Alberta

From Edmonton a road runs west through Jasper Park to within nine miles of its western boundary, and this road is being extended to Tete Jaune and Prince George, affording yet another outlet from Alberta, both to the Pacific and to the Alaska Highway. From Tete Jaune another projected route follows the valley of the North Thompson River to Kamloops. From Kamloops northerly this road is already constructed to beyond Blue River. An alternative route from Edmonton to northern British Columbia, and one that will be of particular benefit to the people of the Peace River Country, follows the existing road to Lesser Slave Lake, Grande Prairie and Hudson Hope, and may some day be available to Finlay Forks. Finlay Forks is on the "B" Route of the Alaska Highway, and, even if that route is not adopted, Finlay Forks will probably be connected before long with the Highway now under construction from Vanderhoof on the Canadian National Railway via Fort St. James to Manson Creek, which might eventually give the Peace River country the long-expected access to the highway system of British Columbia, including the proposed Alaska Highway. Another route will also eventually be available from the Peace River, by way of Grande Prairie and Monkman Pass, which would tap the existing highway east of Prince George.

Referring once more to the map, it will be seen that, apart from the fact that it has the present or prospective assurance of highway routes to Vancouver and the Pacific by a number of alternative roads, Alberta also has the certainty of convenient access to the Alaska Highway, if or when it is built, by whichever route should be finally adopted.

ENGINEERING INVESTIGATIONS

Under the Order in Council establishing the Commission it was authorized "to enquire into the engineering and other aspects of the proposal to construct the said highway to Alaska".

To carry out these instructions the securing of engineering information on possible routes, by surveys and other means, was required to an extent that would enable the Commission to report intelligently on the engineering problems that affect the feasibility of the highway, the choice of routes and the cost of construction and maintenance. This involved the comparison of major routes as to cost, period of accessibility, scenic assets and potential natural resources. It further required that in considering various routes the interests of existing towns and settlements in British Columbia, the Yukon Territory, and Alaska be given proper weight. Of major importance was the relationship of possible routes to the existing road systems in British Columbia, Alberta, and the United States, and to the development of air routes across Canada between the United States and Alaska. Roads already built that could be incorporated to advantage in any route, were also a factor of some importance. The Commission considered, however, that while existing roads below the standard of construction required had great value as aids to construction, they could not be regarded as conclusive factors in determining routes.

It was the view of the Commission that only facts definitely established through ground and aerial reconnaissance surveys, through various Government sources or through observations confirmed by persons familiar with the districts concerned, should be used as a basis for conclusions reached. It was further their view that evidence on characteristics of various routes obtained by the Commission at its public hearings, while invaluable in directing attention to important factors to be considered, could not in itself be regarded as conclusive.

From a study of the information and data collected by

the International Fact Finding Committee established in 1931 by the Dominion Government and the Government of the United States, it was evident to the Commission that there were three general routes through northern British Columbia that merited consideration. These routes would begin in the vicinity of Hazelton, Fort St. James and Prince George, respectively. As each of these points is already connected with existing highways information to be collected fell under two heads:

- (a) Roads already built on the general route from the international boundary north; and
- (b) New roads along routes to be determined and running northerly from Hazelton, Fort St. James, or Prince George to the Yukon and Alaska.

The problem of the Commission in regard to (a) was to arrive at estimates of cost covering improvement in alignment and surface to bring such existing roads to the international standard desired.

A great deal of time and expense was saved in this respect when the Department of Public Works of British Columbia was able to furnish promptly the information required. Estimates of costs covering necessary re-location and improvement work on the existing roads between Vancouver and Prince George and between Prince George, Fort St. James and Hazelton, were prepared by provincial engineers and are incorporated in the Cost Estimates of this report.

It will be noted from these that improvement or reconstruction work on some 525.5 miles of road between Vancouver and Prince George is estimated at \$4,710,000. From Prince George to Fort St. James, a distance of 114 miles, the estimated cost of necessary work is \$1,050,000.

Costs have been estimated from the Coastal City of Vancouver, B.C. The Alaska Highway route to the British Columbia coast strikes the Pacific Highway at New Westminster, B.C., some 12 miles east of Vancouver, and there is a choice of several

paved roads between these cities. From New Westminster south the Alaska Highway would follow the modern and newly constructed section of the Pacific Highway viz., the King George V. Highway, to the International Boundary at Blaine. This point is $18\frac{1}{2}$ miles from New Westminster and 119 miles from Seattle, Washington.

In regard to (b), viz. new roads, the Commission's work involved the major question of the best route north from one of the three points mentioned, together with problems of location, and estimates of cost covering construction and maintenance.

The Commission was consequently largely concerned with the consideration of the three routes requiring investigation through northern British Columbia. These are briefly described as follows:

- (1) A route as near to the Pacific coastline as topographical features will permit, and which might afford access to various settlements along the Pacific coast north of the Skeena River through branch roads running westerly. This route will be referred to as the "Coast" route.
- (2) A route to the east of the Coast route and which, while still affording possibilities of road connections with coast settlements, would have the advantage of less precipitation and lower construction costs. This route is referred to as the "A" route. It is the route which was subject to consideration by the International Fact Finding Committee established in 1931, and which the latter reported as feasible. (For information on this route see reports of Colonel J.M. Rolston and Mr. J.H. Gray, engineers of the Department of Public Works in British Columbia, covering their reconnaissance surveys in 1930).
- (3) An eastern route following the Rocky Mountain trench, and known for convenience as "B" route. (See accompanying map).

All three routes offer considerable choice in alternative

locations, two or three being of major importance. (These are referred to later).

It was evident that fairly extensive field investigatory work would be necessary before the Commission could decide on the relative merits of the general routes mentioned. Consequently, the field programme for the 1939 season was decided upon at the first meeting of the Commission in Victoria, B.C., in April 1939, and arrangements made for it to be undertaken. At that time very little authentic information on the eastern or "B" route was available so that a good deal of the 1939 field programme was in connection with this route. The work that was undertaken is outlined herewith and was directly under the control of the Commission, using Dominion Government funds except where otherwise stated.

- (1) An aerial reconnaissance along the entire "B" route from Fort St. James northerly to the Yukon Boundary, and from that point along the Frances Lake and Pelly River valleys to Selkirk, and thence northerly to Dawson. (An aerial flight was also made between Hazelton and Fort St. James and from Finlay Forks to Hudson Hope by the Peace River Valley).
- (2) Ground reconnaissance surveys (by the Public Works Department of the Province of British Columbia) in the interests of the Commission, both north and south of Sifton Pass.
- (3) Ground reconnaissance surveys (by the Province of British Columbia) in the Dease River area and in the area from Atlin Lake southerly via Nakina and Nahlin districts to the Stikine River and Dease Lake.
- (4) Aerial reconnaissance over the little-known territory between Liard Post and Teslin Lake and Atlin Lake, the flight extending as far south as Dease Lake and River.
- (5) Aerial reconnaissance from Bennett and Atlin Lakes southerly via the Disella and Dease Lakes and Tanzilla

River to the Stikine River, and from there following approximately the "A" route to the Skeena River. From that point the valleys of the Driftwood River and Takla and Tremblour Lakes were followed to Stuart Lake and Fort St. James.

- (6) Aerial reconnaissance in the Yukon Territory southerly and easterly from Dawson, as well as a main flight from Dawson along the Yukon and Lewes Rivers and Lake Laberge to Whitehorse.
- (7) Aerial reconnaissance from Whitehorse to Atlin, and from Atlin to Lake Bennett.
- (8) Ground reconnaissance survey of a route in Yukon Territory from Whitehorse to the Alaska Boundary via Kluane Lake and River, and which crosses the Donjek and White Rivers.
- (9) A ground reconnaissance survey down the Pelly River from the vicinity of Ross River to Pelly Farm, Yukon Territory, and which is near the junction of the Pelly and Lewes Rivers.

The primary object of aerial reconnaissance undertaken by the Commission was not so much to locate routes as to eliminate those that were definitely unfavourable, and thus save the cost of ground investigations; also to confirm the feasibility of routes on which favourable reports had already been received. In addition, aerial photographs obtained in flights would give valuable information on the character of the country traversed by any routes. On the "B" route sixty-nine aerial photographs were obtained in 1939. On the "A" route twenty-five aerial photographs were obtained of the northern section, and where information was most lacking. (These photographs are available for consideration in conjunction with this report).

On the "Coast" route a number of aerial photographs that were available of the Bell-Irving River district were also examined.

COAST ROUTE

The distinguishing feature of this route is its location in regard to Pacific coast settlements in both Canada and in the panhandle of Alaska, and which feature affords greater opportunities of connections with the coastal areas, than offered by any other route.

This route would leave the existing British Columbia road system in the vicinity of Hazelton or Kitwanga. From Hazelton a feasible location is possible up the Kispiox River to the upper reaches, thence westerly to follow a section of Cranberry River and strike the Nass River Valley near the "Rapids" section. The location from Kitwanga would go by way of Kitwanga River and Lake to the upper reaches of the Cranberry River and down the latter to strike the Nass River at the same point as the location from Hazelton. From this junction the coast route would follow, respectively, the Nass River, Hannah Creek, the Bell Irving River, the Ningunsaw River, and the Iskut River to Kinaskin Lake to join the "A" route in the vicinity of Ealue Lake. From the latter locality it would follow the "A" route to the Dease Lake trail in the Tanzilla River Valley.

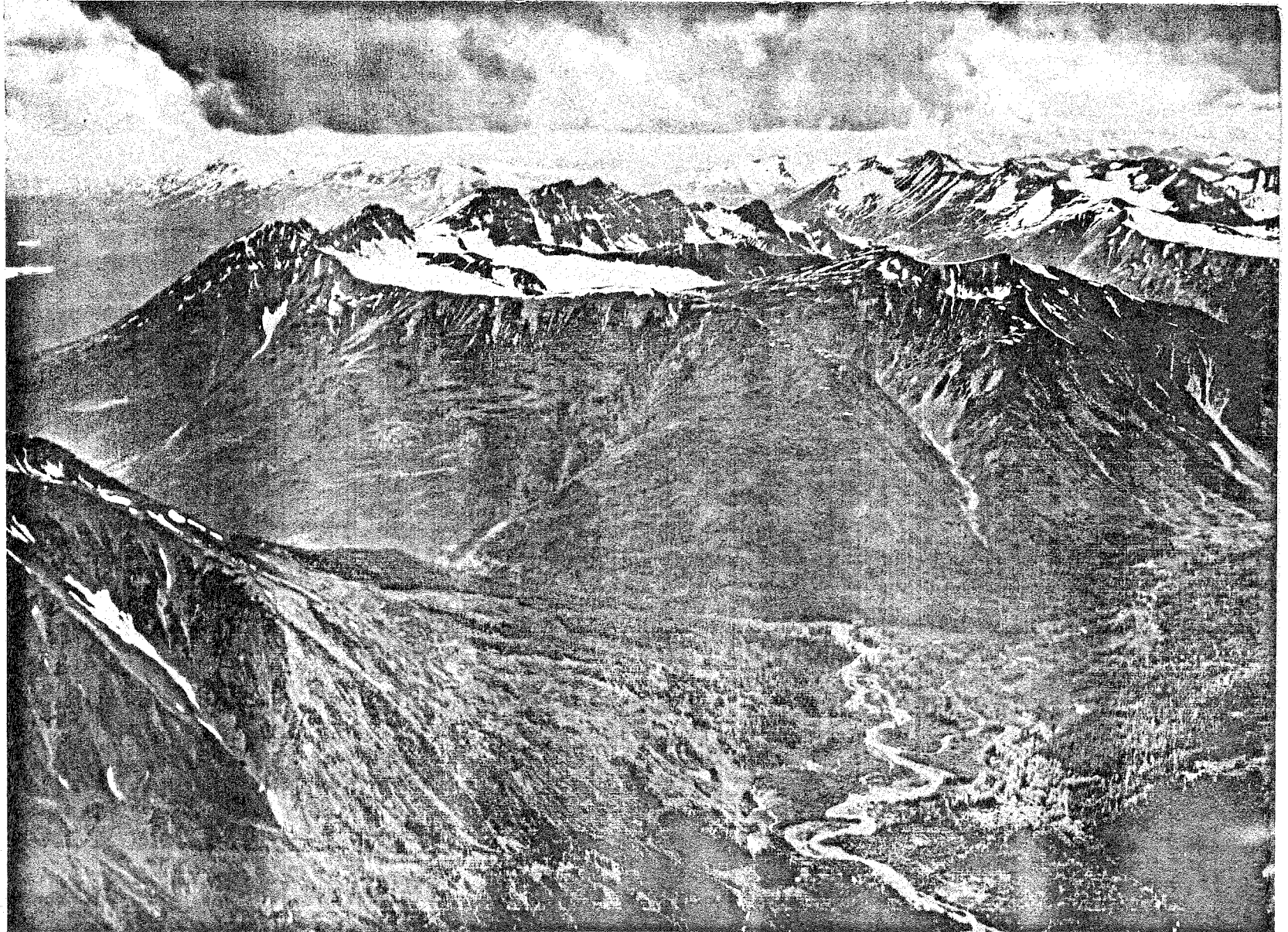
Information supplied in 1930 to Provincial reconnaissance engineers by residents of the outlying districts on the coast route indicates that its middle section passes through a very heavy snow belt. Snowfall on the Bell Irving and Iskut Rivers is reported as particularly heavy with slides prevalent on the latter.

Mr. P.M. Monckton, in reporting on information obtained by him when in the district during the years 1925 to 1928, states as follows:

"The Bell-Irving must be crossed again near Mile 184: it is here wide and in several channels, no solid rock for foundations. Perhaps 500 feet in all; and trestling would be out of the question, for the river carries great quantities of drift. Though swift, it can be boated from the Bowser River by good rivermen: and a lot of freight could be handled by boats not over 30 feet long, strongly powered.

Coast Route:

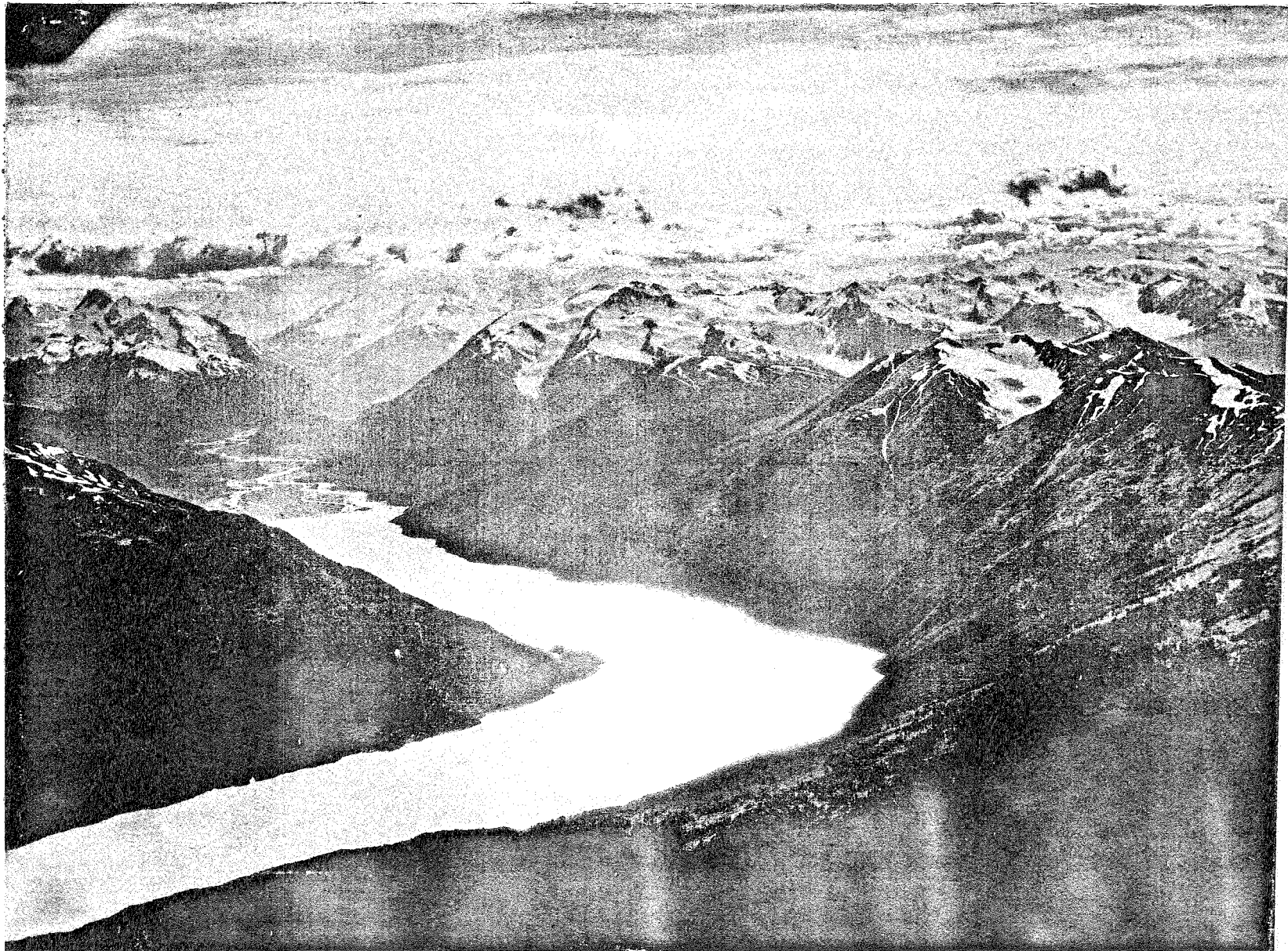
Bell Irving River and
Bell Irving Creek.



Canadian Airways Photo.

Coast Route:

Bowser Lake. Bell
Irving River Valley to
right of ridge in fore-
ground.



Canadian Airways Photo.

Coast Route:

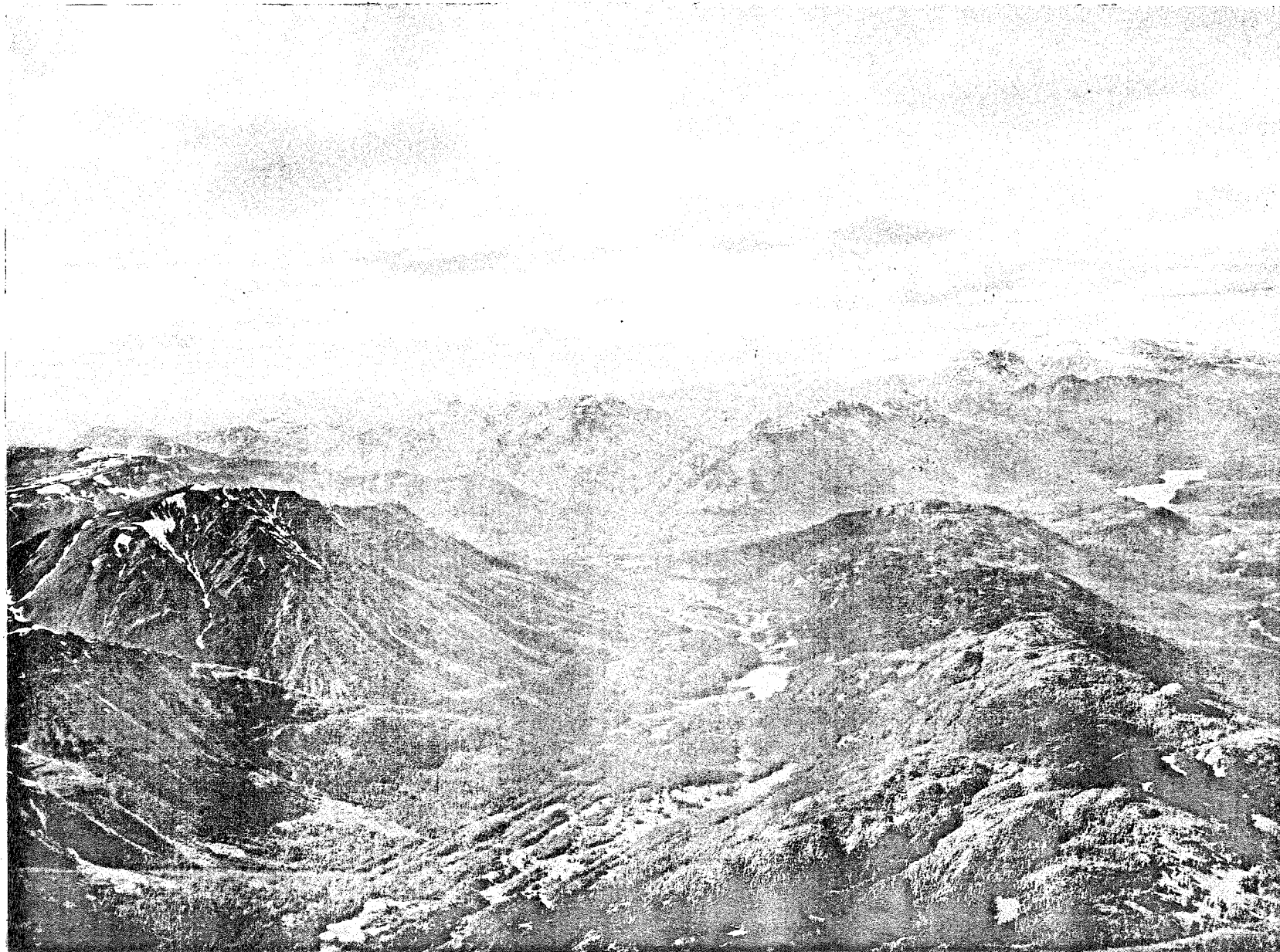
Ningunsaw River from Alger
Creek Valley.



Canadian Airways Photo.

Coast Route:

Looking N.W. up Iskut
River Valley from crossing
of Telegraph Line Trail.



Canadian Airways Photo.

"After crossing the Bell-Irving, the road would follow the old Yukon Telegraph Line northwesterly; through a narrow but low pass with imperceptible gradients: the summit being 2,100 feet and so into the Ningunaw River, a feeder of the Iskut.

"From Mile 184 to Mile 214, was the worst stretch of the whole line, when the Yukon Telegraph Line was operated. It was abandoned and replaced by wireless between Hazelton and Telegraph Creek in 1936. The snowfall is very deep. Being near the Coast it is often very mild and so colossal slides run down the mountains, carrying all before them, and even in July, I have seen snow still piled up 20 or 30 feet deep in the valley bottom.

"However, these slides run in the same place year after year and could be avoided by keeping the road well away from the toe of the mountains, out in the middle of the valley, which is swampy."

.....

"The Iskut Valley is entered at Echo Lake: it is a very broad valley, perhaps 8 or 10 miles in width, bordered by very high mountains. To the West rises the Coast Range, with peaks reaching almost to ten thousand feet, and half buried under a sheet of ice. The Iskut River hugs the west side of the valley in a deep canyon which it has eroded through the soft argillite rocks. The mountains to the East, between the Iskut and Hawkins Pass, are also very high and reach over eight thousand feet in Eva Peak. Large glaciers also cover this range: and large torrents emerge from the range, cutting deep gashes across the valley at right angles to the Iskut River. In addition the flow of the valley is cut up into a maze of rocky knobs, lakes and swamps besides the four main canyons - Devil's Creek, where the old trail fell and rose again 600 feet to cross - Elliott Creek - Slate Creek and Deep Creek. Each creek would call for a span of from 50 to 75 feet and a sidehill rock-cut approach. The snowfall is heavy from just North of Echo Lake to Iskut River Crossing - six to eight feet in an average winter. There would be about 26 miles of difficult location and maybe 10 of hard construction to bring the line to Deep Creek (M.252). At this point the troubles would be over. The heavy snow ceases near here: the valley becomes level and sandy and except for a climb of 500 feet or so to avoid some bluffs on the East side of Kanaskan Lake, it is plain sailing to join the Central Route at M.293 from Hazelton, or 597 from Prince George, compared to 584 by the Central Route".

While complete meteorological records are not yet available, no contrary information has been received as to the heavy precipitation in the river valleys traversed by the Coastal Route. Reports from other sources confirm the view that unfavourable climatic and construction conditions obtain throughout the whole southern section of the route. A study of aerial photographs that are available of the Bell-Irving River Valley shows that heavy construction would be involved and that

there are numerous snow-slide areas, some of which could not be entirely avoided.

The information collected in regard to the Bell-Irving-Iskut River valleys is now judged sufficient by the Commission to eliminate the Coastal Route from further consideration.

ROUTE "A"

The main feature of this general route is that, while still affording reasonable opportunities of connections with coastal settlements at certain points, its situation further east results in lower precipitation, wider valleys and lower construction costs. A longer traffic season would also be enjoyed. This route offers more alternative locations than any other, sections affected ranging from minor changes to those involving considerable mileage. Starting from Hazelton, the "A" route would generally follow the Skeena, Nass, and Klappan River Valleys to the Tanzilla River Valley. Starting from the vicinity of Burns Lake or Topley the "A" route might follow the Babine Lake Valley to Bear Lake and the Skeena River, or the Babine Lake and Babine River Valley to a lower reach of the Skeena, north of Hazelton. From Fort St. James it could follow Stuart Lake, Trembleur and Takla Lakes, and continue northerly until the Skeena River Valley was reached. All "A" route locations eventually lead to the Dease Lake Trail between Telegraph Creek and Dease Lake and which follows the Stikine and Tanzilla River Valleys.

From the vicinity of Dease Lake, northerly and westerly towards Atlin, minor alternative locations present themselves the selection of the lowest ground south of Atlin being an important consideration.

Reconnaissance surveys undertaken by the Province of British Columbia in 1930 along various sections of the "A" route provided very useful information. Some of the work was done along what is now designated as the "Coast" route. Ground and aerial surveys made at that time indicated that a route