The Taku-Teslin Railway,

(SHORT LINE)

FROM JUNEAU, ALASKA, VIA TAKU RIVER

AND TESLIN LAKE

TO THE YUKON GOLD FIELDS.

REPORT

(CONDENSED.)

OF

Prof. WM. A. PRATT, C. E. Etc.

TO THE

Yukon
Mining, Trading and Transportation Co.,

OF HIS SURVEY IN 1897.

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See pp 157 Harris' "Alaska & Klondike Gold Fields"

To the President and Directors of the Yukon Mining, Trading and Transportation Company.

Gentlemen:—

I beg to submit the following report of a reconnoissance made for your company from the vicinity of Juneau, Alaska, along the valley of the Taku River to Teslin Lake, British Columbia, to ascertain if it was practicable to build a railroad with favorable grades and at a reasonable cost by this route.

On being engaged for this work with your approval I associated with myself Mr. T. Gordon Janney as Assistant Engineer, and we, in company with Mr. P. I. Packard of your company, left Wilmington on July 25th, 1897, and reached Seattle, Washington, on the afternoon of July 30th. At this point we were joined by A. E. Johnson, who, with Mr. Packard, has made two trips over the Taku route and was to act as guide. We sailed for Juneau, Alaska on the steamer Alki, August 3rd and reached that place on Sunday night, August 8th.

From here it is necessary to take Indian canoes to the head of the Taku river, and as most of the Indians had left Juneau for Dyea and Skaguay, induced by the high price paid for packing by the gold seekers, who were trying to reach the Yukon by way of Chilkoot and White Passes, we experienced some difficulty in securing a canoe and crew. We finally made an arrangement with a sub-chief of the Taku's, named An-nat-las, who owned a large canoe and was familiar with the river to take us up.

* * * *

We proceeded down Gastineau Channel 13 miles to the mouth of Taku Inlet, up this 18 miles to its head, and then up the Taku River 51 miles to where the Clo-clo-heen and Na-ka-na Rivers unite to form the Taku.

* * * *

Here we started on our tramp to Lake Teslin, where we remained to make observations, and on our return trip reached Na-ka-na village, at the junction of the river of that name and the Clo-clo-heen in four and one-half days. Taking our canoe here and with the wind and current in our favor we made a very quick trip down the Taku River, accomplishing the distance in one day.

Having thus briefly outlined the trip, I beg to submit the following description of the route, and my conclusions and references being made to the map accompanying this report:

Juneau is located in Southeastern Alaska about latitude 58 degrees, 8 minutes north; longitude 134 degrees, 24 minutes west, on the main land. Gastineau Channel lying between it and Douglas Island. It is the principal outfitting point for the interior of Alaska and probably does a larger business than any other place in the Territory.

Leaving Juneau and proceeding down the shore of Gastineau Channel, 13 miles to the mouth of Taku Inlet, the mountains are heavily wooded and present an even though steep slope, with considerable earth on the surface and do not offer any serious difficulty to railroad construction. Bishops Point, the entrance to Taku Inlet, is low and would make a fair town site, and between Bishops and Salisbury Point is a harbor well protected from the winds blowing down Taku Inlet.

* * * *

I also examined the east side of Taku Inlet with a view of reaching Stephens Passage by that route. There is a very snug harbor a short distance east of the entrance known as Taku Harbor.

* * * *

The Taku River is nearly two miles wide at its mouth and in the course of a few miles it breaks up into several channels with wooded islands or sand and gravel bars between them, and this is the character of the river to its head. At first the river is from one and a half to two miles wide, narrowing to less than a mile at its head. There is always a large volume of water in the river.

* * * *

Considering the banks of the river for railroad construction, they present very favorable features, especially in view of the mountains and rugged character of the country through which it flows, its general course is also remarkably direct and this may be said of the whole line to Lake Teslin as will be noticed from the map.

Between the base of the mountains and the river there is often a heavily wooded flat sometimes extending for miles, at other points the mountains approach the banks, but with fairly regular though steep slopes, and occasionally the bluffs extend into the river; and while there will be considerable rock work at some of these places, the bluffs are sometimes low so that the line could be built over instead of through them; and others have sand banks around them, or a shallow channel which might be easily diverted by crib wing dams and the road built around the bluff.

* * * *

At about twenty miles from the mouth of the Taku the Tol-su-que River is crossed, requiring a bridge of 100 feet span unless the line is started at this point and there are also numerous small streams, most of which could be crossed on trestles.

* * * *

The Inklin River flows into the Taku from the east and

is quite a large stream contributing about half the volume of water of the main river. It is muddy like the Taku, showing that it flows through the same formation; is navigable by canoes for 60 miles and is claimed to have some fair placer mines on it.

* * * *

Eight miles above this the Clo-clo-heen and Na-ka-na Rivers unite to form the Taku. The Clo-clo-heen, the largest of these is wide, shallow and muddy, and would have to be crossed on a bridge about 1000 feet long. The bottom is sand and gravel and pile piers could be put in readily so that the spans need not exceed 100 feet.

The Na-ka-na is a narrow, rapid and beautifully clear stream. There is an old village of the Taku Indians called Na-ka-na at the junction occupied part of the year, its elevation being 600 feet above the sea, giving easy grades up to this point. From here the line would run 15 miles up the Na-ka-na River to the mouth of the Silver Salmon, which is 1000 feet above sea level. The Na-ka-na is a narrow, rapid stream with alternate bluffs and flats. Where the bluffs run into the water on the one side there is nearly always a flat or light slope on the other, and as the stream is narrow it would save expense to cross several times to take advantage of constructing on the flats, requiring several bridges of short span. Just above the Silver Salmon the Na-ka-na turns to the east through a very precipitous canyon in the Sinoa Klan Mountains, which is reported by the Indians to be very long and impassable, and while I think it would be well to have a reconnoissance of the entire Na-ka-na made to determine the length of the canyon and cost of the line as better grades could probably be obtained by this route, I decided to take the one which seemed most feasible, viz: by the Silver Salmon and Sinoa-ka-keen. From the mouth of the Silver Salmon to a point on the Sinoa-ka-keen where it reaches a comparatively level plateau 3000 feet above sea level there is a distance of 12 miles and the difference in elevation is 2000 feet With a 3 per cent. grade this would require 13½ miles of line, or that it should be developed to that length by running up the Silver Salmon as shown in the map.

At this point we reach a comparatively level plateau at an elevation of about 3000 feet above sea level and extending about 30 or 35 miles in length. The Sinoa-ka-keen creek and the Chequoida River both head in very pretty lakes near the centre, the first flowing south and the last north. There is some timber on the edges of the mountains surrounding this plateau, but the level portion is for the most part clear and covered in many places with rich bunch grass that would fatten hundreds of cattle. The railroad line would follow this plateau, keeping well up on the spurs of the Che-quoida Mountains for about 30 miles, to where the valley of the Na-ka-na is reached again and its head waters crossed at an elevation of 3600 feet above sea level. On the north side of this valley are the Pitcher Moun-

tains, so called from the fancy of the Indians that one of the peaks resembles a pitcher, and this is the last range before reaching the valley of Lake Teslin. At some distance to the northeast there seemed to be a break in the range of mountains, and we were informed by an Indian who was accustomed to hunting and trapping through this section that in the winter when snow was frozen so he could sled over it without keeping to the trails, that he went through that way to Lake Teslin, and that there was a low gap through the mountains, and while I have not found the information of this kind given by Indians very reliable, still I think it worthy of investigation. If such a lower pass exists it would probably strike the river running into the end of Lake Teslin and would be much farther east than we wish to go and make a considerable longer line, but might be found to have so much easier grades to compensate for this.

After crossing the Na-ka-na River we would work up on a 3 per cent. grade through a gap in the Pitcher Mountains for about 9¼ miles to a plateau near the summit 5000 feet above sea level, which we christened Ptarmigan Flats from the number of these birds which we found there. These flats are about 6 miles across and surrounded by a rim of mountain peaks, some 500 or 600 feet higher, except where a small stream breaks through on the south, flowing into the Na-ka-na River and another on the north flowing into Teslin Lake. Emerging from this latter pass the whole valley of the Teslin Lake, some 15 or 20 miles in width is stretched out before us as on a map. We could count 37 small lakes from a mile to five miles in length between us and Teslin, which, 120 miles long, extended far beyond our view to the northeast, a worthy head for such a mighty river as the Yukon. From this point the main range of mountains extends to the northwest striking the lake about 20 miles from its end, and the line could with advantage be located along the slope of this range, striking the lake where it is about its maximum width and deepest water, with the shore lying in good shape for a terminal, the distance would be about 22 miles and the elevation 2400 feet, so that a grade of about 2 per cent. could be obtained if considered desirable. Though a grade of 3 per cent. is necessary on the south side, I would recommend the same on the north side as it would save some expense in construction to reach the valley as early as possible, but if it was thought desirable to strike the east end of the lake with a view of shortening the line or extending beyond it northward at some future time this might easily be accomplished by developing the line on the north slope of Pitcher Mountains, which is comparatively regular, working down on a 3 per cent. grade so as to strike the foot at Twin Lakes as marked on the map, and thence following the Indian trail to Teslin this distance would be about 21 miles. The waters of Lake Teslin we found to be 2600 feet above sea level.

Railway construction cannot be carried on in Alaska to any advantage in the winter, but surveying can be done fairly

well at that time, in fact reconnoissance of different routes can be made rapidly, and supplies gotten in better when snow shoes and sleighs can be used.

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The route as stated does not present any special difficulties to railroad construction, in fact considering the very rough and mountainous country it runs through it is very favorable and will compare advantageously with any crossings of the Allegheny range, and as you will note from the maps it is remarkably direct. If located in the States where labor and supplies could be cheaply obtained it could be built at a very reasonable cost.

* * * *

You will note that the greatest elevation to be overcome on the route was at Ptarmigan Flats, which by the line would be about 115 miles from Tol-su-que. The grades of a railroad are governed by two factors, the absolute difference in elevation to be overcome and the distance in which you have to overcome this elevation, so that while the absolute elevation is greater than at some other passes the maximum grade need not be more than 3 per cent. (unless a greater should be adopted for a short distance from motives of economy).

* * * *

Along the coast of Southern Alaska there is a very large rain fall in summer and a correspondingly heavy snow fall in winter. The fall of snow on the mountains 2500 to 3500 feet high along the coast is so deep that it does not disappear during the entire summer. I found these conditions change very materially as soon as we proceeded through the first range of mountains. There was much less precipitation. The weather was generally fair instead of frequent rains as I found it on the coast and very little snow was seen, mountains even 6000 feet high being entirely devoid of it. I made careful inquiries from white prospectors and others who knew the route, and the Indians who hunt and trap there during the winter, and learned that there is rarely over four feet of snow even on the summit, that it falls in the early part of the winter and remains frozen afterwards with very little addition.

This would allow the road to be operated almost the entire year, and would be a vast advantage over the passes near the coast where the snow fall is frequently fifteen or twenty feet.

Another strong point in favor of the Taku route is that by a short railroad line, you connect salt water on the one side where the largest ocean steamers can discharge into cars with the head of navigation for river steamers on the Yukon. The whole length of the river with its navigable tributaries can be readily reached from this point with loaded boats, having the advantage of going down stream, instead of the long fight against a swift current that they now have from the mouth, and the upper reaches of the river are clear of ice long before the mouth is open.

Another great advantage of this route is that for a large portion of its length it runs through a mineral belt. Mr. J. S. Johnson, a mining expert, who represented the Alaska and Yukon Gold Mining and Trading Company, of San Francisco, accompanied my party over the route, and he assured me that the indications were as fine as he had ever seen, and that if a railroad was built he would have no difficulty in locating a dozen companies on paying quartz propositions, so that there is little doubt that a paying local business would be soon built up on the line.

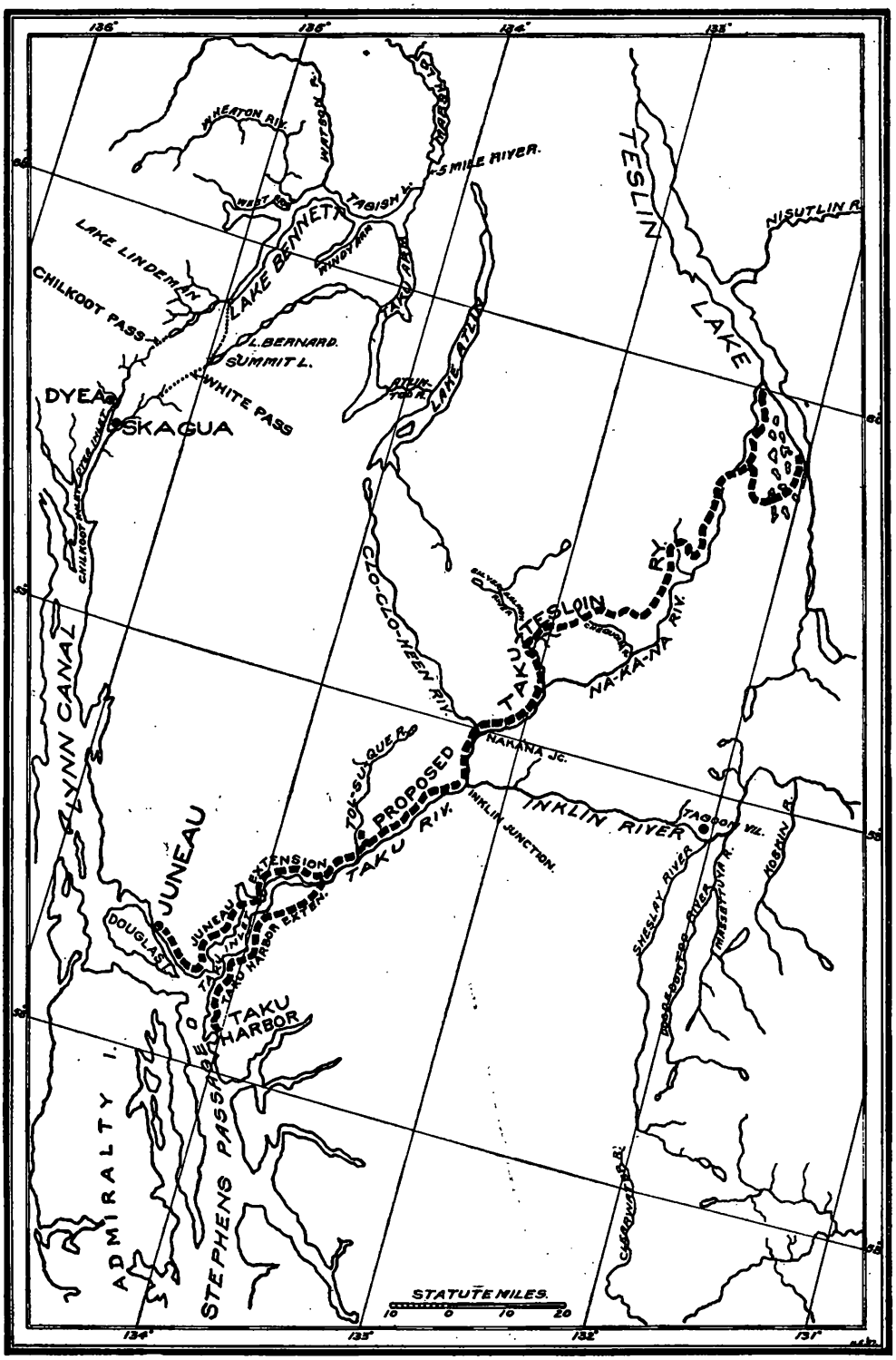
The distance as given on the latest government maps is from Seattle to St. Michaels, 2705 miles, and the Canadian government states the distance from St. Michaels to Cudahy 1600 miles, thence to Dawson City, the latest maps give the distance as 48 miles, or a total of 4353 miles. Via the Taku the distance would be, Seattle to Taku Inlet, 900 miles; Taku Inlet to Tol-su-que, 20 miles; Tol-su-que to Teslin Lake, 137 miles; Teslin Lake (end of projected railway) to Dawson City, 492 miles, or a total of 1549 miles, or a saving of 2804 miles. All of which is respectfully submitted.

W. A. PRATT,
Consulting Engineer.

Wilmington, Del., Oct. 2nd, 1897.

(Note.) Professor William A. Pratt is now Professor of Electrical and Mechanical Engineering at Delaware College, Newark, Delaware, and is also President of the Street and Sewer Department of Wilmington, Delaware. He is C. E. of West Virginia University, a member of the American Society of Civil Engineers and an Alumnus of the University of Virginia.

Some of the engineering positions held by him have been Division Engineer of the Baltimore and Philadelphia Railroad (Philadelphia Division of the Baltimore & Ohio), Division Engineer of the Baltimore & Ohio Railroad, main line; Division Resident and Locating Engineer on the Chesapeake & Ohio Railroad in West Virginia (New River and Kanawha River), Chief Engineer of Weston & Buchanan Railroad; Chief Engineer of Clarksburg, Weston & Glenville Railroad; Locating Engineer of West Virginia & Pennsylvania Railroad; Resident Engineer and Engineer of Maintenance of Way of Chicago Division of B. & O.; District Engineer of the City of St. Louis, Missouri.



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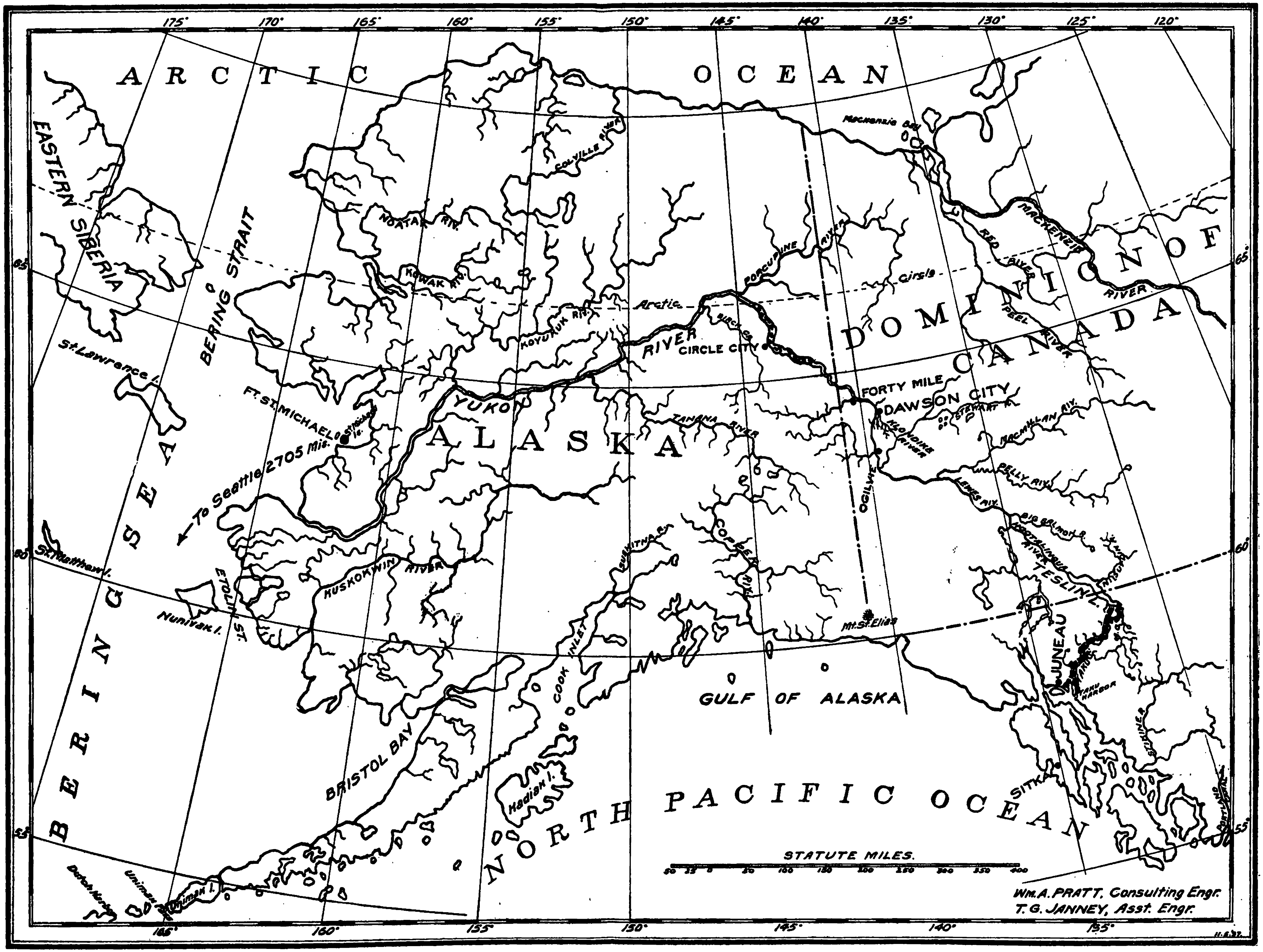

175° 170° 165° 160° 155° 150° 145° 140° 135° 130° 125° 120°
ARCTIC OCEAN
EASTERN SIBERIA
BERING STRAIT
St. Lawrence I.
BERING SEA
To Seattle 2705 Mis.
FT. ST. MICHAEL
NOATAK RIV.
KOWAK RIV.
KOYUKUK RIV.
COLVILLE RIVER
Arctic Circle
YUKON RIVER
ALASKA
PORCUPINE RIVER
CIRCLE CITY
FORTY MILE
DAWSON CITY
KLONDIKE RIVER
MACMILLAN RIV.
PELLY RIV.
LEWES RIV.
BIG SALMON R.
HOOTALINQUA RIVER
TESLIN L.
Mackenzie Bay
MACKENZIE RIVER
RED RIVER
PEEL RIVER
DOMINION OF CANADA
TANANA RIVER
OGILVIE
COPPER RIV.
Mt. St. Elias
COOK INLET
GULF OF ALASKA
JUNEAU
TAKU HARBOR
SITKA
KUSKOKWIM RIVER
ETOLIN ST.
Nunivak I.
St. Matthew I.
BRISTOL BAY
Kadiak I.
Unimak I.
NORTH PACIFIC OCEAN
STATUTE MILES
65° 60° 55°
165° 160° 155° 150° 145° 140° 135°
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