

TWENTY-FIRST ANNUAL REPORT

OF THE

UNITED STATES GEOLOGICAL SURVEY

TO THE

SECRETARY OF THE INTERIOR

1899-1900

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DIRECTOR

IN SEVEN PARTS

PART II.—GENERAL GEOLOGY, ECONOMIC GEOLOGY, ALASKA



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1900

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A RECONNAISSANCE FROM PYRAMID HARBOR TO EAGLE CITY,  
ALASKA, INCLUDING A DESCRIPTION OF THE COP-  
PER DEPOSITS OF THE UPPER WHITE  
AND TANANA RIVERS

BY

ALFRED HULSE BROOKS

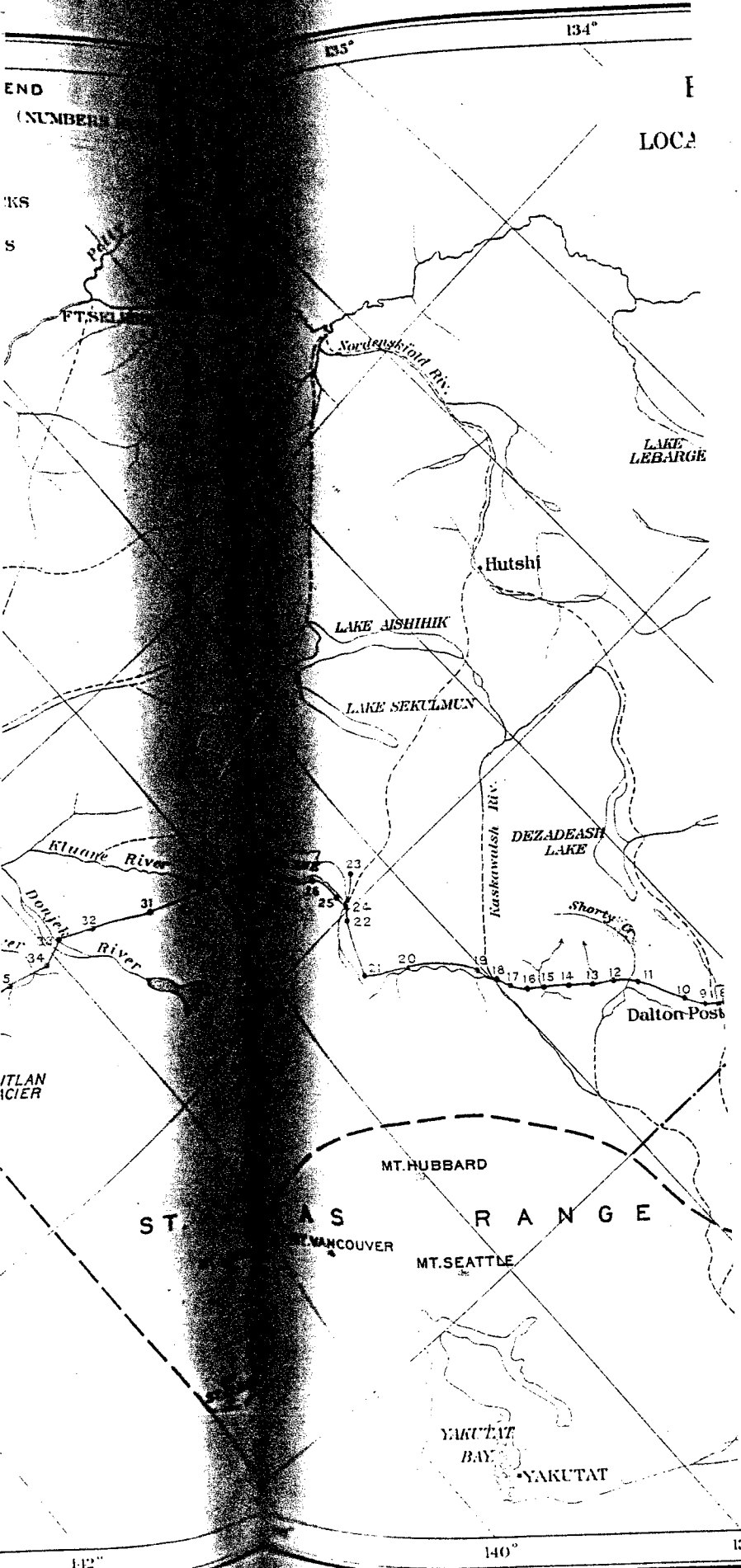
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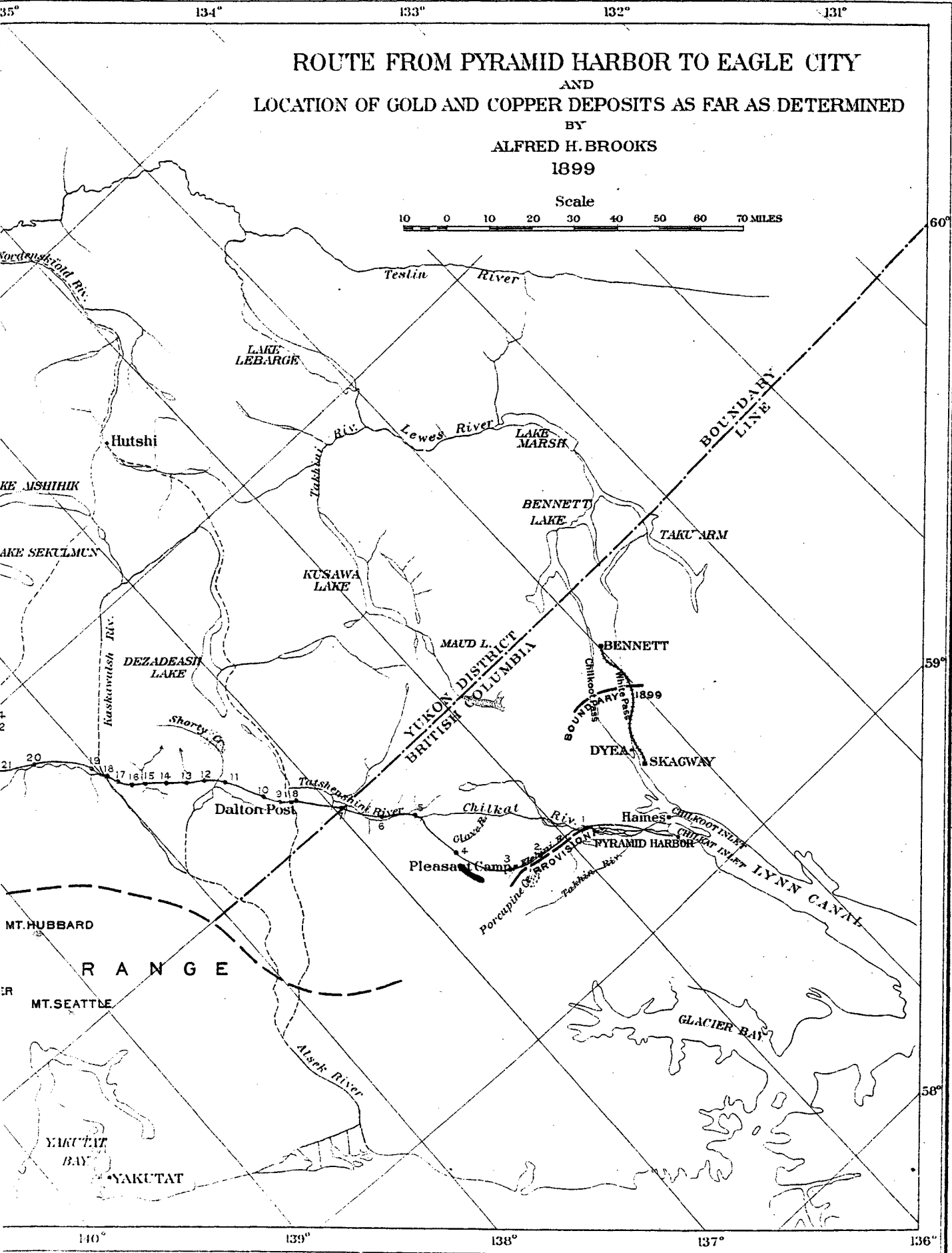
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**ROUTE FROM PYRAMID HARBOR TO EAGLE CITY**  
 AND  
**LOCATION OF GOLD AND COPPER DEPOSITS AS FAR AS DETERMINED**  
 BY

**ALFRED H. BROOKS**

**1899**

Scale

10 0 10 20 30 40 50 60 70 MILES

developed it is possible that locally some of the carbonaceous beds might have fuel value.

The coals of the Upper Yukon have been described by Mr. Spurr and others. They are chiefly lignites of Tertiary age. Those that are accessible have been considerably mined for use on the Yukon River steamers. On the South Fork of Fortymile River considerable coal débris was found among the stream gravels. This was of a lignitic character, similar to that of the other Tertiary coals, and presumably the coal beds outcrop somewhere in the upper part of the drainage basin of the South Fork.

#### ROUTES AND METHODS OF TRAVELING.

The conditions of traveling in this region are similar to those which have so often been described elsewhere in Alaska. Probably the easiest journeys are made in winter when sledding is possible, with the use of dogs for draft animals. It is necessary to supply dog food either by carrying it along, which limits the length of the journey from the base of supplies, or by procuring dried fish, which, as a rule, can be had only at the Indian villages. Dogs are also used by the Indians in summer for carrying packs. Reindeer can probably be utilized in the uplands, where the reindeer moss is to be found. In the larger river valleys, as far as my observations go, the moss is not abundant, and the reindeer used for river trips would have to seek the uplands for food. The utility of reindeers as draft animals has been well demonstrated elsewhere in Alaska, and they have the advantage over dogs in that they find their own food. Up to the present time they have not been given a fair test as pack animals for summer use, but it seems possible that they may be better adapted for this purpose in this region than the horse or mule.

In summer supplies are transported by back-packing, by pack animals, or in boats. By the more primitive method of back-packing journeys are usually limited to three weeks, as this is the longest period for which the average man can carry provisions besides his blankets, etc.

Horses can be used to advantage from about the middle of June to the first of September. Horses are preferable to mules because of the large amount of soft ground which has to be crossed. Our experience teaches us that "sawbucks" are better than "aparejos," as the pack is less liable to slip off. In choosing a route for a pack train it is advisable to keep at as high an elevation as possible, thus to avoid the swamps and thick timber of the lowland. We found the best grass above timber line.

A party making a trip in this region which involves crossing any of the larger rivers should carry a folding boat or the equipment for

constructing one. We used a heavy, waterproofed canvas which we stretched over a framework built by the use of a few simple tools.

Not much of the region is favorable for boating. Most of the larger rivers can be descended in boats at certain times in the year. Both the White and the Tatshenshini have been run in boats built by prospectors from whipsawed lumber. The Upper Tanana below the gorge, as well as the Nabesna, are favorable for the use of small boats, as are also the large lakes.

#### DALTON TRAIL.<sup>1</sup>

This trail leaves the coast at Pyramid Harbor, situated near the head of Chilkat Inlet, where the depth of water is sufficient for any seagoing vessel. In 1899 no wharf existed and freight was taken ashore by lighters.

The trail from Pyramid Harbor to Dalton House, in the interior, has been described in the itinerary. I will add that the hardest climb of the whole length of the trail is about 40 miles from the coast, near the police post. Here the crossing of a high spur necessitates a climb of 1,000 feet, which could be avoided by constructing a trail up the Klehini Valley. At Dalton House, which is about 100 miles from the coast, the trail turns northward, keeping to the east of Lake Deza-deash, and continues down the Kaskawulsh River, which drains the lake, to where this river makes its right-angled bend to the coast. It then crosses to the headwaters of Mendenhall River and thence continues to the Nordenskiold, which it follows down to the Lewes River.<sup>2</sup> The Dalton trail proper ends at the mouth of the Nordenskiold, but there is said to be a route all the way in to Dawson which has been followed by cattlemen with beef herds.

The exploration of this route for a trail, and its subsequent establishment, is due to the indomitable energy and perseverance of Mr. Jack Dalton. Mr. Dalton has done more than any other man for the exploration and development of this region.

The trail usually opens between the middle of June and the first of July. In the fall it can be used until about the middle of September. A permit having been granted by the Secretary of the Interior, the Alaskan portion of the trail is now a toll route. Below Pleasant Camp much money has been spent on the trail in road cutting, bridge building, etc.

#### ROUTES TO THE UPPER WHITE AND THE UPPER TANANA.<sup>1</sup>

The route followed by our party to the Tanana River is entirely feasible for a pack trail. The chief obstacles are the crossing of the

<sup>1</sup>See Pl. XL.

<sup>2</sup>Many maps show the Dalton trail leading to Fort Selkirk, and in a previous publication I fell into the same blunder. The Dawson Range intervening makes such a route impracticable for pack trains. The Indians, however, are said to have a trail across this range.

large rivers. Only in the Nabesna and Tanana valleys did we have to do much trail cutting. The following table of distances has been compiled from our map:

*Table of distances along route of expedition from Pyramid Harbor to Eagle City.*

	Pyramid Harbor.	Pleasant Camp.	Dalton House.	Kaskawulsh River.	South end of Lake Klhane.	Donjek River.	Kletsan Creek.	Head of White River.	Tanana Glacier.	Nabesna River.	Tanana River at mouth of Tetling River.	Franklin Gulch.	Steele Creek.	Eagle City.
Pyramid Harbor .....	40	95	130	185	250	295	210	340	375	430	520	530	580	
Pleasant Camp .....	40	55	95	145	210	255	170	300	335	390	480	490	540	
Dalton House .....	95	55	45	90	155	200	115	245	280	335	425	435	485	
Kaskawulsh River.....	130	95	45	45	110	155	170	200	235	290	380	390	440	
South end of Lake Kluane .....	185	145	90	45	65	110	125	155	190	245	335	345	395	
Donjek River .....	250	210	155	110	65	45	60	90	125	180	260	280	330	
Kletsan Creek .....	295	255	200	155	110	45	15	45	80	135	215	235	285	
Head of White River..	210	170	115	170	125	60	15	30	65	120	200	220	270	
Tanana Glacier .....	340	300	245	200	155	90	45	30	35	90	170	190	240	
Nabesna River.....	375	335	280	235	190	125	80	65	35	55	135	155	205	
Tanana River at mouth of Tetling River .....	430	390	335	290	245	180	135	120	90	55	80	100	150	
Franklin Gulch.....	520	480	425	380	335	260	215	200	170	135	80	20	70	
Steele Creek .....	530	490	435	390	345	280	235	220	190	155	100	20	50	
Eagle City .....	580	540	485	440	395	330	285	270	240	205	150	70	50	

A party intending to reach the Tanana or White from Eagle City would do well to take the Mentasta Pass trail from Franklin Gulch in the Fortymile Basin and reach the Tanana by way of the Khiltat. After crossing the Tanana it should make its way in a southeasterly direction and strike our trail near Tetling, or, what would probably be easier, follow the Mentasta trail to the Copper and then reach our trail on the Nabesna by the Batzulnetas trail. By this latter route it would be about 225 miles from Eagle City to the Nabesna. From Fort Selkirk the overland route, which is said to be an old Indian trail, used by Schwatka and Hayes, is passable for pack animals. By this route it is about 175 miles to the Klutlan Glacier, and the Donjek is the only river of considerable size which would have to be crossed. From the mouth of the Nordenskiold, on the Lewes, a route exists to the White by way of the Nisling Valley. Mr. J. B. Tyrrell's explorations of this route have already been referred to. On the accompanying map this route is continued across the White to the Tanana. This is entirely feasible except for the crossing of the White, which would be difficult. By descending the river to near the mouth of the Klotassin the crossing could probably be accomplished. The



distance from the Nordenskiöld to the mouth of the Nisling is about 175 miles.

The shortest and probably the best route to the head of the Tanana or White is the Copper River route, which leaves the coast at Valdes, on Prince William Sound. From this point a trail is now under construction by engineers of the United States Army, which is to avoid crossing the glacier. This proposed trail is to keep east of the Valdes Glacier and reach the Copper River at Copper Center, at the mouth of the Klutena. The rivers near the coast are said to have already been bridged, and the other streams, as the Konsina, will be crossed near their headwaters and will offer no serious obstacles. As the trail reaches the Copper on the south side of the Klutena, and as the former river is usually crossed above the Klutena, the latter river will have to be crossed, which is no easy matter. It will be necessary to use boats in crossing both the Copper and the Klutena. After crossing the Copper the so-called Millard trail is followed to the mouth of the Slana; a turn to the eastward is then made to Batzulnetas, from which point a crossing can be made to the Nabesna, or across the Suslota Pass to Tetling. The distance from Valdes to the Nabesna by this route is about 200 miles.

One of the routes into the interior which was tried during the Klondike excitement of 1898 and 1899 crossed from Disenchantment Bay, which is the upper end of Yakutat Bay, to the Alsek, and thence extended up that river and its tributaries. As a route into the interior it seems to have been a lamentable failure. Over 60 miles of glacier had to be crossed to the Alsek, and when that river was reached it was found to be very turbulent and exceedingly dangerous to ascend. There was, moreover, an absence of fuel on the glacier route, and only stunted alder on the Alsek. Some 300 prospectors are said to have started inland by this route, but probably not over 20 reached Dalton House, and those only after eighteen months of the hardest kind of toil and exposure. Several deaths due to exposure or to starvation have been reported from this region.

#### RAILWAY ROUTES.

Should the copper deposits of the Upper White and Tanana prove to be of sufficient extent to pay for a railway to them, the Copper River route would undoubtedly be chosen. Valdes, the natural terminus of such a railway, has an excellent harbor, which is open the entire year. A high divide would have to be crossed between Valdes and the Copper River. The next difficulty would be the crossing of the Copper River. The divides between the Nabesna and Copper and the Tanana and Copper is not over 3,000 feet.

The route from Pyramid Harbor is one along which a railway could easily be built, except for the bridging of the several large rivers

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A RECONNAISSANCE OF THE CHITINA RIVER AND  
THE SKOLAI MOUNTAINS, ALASKA

BY

OSCAR ROHN

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## ANIMAL LIFE.

According to the testimony of the natives and judging by the great number of antlers found, and the remains of traps or fences used by the natives for catching them, moose and caribou must have been very abundant in the country adjacent to the Wrangell Mountains. Now, however, they have either migrated elsewhere or become almost extinct, as only a very few are occasionally taken, on the northwestern border of the Copper River Valley. Bears are very numerous, but usually of the smaller brown and the black species. No indications were seen of the huge brown bears found on the Aleutian Peninsula. The animals now chiefly depended upon by the natives for food are mountain sheep and mountain goats. The sheep of the Wrangell Mountains differ considerably from those of the Rocky Mountains and differ somewhat also from the species found in the vicinity of Cook Inlet and the Upper Kuskokwim River. Hundreds of these animals were seen in flocks, at times, of as many as a dozen to twenty individuals. They are found, however, only at great heights, on craggy and inaccessible mountains and are usually most difficult to reach. Martens are trapped in considerable numbers, particularly by the Tanana natives, and beaver, though taken, seem not to be very numerous. Ground squirrels, which are so abundant in the western part of Alaska, do not seem to be very abundant here. Wolves and foxes, the latter including the black and silver-gray varieties, are taken by the natives.

Eagles and ravens are very common and are to be reckoned with in leaving fresh meat exposed anywhere away from camp. Brant, many different species of ducks, grouse, and ptarmigan are abundant and furnish the natives with important items of food.

Many different varieties of fish are found in the brooks and lakes. The salmon, however, is the one of most importance. These run up Copper River and its tributaries annually and furnish the natives with their only staple article of food. Every native has a "stick," or summer house, and salmon cache at some point along the river, where he lives during the summer season, catching and drying salmon, and to which he returns after the fall hunt, when the snow becomes too deep to travel. Salmon do not reach the Upper Tanana River, and the Tanana natives go to the Copper River to catch their year's supply. Halibut and cod are abundant in Prince William Sound and along the coast.

## TRAILS.

*Tonsina and Lower Copper River.*—A good trail leads from Tonsina Lake eastward along the northern bank of the Tonsina River to a point on Copper River about 8 miles above the mouth of the Tonsina. This trail has been carefully marked and cut out and can easily be

found. From a point where it reaches the upper edge of the Copper River gorge it connects with an old Indian trail leading along the Copper River bluffs to a point on the Copper about a mile above the mouth of the Tonsina. Here a number of bars divide the river into several narrow channels, making crossing easy for pack animals. Care must, however, be exercised to keep the animals well up toward the head of the bars, as the lower ends are often soft and composed of quicksand.

A trail leads from Copper Center down the western side of Copper River. This is, however, very irregular and most difficult to travel. From a point on the Copper River opposite the mouth of the Tonsina an Indian trail leads along the eastern bank of the Copper River for the greater part of the distance to the mouth of the Chitina. In places, particularly near Indian houses, this is very good, and in others it is almost impassable. With comparatively little work a trail could be made which, leading back from Copper River about opposite from the Tonsina, and keeping well back from the river valley to avoid the lateral draws, would lead in a general southeasterly direction into the Chitina Valley.

*To the Kotsina River.*—On the eastern side of Copper River about 5 or 6 miles below the mouth of the Tonsina is the winter house of a native known as Bellum. From here a trail leaves Copper River and leading almost due east reaches the Kotsina River at the point where it emerges from the mountains, a distance of about 10 to 12 miles. From here it leads up the northern side of the Kotsina River Valley for 8 or 10 miles more. This trail is entirely feasible for pack horses, and by means of these the headwaters of the Kotsina can be reached at any time except that of the highest floods.

*Along the Chitina River.*—The general route up the Chitina River is the Nikolai trail, leading from Taral over the mountains on the southerly side of the river to the Nikolai house on the Nizina. This is the trail followed by Lieutenant Allen in 1885. It is not feasible for pack train. An old Indian trail was found on the northerly side of the river leaving the bank about 8 miles above its mouth and running from here to the point where the Kuskulana River emerges from the mountains, and then following the Kuskulana it crosses the same near the foot of the glacier and leads in an easterly direction to the bend in the Lachina. This route is well marked out and can be traveled by pack train at almost any time of the year. From the Lachina eastward to the Nizina a trail was cut during the summer of 1899 which leads through several mountain passes and is rather difficult to follow. This may be the best route for reaching the Nizina during the time of high water, but at any other time a much better trail could easily be made which would lead down the Lachina to the foot of the mountains and along these to the foot of the Nizina, crossing the Kennicott River at the foot of Kennicott Glacier.

It is reported that the Indians formerly reached the coast at a point between Yakutat and Kyak by traveling up the southern branch of the Chitina, known by the natives as the Tana. This route involves crossing a glacier, and is not now used by the natives.

*Skolai Pass.*—A trail leading from the White River to the Chitina, by way of Skolai Pass, used by the natives and followed by Lieutenant Schwatka and Dr. Hayes, leaves the Nizena Valley at a point several miles above the foot of the glacier, where a valley free from glaciers joins it from the east. From the head of this valley a low gap leads to the headwaters of the White River over the foot of a glacier which Dr. Hayes has named Russell Glacier.<sup>1</sup> In winter the natives travel on Skolai Creek, but in the summer time, when the Nizina is flooding, they use a trail through the mountains leading to the Chitistone, and by way of this they reach the Nikolai house. This is probably the only route feasible for crossing from the Chitina to the White or Tanana. It is said to be not very difficult for traveling with a light pack, but it is quite impassable for the use of a pack train, or for railroad, or for transporting goods by any other means.

*Upper Copper River Valley.*—From Copper Center northward two general trails lead toward Mentasta Pass, one along the western bank of the Copper River, and the other in a more or less direct course from Copper Center to the mouth of the Slana along the foot of Mount Drum, the latter known as the Millard trail. The former probably affords the firmer footing, while the latter avoids crossing the western tributaries of the Copper. The trail leading from the mouth of the Slana to Mentasta Pass is well marked and easily followed. From the mouth of the Chestochena a good trail leads up the river along its western bank for a distance of 60 to 75 miles. From the mouth of the Slana the trail leads along the eastern bank of the Copper for a distance of about 10 miles to Batzulnetas.

*From the Copper to the Nabesna and Tanana.*—From Batzulnetas a good trail leads in a general southerly direction for a distance of about 10 miles, where it forks, leading by three different passes to the Nabesna River. These are all feasible for horse trails, and each is advantageous according to the point on the Nabesna that is to be reached. The western one, by way of Lake Tanada, was used by prospecting parties traveling with pack train during the season of 1899, and the central one was used as a sled route. The eastern one, however, is the most practicable and the easiest, particularly for reaching the trail from the Nabesna to the Tanana and White rivers. The western one, which was traveled by pack trains, is well marked up, but the others are difficult to follow and require guides.

<sup>1</sup> An expedition through the Yukon district, by C. W. Hayes: Nat. Geog. Mag., May 15, 1892.

The trail from the Nabesna to the Tanana leads to one of two passes. The northern one, the most direct and the one used by the natives, is not feasible for pack horses, while the one a little farther south is. This is the only part of the route that offers any difficulty whatever for railroading, but the difficulties are not such that they can not be readily overcome.

#### PACK TRAINS.

The military road and the network of trails found in the Copper River Valley make pack trains the only convenient and satisfactory means of transporting goods; they can be used to advantage from about the 10th of June to about the 10th of October, and they have been adopted almost exclusively by the prospectors now working in the country. If large quantities of goods are to be transported, this can in some cases be done to advantage by sledding with horses on the ice of the rivers during the months of February, March, and April.

The experience of the past year's work with different outfits prompts the following suggestions: A stocky Montana ranch horse weighing about 1,200 pounds, which had not been used as a harness horse and which had not been stable fed, was found to be the most satisfactory. Such horses were bought for about \$40 and cost about an equal amount for transportation. A well-fitting double-cinch sawbuck saddle, without breeching or breastpad, with two heavy blankets under it, was found the most satisfactory. Saddlebags or panniers made of canvas well trimmed with leather are a great convenience and economy. These should be made just long and wide enough to accommodate a 50-pound sack of flour and should be in depth a little less than twice their width. They should be fitted with straps by which to hang them to the saddle horn. All goods should be packed in sacks and all forms of boxes carefully avoided. A very useful precaution is to have a couple of cans of baking powder well buried in each sack of flour. Pack covers made of strong canvas about 7 feet square are very useful, and a farrier's kit, with a sufficient supply of horseshoes finished and ready for the horses' feet, must under no circumstances be omitted. Two men can handle twelve horses without much difficulty, but to do so to advantage they should be allowed one saddle horse. Such horses as above mentioned will readily carry 200 pounds each.

#### GEOLOGY.

##### PRELIMINARY STATEMENT.

In exploration, where ignorance of the difficulties and obstacles to be met and overcome makes it necessary to proceed as rapidly as possible and to avoid every form of delay, geological observations must necessarily be brief and fragmentary. This was particularly true of the trip

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PRELIMINARY REPORT ON A RECONNAISSANCE  
ALONG THE CHANDLAR AND KOYUKUK  
RIVERS, ALASKA, IN 1899

BY

F. C. SCHRADER

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Dietrich River. The natives, however, denounce this region as very rough.

*West Fork of Chandlar to South Fork of Koyukuk.*—From reports of a few prospectors who have crossed this portage it is known to be easy and the divide low (see map, Pl. LX), so that during the wet season or at high water the distance of actual portage between points of canoe navigation is reduced to 10 miles or less. The creek through which the western side drains into the South Fork of the Koyukuk is said to be called Eldorado. During the past season (1899) many of the miners on the Upper Koyukuk were contemplating sledding their supplies from Fort Yukon up the Chandlar River and into the Koyukuk by this route. It traverses little if any rough country, but the distance is about 150 miles from Fort Yukon.

*Chandlar River and Rampart route.*—This name is here given to the route followed southward by some of the Chandlar natives, along the divide between the Koyukuk and the Yukon to Fort Hamlin, at the head of the Lower Ramparts, for trading purposes.

#### KOYUKUK RIVER BASIN.

*Koyukuk River route.*—The easiest and most practicable way of entering the Koyukuk region in summer, especially with freight, is to ascend the Koyukuk by flat-bottomed steamboat. About 1,500 people entered the country in this way during the season of 1898. Bergman (see Pl. LXII, A), 440 miles above the mouth of the river, is reached by steamboat throughout the open season. This may, in a general way, be considered the head of steamboat navigation on the Koyukuk. Above Bergman certain sections of the river contain bars and shallows which render navigation more or less difficult except at high water. During high water, however, steamboats ascended to above Tramway Bar, 100 miles or more above Bergman, and also for considerable distances up the Allen and other large northwest tributaries during the summers of 1898 and 1899.

*Dall River trail.*—This route leaves the Yukon River at the head of the Lower Ramparts, near Fort Hamlin, leads northward up the Dall River, then northwestward over the divide, and descends Fish Creek to the South Fork of the Koyukuk near the Arctic Circle, a distance by trail of about 100 miles from the Yukon. Up to the present time this has apparently been the principal overland route used by prospectors in entering the Koyukuk. By continuing farther up the Dall some have descended Jim Creek, thus reaching the South Fork of the Koyukuk at Jimtown. It is reported to be also feasible to cross from the Dall to Oldman Creek and down this stream to the Koyukuk below Bergman. This latter, however, seems questionable, as the portage must be very long.



*Rampart and Hoyn Creek trail.*—This route is known by report only, but it is said to be easier and shorter than the Dall River trail. It is reported to ascend Hoyn Creek, a tributary of the Yukon, near Rampart, cross a low pass in the mountains, and thence a wide, level stretch of country, a total distance of about 90 miles, and to come out on the Koyukuk about 80 miles above Bergman, probably at Fish Creek, the same as the Dall River trail.

*Tozi<sup>1</sup> trail.*—This route leaves the Yukon about 6 miles below the mouth of the Tozi River and leads nearly northward, mostly along the low divide between the Tozi and Melozi rivers, to near the head of Oldman Creek, which it descends to the Koyukuk, near Bergman. This is the route followed by Lieutenant Allen in 1885. Its length from the Yukon to the Koyukuk is about 90 miles. The Tozi may also be ascended by canoe nearly to its headwaters, and the route continued thence by portage to Oldman Creek, as above.

*To Fort Yukon by way of Chandlar River.*—This route has already been noted under the Chandlar River region trails. Leaving the South Fork of the Koyukuk by way of Eldorado Creek and crossing the low divide, it descends the West Fork of Chandlar River, thence down the river as directly as practicable and across the Yukon Flats to Fort Yukon, about 100 miles distant from the Koyukuk.

*Middle Fork route to Chandlar River.*—This route, as explained on page 454, is up Bettles River and Robert Creek, and thence by a 15-mile portage to the headwaters of the Chandlar, about 50 miles by river above Chandlar Lake. The portage is fair, but the current in Bettles River and Robert Creek is too swift and the bed too bowldery to permit a safe or easy ascent with a loaded canoe or boat.

*Allen<sup>1</sup> River to Kowak River.*—A route is known to exist by way of Allen to the headwaters of the Kowak, but as it seems to be used only in winter, the length of the portage is not known. Some Kowak River prospectors sledged across it to the Koyukuk in March, 1899. The Allen is a large stream and can be ascended nearly 40 miles by a light-draft, flat-bottomed steamboat.

The country is also said to be portageable between the headwaters of the Alashuk and the Kowak rivers, and also between the Dagitli and the Kowak. This latter portage was made by Captain Stone in 1885.

*Nulato trail.*—This is a "cut-off" or short overland trail of about 25 miles from the west bend of the Koyukuk about 7 miles above the mouth of the river to Nulato. In winter a sledge trail leading directly north from Nulato up the Koyukuk is sometimes used.

*Koyukuk and Arctic coast trail.*—According to reports which seem to be authentic, the Malamut natives of the Arctic coast have been known to visit the head of the Koyukuk Basin. They are supposed

<sup>1</sup> Formerly "Tozikakat," "Allenkakat," etc. For Alaskan names see pp. 487-509 of this report.

to have found passage through the mountains at the head of Dietrich River and to have descended this stream, but of this there is no certainty. The country in this region, however, is too rugged to be of promise for a practicable route of any sort, as shown in Pl. LXV, A, and on the map (Pl. LX).

#### POPULATION.

##### CHANDLAR RIVER.

*Natives.*—By estimate the Chandlar River natives number about 50 in all. A small settlement, of which the nucleus is a couple of cabins, is found in the flats about 7 miles above the mouth of the river. Most of the natives, however, live beyond the flats, in the mountainous part of the country. Their principal village is on East Fork, remote from the influence of the Yukon travel and traffic. For subsistence they depend principally upon game and fish. A few months during the coldest part of the winter are spent in log cabins or winter tents, and the remainder of the year in roaming about, wherever game or fish may furnish food. In winter the skins collected during the year are exchanged for tea, tobacco, clothing, and other necessities, at Fort Yukon and Fort Hamlin. Though the natives subsist almost exclusively upon game and fish, with some berries during summer, they have a keen relish for white man's food. They are shiftless and improvident, and their destitution and suffering are occasionally great. They are, however, comparatively intelligent. Some who have attended mission schools at Fort Hamlin have learned to read and write.

*Whites.*—Four white men, all prospectors, were the only whites in the region in 1899. Two of these were connected with the natives by marriage.

##### KOYUKUK RIVER.

*Natives.*—The Koyukuk natives, also known as Koyukons, number fewer than 200, so far as can be judged. The Eleventh Census places the number at 174. Their habits of life are much the same as those of the Chandlar natives. They have no cabins on the extreme upper waters much above the sixty-seventh parallel. At present the population, so far as observed, is scattered along the river in small villages containing but a few families and cabins, generally near the mouth of some tributary. There are also some on the Allen and other tributaries. So far as learned, there are no missions nearer than Nulato and Fort Hamlin.

Nulato seems to have been their chief trading post before the location of the post on the upper river. At these upper posts the natives are frequently employed by the whites, and some are also employed