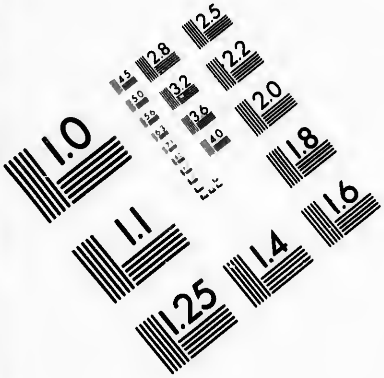

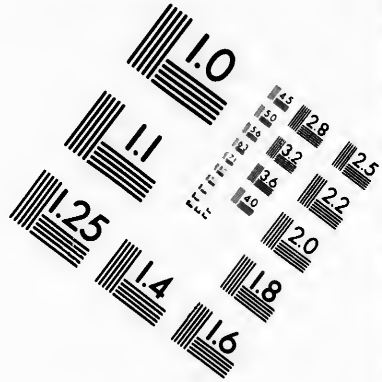

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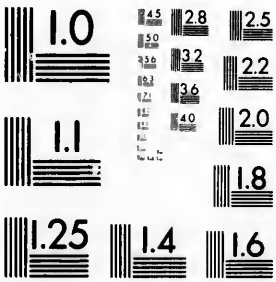

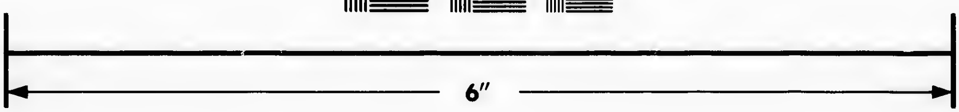

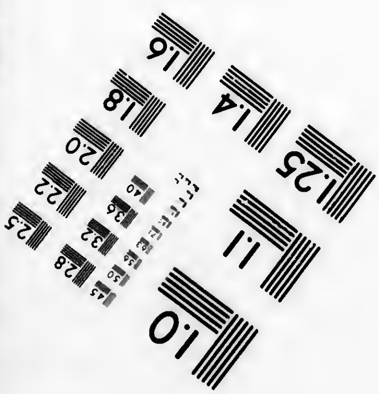

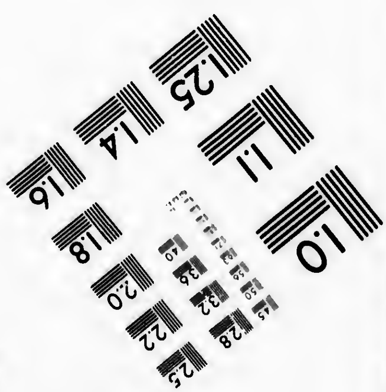

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THE ENGINEER AND THE ROAD TO THE GOLD FIELDS.

By Harrington Emerson.

HE who leaves Seattle for the Klondike and the Alaskan gold fields, enters another world when he boards the north-bound steamer It is not that the vessel differs from steamers of the same tonnage on the Atlantic Coast, for the engineer's handiwork must be more perfect for voyages to the outlying places of the earth where there are no repair shops. It is the passengers who make a different world, or perhaps it is fairer to say that among them the conventions of civilized life lose their force, and the sordidness and other elemental and unlovely instincts which civilization hides but does not eradicate, crop up unblushingly.

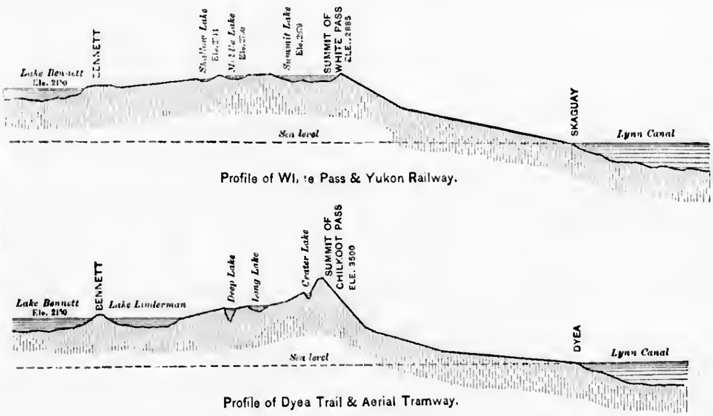
A good part of the men northward bound are miners, animated not by patriotism nor hope of homestead, not by dream of glory nor love of science, not by pride of conquest nor religious enthusiasm, not even by the pleasure of adventure, but impelled northwards solely by lust of gold. Dogging the footsteps of these pioneers is the motley horde of human parasites and beasts of prey, both male and female, and these and their ways emphasize the difference between the lust for gold and the pursuit of immaterial riches. No one tries to rob Dewey of his laurels nor Nansen of the honor due his adventures and discoveries, but if a man has secured an ounce of gold a thousand rise up in his path and try to take it away from him.

Owing to the absence of parasites, industrial, criminal, and governmental, it was cheaper and safer to go to the Yukon ten years ago than it was when the great work was on, and were it not for the works of the engineer, the passage down or up the Yukon would to-day be lined with as many robber roosts, levying blackmail, euphemiously called toll, on all the travel and traffic, as was the Rhine in the Middle Ages.

But the engineer, with his ocean steamers, wharves, railroads, aerial cableways, riverboats, etc., came and converted what was once an expedition of extreme physical danger and hardship, and what next became a journey of extreme pecuniary danger and expense, into a rapid, safe, convenient and also cheap trip to the Arctic Circle. It is this cheapness that above all else will develop the resources of that far off region, making profitable great numbers of mines to-day unworkable.

In California, gravels containing as little as five cents of gold to the cubic yard are washed at a profit, but in the Klondike region all gravel that yields less than fifteen dollars per cubic yard is mined at a loss. It is too much to expect that far northern gravels can ever be worked as cheaply as in California, but it is not too much to expect that with cheaper labor, cheaper supplies, and above all, better appliances, five dollar gravels will in time have value.

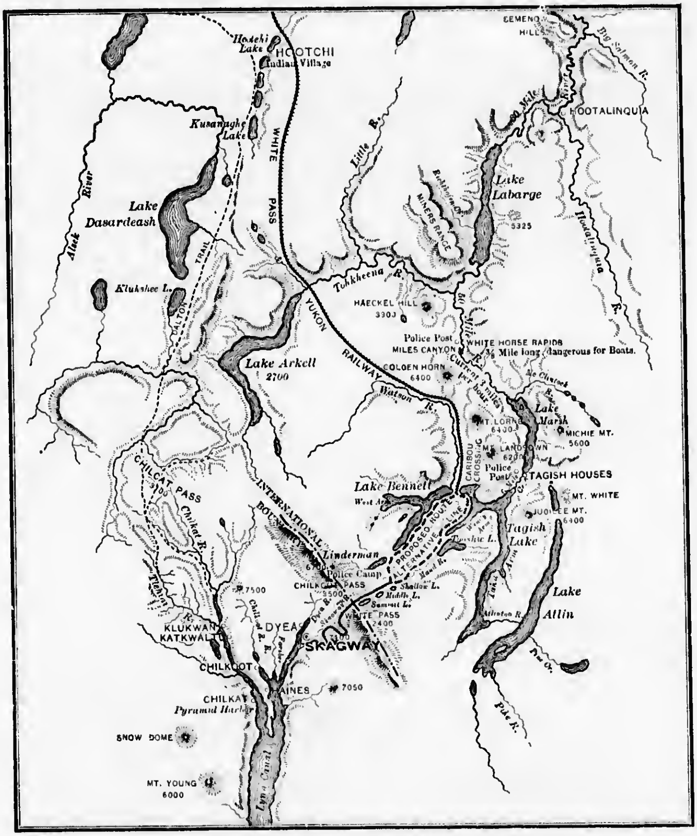
The most remarkable part of the long road to the new gold fields is the short link which crosses the backbone of the continent. Else-



PROFILES OF THE TWO ROUTES FROM LYNN CANAL TO LAKE BENNETT.

where, the continental divide lies in Colorado, Wyoming, Idaho, but in southeastern Alaska, it is a rampart rising direct from the sea. its base lie the blue waters of an arm of the Pacific. Fourteen miles inland is the summit and immediately beyond are the head waters of the Yukon. A few coast passes are the only feasible highroads to the interior, and this gives them very great political as well as commercial importance. Further north between the Yukon and the ocean are those stupendous snow giants Mount Saint Elias and Mount Logan, towering above 18,000 feet in height.

The profiles showing the two lowest passes from ocean to river were drawn from his own surveys by Frank Reid the engineer, who, at Skagway, Alaska, in 1898, in the cause of decency, order and law,

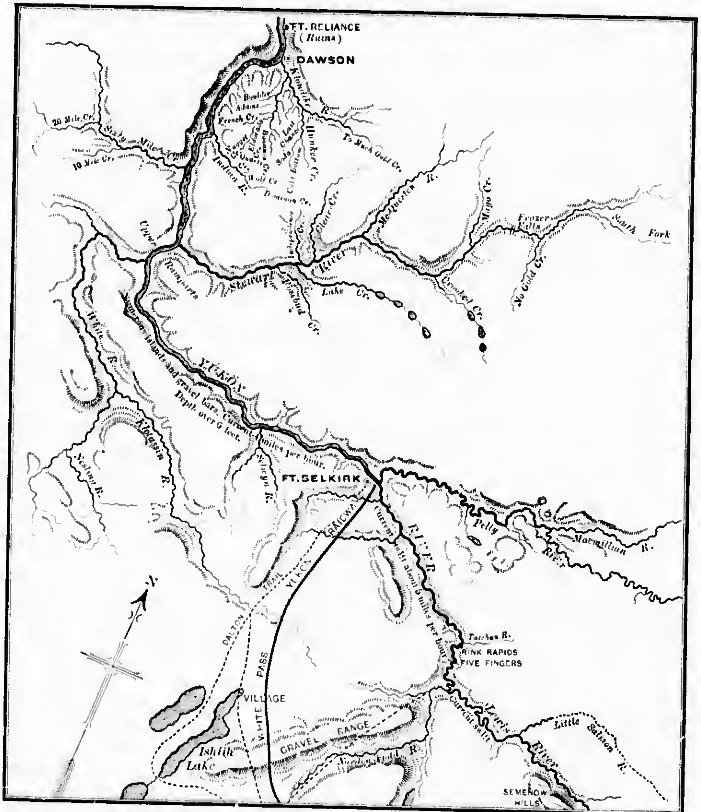


ROUTE OF WHITE PASS AND YUKON RAILWAY FROM SKAGWAY TO FORT SELKIRK.
(Part I., from Lynn Canal to Semenow Hills.)

shot and killed "Soapy Smith," the leader of all the crooks and thugs with which the place was infested, and was in turn killed by him.

Of all the many dead claimed by the dangers and diseases of the murderous trails, Frank Reid alone rests under an imposing monument, erected in the forlorn little cemetery to show the gratitude of the citizens and as a permanent warning to evil doers.

The *man* was honored who had saved the town from a reign of terror, but the *engineer* began a greater work in his surveys which



ROUTE OF THE WHITE PASS AND YUKON RAILWAY FROM SKAGWAY TO FORT SELKIRK.
(Part II, from Semenow Hills to Dawson.)

were the beginning of a development, that, in eighteen months replaced the Indian hunter's foot-path with aerial cableways and a steam railway.

The profiles are worth studying. Lynn Canal is an inlet or fjord of the Pacific Ocean, and the lakes over the summits are the head lakes of the Yukon River. Although these summits are but fourteen miles from the ocean, the distance down the Yukon to Bering Sea is two thousand miles. Nowhere else in the world are the navigable head waters of a great river so near the same ocean in which it finally

WHITE PASS ABOVE THE FORD.

AT THE FORD, SHOWING SUMMIT OF WHITE PASS.

empties. It is as if the headwaters of the Ohio River were but fourteen miles from New York Bay.

From Panama to the Fuca Straits there are but few harbors, but from Puget Sound northwards a whole coast system of mountains and valleys sank, in a former geologic age, several thousand feet, and thus formed the present sounds, canals, channels, inlets, bays, harbors, a land locked water-way of marvelous beauty—and danger—stretching a thousand miles north of the sound cities, Tacoma, Seattle, Victoria and Vancouver. So smooth and placid is this water-way that Indians, in their dugouts, undertake trips of one thousand and more miles along the coast, yet so dangerous is it that scarcely a week passes without some steamer striking or stranding on the dark shores or sunken rocks. At the northern end of this inside passage and ninety miles from the sea is the head of Lynn Canal, which is seven miles wide and from 135 to 413 fathoms deep, but the Wrangel Narrows, a hundred miles further south, are only a quarter of a mile wide and eighteen miles long, and so shallow that rarely a steamer passes through them without scraping on the bottom. At another point in the long inside passage conflicting tide currents swirl and rush thirty miles an hour, and this place can only be passed at slack water, either high or low.

At the head of Lynn Canal is Dyea Inlet, fourteen miles long and but one mile wide, and into the head of Dyea Inlet empty the Dyea and Skagway Rivers, each making a long mud delta covered at high water, bare at low tide; and here the tidal range is very great, sixteen or more feet.

The Dyea and Skagway Rivers both flow rapidly down from the summits of the coast range of mountains. They are but torrents, only fourteen miles long from source to deltas, and within a few feet of their head waters are the head waters of the Yukon; thus natural passes are formed from the coast to the interior. By no other route is the distance so short as up the Dyea River. There has always been an Indian village at Dyea, which is doubly favored by being at the extreme head of ocean navigation and nearest to the series of lakes, Crater, Long and Deep, which empty directly into Lake Lindeman. This lake in turn empties into Lake Bennett, which is but forty miles from Dyea. From an engineering point of view the Skagway route is the better, as the White Pass at the head of the Skagway River is six hundred feet lower than the Chilkoot Pass, but neither Indians nor miners used it. Its series of lakes, Summit, Middle and Shallow, are separated from Lake Bennett by a high divide and flow by long and

THE AERIAL CABLEWAY OVER THE CHILKOOT PASS.

shallow streams into other lakes not so immediately available for reaching the Yukon.

Although the distance to Lake Bennett is the same by survey over each pass the most enthusiastic backers of the White Pass route have always considered it at least ten miles longer, owing to its extreme and lasting difficulty, for foot and horse travel.

In former years at two seasons of the year only was travel possible over the Chilkoot Pass, in late winter when the snow was hard and the lakes frozen, and in late summer when the lakes were open for rafts and canoes.

It is strange that this easy and natural highway for the Indian up the coast in a canoe, over the pass with a pack on his back and down the river on a raft, should have presented almost insuperable obstacles to civilized travel. The Indian in his dugout cared not for narrows, shallows and currents, tides and flats. He did not try to force them but accommodated himself to conditions as he found them, and was governed by the seasons in his trips over the pass, as was also the early gold seeker, who, drifting north in 1877, made his way with Indian help over the Chilkoot Pass to the Yukon River.

Between the final triumph of modern engineering, the railroad, and the natural highway of the savage, there were many stages of improvement which were more toilsome, dangerous and expensive than the conditions they are supposed to better. There was no longer easy and sympathetic acquiescence in nature's whims when the great gold rush to the Yukon began in August, 1897.

Just as the engineer has substituted his works for all other instruments or vehicles of transportation over the White Pass, so also it is the engineer who with his ocean steamers has supplanted the Indian canoe, the sailboat, the little coast steamers, but with the difference that whereas the land engineer makes his own road on which he safely runs his engines, the naval engineer can only build a good steamer, which too often is wrecked owing to the culpable negligence of a government, quick enough to install revenue collectors, but exceedingly slow to chart, buoy and light dangerous channels.

Nearly five thousand people a month make the passage from Seattle and other Sound Cities to southeastern Alaska, and many thousand tons of freight are also carried, yet aside from a few buoys in Wrangel Narrows there is absolutely nothing provided by the government to aid the mariner in navigating those waters. The Canadian government, both on land and sea, is more prompt to act and to provide protection. It has a light-house on the Sister Rocks in the Gulf of Georgia, another at Cape Mudge at the entrance to Discovery Pas-

THE LAST CLIMB TO THE SUMMIT OF CHILKOOT PASS.

sage and yet another at Egg Island. The disastrous wrecks almost without exception have occurred in United States waters.

As canoes gave way to ocean-going vessels in these unbuoyed and unlighted channels, the government pilot charts were improved with pasters suggesting that the chart was not more than five miles out of the way. Steamer after steamer was lost, the Mexico sank in August, 1897, on her return trip from carrying the first load of gold seekers, the Corona stranded in November of the same year, the Clara Nevada ran on a rock and burned or blew up with a loss of all on board in the

SUNSET ON THE YUKON.

following February, and since then a dozen other steamers have either grounded or been totally wrecked. These dangers and losses continue to date. On February 15th, 1899, the Humboldt, a fine California steamer, went on the rocks between Juneau and Wrangel, and was in gravest danger; early in March the Dirigo stranded but was finally dragged off with severe damage; later in March the Tees, a Canadian steamer, was reported fast on the rocky Alaskan coast and on March 29th the City of Topeka of the Pacific Coast Steamship Company went fast on a ledge in Wrangel Narrows.

As the engineer was not able to take the survey and improvement of the sea highway out of the hands of the government he turned his attention to terminals for the carriers both by land and water which his skill had evolved, and here also the transition from the perfectly safe landing of the Indian canoe on the flat beach above high water to the equally safe landing of the ocean steamer at a deep sea wharf, beyond the fall of the lowest tide, has been through intermediate steps expensive and dangerous.

The first load of gold seekers in August, 1897, found no wharves at Dyea or Skagway, and the hastily gathered mining outfits were either lightered ashore at great expense, or at low tide dumped off the steamers to be submerged by the returning waters unless rapidly

LOOKING DOWN THE YUKON BELOW DAWSON.

moved by wagons whose owners charged extortionate rates. Prices for packing over the pass had been twelve to fifteen cents a pound in the old days of Indian-back, but they rapidly rose to forty-seven cents by the Dyea or Chilkoot trail and to sixty cents by the Skagway trail. Blockades occurred, paths turned into bottomless pits and pandemonium was everywhere.

It is a curious illustration of the fallibility of intelligent human judgment that nearly all the capitalists organized transportation companies to reach the Klondike by way of the mouth of the Yukon, leaving the nearer and obvious road in the hands of men without capital but with plenty of energy and ready quickness.

A comparison of the two routes to Dawson, down and up the river, should have been sufficient to convince one as to their relative values. Dawson is sixteen hundred miles from the Sound Cities. Of this distance one thousand miles are by inland sea, forty are by mountain pass, the balance down lakes and rivers. This route is open eight months in the year. By the other route it is over four thousand miles to Dawson, twenty-seven hundred miles of North Pacific Ocean to St. Michaels, and about fifteen hundred miles of treacherous river touching the Arctic circle with bars at mouth and elsewhere. Boats are limited to a three foot draft, and the river mouth is open but three months in the year.

The extent of the transportation delusion is evidenced by the increase of steamboats on the lower Yukon from scarce a dozen in 1897 to one hundred and ten by the summer of 1898. These boats represented capital. The gold seekers went the other way and the only real rivalry that there has ever been for a permanent Yukon route is between Dyea and Skagway, between the Chilkoot and White Passes. When the rush began, one of these was an Indian path, the other nothing, but, what it lacked in merit Skagway made up in boisterous advertising. The Indian village at Dyea developed into a town, the

THE MUD FLATS AT SKAGWAY.

(The railway runs along under the bank beyond the left wharf.)

THE WHITE HORSE RAPIDS.

American speculation on the Skagway flats was platted and the City of Skagway started. It first succeeded in building a wharf to deep water and this was the beginning of its supremacy, because it became easier and safer to land there. Beyond the landing this trail was utterly unfit for travel, but the first arrivals were too busy pushing on to warn those who might follow, and both town boomers and steamer lines assured ticket buyers that whatever might have been true last week, *now* the trail was indeed open.

Above its delta, the Skagway River, a mountain torrent, occupies nearly the whole width of the valley. The mountains rise steeply on each side and every spot that is not washed bare of earth is overgrown with heavy timber. If, in rare places the river has a shore, it is covered with boulders and loose rock, either terminal or lateral moraines of the former Skagway glacier, or the result of landslides. For ten miles from the sea, the fall of the Skagway River is not rapid but above the last fork, the stream rushing down from the summit of the White Pass is a rocky torrent, in a deep cañon bed. The rise in the last four miles below the divide is about 2,000 feet.

Illustrations, better than description, show the characteristics of the route from Lynn Canal to the white summit.

Over twelve thousand people landed at Skagway in the first year after the rush, or between August, 1897 and July, 1898. Most of these unfortunates crossed the pass dozens of times carrying their goods in relays, a man load at a time, a slow way of transporting a ton or two of supplies a distance of thirty miles over almost impassable trails. Most of the packing was done on man back and extraordinary loads were carried.

One of the Indians on Chilkoot carried in one load 247 pounds over the summit, and on the whole, nothing is so generally efficient as a man. Dogs were fitted with pack saddles and given loads of ten to thirty pounds, and this was worth while, at sixty cents a pound. Goats were used, rafts, canoes, rough boats, any and everything that could be impressed into service.

Horses were shipped to Skagway by the hundred, and there, on the worst trail in the world, they died also by hundreds, but during this first summer a horse was not able to carry as much as a man.

It was the packers, the owners of the horse trains who made the first trail, for the gold seekers had no time to join in any "good road movement," but the packers organized, instituted compulsory service and by the spring of 1898 had succeeded in opening a very fair bridle path, making this trail from this time on essentially a horse trail, and thus scoring a second triumph over Dyea. The horses between Skagway and Bennett each carried 250 pounds besides feed for the round trip of four days. Six to seven horses or mules made a string under the care of one man, the driver riding on an extra animal, sometimes in front, often behind. Rates for packing fell to twenty and then to twelve cents a pound and fortunes were made, and squandered, in the business. Six horses carry fifteen hundred pounds of net freight and earn gross $180 to $300. Expenses for a round trip were $40 in wages, $12 hotel bills, $25 for horse feed, $20 wear and tear and $15 toll, making a total of $112. Some packers who had forty to fifty horses on the trail put in their own boarding camps, thus reducing expenses and the most energetic and successful and reliable earned for several months over $1,000 a day net on an investment of $2,000 to $3,000. One energetic man interviewed the arriving Klondikers at Seattle, contracted to deliver their freight at Bennett, required a part payment in cash, used the cash to buy his horses and pack-saddles and went north on the same steamer with his customers and fulfilled his contract.

But the enormous amount of freight going to Dawson by way of the passes, nearly 20,000 tons, prompted Mr. George M. Brackett, an experienced and energetic railroad contractor, to begin a wagon road from Skagway to the summit. He started early in the fall of 1897 and pushed the work with great energy, hoping to be ready for the great spring rush, but in this he was disappointed. The remoteness of the region, with mails ten days apart, labor, climatic and financial difficulties all combined to prevent rapid work. Nevertheless Mr. Brackett succeeded in building an excellent road for about ten miles, marring it however, and from an engineering point of view ruining it, by the fearful grade over Porcupine Hill, a grade so steep that two horses with a single sled loaded with only 400 pounds could scarcely climb it coming towards Skagway. Going down this same hill sled

HORSE TEAM FROM SKAGWAY TO LAKE BENNETT.
(One horse could make the round trip in three days, carrying 1,000 pounds.

runners are generally wrapped with heavy chains, in addition to the very effective automatic brakes used on all Skagway sleds. This brake consists of two sharp steel prongs bolted underneath the back end of the shafts and pointing downwards. When the horse pulls these are lifted off the ground or snow, but when on a down grade, the sled runs forward on to the shafts and presses the prongs deep into the ice or snow. Another effective form of brake is a dragging hook, bolted loosely through the back end of the runners. Ordinarily it is turned up and rests on top of the runner, but on down grades it is turned down so that the sharp end of the hook sticks into the runners'

AT WORK ON ROAD, 6 MILES FROM SKAGWAY.

track. On this hook the driver will stand, and thus hold almost any load.

On January 20th, 1899, a four horse double bob sled, not being equipped with these brakes, rushed the teams down the steep grade of Porcupine Hill and forced the leaders over the precipice, several hundred feet to the river below.

Mr. Brackett had built his wagon road without authority and there was indeed no time to wait for it, as the United States Government is always several years behind requirements in frontier matters. Very great friction developed between the wagon road company and the packers. The latter drove their pack horses up the frozen bed of the river and thus avoided the new road, but Brackett completed a short piece of road around which it was impossible to go and there he erected his first toll gate. While the struggle was going on in Alaska Brackett was not idle in Washington and secured the passage of a resolution by Congress giving the Secretary of the Interior jurisdiction over Alaskan roads with authority to grant toll privileges. From the Secretary of the Interior Brackett obtained authority to levy a toll of two cents a pound on all freight, ten dollars on each wagon, one dollar on each foot passenger, horse, sheep, dog or other animal. These rates were excessive. This wagon road owing to its heavy grades was none of the best. In building it Mr. Brackett had in many places simply improved the previously existing trail made by the packers themselves. The road was only built for eleven miles, yet without proper investigation, without any comprehension of the actual conditions or of the equities, the privilege was granted to levy prohibitive tolls on all the enormous traffic using this pass. There was not even any possibility of appeal, as no court had any jurisdiction over tolls placed by act of Congress at the discretion of the Secretary of the Interior.

The wagon road however experienced difficulties. The Chilkoot Pass route had not been idle, and from the first as a man pack route it had been preferred to the White Pass because shorter, with better approaches and with more direct water ways to the head of Yukon navigation.

The first improvement on this pass was made when a horse whim was anchored at the summit of Chilkoot, and by this means loads of over a ton could be hauled up on sleds, thus putting this route far ahead of the Skagway trail for heavy freight as well as for single loads. After the first season the horse gave way to a gasoline engine, his last act being to wind his own successor to the top. The gold seekers could drag their own loads on sleds to the foot of the summit,

WAGON ROAD THROUGH THE CUT-OFF.
(Showing the road 3½ miles from the summit of White Pass.)

CUTTING ROCK FOR GRADE ON TUNNEL MOUNTAIN. FISK'S CUT.

there turn them over to the whim, be hauled up, coast down the other side and go on their way rejoicing over the frozen lakes and smooth trail to Bennett..

As early as August, 1897, work was started on the Chilkoot Railroad and Transportation Company, on the Alaska Railroad and Transportation Company and on the Dyea Klondike Transportation Company, all three of them aerial cable trams. These three were ultimately consolidated into the Chilkoot Pass Route and but one line

TUNNEL ON THE WHITE PASS AND YUKON ROUTE.

finished in April, 1898. A large force of men was kept busy all winter, but very little beyond shovelling snow was accomplished from December 10th, 1897, to March 15th, 1898.

Two illustrations show transportation over the Chilkoot, one a March scene, men packing, the whim dragging a heavily loaded sled, the wires overhead; the other a midsummer scene, with a Peterboro canoe swung in mid air. This tram begins nine miles from Dyea at

Cañon City, to which place a wagon road is almost without grade. There are two loops, one from Cañon City to Sheep Camp, four miles, and the other from Sheep Camp over the summit and one quarter mile down the other side. This loop is four and one-quarter miles long. The trolley automatically switches from one loop to the other, and the load s limited to four hundred pounds, generally carried in boxes 40 x 20 x 24 inches.

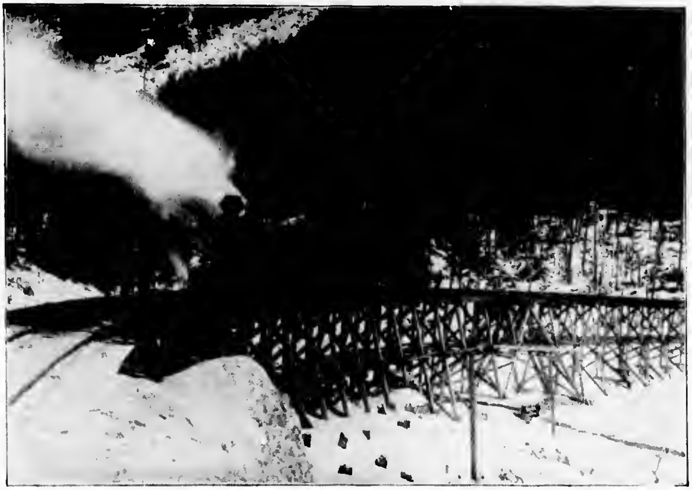
With its level wagon road and these trams in operation the Dyea trail should and could have beaten its rival Skagway as to rates, but it could not handle the freight offered, and there were long delays,

PASSENGER TRAIN LEAVING SKAGWAY FOR THE SUMMIT, FEBRUARY 20, 1899.

charges of favoritism, and enough freight was secured at the Skagway rates of eight cents and up to keep the trams busy, so no reduction was made.

It was nevertheless this Dyea competition which forced a reduction of tolls on the Brackett road from Skagway, the rate being lowered to one cent a pound from Skagway to summit and three-quarters of a cent a pound to those who made their way up the river bed. Some packers also threatened to build a new trail of their own, and one energetic man with over one hundred tons of freight to carry was bribed from so doing by a free pass for his stuff.

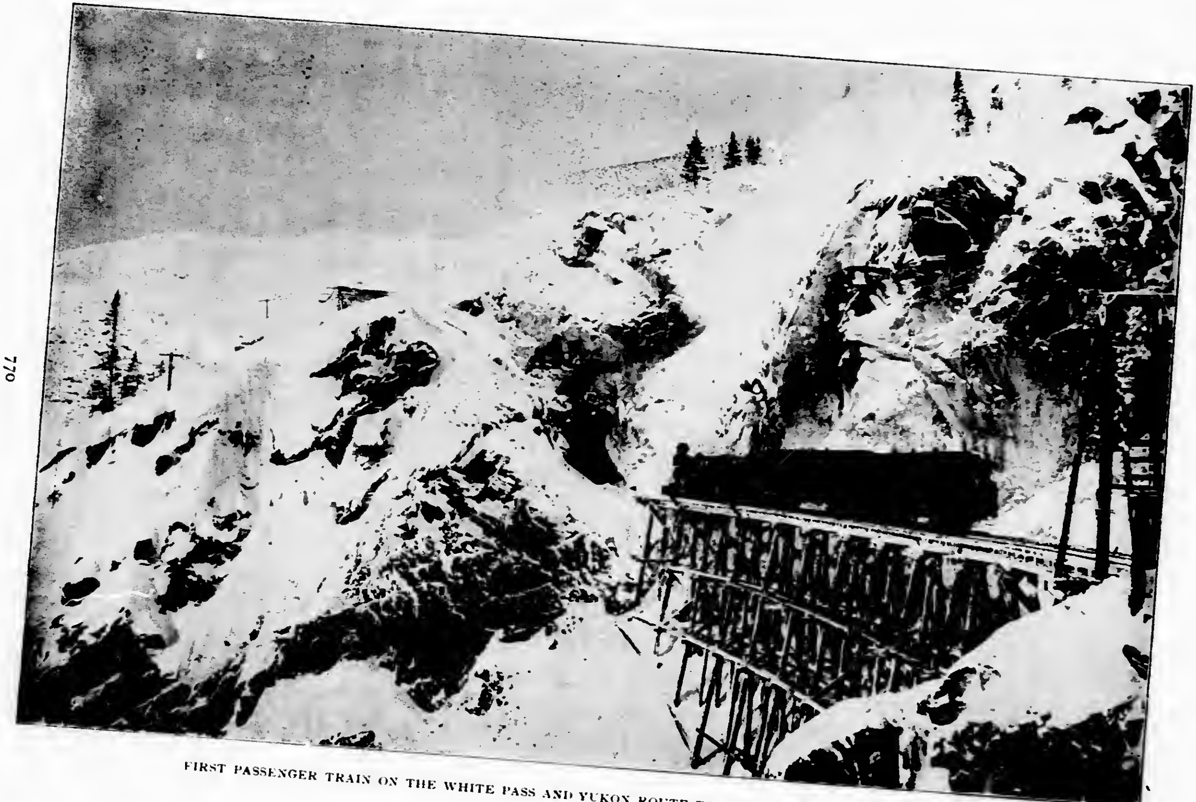
All these transportation, financial and competitive struggles were around and about the passes, the stretch from salt water to lakes. From the head of Lake Bennett down to Dawson, "over the ice" as it is called, the travel in winter is only by dog team, although this year one mule and one horse made the trip out. The Yukon sleds are sixteen inches wide, six feet long, eight inches high and strongly braced. Some are made with a gee pole on the right side, and the driver straddles the rope or chain by which the dogs pull. The preferred sled this year is the basket pattern with plow handles behind to which the driver clings. Four to eight dogs make a team. On a good



FIRST PASSENGER TRAIN OVER WHITE PASS AND YUKON ROUTE.

(Crossing east fork of Skagway River, February 20, 1899.)

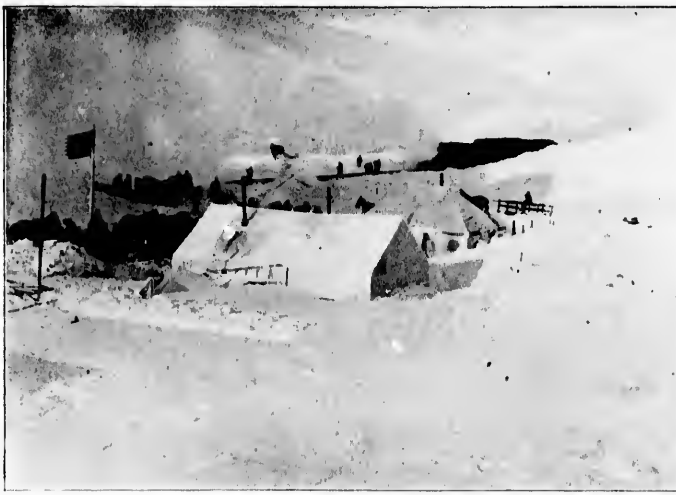
smooth trail the native dogs, "insiders" as they are called, one-quarter, half or even three-quarters wolf, will drag one hundred pounds to the dog. These animals are thickly furred and seem to enjoy extreme cold. They are fed on boiled rice, corn meal and bacon, and will not eat dog biscuit. Outside dogs cannot stand the extreme cold, are not as a rule as good pullers and are miserably unhappy. At Skagway good insiders are worth from fifty to one hundred dollars; outside dogs can be bought for ten to twenty dollars. Up the White Pass and through fresh snow dogs cannot pull fifteen pounds. The extreme difficulties of the White Pass make a dog team trip from Dawson to



FIRST PASSENGER TRAIN ON THE WHITE PASS AND YUKON ROUTE TO THE SUMMIT, FEBRUARY 20, 1899.

Skagway much easier than from Skagway to Dawson, as the dogs are not worn out before they are fairly started.

The rapidity of travel with a good dog team is remarkable. Mr. Thomas Crahan left Dawson City January 28, 1899, at 9:45 o'clock, A. M., and reached Skagway February 12th at 4:45 P. M. He had two in his party and a four dog team to haul the equipments. While on the trail he fed his dogs once in the twenty-four hours, at night, each dog receiving two and a half pounds of food, which consisted of one and a half pounds of thoroughly boiled bacon, three-quarter pound



ARRIVAL OF FIRST PASSENGER TRAIN AT SUMMIT OF WHITE PASS.
(White Pass and Yukon Route, February 20, 1899.)

of well cooked rice and one quarter pound of cooked corn meal. The distance is full six hundred miles but although the dogs averaged more than forty miles a day they were in good condition.

On January 29th I turned over to M. A. Mahoney at Tagish 2,000 pounds of American and Canadian mails. He had four sleds with five fine dogs to each sled, and on each sled he loaded 500 pounds of mail or 100 pounds to each dog. He reached Dawson on February 26th. Returning he left Dawson March 21st at 9 o'clock A. M. with one passenger, the contract being to land him in Skagway in fourteen days, for $700 or to forfeit $100 for every day over that time. He

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pulled into Skagway on the afternoon of March 31st at 5 o'clock, having made the trip in ten days and eight hours, or at the rate of fifty-five miles a day. The team consisted of six huskies (Arctic dogs), and he carried no supplies with him, buying everything for himself and dogs at the bunk houses along the river.

If a dog team has to carry its own food and that of the driver and thirty to forty pounds of blankets, robes and other equipments its radius of travel is very limited. Mahoney's teams could barely have

PASSENGER TRAIN COMING DOWN FROM SUMMIT.
(White Pass and Yukon Route, February 20, 1899.)

reached Dawson carrying their own supplies and no extra freight whatever. It is because there is no food for horses along the trail that these animals or mules are not used. A good horse can drag about two thousand pounds over a fair trail on a food allowance of forty pounds a day. He can travel through fresh snow that would stall any dog team, but the latter can travel over crusted snow that would break under horses. Wherever the food supply permits freighting is done with horses and mule teams, as between Skagway and Tagish one hundred miles towards Dawson, but for light and rapid

DOG TEAM WITH "OUTSIDE" DOGS

running from place to place dogs are preferred. Each dog is as much trouble to care for and more trouble to feed than a horse.

During the summer of 1898 pack trains were in full action over the White Pass and the trams over the Chilkoot, and the healthy rivalry between them prevented too great extortion. About this stage of development civilized modes of transportation may be said to have overtaken in convenience and cheapness the primitive savage methods. It was just about as cheap to send goods over in July, 1898 as in July,

DOG TEAM WITH "INSIDE" DOGS.

1897, before the rush had begun, but a new competitor now appeared in the field that was for all time to settle the supremacy of Skagway. This new comer was an international railroad, whose survey ran twenty miles through American territory from tide water at Skagway to the summit of the pass and the international boundary, and thence three hundred and twenty-five miles to Fort Selkirk, on the Yukon River, below White Horse Rapids and other dangers and but one hundred and seventy-four miles above Dawson.

This railroad is now in operation to the summit of the White Pass and much of the grading is done for twenty miles more to Lake Bennett. If it should stop here the aerial tram could still prove a dangerous rival, because the capital charges are so much less, operating expenses less, and its capacity could be easily increased to one hundred tons a day. The difficulty has been, not in transporting but in handling the freight at the two termini, where accumulations almost inextricable confusion and long delays.

Freight rates from Dyea to Bennett by way of the tram are, in March, 1899, three cents and a half a pound, and the same by the railroad. From the summit the railroad company has opened one of the best snow roads in the world. It was made by sending team after team through the snow drifts, packing down the snow until the hard bed rose above the level of the snow field and was thus swept clear by the wind. It is staked with saplings on both sides and can be followed in the darkest night or severest storm. Log Cabin, the custom house and mounted police station, is twelve miles from the summit and boundary, and is also at the end of the White Pass series of lakes, Summit, Middle and Shallow. The former trail from Log Cabin to Bennett was difficult both winter and summer, as it passed over a high and rocky divide, winding steeply up and down along the slopes. The new railroad trail was opened by cutting down trees, grubbing out stumps, blasting away boulders, packing down snow drifts, and is a beautiful and model road.

Freight carried to the summit by the railroad is there transferred to double bob four-horse sleds with wide runners and each such sled can be loaded with half a ton. Three or four of the freighting firms have formed a through freight line in connection with the railroad and through bills of lading are issued. A big freighters' camp is established near Log Cabin half way between the summit and Bennett and each morning except Sunday (for the mounted police will not allow freighting on Sunday), teams start in both directions, thus giving the horses ten miles of load down grade, and ten miles empty.

The railroad hauls to the summit of the pass for one cent a pound or one-half of the toll authorized by Secretary Bliss for the privilege of dragging one's own freight over the toll road. The freighters carry for two cents a pound from the summit to Bennett. The expenses of the round trip are about $20; receipts under best conditions, which are the exception, may amount to $200. If there were a sufficient quantity of freight there would be a bonanza in the business for a freighter with ten or more four-horse teams. As it is, the freighters alternate between excessive earnings and inability to pay their teamsters or other bills, none of them being organizations with large capital. The snow trail is not in good condition until February and begins to soften the latter part of April. The lakes are deep and well warmed during the long summer days, but in early winter the first sharp frost covers them with a thin crust of ice. On this a blanket of snow falls, which delays further freezing and presses the thin ice below the water, so that beneath the snow there is oftentimes slush two or three feet deep. Horses and men break through the upper snow, and the resulting wetting is dangerous with the thermometer 20° or more more below zero and the wind blowing.

The railroad is a great example of engineering and constructive skill. It would have been a great feat to grade forty miles and build twenty over a similar rocky pass under the most favorable conditions, but this work was done in seven months, in a region without laborers, one thousand miles from supplies, three to four thousand miles from rolling mills and car shops, and against fearful climatic conditions. Day after day fresh snow drifted over the road bed and day after day it had to be shovelled off, sometimes to a depth of six to eight feet. Supplies, bridge timbers, fire wood even, for the enormous camps had to be carried over almost impassable snow trails. There were days when men could not work on account of the storms or the intense cold, but they had to be fed and warmed.

The road begins on deep water, a mile from Skagway. A shelf is blasted along the face of the cliff, and this beginning is typical of the twenty miles to the summit. High above the valley, on a maximum grade almost the whole distance, the road sweeps around two different forks of the Skagway river, adding six miles to its length but making it possible to reach the summit of 2,885 feet without switch back. It has however been questioned by able engineers whether this was the best location. The strata dip from east to west, and the other side of the valley would give a stable instead of unstable ledge. The west side is also the sunny and protected side, freer from ice and snow, but on this side a switch back could not have been avoided. The road is narrow gauge, but the road bed and construction are adapted for broad gauge. It is one of the most solid and substantial road beds in America. The illustrations show the character of the work.

This railroad has already made Skagway the coming city of Alaska, and thus ended the race between the older Indian Dyea and the younger American city. It will do more. It will change the freight route to Dawson from an up-river to a down-river movement. Even this year barges to carry twenty tons can be bought at Bennett for $300. or, competent men will contract to deliver freight with their own barges for four cents a pound to Dawson. Contracts are now being made from Seattle and Tacoma, from Victoria and Vancouver to Dawson via the White Pass for $160 a ton, or eight cents a pound. This through rate may fall to six cents when the railroad reaches Bennett. Even eight cents is lower than the rates hitherto charged by the long mouth-of-the-Yukon route. Passenger travel will all take the shorter road and freight will inevitably follow passengers.

Another and more serious result of the completion of this railroad line to the summit is the inevitable diversion of a trade thus far almost exclusively in American hands to Canadian points and houses. Last year, the high duties imposed by the Canadians were fully off-set by the extortionate charges made for bonding and convoying Canadian goods through the American strip. This year the railroad furnishes the bond for a nominal charge and ships Canadian goods in bonded cars, delivering either at summit of pass, in British territory, or at Log Cabin or Bennett. It is not possible for American merchants to stand thirty per cent. duty and also the Canadian custom house delays, annoyances and extortions at Log Cabin. Last year Americans made these annoyances an off-set for a thirty per cent. duty, but hereafter the Canadians are protected by both duty and annoyances, and even if American meats and hardware are taken to the Yukon they will enter Canada elsewhere and go through in bond.

Happily however this possible loss of Klondike trade will be more than offset by the very sensational discoveries of gold made near the shores of Bering Sea, at Golovin Bay and Cape Nome. The climate at these points is comparatively mild, they are most easily accessible by boat for five months in the year and the region is described by those who know it as an Arctic paradise.

The Klondike madness is past. In two short years the savage trail with a dozen Indian packers has been replaced with transportation facilities with a capacity exceeding the requirements of the

Yukon basin for years to come. This excess will stimulate further developments. The country offers the widest field, for it is inexhaustibly rich.

Nowhere else as on this gold trail has the genius of engineers wrought such beneficient and rapid change in so short a time.

The evolution from hunter's path to railroad, through the intermediate steps of pilgrim path, mule trail, wagon road, was two thousand years in making in the Saint Gotthard Pass, the great high road between the most civilized portion of the ancient world and of the mediæval world, the road that led from the gloomy north to the rich south, rich in treasures, in food, in spiritual tradition and comfort.

Two short years as against two thousand have evolved the same succession of improvements on the highway over the White Pass back to a north, hideous in climate, without history, without sentiment, without food, but abounding in gold.

The author desires to acknowledge the permission given to him by Messrs. Winter & Pond, of Juneau, Alaska; Mr. E. A. Hegg, of Skagway, Alaska; by the White Pass and Yukon Route Railway and by the Chilkoot Pass Railway, for the use of the copyrighted photographs from which the illustrations have been made. None of these illustrations may be reproduced without the permission of the owners of the copyrights.