

OPENING THE WHITE PASS AND YUKON RAILWAY.
BY W. M. SHEPHERD.

The most important incident of the season relative to the development of the far northern gold fields was the ceremony attending the running of the first train of the Yukon and White Pass route from Skagway to the summit of the pass. The affair was made the occasion of international interest, the Canadian officials and the officers of the railroad meeting at the summit and fraternizing amid speechmaking, banqueting, and the drinking of champagne. The banqueting hall was a long tent, and though the atmosphere outside was at a temperature of 45 degrees below zero, the cold did not in any manner cool the ardor of the hosts and their guests.

The building of this road from Alaska into British Columbia and down the Yukon into Northwest Territory is the most important development that has yet transpired in the gold regions of the North. Three years ago, when the wonderful riches of the Klondike were discovered, about 60,000 men hurried from all over the civilized world to try their fortunes at digging for the yellow stuff. American and English promoters sent engineers to Skagway and Dyea and also to Pyramid Harbor to run preliminary surveys looking to the establishment of a feasible route for a railroad from tidewater over the passes to the interior. Several famous engineers were among the number, but all, save one, reported that it would be impossible to build a road over any of the passes. This single exception was E. C. Hawkins, who is now chief engineer and general manager of the present Alaskan road.

The great engineering feat was to build the road from tidewater at Skagway to the summit of White Pass. The work has been accomplished and two daily trains are operated, the grade being less than four per cent. Two thousand men have been employed all winter on the grade, and now that the weather is moderating, the force is to be increased. The construction of the road from the summit of the pass to Fort Selkirk is being vigorously prosecuted, but the hardest portion of the task has already been achieved. The trains operating between Skagway and the summit of the pass are hauling large quantities of freight and outfits bound for interior points.

Twenty-three miles of road has now been constructed and is in operation. This carries the line to a point nearly three and a half miles beyond the summit of White Pass, the distance from the summit to Skagway being 19.6 miles. The elevation of the track at the summit of White Pass is 2,865 feet, and its summit is the international boundary between Alaska and British Columbia. The road at the summit skirts the face of the steep side of the mountain, where, in order to avoid heavy rock excavation, it was necessary to support the track on a trestle stepped into the side of the bluff. The road has now eight locomotives, six passenger coaches, a baggage car and ten freight cars; ten stock cars and a number of flat cars are being constructed. New wharves are being built at Skagway, and trains are now operating almost from the very sides of steamers, thus reducing the cost of handling freight to a minimum. The company has a large warehouse at Skagway, and others will be constructed at various points along the line.

The excitement incident to the recent difficulties with Spain and the demand for news relative to the war completely overshadowed popular interest in Alaskan affairs; but the labor of constructing the road has been prosecuted with energy. The road is owned and controlled by English capital held at London but represented in America.

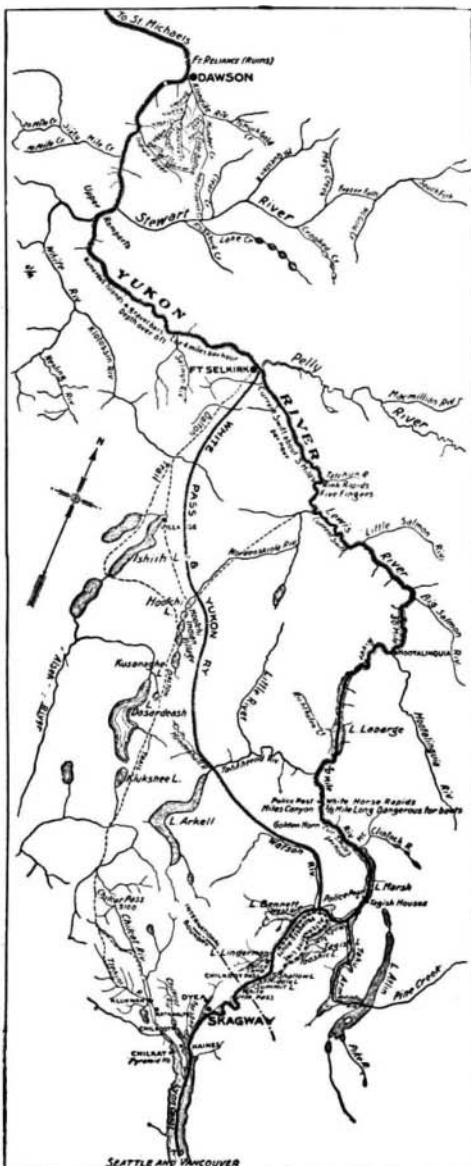
From a scenic standpoint a trip over White Pass in a modern upholstered railway coach has no parallel; the rugged grandeur of the rocky defiles, the jutting crags around which the railroad winds, the tunnels through which it cuts, the hundreds of waterfalls thousands of feet below and above the snow-tipped summits straining to penetrate the sky, present a scene that thrills the senses. When it is considered that this road has been built in a non-producing country, a thousand miles from the nearest railroad—transcontinental or otherwise—a thousand miles from the nearest telegraph office, and four thousand miles from the base of supply an idea of the achievement can be imagined. The construction of this mountain road has been compared with the building of the Trans-Andean line in Peru, but engineers familiar with the conditions confronting both undertakings declare that the White Pass line is the more interesting from an engineering point of view. Mr. H. M. McCartney, an engineer of ability, now living in Salt Lake City, says that the success attending the construction of the Alaskan venture is indeed wonderful. Mr. McCartney has been connected with the building of several great roads in this country and was also an engineer of construction on the Trans-Andean line. For a short time he was associated as an engineer with the White Pass route, but was compelled to return to Salt Lake City to look after important private affairs.

There is every expectation that the road will be completed and open for operation to Lake Bennett by the first of June. Traffic over this road will meet steam-

boat navigation on the lake, which will transport freight and passengers through the chain of lakes and down the Yukon River.

Our map does not show the section of road completed, but gives an idea of the chain of lakes and rivers, the location of various passes, and also the projected railway to Fort Selkirk from Lake Bennett. We understand from reliable sources that this railroad is to be built at once and that men have already started for the scene of operations.

The promoters of the White Pass and Yukon Route have in view not only the development of the great mineral resources of Alaska and the northern British possessions, but the development of the agricultural and stock-raising regions adjacent. In this hemisphere the northern possessions are in large measure still unexplored, while on the other hemisphere in a similar latitude great commonwealths are supported. Skagway is further south than either St. Petersburg or Christiania, and the winter climate is not nearly so bitter as in these European cities. It is the conviction of people having interests in Alaska that ten years hence the agricultural resources of Alaska alone will be capable of supporting a great people while the development



MAP OF THE YUKON RIVER AND RAILWAY.

of the mines will yield untold millions in wealth. It is on all these contingencies that this far northern railroad is counting.

Improvements at Dry Tortugas.

Rear-Admiral Bradford, Chief of the Bureau of Equipment, U. S. N., has just returned to Washington from a trip to Key West and the Dry Tortugas, where he went to inspect the important naval works under the charge of his bureau which are now in progress. Great steel coalsheds are now being built on the Tortugas, equipped with the most modern machinery for the rapid handling of large quantities of coal, and it is proposed to store 40,000 tons at this point. The distilling plant is also nearly finished, and it will have a capacity of 60,000 gallons of fresh water per day. When all these works are completed, the Dry Tortugas will be capable of caring for any number of naval vessels, and it is the only harbor between Chesapeake Bay on the north and the mouth of the Rio Grande River on the south and west where battleships can find shelter in case of need.

Another Railway for the Soudan.

The British government is considering, according to The Daily Mail, a scheme for a railway through the eastern Soudan, probably from Khartoum, on the Nile, to Suakim, on the Red Sea, by way of Kassala, in Nubia, so as to secure Abyssinian traffic. Thirty-six engines from the Uganda line are being built in the United States.

Science Notes.

More wharves are recommended by the American military authorities at Havana. The chief engineer of Havana Harbor suggests six new piers near the general wharf and the improvement of the channel. The present docks are overcrowded and much lightering is necessary.

Many Roman remains, including a colossal head of Marcus Aurelius, have been dug up at Carthage by the Director of Antiquities in Tunisia, M. Gauckler. He seems to have reached the Roman Carthage founded by Gracchus, but not to have struck the Phœnician city as yet.

It is said that Prof. R. W. Wood, of the University of Wisconsin, has a new method of photographing in natural colors. Prof. Wood reproduced the colors by diffraction, and though, at present, the production of the first finished pictures is somewhat tedious, duplicates can be printed as easily as ordinary photographs are made. The pictures are on glass and are colorless, and are almost invisible when viewed in ordinary light. When placed in a viewing apparatus consisting of a convex lens on a light frame, they show the colors of nature with great brilliancy.

The Berlin Thiergarten has long been noted for its trees. A few thousand have now been cut down, leaving many acres of the ground bare. The excuse was made that it left the ground damp and unhealthy and served as a hiding place for criminals. It is believed, however, that the Kaiser's taste for formal landscape gardening and statues is the real cause of the vandalism. While Berlin is a very handsome city, it appears rather bare compared with other great capitals, and the removal of the trees from the Thiergarten will certainly not improve its appearance.

The Medical News recently gave some interesting particulars of the earliest fees for medical treatment of which there is record. Herodotus states that Darius gave the slave Democedes two pairs of gold fetters. The usual fees in Greece at that time were very small, about sixteen cents in our money being the equivalent for medical treatment, and for the kind of treatment they received, this was undoubtedly ample pay. Yet there were notable exceptions, as one King Antiochus paid \$150,000 for medical treatment, and later, when the Emperor Claudian paid his physician \$20,000 per annum. This was twice the income of the eminent physicians of that time.

Mr. Warwick Wroth has written an interesting book on the London Pleasure Gardens. In the history of these places he finds a strong family resemblance. They usually began as tea gardens, with a bowling green. Tea, coffee, milk, etc., were the chief attractions. As business prospered other amusements were added, and equestrian performances were given in the more important gardens. The manager of one of them kept on the grounds a fine collection of rattlesnakes. It was not unusual for the owner of a successful tavern to discover on his premises a mineral spring, of which a favorable analysis was easily obtained. This accounts for some of the famous springs and wells in or near London, as Bagnigge Wells, Hampstead Spa, and Tunbridge Wells.

As a result of the recent blizzard, the New York Telephone Company was, on February 13, deprived of the services of nearly half of its operators, on account of their being snowbound at their homes. As the day was a holiday, the service was not materially affected, as the calls upon the exchanges were light, but as the storm continued, the telephone officials were anxious to keep their operators near the exchanges, and they telephoned to various hotels to secure accommodations for over two hundred girls. Accommodations were secured with difficulty, but finally all were accommodated. The company paid for dinner, lodging, and breakfast for the girls. The order for the girls to go to the hotels was not compulsory, but they were very glad to avoid a trip through the biting storm. The next day the telephone service was unimpaired, and it was about the only means of communication in the city which was not tied up, and the drafts upon the service were enormous.

Two hundred years ago Cyrano de Bergerac appears to have anticipated in his writings one of the most important inventions of modern times—the electric light; although, of course, he could not have known of it. Still, however, the coincidence is interesting. He says, "The old landlord brought in crystals full of glowworms to light the parlor, but seeing those fiery little insects lose much of their light when they are not fresh gathered, these, which were ten days old, had hardly any at all. My spirit stayed not until the company should complain of it, but went up to his chamber and came immediately back again with two bowls of fire so sparkling that all wondered he burnt not his fingers. 'These incombustible tapers,' said he, 'will serve us better than your wick of worms. They are rays of the sun which I have purged from their heats; otherwise the corrosive quality of their fire would have dazzled and offended your eyes. I have fixed their light and inclosed it within these transparent bowls.'"

SCIENTIFIC AMERICAN

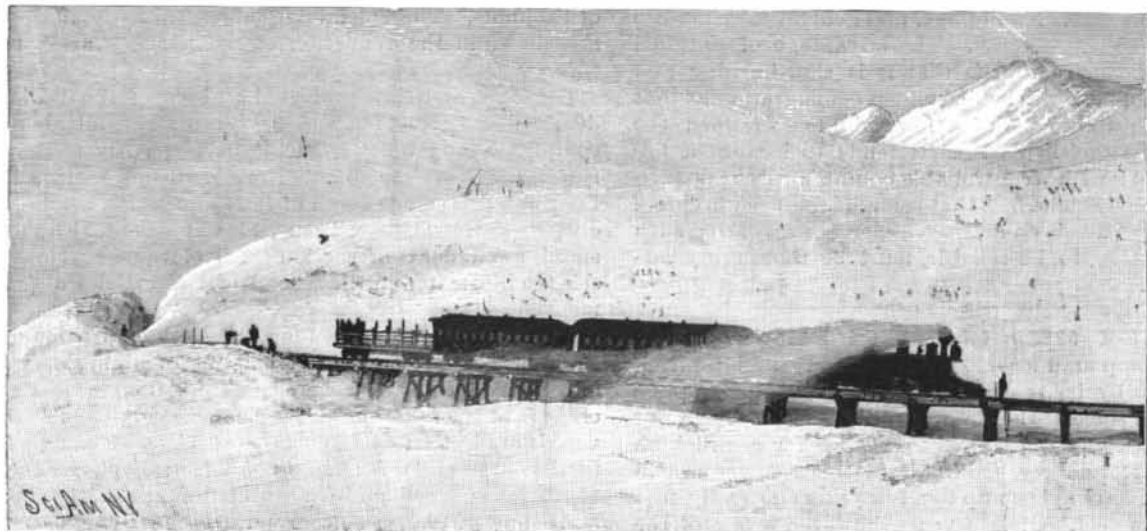
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First Passenger Train Returning from the Summit.



Laborers Keeping the Track Open.



Passengers Viewing Scenery from Porcupine Hill, February 20, 1899.



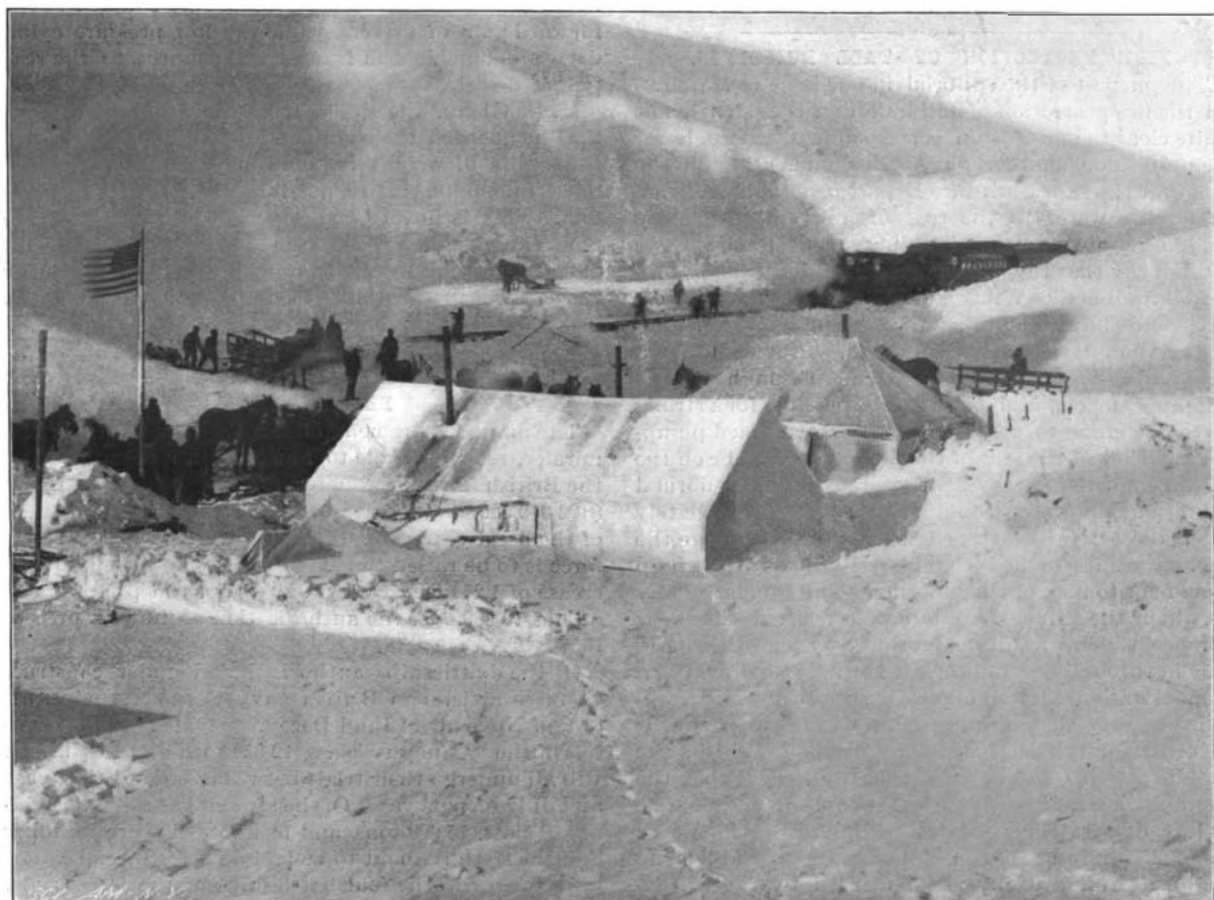
Railroad and Canadian Mounted Police Officials.



Summit Lake, August, 1898.



Sledge Traveling in the Klondike.



Arrival of the First Passenger Train on the Summit of White Pass, February 20, 1899.

THE FIRST RAILWAY TO THE KLONDIKE—THE WHITE PASS AND YUKON RAILWAY.—[See page 233.]