

UP A GRADE. Building A Railway Up the Vertical Cliffs.

Since the organization of the Manitou & Pike's Peak Railway Company, in the fall of 1889, for the construction of a railway nine miles long from Manitou to the old signal station on Pike's Peak, says the Engineering News, nearly one thousand men have been constantly employed. The road is built on the Abt system, and as regards grades surmounted is, perhaps, the steepest and most important Abt line in the world. The exact length is 46,158 feet, or very nearly eight and three-fourths miles. The altitude of its station at Manitou is 6,600 feet; at the summit it is nearly 14,200 feet above sea level, the total ascent being 7,600 feet or an average 846 feet per mile. The maximum grade is 25 per cent., over 22 per cent. of the line having a grade of from 23 1/2 to 25 per cent. The line is tolerably crooked, even for an adhesion road, and has many sharp curves. Of straight line there is 23,378 feet, and of curved 18,477 feet, about 39 per cent. of the line being on curves. The sharpest curves are 16 degrees, of which there are many. The roadbed foundations are firmly secured, and further protected and sustained by wide embankments wherever practicable. There are four iron bridges—two of twenty feet and two of thirty feet span, resting on masonry abutments.

At intervals of 200 to 600 or 1,000 feet, depending on the grade, anchorages are made by straps fastened to the ties and carried up grade to eyebolts set in solid blocks of masonry. As the whole track is tied together, not only by the spiking, but by the extra fastenings of the rack rail, it is thought that these anchorages will be amply sufficient to guard against the movement of any part down grade. The rack rails consist of two rack bars set side by side in chairs. Each section is eighty inches long, and the chairs are forty inches apart on each second tie, the rack bars breaking joint according to the usual Abt practice.

Three locomotives on the Abt system, each weighing twenty-five tons, have been built for the line. The cab and boiler are much like those of any other steam engine, but the intricate machinery underneath is wholly unlike that of an ordinary locomotive. The wheels bearing on the rails are merely bearing wheels, not drivers, the plant differing in this respect from some other Abt engines which work either by adhesion or rack indifferently. The Pike's Peak line being all on rack grades, this double provision became superfluous. The engine is propelled by three sets of gearing directly over the center of the track. On these are six pinions with small teeth, which fit into the two rack rails running along the center of the track. The propelling power is applied directly to a drum above the two rear pinions. The front pinions are moved by a connecting rod running from the second one. The brake apparatus is especially powerful.

On either side of the pinions is a corrugated surface which a stream brake presses against with tremendous force. The engine is also fitted with hand-brakes and the Le Chatelier water brake, by which the cylinders act as brakes, and which is so effectively and largely used on mountain grades. One engine will push two cars weighing forty-two thousand pounds loaded. The average speed will be nine miles an hour. The cars are not tilted, but the seats are so arranged as to give the passengers a level footing. The engine, instead of drawing, pushes the cars. The cars can also be let down hill independently of the engine if necessary.

From its Manitou station the line runs up apparently vertical cliffs through Engelman canyon until small but beautiful grass-covered parks are reached. About one and one-half miles from Manitou, at Artist Glen, magnificent views are obtained of the surrounding country, including the Garden of the Gods and the vast plains stretching east. Sharp grades are first encountered on the second mile from Manitou station. All work above timber line for two and one-half miles is largely in embankment to avoid difficulty from snow. Below the timber line it is largely in excavation, as owing to the steepness of the mountain sides it was difficult to build embankments.

"The Bad Lands."

"The Bad Lands" of Dakota, to which the Indians have fled for refuge from the tyranny of the Indian agents and the demoralizing idleness and hunger of the reservations, form one of the most remarkable regions to be found in the plains of the great West. The soil is a white, soapy clay, upon which there is little or no vegetation, and which has been cut and carved by the rainfall into a vast labyrinth of fantastic ravines, gulches, pyramids, bluffs and pinnacles, all on a rather small scale. The water of the region is more or less impure, travel over it is almost impossible, and none but an Indian can find his way among the mazes of its water tracks. In the past, with the single exception of the fight against the Modocs, seventeen years ago in the Lava Beds, the Indian campaigns of the United States have been concluded successfully, more by hard riding than by hard fighting. The Indian of the plains fights with his horse's endurance and with his head, as well as with his weapons, and some of the most remarkable marches men have ever made have been made by hostile Indians. The Sioux are now probably too poor to fight on horseback, and they have learned that the white man's telegraph lines and railways are swifter than their fastest ponies. The difference in the position and tactics of the Indians has made possible almost for the first time in an Indian war the use of artillery, but if the Indians are attacked in their muddy fastnesses, neither revolving cannon nor shrapnel shell will prevent the battle from being a bloody one.

Duck Shooting.

A party were gathered in one of the hotels, a few evenings since, talking about various sporting seasons on the lake and stream, when the chat drifted round till topic of duck shooting came up, and the following incident was related. "I," said one of the oldest members of the group, "was out one morning on the banks of Clear Lake, near Mace's Bay, Charlotte Co., looking for ducks. I had with me a large Newfoundland dog about 2 years old. Seeing a fine flock of black duck coming in towards the shore, I got down, behind a small bush, close to the water, and fearing that the dog would alarm the game, I tied my handkerchief around his neck and to one of my legs. As the ducks got closer, he got very uneasy, and I had to administer several cuffs to keep him quiet. His ears were erect, and his eyes blazing. When the game came within range, I gave him a good kick, pulled the trigger, and the next I knew he was in the water going for the ducks and dragging me behind. Had the knot held a few seconds longer, this chair would be vacant. I have never gone tandem with a Newfoundland since especially so close to the water."—Gleaner.

While the meeting of the Board of Guardians of Clonakilty, Ire., was in progress on Friday a mob of about one hundred laborers from the sea coast neighborhoods suddenly broke in upon the Board, heedless of the remonstrances and show of resistance made by the police. The poor laborers insisted on having a hearing. The guardians consented to listen to the spokesman of the party. The latter said they and their families were literally starving. They had individually not been able to earn a shilling in six months, and they demanded work. They told the guardians they were driven to desperation by the suffering they and their families endured. The guardians promised to do their utmost to relieve the distress. The means of the guardians are limited.

Thirty years ago Denver, Col., consisted of a miners' camp and one saloon; now it is talking about the time in the near future when it will be a bigger city than Chicago. It covers an area of fifteen miles square, and has a population of nearly 150,000.

The snouts of eighty wild cats killed within a month in Halifax county have been deposited with the county clerk of that county. The beasts are more furious this year than usual. A pack attacked a cow. An attempt was made by a farm hand to frighten the animals away but they turned upon the man and would have killed him had it not been for several persons who ran to the man's assistance with guns.

Beauty of Jamaica.

It would be practically impossible to describe in detail the inexhaustible beauties of the island. A vivid word-painting of that fern clad gorge through which for some miles the road winds down to the exquisitely situated village of Ocho Rios, nestled around the sandy shores of a small bay, whose waters, dancing in the sunshine, are colored as only waters are with these tropic seas, would read like a glimpse of paradise; and there is hardly a spot in the island where the eye will not rest upon some view that fills it with a sense of the fullness of beauty. Here, within easy reach of England, is a British island lovely as any in the world, with a climate peculiarly suited for invalids suffering from nervous or pulmonary complaints, with a varied and fertile soil that will give ample return for careful cultivation, and with a ready market for its products in Britain, Canada or the United States.

The Sabbath.

It is impossible to estimate the blessed effect produced upon a nation's health and happiness when, on the return of each Sunday, millions are thus sent free from toil, when the ledger is closed upon the desk, when the hammer rests upon the anvil and the wheel in the factory, when the mine sends forth its crowds into the light of glory of the new-born day, and when men can rest their wearied frames, or tread the green earth and hoary mountain and breathe the fresh air, and look calmly upon the blue sky overhead, or listen to the sounding stream or beating sea-wave, and when the weary dumb cattle partake of the universal blessing.—Dr. McLeod.

Remains of a dwarf race of Indians were recently found in some hillocks opened near Victoria, B. C. The bodies were found doubled in a sitting posture, a custom followed by ancient Indian tribes along the Pacific coast. Similar discoveries have been made at Cadboro' Bay.

Awful destruction is said to exist in Eastern Colorado, owing to the lack of rain. Many people are dying of starvation and aid is urgently needed.

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The following are the most important items of the THIRTIETH ANNUAL STATEMENT OF THE EQUITABLE LIFE ASSURANCE SOCIETY.

Table with 2 columns: Item and Amount. Includes Outstanding Assurance Dec. 31, 1889, New Assurance Written in 1889, Premium Income in 1889, Interest and Other Income, Total Income, Payments to Policy holders, Assets, Liabilities (4 per cent.), Surplus, Ratio of Assets to Liabilities.

Of the Life Assurance Companies of the world THE EQUITABLE has for ten years transacted the largest annual new business (in 1889, \$175,264,100; for ten years held the largest 4 per cent. surplus (December, 1889, \$22,821,074); for four years held the largest outstanding business (December, 1889, \$631,016,666); while its superior financial strength is shown by its high ratio of Assets to Liabilities, 127 per cent.

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