

with its growth in other directions, & our operating officers have at last found time to take breath & turn their attention toward putting their roads into condition, not simply to carry the traffic somehow, but to carry it economically. While the overbuilding of the past has caused a competition which has made strict economy necessary, most of our trunk lines have an assured traffic of such volume that they have been able of late years to appropriate enough money to give their track that solidity & permanency which, although involving considerable outlay at first, insure from future decreased cost of repair, a true saving in the long run. Poor track is altogether too expensive a luxury for railways to afford nowadays.

Suppose we have a track where some of the rails, through lack of proper attention, or through being too light for their load, are half an inch low at the joints. Every pound that rolls over those joints falls half an inch, & has to be lifted out of the depression; & when we note that the hundreds of tons that pass over these rails move at great speed we begin to appreciate the mightiness of the destructive forces at work. Consider, too, the shocks & oscillations that are caused to engines & cars by running over track that is uneven in surface or alignment, or which yields excessively either vertically or horizontally under their weight; & when discomfort to passengers, loss of speed, & liability to accident are added in, we find a total which rises up & demands a roadway that shall be as near perfection as possible, as regards safety, solidity & smoothness.

We can almost imagine what the various parts of some of this oldtime bad track—which, of course, does not exist on "our road" any more—might say if they were endowed with speech, & hear some poor old rail exclaim: "Scrap me, if here isn't another of those 'hogs' coming." Bang! & 20,000 lbs. hits him on his battered head.

"What did you let that fellow come on to me so hard for?" he demands of the angle bars that connect him to his neighbor.

"We can't help it," said the outside plate. "My mate is cracked in the middle, & these miserable bolts that are supposed to hold us together are so loose that we can't help you out any."

"You needn't blame us," objected the bolts. "That track-walker didn't half tighten us up this morning, & besides, we can't do everything. Why don't you lay it to the spikes?"

"Who's kicking about us?" asked a number of those rusty individuals. "Here our heads are most cut off by your old flange, & how do you expect us to keep snug against you in such rotten ties as these?"

The oldest tie took it upon himself to answer: "See here! I've been lying in this mud for six years, & I've been almost adzed in two on account of you fellows' loose ways. Besides, I'm only a red oak, & ought never to have been here at all. I'd done pretty well, though, if I had had good clean ballast under me."

"Well," said the rail, "I only hope that the next one of those fellows that goes over us will break a spring-hanger & have to lose half an hour getting blocked up."

It is to prevent all these previously described evil effects of bad track, to render impossible the recurrence of any such imaginary conversations as the foregoing, & to hold its engineering & maintenance-of-way officers & men to the high standards set for them, that the N.Y.C. & H.R.R. Co., in common with other large roads, has instituted & maintained its system of annual track inspection. The inspection this year was made between Oct. 15 & 20, & was the most thorough ever undertaken. Each division of the system is divided for maintenance-of-way purposes into from 2 to 4 sub-divisions, comprising from 150 to 200 miles of track, each being in charge of

a Supervisor of Tracks, who reports to the Division Engineer, & he in turn to the Chief Engineer, the latter being assisted by the Engineer of Track. The sub-divisions are composed of sections of varying length, some covering a yard, some as many as 6 miles of single-track main line, & each in charge of a section foreman, who has his force of track laborers. To all these foremen & supervisors the inspection is the great event of the year, as on its results depend not only their prestige with their superiors & associates, but dollars & cents; for excellence in riding qualities & appearance of the track under their charge are rewarded by substantial prizes. To the section foreman whose section is the best on the sub-division \$3 a month extra pay for the next year is awarded, & if he is so successful as to have the best on the division, this is increased to \$5 a month. The supervisor whose sub-division is the best on his division gets \$10 a month increase for the ensuing year, and should he achieve the distinction of having the best sub-division on the whole system his prize amounts to \$15 a month for 12 months.

The principal lines are inspected by the Chief Engineer, Engineer of Track, the Division Engineers, & by the supervisors on their divisions, but in marking the quality of the roadbed, no officer's marking is allowed to count while on his own territory. The branch lines are inspected by committees of supervisors from other divisions. For the inspection the party uses a special type of car, which has one end made as large as the bridges & tunnels will allow, & forming a great window behind which the inspecting committee sits on seats arranged in tiers. This car is pushed ahead of a locomotive, & an unobstructed view is thus obtained of each portion of the road as it is gone over. As each section is reached its number is called off & every inspector takes careful note of the alignment of the tracks, their surface, the drainage of the roadbed & its neatness, which latter includes adherence to the established standards of track work. As the practised eye of the track man glances along the roadway he can easily detect any irregularity in the alignment of a curve, any swing in a tangent, or sag, or too abrupt change in the surface of the track. He notes whether or not the ties are properly laid & spaced, whether the ditches are dug so as to carry off the water, the ballast clean, free from weeds, & dressed to proper shape, & the signs & crossings built & set according to established standard. He can tell from the oscillation or jolting of the moving car, whether or not the outer rail of a curve is properly elevated, detect any low joints, improper tamping of ties, or gauging of track. All these & many other defects are as apparent to him, if they are present, as dust on the furnishings of a room to the thrifty housewife. He records his observations on a blank form, using as his guide in grading the different sections the following table, which explains itself:

SYSTEM OF MARKING.

	Line.	Sur- face.	Drain- age.	Neat- ness.	
Perfect .....	30	30	20	20	100
Very good .....	25	25	17	17	84
Good .....	22	22	15	15	74
Fair .....	17	17	10	10	54
Poor .....	10	10	5	5	30
Bad .....	7	7	3	3	20
Dangerous .....	0	0	0	0	0

If a section of track were perfect in every respect, which of course never occurs, it would be marked 100; if it totals to 84, it must be very good track, & so on. These tabulated markings are all sent to the Chief Engineer's office, where they are averaged & consolidated, & everyone goes home to his division to await the announcement of the award, & to plan out his work to win next year "or bust." This inspection is supplemented later in the year, as a rule, by that

made by Dudley's Dynagraph car. It is to be hoped that the general public, as well as railway men will, ere long, realize what an important effect such a system of inspection as this, must have on the esprit de corps & efficiency of the force that works under it; & as they share in its good results, may they occasionally have a kindly thought for "the man with the pick."—Railroad Men.

## The White Pass and Yukon Route.

By George H. Worcester.

After steaming about a thousand miles north from Puget Sound, during most of which trip friendly islands afford shelter from ocean's rude blasts, you awake one morning in the Lynn Canal, this designation having for some unknown reason been given to an arm of the sea projecting inland between high mountains. Rather than any canal familiar to us, the Suez, "Soo," Erie, or even the Mott Haven Canal, it much more resembles a Norwegian fjord or a somewhat enlarged edition of the dark Saguenay River. Farther along it forks into the Chilkat & Chilkoot Inlets, following the latter of which you come to other junction points, & finally a small one, each arm being really a kind of bay. At the head of these two termini stand what were but a couple of years or so ago rival towns, Dyea & Skagway. Behind each town is a pass over the mountains to the gold & mosquito infested lands beyond, Chilkoot Pass behind Dyea being on the shorter route, while White Pass behind Skagway, though the route is a trifle longer, is 600 ft. lower. Dyea rather had the bulge on her neighbor in business until the construction of the railway, which naturally selecting the pass of least elevation, began to make her, in spite of the aid of an aerial tramway, suffer from galloping dry rot. Several plans have been evolved on paper to build an opposition line through Chilkoot Pass, but so far they may all safely be characterized as wind. The papers also announce the construction of a line between Skagway & Dyea, a distance of four miles, in whose interest cannot well be ascertained. If it's part of the Chilkoot scheme it probably won't be built right away, while if in any other interest, it will be a knockout blow for it. In any event town lots in Dyea can be bought very cheap & seem likely in the not distant future to nearly be had for the asking.

The town Skagway strikes one as in a picturesque situation, lying in the foreground of the Skagway River's flat floored valley, whose sides rise almost vertically to hundreds of feet above; backed also by rugged, snow streaked mountain ranges, & with a sweep of circular foreshore in front. As an addendum, out in the Inlet the rock scenery is fine both in coloring & formation, & embellished with many a sparkling, translucent glacier. One of these showing beautiful tints of blue & green, caps a mountain across the Inlet right opposite the town, seemingly almost over it; a decoration of the skyward landscape that few burgs can boast of as so near, on tap from any street by merely raising the eyes. The naturally pretty circular sweep of the water front has been almost effaced by numerous wharves built out to deep water, which, as the tide rises & falls some 16 ft., are very high & several hundred feet long. At low tide is displayed a perfect forest of long, gaunt piles, hardly old enough yet to have acquired the seaweedy green fringes that solace their declining years.

Skagway is a country-built, wooden settlement, laid out in square blocks, with wooden sidewalks, dirt pavement, & a quantity of small buildings with these dreadful false fronts. One is at first somewhat surprised at the large size of it, comparatively speaking, which is changed to a feeling akin to admiration when the back part of town is reach-