

in many yard terminal plants after trains are made up. In some terminal plants it is impossible to give inspection to trains until they are made up. Then there would not be time allowed by the transportation department to carry out fully these instructions. Effort should be made at such terminal points to make all necessary repairs before making up the trains, and the yard terminal plant should be used for the purpose of testing the trains. There has been a great tendency in the past by inspectors to use the angle cock in making brake application. I wish to condemn that practice. I find that it is necessary that brakes be tested as near train conditions as possible.

I have not seen any standard method brought up as to what test a triple should be subjected to after cleaning. In cleaning cars at one of our terminal points we cleaned about 80 per cent. of foreign cars, and if we held closely to the recommendation, we would have to condemn at least 85 per cent. of triples. In one test we made, in 50 removed, there were only six that would stand the packing ring test of leakage of 15 lbs. a minute.

Mr. F. B. Farmer (W. A. B. Co.)—The committee

go down both sides of train for the purpose of examining the angle-cock handle. We find a great many cars in the test where angle-cock handle is partly closed.

On the repair track when the triple valve is taken off the car the piston should be taken out of the brake cylinder for the purpose of examining the tube that goes through the reservoir to see if it is stopped up. In cleaning the brake cylinder the expander is given very little attention. The instructions are that the expander should be stretched so as to fill walls of cylinder all around. The inspector should be instructed to examine the expander as we have had cases where the brakes would refuse to work on ordinary reduction service, but would work in emergency application, and the different inspectors at different points would apply as many as two or three triple valves to try to overcome the trouble, which was really in the expander.

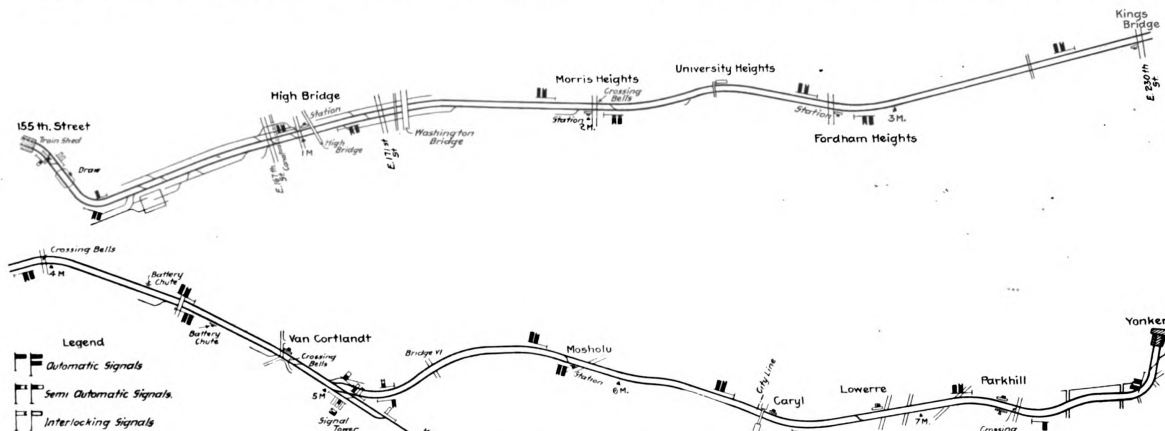
Mr. Kelley (California)—At many places some of the tests are radically wrong. At some points inspectors are made to carry 70 lbs. and are supposed to make a full reduction and bring down to the equalizing point to look for leaks. By the time one man gets to the rear end

train must be held at the terminal point until the brakes are in operative condition. Hand-brakes, of course, can be resorted to if air-brake cannot be used, but it means a serious delay. The cars must be held somewhere prior to passing over these heavy gradients and why should not the eastern roads hold their cars at the test plant and give them a little more thorough test than has been observed in the past?

Mr. Turner—We made an effort not long ago to test retaining valves and we found that there were 75 per cent. of the retainers defective, and it required so much time we had to give it up. So now we make no test, simply replace the defective ones by new ones. We could not get a train through in a day if we attempted to repair retainers. This shows that some roads are very careless in regard to retainers.

Automatic Block Signals on the Putnam Division.

The Putnam Division of the New York Central & Hudson River Railroad is to be equipped for eight miles with the Hall Signal Company's electro-gas motor signal.



Automatic Electric Semaphore Block-Signals on the Putnam Division of the New York Central.

have endeavored, as evidenced by the paper, to outline what they thought to be a most thorough test, but I feel that they may possibly have been a little too thorough in some instances. The business of a railroad is to get freight over the line and I take it that the conditions are about the same the country over; they do not want to hold cars that are in condition to move freight, and a defective air-brake is unfortunately not considered cause sufficient to prevent the car from carrying freight; therefore I believe in testing the train. The test should be modified as much as possible and still be able to catch the most serious defects and remedy those that must be removed. I think instead of making an 8 or 10-lbs. reduction when you wish to test for cylinder packing leakage that it should be a 15-lbs. reduction. Leakage is always greater the higher the pressure. If you make a 5-lbs. reduction your train pipe leakage is greater and it continues to send air into brake cylinder. If you make two tests, 5 and 10 lbs., and then make full service, you take too much time for a road test on train made up. Therefore I would recommend a 15-lbs. service reduction, or 20 if you will.

To test for packing leather leakage, I think the most practical means is, after your heavy service reduction and a sufficient interval has elapsed, to try the brake leverage to see if the shoes are held solidly against the wheels. If you can move shoe back, it is manifest the brake is holding very lightly. It is not always a test that can be made, but for a test of brake cylinder leakage I think it is the best. I would suggest in the order of test, the first thing to be done is to look over the train line for triple leakage. I believe, too, that to facilitate the work some marks understood by car inspectors should be made with chalk, so that as the inspectors pass along looking for defective brakes they can have somebody else commence at once making repairs; or else after the train is inspected have all repairs made that you can, and card for all you are unable to make, and then remove the chalk mark. In testing where more time is had I believe the test should be limited to five cars at most, particularly for brake cylinder leakage.

Mr. Sherman (L. & N.)—In regard to blowing out train pipes, we generally have two inspectors, and after the hose is properly coupled up to the angle-cocks, and before we turn the air into the train line the rear cock is left open and the pipe blown out before the train is charged up at all. We generally try to make it a practice to get our cars in first-class condition on the repair track. When cars are put in proper condition on the repair track they will come pretty near standing the packing leather test when the train is made up. There is usually not sufficient time to make the test recommended by the committee. It is as much as one possibly can do to go over train and test for leakage, defective triple valves and pistons, condition of the pipe-hangers, and also the way the angle-cock handle is located relative to the T. In my opinion the air-brake inspectors should

you have got too low a reduction. I claim that is wrong, as we make a 12 or 15-lbs. reduction on the road, and that is all the reduction we should make in the yard.

Mr. Sherman—I would ask in regard to slid flat wheels, what kind of test is made to locate the trouble. When a car comes in with slid flat wheels, we test the triple valve just as it comes in off the road. We note the style of triple valves under that car, size of brake cylinder and auxiliary reservoir, and piston travel on that car and other cars in train, to find whether that car was doing the braking for the train or not, and the engine is also tested.

Mr. Turner (A. T. & S. F.)—In regard to our testing plant, as soon as a train reaches the yard we have a man go over it and give what we call a terminal test. Just as soon as the inspection is finished we go to work and make repairs, and as soon as the train is made up, air is put in from the test plant, of which we have a very good one. We have air pipes to every track in the yard. We have a main reservoir of about 2,000 cu. in. capacity, with check valves intervening so that the pressure is maintained. The brakes are then set from engineer's valve on plant and men go over them and remove all defective triples that will cause damage to car. The first thing that is done is to make a 7-lbs. reduction. We usually have four engines on a train. The repairs that can be made are then made, putting in hose gaskets of which we had as many as 4,000 in one month last year. The engine is then properly coupled on to train and the engineer will make a test of 20 lbs. reduction. We always have a man on the rear end. Men go over train and adjust the piston travel.

We have 12 inspectors, four of them air men. No man is permitted to be an inspector until he can answer one question; that question is, "Can you trace the air from the atmosphere to a pair of flat wheels?" No man is allowed to inspect until he can answer that question. No triple is cleaned under a car; defective triples are always removed. The cylinders are cleaned, but the same piston is never put back. The time required for making this test is from 45 minutes to one hour and five minutes.

Mr. Hedendahl—It is a very rare thing that retaining valves are thought of east of the Rocky Mountains for reason that very few of the railroads have any use for them. The mountain railroads, however, are vitally interested in retaining valves. In handling a freight train consisting of modern heavy-capacity, loaded freight cars on a 4 per cent. grade when tonnage is made up in 10 cars, one brake defective in a 10-car train reduces the braking efficiency 10 per cent. One retaining valve in that train not performing its functions properly is a serious matter. I believe that the eastern railroads that are more fortunate in not having grades ought to look after retaining valves on freight cars as well as brakes in general. A great many foreign cars are handled over a certain western line having 4 per cent. grades. Each

as announced in the *Railroad Gazette* of July 11. The engraving given herewith shows the approximate location of the section of road to be equipped, and of the signals. There is only one interlocking plant on this portion of the road; that at the junction of the Yonkers branch with the main line of the Putnam Division. At this point the existing signals will be controlled by electric slots. As before stated, the block sections will be about 4,500 ft. long. The blades of the home signals will be painted red, and those of the distant signals yellow.

Elevated Railroad Structure to be Moved Bodily.

The incline connecting the Garfield Park branch of the Metropolitan West Side Elevated Railway Co., Chicago, with the surface is to be moved in its entirety some little distance in order to straighten the present structure. It is 1,018 ft. long, extending from Forty-eighth to Fifty-second avenue.

When this incline was originally built, in the spring, a right of way permitting a straight descent could not be obtained. At present it has a considerable swing to the north as it leaves the main structure and gradually comes back into line as it approaches Fifty-second avenue. The desired right of way having been secured recently the engineering department immediately made plans for straightening the line.

When the structure was designed such a contingency as has arisen was provided for by splicing certain of the girders that would require shortening. All that is necessary now in this respect is to remove the splice plates. The line will be shortened 9 ft. by the change. Twenty-two new concrete foundations have been built, having a depth of 7½ ft. from the base of the supporting columns and a spread of 8 x 8 ft. at the bottom.

In moving the structure it will first be jacked up about 18 in. above the present foundations. A skidway of steel rails will be laid upon suitable cribbing and 3-in. steel rollers will be used to make the transfer. The structure, which is double-track, has 22 spans and 21 bents, the whole weighing about 700 tons. The total throw is 56 ft. and it is expected that the entire task, including building the foundations, will be accomplished in 10 days, from the time started. The track will remain intact except that part where the curves occur, which will have to come up to have the rails straightened. The object of the Metropolitan Co. in building this incline is to connect with the Aurora, Elgin & Chicago interurban electric line, which ends at Fifty-second avenue. At the foot of the incline there is a loop having a 90-ft. radius, around which the Metropolitan cars will pass and which has stations on the inside at each side, or on the north and south sides. The interurban cars cross to the inside of this loop, the inbound cars discharging at the south station, and the outbound loading at the north station, through each of which stations passengers can pass from one line to the other.