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NEXT ANNUAL MEETING at Hamilton, Oct. 16, 1901.

wind storms, etc. (See table 4 on page 69). A statement (see copy of such report covering Havelock section, Nov. 1, 1900, in table 5 on page 71) for the 24 hours ended midnight is made up & sent the general superintendent by first mail showing each freight train run in the direction of balance of tonnage—between what stations, number of engine, class of rating, schedule load at that class of rating, tare, contents, actual & equivalent tonnage & particulars of any doubling or assisting. The percentage of total equivalent tonnage taken over the ruling grade on each section to total of loads which, according to schedule & class of rating, should have been taken over that ruling grade by the power on that day is calculated, & the percentage performance on the different sections tabulated for comparison. If an engine doubles or is assisted over the ruling grade the superintendent is debited with what the engine can take over the next heaviest grade.

The foregoing paper was read by Mr. Tait before a recent meeting of the New York Railroad Club, at which 1st Vice-President W. W. Wheatly presided. The reading of the paper was followed by a very important discussion.

The CHAIRMAN said:—There is probably no subject in connection with freight transportation on our railways which in recent years has excited more discussion & interest than the matter of rating freight engines according to tonnage. This is a matter which interests not only the transportation officer, but also the head of the locomotive department. I think we should have a discussion this evening without it being necessary for me to call upon members by name. As no one has been selected to open the discussion, the field is free for any one who chooses to speak first.

A. E. MITCHELL—I notice that the author has mentioned the old method without stating what it was. I would be glad if he would tell us what his old method was when he adopted the new.

The CHAIRMAN—I have no doubt that there will be a great many questions asked Mr. Tait to-night, & I suggest that he make a note of them as they are propounded, & he will be given an opportunity later to reply to them all. Will some one open the discussion? We would be glad to hear from Mr. Daly, of the Lackawanna road.

J. M. DALY—I came here more to learn about tonnage than to talk about it. But there are one or two points I would like more information on as regards this chart. It strikes me that the chart provides for a reduction on the ratio of 13 to 10 of loads against empties regardless of the number of empties you have on the train. In other words, if you are pulling up a grade 90 ft. to the mile, it is more easy to handle the full rating of empties than it would be if you are undertaking to pull them up a grade of 45 ft., by reason of the length of train & gradient resistance. So that it struck me that the longer the train or the greater the tonnage assigned a train, the greater should be reduction for empties hauled. Another question that I wished to ask is what provision is made for busy tracks? For instance, on a portion of our line we have 20 first-class trains in each direction each 24 hours, & from 5 to 7 fast freights, with a grade of about 45 ft. to the mile for 24 miles. Now, if we confined the movement of trains to 7 miles an hour it is going to utilize that track with freight trains the greater portion of the time. Another feature that struck me was in the testing arrangements. If on a favorable day, with an engine that the master mechanic knew was good, & a choice engineer, good fuel, favorable conditions, he hauled 1,000 tons, what reduction from that was arbitrarily made in rating the engines to insure the general run of engines hauling tonnage up the same grade during the busy season, when the power is more or less overtaxed & run down, & when new enginemen & firemen are pressed into service that are not as competent as the average run of enginemen & firemen that are utilized in testing? It appears to me there is as much danger in undertaking to rate your engines too high & as much money lost in overtime as in underestimating them a little, especially on busy pieces of track where you have a heavy passenger service & a heavy high-class freight service.

F. F. GAINES—As I understand the matter, this sliding scale is made on a basis of either light & loaded cars or partially loaded cars. Now, there is another case that may come up, & I would like to know what provision would be made for it. For instance, I have here a record of two different trains, both handled by the same engine; one was made up of 100,000 lbs. capacity cars, the other was of old-style 60,000 lbs. capacity cars. The tare in the 100,000 lbs. car train was 676 tons; the net tonnage was 1,824 & the gross tonnage 2,500. With the 60,000 lbs. cars the tare was 619, the net 1,381, & the gross tonnage 2,000. By comparing those figures, the net tonnage of the 100,000 lbs. cars is 24.2% greater than the 60,000 lbs. cars. The gross tonnage is 20% greater in those 100,000 lbs. cars than in the 60,000 lbs. What kind of provision would be made for cases of that kind? We all have more classes of cars than one on our roads. It takes more power to haul one class of cars than it does another, & I wish to know if this scale provides for any feature of this kind.

The CHAIRMAN—I think it would perhaps facilitate the discussion if Mr. Tait were permitted now to reply to the questions that have been asked & the points that have been raised & also to elaborate slightly upon the paper.

Mr. TAIT—This paper is, as you will have seen, only a brief description of a method of rating & loading engines which we have had in effect since Oct. 1. Prior to that date we had about the same system of rating engines for the different weather & other conditions as we have now, but we were loading them then on what I have called the "actual" tonnage basis; that is, the actual weight only