Wooden Frame Cars in the Freight Trains of Today.

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A few years ago the 30 ton all wood freight car was considered standard, but since the introduction of steel in car building it has replaced wood and today we have all steel coal cars, all steel box cars, lined with wood inside, and steel underframe cars, of all classes of 40 and 50 tons, and a few of 75 tons' capacity. There are a large number of wooden underframe cars still in service, and the question in regard to these is: What can be done to make this class of car safe to be handled in the long trains and meet the severe usage that they receive in yard switching service of today?

The draft gear problem is certainly the most important. The annual cost of repairs to cars that are damaged through the draft gear failure, and loss and damage claims resulting therefrom exceed all other repairs made to freight car equipment. The question naturally arises: What are the causes of these failures? They are as follows: 1. On account of introduction of heavier power and longer trains. 2. Placing of light and heavy cars together in trains. 3. Rough switching of cars in yard. With regard to the first and second causes: The tractive power of locomotives has increased during the last few years from 20,000 lbs., known as the 100% engines, to about 45,000 lbs., or 225% for locomotives in general use in Canada, and the 2-10-2 type used on United States roads, to 84,000 lbs., and in addition to this type there are in use on certain sections of the country, locomotives of the Mallet type, with tractive power of 110,000 to 120,000 lbs., and, notwithstanding this enormous increase, there is a type of locomotive just placed in service, known as the Erie triplex, with a tractive power of 160,000 lbs., with a haulage capacity equivalent to a train consisting of 250 fully loaded cars each of 50 tons' capacity, 1.6 miles long, and a total weight of 18,000 tons. A few years ago, the average number of cars hauled was 25, the trains being approximately 1,000 ft. long. To-day the ordinary trains are 60 to 100 cars, and a train of 100 cars would be approximately 4,000 ft., or about three-quarters of a mile.

What chance has a wooden frame car under the conditions as they exist today on the front end of such a train? In my opinion it is a very good reason why cars of this class are so often found on repair tracks. If a car of this type was to be traced from the time it leaves the terminal it would be found that it was necessary to remove parts of the load quite often, which, beside the expense of repairs, results in delay to freight en route, and it is the fruitful cause for so many claims on account of damage to freight handling in and out of the car.

The solution of the problem is not altogether the physical characteristics of the car or entirely mechanical. The operating official should co-operate with the mechanical department in reducing the freight car repairs by arranging as far as possible that cars with all steel construction or with steel underframe, or those with steel centre sills be placed in the front end of trains. It is a fact that we find light capacity cars with wood underframe or empty flat cars leaving the terminal on the head end of one of the long trains. And in the majority of cases the cars are billed through and will not be set off between terminal points, unless set off on account of draft gear failure. This, no doubt, could have been avoided had the cars been placed towards the rear of the train before leaving the terminal. There are railways who recognize the necessity of placing weak cars toward the rear of the train, and they provide cards stating that they must not be placed more than 15 cars from the caboose. This indicates that the car is in such a condition that it must be so located in the train, but is safe in ordinary service to be hauled to destination, and if this is done, delay and extra switching on account of draft gear failure along the line would be eliminated, and it would not be necessary to move the lading on account of this feature.

The third cause: rough switching in yard, is a great factor in car repairs. The speed limit for switching in yards is nil, nor are there any rules in force governing the speed of locomotives in switching service. If you were to confer with the car inspectors and obtain their opinion as to where most damage is done to cars, I am safe in saying that their answer would be in the switching yards, as their daily experience in inspecting cars immediately on arrival and after they have been switched in yard will confirm this. This is only a small item as compared with actual damage started in yard and which through the cars being necessarily weakened thereby, is aggravated after leaving terminals, and results in many cases in the cars breaking down before reaching destination. A visit to the freight car yard will convince you that it is just a question how fast the cars can be switched together, the speed that the cars are travelling is not considered, hence cars are found buckled up in yards and the draft gear lying around, having been pulled out due to rough switching. There should be some speed limit in yards to prevent this destruction of equipment. The time lost in switching out bad order cars damaged in yard and taking same to repair track would often offset the time gained by excessive speed that cars are switched together. The cost of repairing these cars must also be considered, and the thousands of dollars of damage done to the contents of cars in yard that are not set off for repairs.

What is the mechanical department doing today to overcome these troubles. 1. They are building steel frame cars to certain specifications with stronger types of draft gear. 2. Applying steel underframe or steel centre sills and steel ends, or otherwise re-inforcing the ends of cars to withstand the heavy shock. 3. Applying different types of steel draft arms to the present wood centre sills in such a manner that it re-inforces the wood centre sills, thus greatly reducing the cost of strengthening up the draft gear. 4. Applying heavier types of couplers and draft gear, and using friction draft gear, for in the past very little attention has been paid to what type of draft gear the cars were equipped with, but the friction type of draft gear is now being used to a large extent.

The demands of modern railroading requires the stopping of a high speed train in about two minutes and the draft gear is expected to absorb the shock. The air brake department can help to eliminate the strain on the draft gear by instructing the engineers as to the proper method of handling long trains. The principle thing is to control the slack to prevent it from running in or out harshly. Slack in draft gear cannot be prevented, as it is due to compression of the springs, and the heavier the locomotive and the longer the train, the greater the care that is required. Engineers are instructed in the air brake instruction car how this should be done, but the general air brake inspector should see to it that the rules are followed out in actual service.

The vital question today before the car department is how to keep these wooden underframe cars in service. The majority of the railways are destroying the 40,000 lb. cars, but the 60,000 lb. and 80,0000 lb. cars that were built with wooden underframe and short draft timbers are not any stronger and cannot withstand the heavy service and severe yard conditions of to-day, and unless the operating department will assist in reducing the damage done to cars and thus reduce freight car repairs, and also keep the cars in service by marshalling this class of car on the rear end of the train, and exercising greater care in switching cars in yard, the cost of freight car repairs will increase and the repair tracks will be full of bad order cars. The only other remedy is to spend money to apply steel centre sills or steel draft arms, so arranged as to strengthen the present wood centre sills, and in addition to this re-inforce the end of this class of cars. But yet the strongest car built cannot withstand the severe usage received in yard switching operations of today unless more care is exercised on the part of the yard crews.

The foregoing paper was read before the Canadian Railway Club recently.

Railways in Saskatchewan.—The annual report of the Saskatchewan Department of Railways shows that that Province leads all Canada in railway construction. In 1913 the new mileage built was 424 miles in excess of the next nearest Province; and since 1905, the mileage has been practically quadrupled. That there is still abundant room for railway development is shown by the following paragraph of the report:—"The question of railway development in our Province, despite the progress already made, remains one of paramount importance. The rapid development of the country impresses a realization of the need of railways. There are many rich and fruitful districts being retarded and vast regions remaining unopened and unproductive awaiting railway facilities."

The C.P.R. Offices in St. John, N.B., have been removed from the Bank of Montreal Building, where they have been located for many years, to the corner of King and Germain Streets, where the company bought a building some time ago, and has remodelled it into a modern five story structure. The ground floor is occupied by ticket and telegraph offices and the Dominion Express Co. On the first floor are the general divisional offices of the freight and passenger departments. The second floor is occupied by the General Superintendent of the Atlantic Division and staff, the third floor by the engineering department, and the fourth floor by the telegraph staff.

Dining Car Service at Valcartier.—During the operation of the military concentration camp at Valcartier, Que., prior to the departure of the Canadian overseas contingent, the Canadian Northern Ry. operated a dining car at its station there, in which meals were served to a large number of camp visitors. A luncheon counter was also operated in a commissary car.

The C.P.R. has offered a free scholarship covering four years' tuition in the Faculty of Applied Science, McGill University, Montreal, to apprentices and others on the Company's permanent staff and under 21 years of age, and to minor sons of employes. The examination, which is the regular entrance one, will be held in June, 1915.