

Handling Freight in the Country's Largest Terminal

Marked Reduction in Costs Obtained by Operating Electric Tractors and Trailer Trucks

THE Pennsylvania has recently revised its method of handling less-than-carload freight at its new terminal at Polk street, Chicago, with excellent results. Hauling by trailer trucks and electric tractors is the outstanding feature of the new system. Introduced in July, 1920, and enlarged upon in the following year, the equipment and the system built around it has operated to accomplish marked economies. The amount of labor required for the handling of the freight has been reduced more than half and the tonnage handled per man has more than doubled. Greater elasticity in performance has obtained, while business is handled with greater dispatch and less demand on floor space.

The Polk street terminal is a four-story structure, 450 ft. wide and 745 ft. long, which is built over 19 tracks with a standing capacity of 375 cars; the first or street level floor constituting the freight house proper and the upper three floors being utilized for storage by a warehousing concern. All merchandise is handled between the several floors and the track level platforms by 32 elevators, 8 of which are three-ton, 21 five-ton and 2 ten-ton.

From the opening of the building in 1918 to July, 1920, the hauling was accomplished by hand-trucking. The equipment consisted of the ordinary two-wheel trucks and 25 trucks of the four-wheel type, and the system required each trucker to push his load from the point of loading to its destination. Meanwhile the Western Warehousing Company, a subsidiary of the Pennsylvania, which occupies the 600,000 sq. ft. of storage room on the upper three floors, had adopted and was operating to advantage a system of tractor haulage, the warehousing equipment consisting of three tractors and 200 trailer trucks.

Hand trucking in the freight house never having been very satisfactory and having afforded little opportunity to reduce a considerable expense and annoyance of handling freight by this means in so large a building, observations were made of the warehousing company's system, and some experimenting was done on the freight house floor itself. As a result of these observations it was finally decided to inaugurate tractor haulage and pursuant to the decision four Mercury tractors and an equipment of trailer trucks were installed in July, 1920. In November, 1921, after 15 months of tractor operation the equipment was enlarged by the addition of two tractors and a sufficient number of trailer trucks in order to bring the total up to 725.

The System of Handling the Freight

The system under which the haulage operations are performed with this equipment is as follows: The building being divided into outbound and inbound sections: outbound freight delivered to the house by street vehicles is received at any one of 33 doors, unless it is a load of seven packages or less in which case it is received only at a package door, or unless it is a load of perishable freight when it is received only at a perishable freight door. At these doors the vehicle is met by a gang of three men consisting of a receiving clerk, truckman and loader, who

with the exception of the gangs at the package and perishable freight doors, are assigned to two doors.

These men proceed to load the goods received from the vehicles upon the empty trailer trucks which are distributed by tractor under orders from a supervisor. Only that freight may be placed on any one truck which is to go into one car even though it amounts to no more than a single package. As soon as this freight is loaded on the trailer trucks, they are pushed to the nearest elevators, the average distance to which is 40 ft., where they are



A Typical Tractor Train on Freight House Floor

surrendered to an elevator man who lowers them to the track level and pushes them out upon the platforms. Here they are arranged into trains by a "floating stevedore" under a plan whereby all of the trucks for each track are assembled together. They are then picked up by a tractor and hauled to their destinations, the tractor in every case picking up the trucks as it proceeds from the outer end of the platform toward that end which permits it to pass around the end of the tracks.

The plan also provides that on any one trip only those trailer trucks are picked up for transit which are to be delivered to the platform for which the tractor train is en route. Having reached the platform in question, each truck is then set out at a point adjacent to the car in which the contents are to be loaded, this operation being performed by the one man, aside from the motorman, who accompanies the tractor train. When the freight is received by rail in trap or transfer cars the system differs only in the fact of its operations being carried on entirely at track level without the intervening steps introduced by elevator operation.

The Inbound Operations Are Just the Reverse

In handling inbound freight the packages are loaded upon the trailer trucks under a tallyman's direction and according to a plan whereby each truck is loaded only with that freight marked for the same destination in the house. After the trucks are loaded each truck is pushed to the nearest elevator where an elevator man raises it to the first floor, the operation thereafter consisting of its haulage by tractor to the proper destination which may

be in the alphabetical section of the house, such as Section D for Duncan Brothers, a section specially restricted for a particular shipper; the cold storage room, or a point where cars are loaded for the underground tunnel system. Arriving at these points, the trucks are uncoupled from the train and the freight is either unloaded or left on the trucks, depending upon the demand for trucks at the time and the likelihood of their being released within a period not to exceed 48 hours.

The trains ordinarily consist of seven or eight trucks but often carry as many as 14 or 15 loads, this loading being governed almost entirely by the bulkiness of the

last three months of the year from an average of 0.764 to above 1.80. This reduction in the forces actually handling the freight has also permitted some reductions to be made in clerical forces. The average size of the gangs receiving the freight from vehicles and of those loading or unloading the cars has been reduced from 6 or 7 men to 2 and 3. It has also been possible to cut down the distance through which the truckmen are required to operate from an average of 1,000 ft. or more to less than 50.

One interesting point which arises in studying the system in use at the Polk street terminal is that the benefits which are now accruing from it are the results of consid-

TRUCKING OPERATIONS AT THE PENNSYLVANIA'S POLK STREET TERMINAL BEFORE AND AFTER TRACTOR INSTALLATIONS
The last six months of 1921 under tractor haulage

The six months period prior to tractor haulage					Trucking force			Trucking hours					
Month	Number of truckers employed	Trucker hours	Tons handled	Tons per man hour	Month	Truckers	Tractor operators and helpers	Total	Truckers	Tractor operators and helpers	Total hours	Tons handled	Tons per man hour
January.....	195	43,651	37,038	.85	June.....	90	8	98	18,922	1,740	20,662	33,712	1.63
February.....	183	48,763	45,940	.94	July.....	80	8	88	16,275	1,454	17,729	29,773	1.68
March.....	328	85,023	56,611	.66	August.....	82	8	90	19,444	1,902	21,346	35,710	1.67
April.....	155	37,739	22,926	.61	September.....	84	8	92	17,815	1,782	19,597	35,256	1.80
May.....	199	49,785	38,104	.77	October.....	93	8	101	19,734	1,862	21,596	39,921	1.85
June.....	256	69,674	55,107	.79	November.....	86	12	98	17,964	2,346	20,310	37,356	1.84
Average men per month	219.3	334,635	255,726	.764	Avr'ge men per month.....	85.8	8.7	94.5	110,154	11,086	121,240	211,728	1.746

packages and operating convenience rather than by consideration of tractive power. As has been stated above, the tractor crew consists only of a motorman and an attendant although some conditions arise where it is found advisable to engage the assistance of additional attendants temporarily as where a long train of bulky material must be assisted around sharp corners or along narrow platforms of which there are several in the house.

Marked Results Have Been Obtained

The benefits which have arisen from the tractor operation are several. A comparison of the records for the

erable development and have increased steadily as the men have become more accustomed with the system and as the amount of equipment has been enlarged. A good indication of this is furnished by the fact that while the average tons handled per man per hour was 1.20 for the first six months of 1921, it has increased to an average of 1.76 for the last six months and for the last three months the figure has averaged above 1.80.

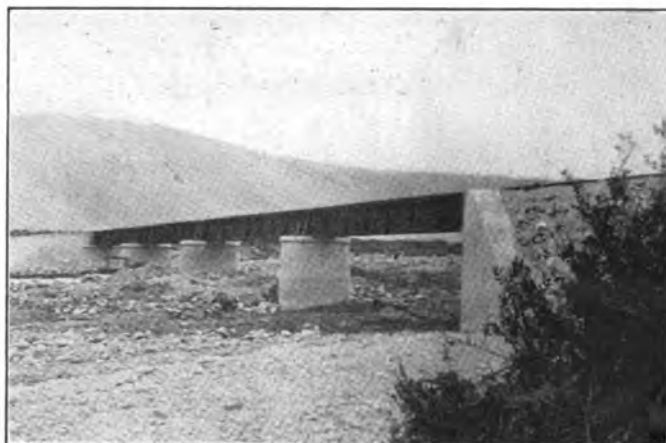
We are indebted for the above information to E. H. Kirkland, freight agent, and Oscar Hess, general freight foreman, of the Pennsylvania Terminal, under whose direction these trucks have been installed.



Tractor Trains Operating on the Track Platforms

last six months of this year with those for the six months immediately preceding the inauguration of the present system bring this out. As the accompanying table shows, between these periods the average number of tons handled per trucker has been increased from 1167 to 2228, or 90 per cent, while the number of tons handled per man per hour has been increased from an average of 0.764 to 1.746 or 128 per cent, or if compared with the records of the

The gauge of the railway line from the port of Windau east to Mitau, on the line to Moscow, will be changed from the present standard to the old Russian gauge, which is 5 feet wide, according to a report from Trade Commissioner R. Lawrence Groves, at Riga. From the port of Libau to the Russian railway system the gauge will also be widened. These changes will eliminate the interruption due to the freezing up of the port of Riga.



A Bridge on the Chilean State Railways