

FREIGHT AND EXPRESS

As much thought has probably been given to the working out of plans for the best methods of handling commodities as to any other subject connected with the operation of electric roads. The business, or rather two branches of business, which on steam roads has settled down to the handling of package and bulk freight on freight trains, and express matter which is cared for in express cars, usually by a company operating over a number of roads and with delivery and collection service included in the rate, has been jumbled by electric road operators in the Central West into a confused variety of methods and rates until at present hardly any two managements handle this service exactly alike. There are not less than eight distinct methods on Ohio roads at present, and, in addition, a number of roads have slight variations from what may be considered these general plans of handling the business. The majority of managers, in discussing the different phases of freight and express, maintain that the best methods of handling the business depend upon the district to be served and the local conditions surrounding it. While this is doubtless true to a certain extent, it is also a fact that certain roads have decided to handle express matter at strictly express rates, while others are handling the same matter at competitive steam freight rates in districts where the conditions appear to be almost identical.

A resume of the methods used by some of the various roads is most interesting.

First and foremost in Ohio, in bulk of matter handled and length of time it has been in the business, is the Electric Package Company, of Cleveland. The methods of this company and its equipment have been described in these columns on several occasions. A little explanation renders its position more appreciable. The name company is a misnomer. It is not a company, but an association representing five Cleveland properties. Each road furnishes its own equipment and crews and maintains them, the Package Company furnishing a messenger on each car. The Package Company operates over about 550 miles of road. It has 40 wagons in various cities and towns, and 53 agents, who either devote their time exclusively to its service or divide it between the railroad and the Package Company, and 14 messengers. The organization is managed by an executive committee of three, representing various roads, and is operated by C. A. Kenworthy, general superintendent. The earnings on each road are kept separate, and, after the operating expenses of the Package Company are deducted, the net amount goes to the road. From this net each road must pay its train-operating expenses and maintenance. The Package Company handles the baggage of the various roads, and is credited with 10 cents a trunk. On some of the roads, notably the Cleveland & Southwestern, the milk business, while handled in package cars, is unloaded on the outskirts of the city, and the entire earnings go to the road itself, and not to the Package Company. The receipts of the Cleveland & Southwestern from the Electric Package Company last year were \$20,909. The operating expenses of the Electric Package Company, not including the car operation, are about 50 per cent of the receipts. The Cleveland & Southwestern's milk business of \$19,441 made a gross of \$61,239. The operating expenses, including the car mileage, estimated at 12 cents a mile, an arbitrary figure, as it is not known just what the cars cost to operate and maintain, give a total charge to operation of 62½ per cent, and the gross earnings per car-mile are 46 cents. On the Lake Shore Electric, while the earnings from express amounted to more than on the Southwestern, the earnings for milk amounted to

very little, thus bringing the earnings per car-mile down to 42 cents, and increasing the charge for operation to 76 per cent.

Rates made by the Electric Package Company are higher than those made by electric roads elsewhere. It has two classes of rates, one covering fruit, poultry, eggs and produce, which is usually 10 cents lower than the regular rate on commodities and other goods. Its lowest rate is 30 cents a hundred for the special class within 35 miles, and its highest rate is 75 cents for Toledo, 120 miles. Its average rate is, of course, considerably higher than on the majority of roads. It handles car-load stuff occasionally, but bases the rate on 50 cents a car-mile for the haul, including the return of the empty car.

By reason of high rates, the company is debarred from securing a large amount of farm produce and heavier, bulkier freight, such as are handled by other roads. The advocates of lower rates who have studied Mr. Kenworthy's methods claim that his great fault is that he tries to charge the jobber and the farmer with the cost of delivery and collection service when they do not want it, having teams of their own. Mr. Kenworthy replies that his cars run on passenger schedules, that his wagon service is equal to that of the best express companies, and that he is not catering to cheaper freight. He admits that cheaper freight might be desirable on roads traversing farming districts or going through numerous small towns, but on these systems the great majority of the towns range from 3000 to 50,000, and it is profitable to operate wagon service in nearly all of them. The company frequently interchanges business with other express companies and does a large amount of interlining with the lake boat lines. Its business has increased each year, and the territory is constantly expanding by the absorption of old lines and the building of new. The gross earnings last year were more than \$200,000, and the roads in the arrangement appear to be well satisfied.

In this connection, it is interesting to note that the Lake Shore Electric Railway formerly operated a freight business on its Norwalk-Toledo division, while the Cleveland-Norwalk division was handled by the Electric Package Company. This gave an excellent opportunity to study both methods, and it has been claimed that while the freight end handled considerably more bulk and its gross earnings were larger, the net earnings were less, due to the operation of more cars, the slower speed and higher operating expenses.

Directly opposed to this experience was that of the Western Ohio and the Dayton & Troy, whose business was formerly handled by the Southern Ohio Express Company, but who recently changed to freight rates in competition with steam rates. The Southern Ohio Express Company conducts a business very similar to the Electric Package Company, but at present it operates only on the Cincinnati Northern. It is stated that last year it did a business of approximately \$85,000. It has agents and wagon service in all towns, and its rates are about the same as express rates. In addition to the express business, the Cincinnati Northern does quite a freight business on a portion of its line, hauling standard freight cars with an electric locomotive.

To go back to the Western Ohio and Dayton & Troy, these roads are now engaged in building up a freight business in competition with the steam roads. They are not attempting to handle the cheaper and lower classes of goods, such as coal, ore, ice, hay, etc., but are pushing the package freight business not only for points on their own lines, but for all points in the two States where they can make arrangements with other

TABLE XI.—SUMMARY OF FREIGHT AND EXPRESS ON ROADS TREATED.

NAMES OF COMPANIES.	Character of Business, Freight or Express.	Length of Longest Run.	Wagon Service.	Range of Express Rates Per Cwt.	Range of Freight Rates.	Combination or Express Cars.	Haul Trailer.	Use Steam or Electric Locomotive.	Haul Standard Freight Cars.	Interchange With Steam Roads.	Pro-rate With Steam Roads.
NORTHERN OHIO GROUP.											
Cleveland & Southwestern	Express (El. package)	60	Yes	30 to 60c		Combination and express	No	No	No	No	No
Lake Shore Electric	Express (El. package)	120	Yes	30 to 75c		Combination and express	No	No	No	No	No
Eastern Ohio	Freight	42	No		3 to 7c. car lots, 8 to 18c. broken lots.	Express	Yes	No	Yes	Yes	No
Toledo & Indiana	Freight	56	No		4 to 10c. car lots, 6½ to 13c. broken lots.	Express	Yes	Yes	Yes	Yes	No
Toledo & Western	Freight	58	No		2 to 6c. car lots, 5 to 17c. broken lots.	Express	Yes	Yes	Yes	Yes	Yes
Toledo, Ft. Clinton & Lakeside	Freight	52	No		10 to 15% higher than steam rates.	Combination and express	Yes	Yes	Yes	No	No
Stark Electric	Express	35	Yes	40c	15c	Express	No	No	No	No	No
Canton-Akron	Freight	50	Yes	30 to 40c	7 to 12½c	Express	No	No	No	No	No
CENTRAL AND SOUTHERN OHIO GROUP.											
Western Ohio	Express	82	Yes	30 to 40c	8 to 15c	Express	Yes	No	No	No	No
Ft. Wayne, Van Wert & Lima	Freight	31	No		5 to 7½c	Express	Yes	No	No	No	No
Dayton & Troy	Express and freight	34	Yes	30c	5 to 8c	Combination and express	No	No	No	No	No
Dayton, Covington & Piqua	Freight	49	No		5 to 12c	Express	Yes	No	No	No	No
Scioto Valley	Freight	34	No		7 to 15c	Combination and express	No	No	No	No	No
Cincinnati & Columbus	Express and freight	52	No	30 to 40c	9 to 15c	Combination and express	No	No	No	No	No
Cincinnati, Milford & Loveland	Express and freight	40	No	40c	6 to 17c	Combination and express	No	No	No	No	No
Interurban Ry. & T. Cincinnati	Freight	35	Yes	20 to 25c	3 to 7c. car lots	Express	No	No	No	No	No
Cincinnati, Georgetown & Portsmouth	Express	50	No	20 to 45c. delivered.	7 to 16c. broken lots	Express	Yes	Yes	Yes	Yes	Yes
Cincinnati, Georgetown & Portsmouth	Fast freight	50	No	15 to 30c. not delivered.							
INDIANA GROUP.											
Indiana Union	Express		No			Express				No	No
Indianapolis & Northwestern	Express and freight		No			Combination				No	No
Indianapolis & Cincinnati	Express and freight		No			Express				No	No
Indianapolis, Columbus & Southern	Express and freight		No			Express				No	No
Terre Haute Tr. & Let.	Express		No							No	No
Kokomo, Marion & Western	Express		No			Combination				No	No
Ft. Wayne & Wabash Valley	Express		No			Combination				No	No
MICHIGAN GROUP.											
Rapid Railway System, Detroit	Express and freight		Cartage agent in Detroit			Express				No	No
Detroit, Ypsilanti, A. A. & J.	Express and freight		No			Express				No	No

TABLE XI.—SUMMARY OF FREIGHT AND EXPRESS ON ROADS TREATED.—*Concluded.*

NAMES OF COMPANIES.	Handle Car Load Lots.	Minimum Charge for Packages.	Rates on Milk.	Income From Freight Last Year.	Income From Express.	Income From Milk.	Income From U. S. Mail.	Gross Receipts Freight Exp. and Milk.	Charge to Operation Per Cent. of Gr. Rets.	Net Income.	Total Tonnage.	Average Rate Per Cwt.	Gross Earnings per Freight or Express Car Mile.	Cost of Handling Per Ton Mile.	Car Miles Per Day.
NORTHERN OHIO GROUP.															
Cleveland & Southwestern	Yes	\$0.25	1 to 2c.		\$41,818	\$19,421	\$1,974	\$61,239	.62½			37½c	46c.		369
Lake Shore Electric	Yes	.25	1 to 2½c.		51,376	1,857	1,594	53,233	.77			37½c	42c.		345
Eastern Ohio	Yes	.25	\$0.02	\$30,306		25,480	8,306	55,786				15c			208
Toledo & Indiana	Yes	.25	.01 3-10					35,000					75c. train mile freight, 31c. ex. cars		208
Toledo & Western	Yes	.25		75,399			3,801	75,399					85c. train mile		
Toledo, Ft. Clinton & Lakeside	Yes	.25	.01½										38c.		120
Stark Electric	No	.25	.01½												
Canton-Akron	No	.25	1 to 1½c.					20,000							
CENTRAL AND SOUTHERN OHIO GROUP.															
Western Ohio	Yes	.25	.01½										32c.		
Ft. Wayne, Van Wert & Lima	Yes	.25	.01												
Dayton & Troy	Yes	.25	.01		In operati	on only 5 months.			.45				38c.		230
Dayton, Covington & Piqua	Yes	.25	.01				602	15,000	.52			10c	42c.	2c.	128
Scioto Valley	Yes	.25	.01½		In operati	on 9 month s.						11c	35c.		
Cincinnati & Columbus	No	.25	.02½		In operati	on 6 month s.							36c.		
Cincinnati, Milford & Loveland	No	.25	.02		In operati	on 9 month s.							31½c.		
Interurban Ry. & T. Cincinnati	Yes	.25	.02					38,000					40c.		
Cincinnati, Georgetown & Portsmouth	Yes	.25	.02	34,150	\$11,563		5,504	55,722	.68		41,396	Car load freight 4.6	Express cars 34c., freight trains \$1.30	\$2.26	
INDIANA GROUP.															
Indiana Union	Yes														
Indianapolis & Northwestern	Yes														
Indianapolis & Cincinnati	No														
Indianapolis, Columbus & Southern	No														
Terre Haute Tr. & Let.	Yes														
Kokomo, Marion & Western	Yes														
Ft. Wayne & Wabash Valley	No														
MICHIGAN GROUP.															
Rapid Railway System, Detroit	Yes														
Detroit, Ypsilanti, A. A. & J.	Yes														

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electric lines. Working arrangements have been made between the following lines: Dayton & Troy; Western Ohio; Toledo, Bowling Green & Southern; Toledo & Indiana; Fort Wayne, Van Wert & Lima; Fort Wayne & Wabash Valley; Springfield, Troy & Piqua; Schoepf lines between Dayton and Columbus; Schoepf lines between Columbus and Zanesville; Dayton & Western; Indianapolis & Eastern; Indianapolis & Northwestern; Indianapolis Coal Traction; Indianapolis & Martinsville, and Indiana Union.

In the joint tariff sheets each road is designated by a letter, and the route sheets for agents show the through rates from the home point to the various towns touched by these roads, arranged in alphabetical order. Six classes of rates are given and the official steam road classification is used. Carload freight is handled by special arrangement only. The Springfield, Troy & Piqua, Western Ohio and the Dayton & Troy have trail cars, which they send over each other's line with carload goods. The two last mentioned roads bought some Manhattan Elevated cars and rebuilt them for the service. The other road mentioned built several trailers, following closely on steam road lines. Standard steam cars are not used. The three roads in question also operate trains over each other's lines. For instance, the service of the Dayton & Troy includes a through train from Dayton to Springfield over the Springfield, Troy & Piqua and a train to Findlay over the Western Ohio, in addition to which each of the roads has its own local cars. The Dayton & Troy has a well-equipped freight station in Dayton, which is the transfer point for goods east and west, while the Western Ohio station at Lima is a transfer point for goods north and northwest into Indiana. As soon as other roads in the district secure trailers, the interchange of carload lots will be extended, but at present the carload lots have to be transferred at the points mentioned. This through service has been in effect only since the first of the year and it has hardly developed, but the roads are getting about all they can handle with three trains a day each way over the main lines and the use of trailers on many of the runs. The Western Ohio estimates that its earnings per car-mile are about 32 cents, and the Dayton & Troy about 38 cents. The Dayton & Troy figures that it costs about 40 per cent of the gross receipts to handle the business, charging a portion of the agent's salary to freight. It is claimed that the cars themselves cost less than passenger cars to maintain and operate, as the stops are less frequent and cleaning and interior maintenance are less. The Western Ohio still continues an express business on a small scale, with wagon service in some of the larger towns and rates about equal to standard express rates.

The freight business of the Scioto Valley is referred to in detail in the special article on that road. It gives competitive rates and uses trail cars. It figures that its earnings per car-mile are about 36 cents. It has no interchange with steam roads and does not handle steam freight cars.

The freight business of the Toledo & Western and the Toledo & Indiana have been described at length in this paper. Their methods are very similar, but the territories differ considerably. The Toledo & Western extends into a rich farming district which has no other transportation facilities, therefore it gets about all the business there is in the district, while the Toledo & Indiana is closely paralleled over its entire length by the Lake Shore & Michigan Southern, one of the greatest freight-carrying roads in the country. Both of the electric lines operate standard freight trains on regular schedules handled by electric locomotives. These trains, of course, do not go into the city over the tracks of the city company, but cars are delivered to a steam belt line which encircles the city of Toledo and delivers them to other steam roads, or delivers them to its own terminal station in the center of the city. The belt line makes a switch-

ing charge for handling the cars and delivering them to steam roads, and by this means the electric lines are enabled to make through shipments to distant points and receive foreign cars. The Toledo & Western, not coming into competition with the steam roads, has pro-rate and interchange arrangements with a number of the steam roads in the district.

In addition to the standard freight trains, these roads operate package cars which run to the Toledo freight station under an alliance with other interurbans entering the city. Rates on the package cars are the same as those on the standard freight cars for broken lots. The service is, of course, faster, and no deliveries or collections are made. The Toledo & Western Company believes that its rates on the fast freight into Toledo freight station are too low to insure very much profit on this alone, but as it gives an excellent service by means of the standard freight trains between points along the line outside of the city, it does not feel inclined to throw a burden of higher rates on business between the country districts and the center of the city.

The Toledo & Western freight business for both classes last year amounted to more than \$75,000, or about 40 per cent of the gross earnings of the road. Revenue earning, standard freight car lots handled last year numbered 4478, of which 725 were stone, 720 sugar beets, 525 live stock, 421 coal and coke, and 308 grain.

The two roads mentioned of course have freight stations in all towns and long sidings where a number of cars can be stored. The Toledo & Western has numerous stock pens, unloading platforms for sugar beets, and three grain elevators. A large beet-sugar plant has just been completed on its line, and this business will show a large increase in another year. The Toledo & Western's rolling stock includes 3 electric locomotives, 75 standard freight cars of various descriptions and several cabooses.

The Toledo, Port Clinton & Lakeside, which traverses a fruit and farming district, is following the example of the two roads mentioned. It is hauling standard freight cars with an electric locomotive, but as yet has no entrance to the city for these cars. During the summer months, its express cars running into the center of the city handle large quantities of fruit. It has not followed the example of the other Toledo roads in making competitive steam rates on this class of business, its rates being 10 to 15 per cent higher. Owing to its fast service, it gets a very fair proportion of the business and its net results are better. Its cars earned 38 cents per car-mile the past six months.

The Cincinnati, Georgetown & Portsmouth handles freight in an unusual manner in that it really has four classes of business, and a portion of its freight traffic is handled by steam locomotives. It has a rich farming and fruit country with practically no competition. Standard steam freight cars handle about two-thirds of the business. It has a carload lot rate and a broken lot rate for its freight trains, which operate on regular schedules. The cars are turned over to the Pennsylvania Railroad on the outskirts of the city and go to its freight terminal, or to other roads. It also operates package cars on which it gives two classes of service known as "fast freight" and "express." The express matter is delivered by its own wagons, and incidentally, it has a large automobile truck for this service, while the fast freight is delivered at its Carroll Street station only. The road has interchange and pro-rating arrangements with all steam roads and is classed as a steam road, which it was up to three years ago, when it was electrified. It operates two steam locomotives and one electric locomotive. It might be stated here that, while the management believes there is some economy in the cost of operating the electric locomotive, it does not favor its use except for through trains where there are few stops and little switching to be done. It is claimed that the electric locomotive is more cumbersome for switching, as it is necessary to

make frequent changes of the trolley, while the periods of acceleration with heavy-loaded freight cars throw an uneven and greatly varying load on the power station.

The Interurban & Terminal Railway Company, of Cincinnati, has two classes of business, one known as express, and the other as freight, but in neither case do the rates correspond with steam road rates, the freight being higher than steam freight and the express lower than steam express. The distinction between the two is that express is handled on combination cars; every other car on the system being a combination, thus giving frequent and fast service. Express rates do not include collection or deliveries, although the company has an arrangement with a transfer company for deliveries, an extra charge being made. Heavy and slow shipments are made in express cars. This business has grown tremendously on this system, and last year it necessitated the building of a freight station in Cincinnati. The building adjoins the passenger station in the center of the city, the general plans of which are shown on page 622. The company does a very heavy business in farm produce of all kinds. Something of an innovation is the extensive handling of live calves and sheep, which are shipped in crates built for the purpose at the company's shop. These are just high enough to prevent the animal from getting out, and are without tops, the animal being held in by straps passing over the back. This affords a convenient and sanitary method of handling small live stock. A supply of these crates is kept on hand at each station and are dropped off when the customer phones or writes for them.

The Cincinnati, Milford & Loveland and the Cincinnati & Columbus also follow the scheme of handling express matter in combination cars at frequent intervals, and freight on package cars on single daily trips. Both express rates and freight rates, however, are somewhat higher than with the other company, the express rates closely corresponding to steam express rates and the freight rates being somewhat higher than steam rates.

Radiating from Canton, the Stark Electric and the Canton-Akron lines offer both freight and express service. Both classes of goods are handled in the same cars, and the express includes deliveries and collections in the larger towns. The Canton-Akron has an arrangement with the Electric Package Company for through shipments to Cleveland and all points on the Package Company's system. Owing to the recent consolidation of the Canton-Akron with the Northern Ohio Traction & Light Company, it is probable that the freight service will soon be abandoned and the entire business turned over to the Electric Package Company, as has been done with other roads. The Stark Electric has but two rates for any distance on its line; 15 cents for freight and 40 cents for express, the latter including delivery and collection. The Stark Company has an arrangement with the Canton-Akron for joint service in Canton and for the through shipment of goods to points on the Canton-Akron system. The four roads last referred to have no interchange with steam roads and do not handle steam freight cars.

The Dayton, Covington & Piqua does quite an extensive business in both freight and express. Both classes are competitive to the corresponding rates on steam roads. The express is handled on combination cars every other trip and the freight in a special car. The bulk of the business is in farm produce, shipments to the country merchants, live stock and tobacco. The last mentioned crop furnishes a very considerable part of the business during the season. The company has stations in several towns, which are designed for tobacco warehouses, so that the producers can deliver shipments at the station as soon as they are ready and then make shipments when sales are made. Quite a little business has been worked up in the sale of ice, which is purchased from an artificial ice plant in Dayton and delivered to merchants in the towns in 100-lb. or

200-lb. cakes. A special galvanized iron platform with drain-pipes has been placed in one of the cars for this service.

The Eastern Ohio Traction Company, of Cleveland, is not in the Electric Package arrangement. It traverses a dairy and farming country and has practically no steam competition, and it gives what it terms express service at freight rates. Originally the rates were as low as steam road rates, but a year ago it found that it was not making money and raised the rates, so that they are now about 25 per cent higher than steam rates, but still considerably below express rates. Goods are handled on express cars running to the Electric Package Company's station, the company having leased a portion of this station for its service. About two-fifths of its freight receipts come from milk. It also does a considerable carload lot business, transferring standard steam freight cars from connections with steam roads at several points to points on its line, using a powerful express car for a locomotive, the cars being attached on the regular runs wherever possible. For this service it makes a switching charge, having no pro-rate arrangement with the steam roads.

CONCLUSIONS

The foregoing presents in general the different operating schemes used in Ohio to derive a revenue from the handling of commodities. It will be noticed that none of the roads follow the scheme quite generally adopted by Eastern roads of dividing the business into three classes and handling it all on the same car. On these roads, the first-class rate applies to goods which are both delivered and collected, or, in other words, use the wagon service at both ends. The second class applies to goods where there is wagon service at one end only, while the third class applies to goods where there is no wagon service. The first class is insured prompt shipment on the first car leaving the station. The second class is guaranteed for delivery that day, while the third class insures no specified delivery except that it will be handled as soon as possible, and of course it is to the benefit of the company to carry out this plan. This scheme gives the shipper a wide range of rates, and the service is gaged accordingly. It does not require the man who has facilities for deliveries to pay for something he does not get, and it provides for those who want wagon service at one end only. The arrangement enables the companies to keep their cars full and gives a better average rate per car-mile or per ton-mile, than where exclusively express or freight rates are used. The exclusively express roads in Ohio seldom are enabled to fill their cars to their full capacity. They may do so occasionally, but not on the average trip. They cannot handle the low-grade commodities of the farmer, because their rates are too high. The roads which make a rate between freight and express cannot compete with the steam roads on the lower grades of stuff, and they take a lower rate on the higher grades of commodities and those requiring quick shipment than they could command if they had an express service. The exclusive freight road also misses the high rates which it might get, and it is too often the case that it gets too much of the low-grade commodity and actually loses on many carloads handled.

While the foregoing is a resume of the various methods used by Ohio roads, it is appreciated that the results shown come a long way from pointing out which road has hit upon the most profitable scheme or how much money the roads are netting on this branch of their business. As a matter of fact, the great majority of the roads do not know accurately how much money they are making on freight and express, and some of them do not even know whether they are coming out ahead or losing money in this department. A few of them attempt to figure it, but at best it is largely guesswork, and there is a wide variation in methods of figuring and allowances made for certain charges.

On a steam road, it is an easy proposition to determine the fuel

that goes into the freight locomotives, the expenses of the freight stations and station employees, and freight department forces, with a division of track maintenance along well established rules, thus entirely separating the operating expenses of the freight and passenger departments, but on an electric road it is a very different proposition. It is almost impossible to separate the power station expenses on any kind of a fair basis. Freight cars, and especially heavy freight trains operated by electric locomotives, running at irregular intervals, produce variations in the power consumption, which render it extremely difficult to figure how much should be charged to the freight service, making an allowance for the fact that the cost of power is higher and the size of the power station equipment necessarily larger than where there is a comparatively steady load, as in passenger service.

The majority of roads employing station agents divide the expense of the agent equally between freight and passenger accounts, which is seldom a fair proposition, because an agent will spend more time handling a heavy shipment of freight bringing perhaps \$1 than he will in selling a number of \$1 tickets. The division of office help is also a hard point to settle. The majority of roads have small office forces, and as a rule it takes more time to look after the details of a lot of freight and express shipments, bringing in a small amount of money, than does the accounting of the larger passenger receipts. Where combination cars are used, it is a much mooted question as to how to separate the earnings of the compartments. The Lake Shore Electric in charging car-mileage on combination cars, figures one-quarter against the express and three-quarters against the passenger, although the passenger compartment may be full and the express compartment have nothing in it. The question of track and overhead maintenance are of course difficult to adjust. Some claim the freight cars do more damage to the track, because of their greater loads, while others believe they do less damage on account of their slower speeds and less frequent stops. Repair shop expenses are also difficult to adjust, owing to the failure of the majority of roads to keep mileages on various parts. The companies know that so many gears, trolley wheels, armatures and wheels wear out in the course of a year, but few of them know which cars they should be charged to.

The Lake Shore Electric makes an estimate that its express cars cost about 12 cents per car-mile to operate, due to less frequent stops and smaller interior maintenance. As stated in the reference to the business of the Electric Package Company, the operating expenses of the company, exclusive of car operation, are 50 per cent of the receipts. At 42 cents a car-mile estimated earnings, this would make the receipts of the company 21 cents a car-mile, or 9 cents a car-mile after paying operating expenses, interest and taxes.

The Cleveland & Southwestern, on the same basis, shows net earnings for freight cars of about 11 cents a car-mile.

The Scioto Valley Traction Company has estimated that freight cars consume about 5 kw-hours per car-mile, as compared with 3.1 kw-hours for passenger cars. If current delivered at the car costs 1 cent per kw-hour, which is considered a fair rate for large stations in this district, the cost of power would be 2 cents more than for regular passenger cars. The company knows the consumption of current on passenger cars from experience before the freights were placed in operation, and by making a careful estimate of other expenses it is able to satisfy itself that it is making a good profit on this department. Unfortunately, it is unwilling to go into the details, beyond saying that the cars earn an average of 36 cents a car-mile.

The Toledo & Indiana has found that its electric locomotive consumes 4 kw-hours per car-mile. Each loaded car adds 2 kw-hours per car-mile. Current at the car costs about 1 cent per kw-hour. The freight trains make 100 miles a day, and average five cars to the train, but all the cars do not cover the

entire length of the road. The cars average 30 miles each way, or 60 miles per car, equivalent to 300 car-miles per day, or 7500 car miles per month. The trains earn an average of \$75 per day, or \$1,875 per month, equivalent to gross receipts of 24 cents a freight car-mile. However, the earnings per freight train-mile are 75 cents, because the train itself makes the full mileage. The earnings of express cars running into Toledo are \$1,750, and the cars make 5600 miles per month, so that the earnings per car-mile are 31 cents.

There is a very good profit in this one train, but it would be impossible to operate several of these trains a day without interfering with the fast passenger service and necessitating much larger equipment in the power station. The Toledo & Indiana package cars which operate into the city last year handled 4,600,000 lbs. of freight matter, of which 3,800,000 lbs. was outbound, and 800,000 lbs. incoming. This indicates that the bulk of this class of business is in goods shipped by the city jobbers to the country merchants, rather than incoming produce.

In this connection it might be stated here that the idea that the traction lines are taking the place of the farmer's wagon and are hauling his goods to the city is somewhat of a fallacy. While a number of roads undoubtedly secure a large amount of this business, the trend of traffic is in the other direction, i. e., from the big city to the country stores. The tendency of the roads that secure a lot of this business is not to stop at the farmer's door and take on a load of his produce, but to induce the farmer to go to the nearest town and sell to a shipper. This serves the double purpose of giving the road large shipments and with no delays to pick up small lots, and it also keeps the merchants in small towns in a better frame of mind, because they want the farmers to come to town.

The experience of the Toledo & Western with trainload lots is very similar to that of the Toledo & Indiana. It averages more cars to the train, and its earnings per train-mile are 85 cents. Its locomotives are heavier and probably consume somewhat more than 4 kw-hours per car-mile.

The Cincinnati, Georgetown & Portsmouth reports \$1.30 gross earnings per train-mile, and 34 cents per car-mile for express cars. It figures operating expenses on both classes at 68 per cent, and does not attempt to separate them.

It is more difficult to obtain figures from roads handling freight at freight rates in single cars or two-car trains. The Dayton & Troy estimates earnings at 38 cents per car-mile and operating expenses at 45 per cent. The Dayton, Covington & Piqua figures its earnings at 42 cents per car-mile and operating expenses at 52 per cent. The other roads of this class make no attempt to separate the freight operation from the passenger. Car-mileage earnings of several roads are shown in Table XI.

MILK

The interurbans in Ohio are constantly increasing their milk business. The fast and frequent service and the usually convenient location of the lines, and their willingness to stop for small quantities, induce the farmers to turn the business over to the electrics. There would be a milk famine in Cleveland were the package cars to stop running. The Eastern Ohio, which traverses a rich farming district, handles 5000 to 6000 gallons daily, and its receipts from milk last year were \$25,480. The company makes a flat rate of 2 cents a gallon for any distance, which places the farmers 40 miles away on an equal footing with those nearby, thus increasing the bulk of the business. Cans are returned free. The company encourages farmers to build milk platforms and will stop for any number of cans above three. Tickets are sold and must be attached to cans.

The Cleveland & Southwestern comes a close second to the Eastern Ohio, hauling an average of 800 cans a day. Milk receipts last year were close to \$20,000. The bulk of this is delivered to wagons at the city limits, which gives the company all

the receipts. Rates vary from $\frac{3}{4}$ cent to 2 cents, according to distance. A higher rate is charged for cream, as it was found some time ago that farmers were separating the milk from the cream and shipping the cream, the milkman making it back into milk after it got to the city.

The Toledo & Indiana gets an unusually large amount of milk which it takes to two large condensing plants on its line. It makes a rate of 1.3 cents per gallon to these plants.

The Toledo, Port Clinton & Lakeside and the Toledo & Western handle large quantities of milk into Toledo, while the Interurban Railway & Terminal, Cincinnati, Georgetown & Portsmouth, Cincinnati, Milford & Loveland and the Cincinnati & Columbus assist greatly in serving Cincinnati. Their rates are shown in Table XI.

Practically all of the roads visited in Indiana and Michigan handle more or less milk, but statistics on the general freight business of these roads are not so complete as to allow an analysis such as given of the Ohio freight traffic. The milk handled varies from a few cans a day on some roads to such a quantity as to require special milk trains, as on the Detroit United Railway system. There is no uniformity as to basis for charges. Some roads base their charges on the distance and the size of the cans. Others charge the same price for all sizes of cans and for long or short hauls. The Indiana Union Traction Company handles milk on a three-part ticket as does also the Indianapolis & Northwestern Traction Company. One part of the ticket is torn off by the conductor, another serves as a receipt for the consignee and the third portion is for the return of the empty can. On the Indianapolis & Northwestern system, about 1000 gallons of milk are handled per day. A charge of 1 to 3 cents per gallon is made, the charge increasing with the distance. At the present time, the cans are hauled in the baggage compartment of the regular passenger cars, but within a short time a special milk train will most probably be put on.

A charge of $1\frac{1}{2}$ cents per gallon is made by the Indianapolis & Cincinnati Traction Company for handling milk. This charge is made regardless of the distance hauled. Three-part tags are sold for cans of three, four, five and eight gallons capacity. Tags for cans of different capacities are distinguished by different colors. These tags are sold to farmers in quantities of not less than \$3 worth at a time. Loading platforms are built at all the towns where the shipments justify the expense. Private loading stations are erected by the shippers. All the milk is carried in express cars.

About 2000 gallons of milk are handled per day by the Indianapolis, Columbus & Southern Traction Company. For hauls less than 10 miles, a charge of 1 cent per gallon is made. Above this distance $1\frac{1}{2}$ cents are charged. This charge includes the return of the empty can. Cans of five, eight, seven and one-half and twelve gallons capacity are handled. Shippers are compelled to buy 100 tickets at a time and are requested to erect their own platform. These may be erected at any point on the line.

For shipments of milk over the lines of the Terre Haute Traction & Light Company no tags are employed. Milk is billed in the same manner as is freight. Farmers are supplied with blank bill heads which they fill out for each shipment. Settlement is made at the office of the company on Saturdays when the farmers come to the city. A charge of 1 cent per gallon is made for carrying milk.

The Kokomo, Marion & Western Traction Company has handled some milk, but as there are no large cities on the line, there is very little shipped. A three-part tag is sold in quantities of fifty at one time.

About 500 gallons of milk are handled by the Fort Wayne & Wabash Valley system per day. The shipper makes out a bill of lading and leaves it on the shipping platform with the can. The train crew picking up the can make out the way bill. Monthly settlements are made with shippers, the charges being

10 cents per full can and $2\frac{1}{2}$ cents for the return of the empty can. This charge is made regardless of the distance hauled.

A milk train is operated on each of the interurban divisions of the Detroit United Railway system. Milk is also carried in the early morning baggage cars. A motor car and a trailer make up the milk train on the Flint division. The cars are especially fitted for carrying cans, racks being built on each side of a central passageway. The charge per gallon is based on the length of the haul and varies from 6 to 10 cents for a ten-gallon can. The same price is charged for smaller cans. A two-part tag is used. One part is taken from the full can by the conductor, while the remaining part is left on the can and serves for its return when empty. Creamery companies which buy up milk throughout the country are the purchasers of a large quantity of tickets. To private shippers any number of tickets will be sold at one time, but usually the purchases are in from \$2 to \$5 lots.

About 250 cans of milk are handled each morning by the Detroit, Ypsilanti, Ann Arbor & Jackson Railway. A two-part ticket is employed and cans are carried in freight or express cars. A charge of 10 cents per can regardless of the distance hauled is made.

EXPRESS CARS

As has already been intimated, the idea of handling express and freight matter on combination cars is on the decline, except in the case of a few roads which distinguish between freight and express and do a small amount of fast express business on the combination cars. Practically all the roads now have special express cars for this service. Ideas as to the best design of car for the service differ almost as much as in passenger cars.

One of the most substantial cars in service is that of the Cleveland & Southwestern. It is 54 ft. long, built with very heavy floor framing and bumpers and is designed to carry 20 tons. It has two double doors on each side and doors at each end, which are very convenient for loading long, bulky articles, such as poles, scenery, etc.

The Dayton, Covington & Piqua Traction Company has a 56-ft. express car of exceptionally strong and heavy construction, and in addition to being of large capacity and very serviceable, it is fitted with an adjustable platform on the roof so that it may be used as a line car.

The various branches of the Indiana, Columbus & Eastern have several 60-ft. express cars with large carrying capacity. The express motor cars built for the Scioto Valley Traction Company are but 45 ft. long and they were equipped with 125-hp motors and train-braking system for handling one or more trailers. The trail cars used for this service are described in another column, as are also the Manhattan elevated cars transformed into freight trailers by the Western Ohio and Dayton & Troy lines; a very convenient auxiliary equipment which costs but little. The express cars of several roads are illustrated on Plates L. and LII.

U. S. MAIL

Nearly all the roads in Ohio handle mail in bags and derive some little income from the Government on a basis of a fixed amount per mile per sack. Three roads, the Eastern Ohio, the Cincinnati, Georgetown & Portsmouth and the Toledo & Western, which cover districts not touched by steam roads have contracts for regular mail-car service. They furnish a special compartment of 10 ft., which is fitted up for the distribution of mail en route, and for this they receive $7\frac{1}{2}$ cents per car-mile, and 3 cents per mile per sack for pouch mail. The Toledo & Western and the Eastern Ohio carry the mail on a passenger car, while the Cincinnati, Georgetown & Portsmouth has a 56-ft. express car with one end partitioned off for the mail. Traction lines generally are endeavoring to secure more of this business and incidentally they think they ought to get better rates. It appears, however, that the entire appropriation to electric railways is a ridiculously small amount, and it is difficult to persuade the Government to raise it.



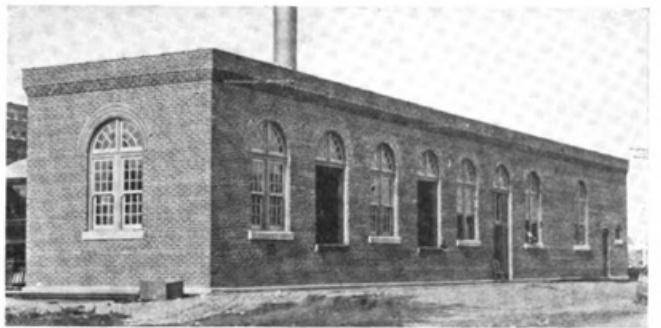
FREIGHT PLATFORM OF STATION AT TIPTON, INDIANA UNION



TYPICAL FREIGHT STATION IN SMALL TOWNS, WESTERN OHIO



FREIGHT STATION AT ANDERSON, INDIANA UNION



FREIGHT STATION AT RUSHVILLE, IND., INDIANAPOLIS & CINCINNATI TRACTON



SIDE VIEW, INTERURBAN FREIGHT STATION AT INDIANAPOLIS



TYPICAL SCENE, INTERURBAN FREIGHT STATION, INDIANAPOLIS



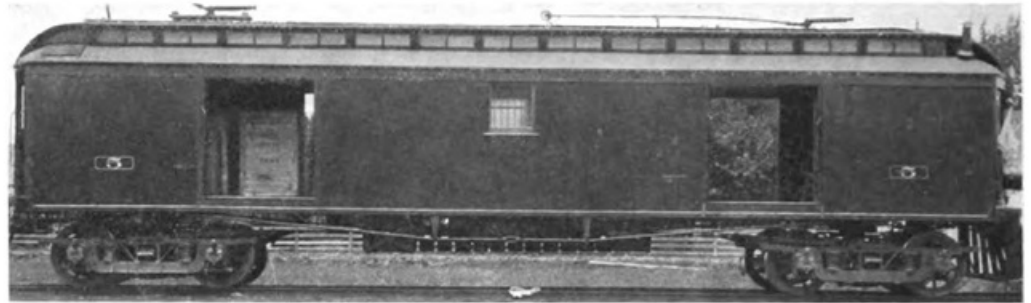
FREIGHT TERMINALS AT COLUMBUS, SCIOTO VALLEY



TERMINAL STATION, ELECTRIC PACKAGE COMPANY, AT CLEVELAND



STANDARD FREIGHT CAR, INDIANAPOLIS & CINCINNATI TRACTION



EXPRESS CAR, INDIANAPOLIS & NORTHWESTERN



STANDARD FREIGHT CAR, INDIANAPOLIS, COLUMBUS & SOUTHERN



EXPRESS CAR, LAKE SHORE ELECTRIC



OLD MANHATTAN ELEVATED CAR REBUILT FOR EXPRESS AND FREIGHT SERVICE,
WESTERN OHIO RAILWAY