Traffic Problems in a City of 70,000

A Recent Traffic Analysis Made of the Charleston (S. C.) Electric Railway System Disclosed a Number of Possible Improvements and Economies, Even Though One-Man Cars Were Being Used Almost Exclusively

The transportation situation in Charleston, S. C., as described in the survey recently made for the company by John A. Beeler, New York, shows a condition which probably has parallels in a number of other cities of like size. In 1910 Charleston had a population of about 59,000 and in 1920 of 68,000. The street railways in the first part of the last decade were fairly prosperous, showing from 1911 to 1914 an operating ratio of from 67 to 69 per cent, with operating revenue in the neighborhood of $400,000. During the next four years the operating ratio increased to from 72.3 to 77.9 per cent, while in the last five years it has been over 90 per cent for every year. For every year except 1920 it was over 97 per cent, and in 1921 and 1923, based on the first five months' operation, it was more than 100 per cent. During the war riding greatly increased because of activity at the Charleston Navy Yard, but since 1920 traffic has gone back to about the trend of the pre-war figures. There is no jitney competition.

The report of the Beeler organization suggests a plan by which the company will be able to make a saving of $148,530, or about 25 per cent of the operating expenses, and still serve the city as well as if not better than with present service, in spite of the fact that operation in Charleston has been largely by one-man cars. Since the completion of the report it has been accepted by both company and city. An abstract of the report follows:

Railway Conditions in Charleston

The Charleston railway operates a total of 39.44 miles of track, of which about 10.7 miles are on the interurban line connecting North Charleston and the Navy Yard with the city. The balance is on the city lines. The service calls for the operation of thirty-four base cars and ten additional during the rush hours, making a total of forty-four cars in daily service. In 1922 the system transported approximately 10,000,000 revenue passengers and had a gross operating revenue of $634,000.

The city of Charleston is one of the oldest in the country, having been founded by the British in 1670. The growth has been slow but steady from the first census in 1790, when it had a population of 16,000, to the present time, with its population of 67,957. This population is fairly evenly divided between whites and blacks, there being 35,585 of the former and 32,372 of the latter. The distribution of races throughout the city is likewise quite even, except for a few localities. The total population, including that of the contiguous territory served by the interurban, is approximately 72,000.

The present incorporated area is approximately 3 miles long and 2 miles wide and is bounded by water on three sides. Fully two-thirds of the people live within one mile of the business center of Charleston. This proximity to the business district encourages walking and tends to a low riding habit. The accompanying maps indicate that there has been a tendency to overtrack the city. There are four lines of tracks running lengthwise and four crosswise.

The revenue rides per capita per annum was about 130 in the period just preceding the war. This figure dropped slightly during the first two years of the war, but after the United States entered the conflict the Navy Yard began increasing its forces and the peak of over 220 rides per capita was reached in 1920. Since then the drop has been precipitous, due to the general industrial depression and the fact that very little work is going on at the Navy Yard. In consequence, the

![Graph showing passenger loads and routes](image-url)
TABLE I—PASSENGER REVENUE AND EXPENSES PER CAR-MILE BY LINES, CHARLESTON
Annual and average, based on operations in May, 1923

<table>
<thead>
<tr>
<th>Line</th>
<th>Car-Miles</th>
<th>Passenger Revenue</th>
<th>Operating Expenses</th>
<th>Operating Deficit</th>
<th>Passenger Revenue</th>
<th>Operating Expenses</th>
<th>Operating Deficit</th>
<th>Car-Miles per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt</td>
<td>470,700</td>
<td>$117,240</td>
<td>$121,000</td>
<td>$3,760</td>
<td>24.91</td>
<td>$25.7</td>
<td>$0.79</td>
<td>1,284</td>
</tr>
<tr>
<td>Broad Street</td>
<td>261,700</td>
<td>30,500</td>
<td>68,040</td>
<td>37,540</td>
<td>19.30</td>
<td>26.5</td>
<td>7.20</td>
<td>1,090</td>
</tr>
<tr>
<td>King Street</td>
<td>194,000</td>
<td>72,975</td>
<td>79,730</td>
<td>6,755</td>
<td>37.62</td>
<td>41.1</td>
<td>3.48</td>
<td>524</td>
</tr>
<tr>
<td>Meeting Street</td>
<td>153,700</td>
<td>32,830</td>
<td>35,780</td>
<td>2,950</td>
<td>21.09</td>
<td>25.1</td>
<td>4.01</td>
<td>470.700</td>
</tr>
<tr>
<td>Rutledge Avenue</td>
<td>371,400</td>
<td>96,640</td>
<td>109,190</td>
<td>12,550</td>
<td>26.02</td>
<td>79.4</td>
<td>3.38</td>
<td>1,090</td>
</tr>
<tr>
<td>Suburban</td>
<td>486,500</td>
<td>172,810</td>
<td>166,580</td>
<td>6,230</td>
<td>35.37</td>
<td>34.1</td>
<td>11.27</td>
<td>1,557</td>
</tr>
<tr>
<td>Total</td>
<td>1,942,000</td>
<td>$542,955</td>
<td>$584,240</td>
<td>$41,285</td>
<td>27.96</td>
<td>30.3</td>
<td>2.14</td>
<td>5,388</td>
</tr>
</tbody>
</table>

The amounts shown for operating expenses include taxes on equipment or use on the various lines except surplus.

TABLE II—COMPARISON OF CHARLESTON AND OTHER CITIES

<table>
<thead>
<tr>
<th>A. E. A. Electric Railways</th>
<th>Charleston Railway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average rate of fare in cents</td>
<td>7.13 (e) 6.92</td>
</tr>
<tr>
<td>Annual revenue per capita</td>
<td>$12.78 (b) $8.81</td>
</tr>
<tr>
<td>Operating revenue per mile of track</td>
<td>$20.79 (b) $16.08</td>
</tr>
<tr>
<td>Operating revenue per car-mile in cents</td>
<td>45.9 (e) 39.8</td>
</tr>
<tr>
<td>Operating expenses per car-mile in cents (d)</td>
<td>36.2 (e) 33.1</td>
</tr>
<tr>
<td>Operating ratio, per cent (d)</td>
<td>76.17 (e) 107.37</td>
</tr>
<tr>
<td>Taxes, per cent of operating revenue</td>
<td>7.13 (e) 9.48</td>
</tr>
<tr>
<td>Revenue passengers, per cent (c)</td>
<td>Inc. 6.63 (e) 18.03 dec.</td>
</tr>
<tr>
<td>Revenue passengers per car-mile (c)</td>
<td>6.2 (e) 4.9</td>
</tr>
</tbody>
</table>

(a) Average of eighty-one urban railways for first four months of 1923.
(b) Average of fifteen cities, 60,000 to 60,000 population, for year 1922.
(c) Increase or decrease compared with same period 1922.
(d) Including taxes.

The average fare is 16 per cent lower than the average elsewhere. The density of business, as represented by the operating revenue per mile of track, is 26 per cent lower in Charleston. Even though the fare were the same rate, viz., 7.13 cents, and there were no change in the riding habit, the volume of business would total only $16,100 per mile of track, or less than 80 per cent of that in the other cities last year. The operating revenue per car-mile in Charleston is less by nearly one-third and the operating expenses per car-mile about 10 per cent less. It is notable that the total receipts per car-mile in Charleston are 15 per cent less than the operating expenses of the average company.

THE SURVEY

To determine what readjustments in service could be made without disturbing the trend of travel, considerable field work was necessary. Traffic counts were taken at all of the principal transfer points, the peak load points and points where there was considerable interchange of traffic—seventeen locations in all. Each point was counted from 6 a.m. until 12 midnight for a two-day period and the results averaged. The counts were taken on weekdays when the weather was fair and other conditions such that normal traffic would be expected. The men stationed at these locations took a record of every car passing, noting the following:

Route, destination, direction, car number, time of day and the number of passengers arriving at and leaving the point. The results of these observations were tabulated and charted. Records were also made for a number of typical trips of all stops, the location and volume of the passenger interchange, the time at time points, delays and any features which might influence the movement of the car. On three lines the origin and destination of each passenger were observed as further aids in determining possible readjustments on these routes. Charts were prepared from these rides, and a typical one showing the origin and destination of each passenger is presented on page 1081.

CARS SHOULD BE REROUTED

In Charleston, as in most cities, the greater part of the demand for transportation is from the residence sections to the business section of the city. A considerable amount of the company's business is the result of the demand for service between the city of Charleston and the Navy Yard and North Charleston, which is served by the Suburban line. Since the business district is not confined to any one section, there is also a demand for cross-town service as a means of connecting the various civic centers and providing transportation between the hotels and the Union Station. This class of service encourages the use of street cars by the patron who has only a short way to go. Service which caters to the short-haul rider, the patron who enables the company to earn money, must be made as direct, speedy and generally attractive as possible.

The present and proposed routes are shown on page 1085. It is believed the new routing will serve the city better than the present one. It will provide the average patron with faster and more direct service and it will eliminate much of the waste in the present service, especially duplication and operation in unproductive territory.

The routing of the Suburban and Meeting Street lines will remain unchanged. The King Street line will loop back via Calhoun, Meeting, Broad and King Streets, resulting in one-way operation on the congested portion of King Street between Broad and Calhoun. On this portion of the line there is only one track now, because of the narrowness of King Street. The new routing will eliminate the necessity of cars now waiting at turnouts in this single-track section.

On the Rutledge Avenue line the detour to President Street will be eliminated and in the downtown section the cars will loop back via Meeting, Broad and King Streets. This will remove some of the excess service running to the Battery. A complete rearrangement of the Broad Street and Belt lines is recommended which will eliminate most of the present duplication of routes.

The cost of the additional special trackwork required...
December 29, 1923  Electric Railway Journal  1083

to make this rerouting effective should not exceed $12,500.

The co-operation of the city authorities in the matter of regulation of vehicle traffic will be required for best results in obtaining a prompt movement of cars. The fact that costs due to accidents and damages have increased 145 per cent since 1913 illustrates the need of better traffic regulation.

Parking should be minimized on streets which have a large volume of traffic. Secondary streets having little importance as thoroughfares should be used for this purpose. Among other things, automobiles should be required to stand parallel to the curb with the adjacent wheels within 6 in. of the curb. No parking should be permitted opposite a trolley loading space.

**Service Readjustments**

The company is at present using an up-to-date form of schedule modeled after the A.E.R.A. standard. In making new schedules to conform with the routing changes, the use of this form should be continued. The service readjustments were determined after a careful check of the riding habits on the various lines. Barring irregularities, the proposed schedules will furnish as many seats as passengers during every hour of the day, which is certainly liberal. In fact, such an arrangement is impracticable in many cities. An outline of service changes are summarized in Table III.

All of the proposed headways are more than sufficient to meet the traffic demands and are in equal divisions of an hour, so that cars will pass a given point at the same time after each hour. This is of great value to patrons and tends to increase riding.

The new schedule calls for 8.70 car-miles per car-hour instead of 7.91 as at present. Slow operation tends to discourage riding, waste power and increase accidents. It is also the general experience that schedules which are too slow tend to carelessness on the part of the operator. If the motorman is obligated to keep busy he will be more watchful and fewer accidents will be the result. The reduced congestion on King Street will be a large factor in minimizing the delays on that particular line.

At present all of the lines with the exception of the King Street and Suburban lines are operated with one-man cars. It is the intention of the company to put one-man cars in service on King Street as soon as a sufficient number of the cars are equipped with safety devices. This is in line with the most modern practice.

Expressed in terms of the different types of equipment, the total daily car requirements are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Two-Man</th>
<th>One-Man</th>
<th>Trailers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>18</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Proposed</td>
<td>9</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>Saving</td>
<td>9</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE III—PRESENT AND PROPOSED ROUTES, OPERATING DATA AND WEEKDAY SCHEDULE**

<table>
<thead>
<tr>
<th>Route</th>
<th>Round Trip Miles</th>
<th>Belt</th>
<th>Broad Street</th>
<th>Columbus-Fleisch</th>
<th>Meeting Street</th>
<th>Rutledge Avenue</th>
<th>Suburban</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New</td>
<td>Old</td>
<td>New</td>
<td>Old</td>
<td>New</td>
<td>Old</td>
<td>New</td>
</tr>
<tr>
<td></td>
<td>4.52</td>
<td>4.74</td>
<td>4.95</td>
<td>5.11</td>
<td>5.13</td>
<td>5.62</td>
<td>7.97</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>12</td>
<td>17</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

This results in a saving of nine two-man cars and four one-man cars. The saving in the one-man cars will be especially appreciated as a shortage of this type was inevitable with the beginning of one-man operation on King Street under the present system of routing.

**GENERAL IMPROVEMENTS DESIRABLE**

There are a number of factors influencing the quality and cost of service which often can be improved if attention is directed to them. Suggestions particularly applicable in Charleston are enumerated in the following paragraphs:

Some confusion exists at present as to the exact location of passenger stopping places. Stops are made occasionally at a number of short side streets where none is authorized. The far side stop at transfer points was abolished, but this rule is not definitely followed. On the Suburban line, where there are definite stations, they are marked with small enameled signs, but some of these are entirely effaced. To mark definitely the stopping places of cars, the trolley poles at these locations should be painted with a white band about 3 ft. wide at a suitable height bearing the words "Car Stop" in black letters. The use of this type of sign is almost universal throughout the country and has been found very satisfactory wherever tried. It is plainly visible from a distance, and it is cheaper and more permanent than any other device.

The stopping places on the city lines average about fourteen to the mile, while the actual stops made vary from 4.3 per mile on Rutledge to 7.7 per mile on King. The Suburban line, with 8.4 stopping places per mile, averages 3.8 actual stops for the same distance. Most of the stops are made in the delivery area and some are at insignificant alleys or in the middle of the block. These superfluous stopping places should be eliminated, not only for the improvement of the street car service but as an aid to the movement of general traffic on these busy streets. City stopping places should not be closer than eight to the mile in order to secure satisfactory results. To make eight stops per mile requires a stop every forty-five seconds and is all that the most modern equipment and a skilled motorman can do and maintain any schedule worthy of the name.

The present schedules do not provide for a layover or scheduled standing time at line terminals. While the allowed time is sufficient to provide for minor delays, better operation would be obtained if the scheduled time were faster and a short layover provided with the time gained to care for the delays that are bound to occur.

The present practice in Charleston is for a patron to state what transfer he wants when he boards the car. The conductor, however, does not issue the transfer until the patron is leaving. This delays both the

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(a) On King Street before 7 a.m. and after 9 p.m. a twelve-minute headway should be maintained.
(b) In addition to a special trip per morning and evening for colored workers at the fertilizer plant.
(c) For the present demands, six extras should be operated in the morning and eight extras at night.

This includes the two-car and three-car train to the Navy Yard at night. The car-hours and car-miles shown include the extras.
alighting and boarding passengers. It would be much better if the transfers were issued to passengers only when they board the car.

The center-entrance cars are equipped with two doors, but only one of these, the forward one, is used. Keeping this door closed gives a little additional seating space, but it would be better to use both doors as an aid in speeding up and improving the service.

The track switches now in use in Charleston are hand operated, by short switch-irons, which make it necessary for the motorman to leave his post to throw the switch. With one-man cars, this makes serious delay and fare collection becomes more difficult. Electric switches should be used wherever the headways are five minutes or less. Switches not electrically operated should be thrown from the car. Hand switch-irons long enough to permit this operation should be provided.

Observations showed that while there was opportunity for a great deal of coasting, very little was done.

One of the standard forms of power saving devices should be adopted. Their efficient use reduces power consumption and gives more comfort to the passengers, as it necessitates more uniform acceleration and braking. Probably 10 per cent of the power cost can be saved after the power saving devices are paid for.

Reports from eighty-one electric railway companies in the United States for the first four months of this year show that approximately 7.1 per cent of the operating revenue is paid out in taxes. For the same period, the Charleston railway paid 9.5 per cent of its operating revenue for this purpose. Some substantial relief should be afforded the railway. In addition to the regular taxes the company paves a portion of the streets between and adjacent to the rails. The amount of paving so required has recently been reduced 50 per cent. It should be eliminated entirely.

It has been the policy of the company not to set aside a reserve for renewals and retirements, but to keep the physical plant in condition by charging all current renewals to the maintenance account. Only actual additions to the plant, such as the addition of safety devices to cars, are added to capital account. The generally accepted practice, however, and one which guarantees greater protection of property and minimizes the fluctuations in the operating expense, is to set aside an annual reserve for renewals and retirements and to use it as needed. The company should accrue annually a sum for this purpose.

**Savings Possible by Plan**

Table IV shows in detail the present operating cost per car-hour of the different types of equipment. An analysis of the savings possible from reducing the car-hours shows that for each hour saved expenses will be reduced as follows: Two-man car, $1.658; one-man car, $1.009; trailer, $1.002.

Maintenance of equipment is not included in this estimate because it is considered later, but three-fourths of the maintenance of way car-hour cost was taken, as the ratio of the car-mile to the car-hour reduction is 3 to 4. No change was estimated for the general expense or taxes, so that the estimated savings should be conservative.

The total annual reduction in expenses that should follow all changes recommended is shown in Table V.

**Shops and Carhouse**

Maintenance of equipment costs increased steadily until 1921, when the peak was reached. At that time the cost per car-mile was 6.1 cents, or 454 per cent higher than in 1913. The present figure of 5 cents per car-mile is 354 per cent greater than before the war. This indicates either abnormal renewals or need for greater economy in the shops or both.

The general arrangement of the shops is good except that a storeroom should be provided in the rear of the middle portion of the carhouse as a time saver when securing materials. When the time is propitious a carpenter shop should be built in conformity with the rest of the surroundings. The completion of the remodeling of the cars, a more efficient use of labor and the decrease in the number of cars in service due to the new routing proposed will make it possible to reduce the cost of labor and materials as estimated in Table VI.

By reference to chart No. 8 on page 1086 it will be seen that in 1913, which may be taken as a typical pre-war year, 5.3 per cent of the operating revenue
TABLE VI—ESTIMATED ANNUAL SAVINGS AT SHOPS AND CAR HOUSE

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payroll reduction (shops)</td>
<td>$14,000</td>
</tr>
<tr>
<td>Payroll reduction (carhouse)</td>
<td>6,700</td>
</tr>
<tr>
<td>Saving in materials</td>
<td>12,700</td>
</tr>
<tr>
<td><strong>Total annual saving</strong></td>
<td><strong>$34,000</strong></td>
</tr>
</tbody>
</table>

was required to cover maintenance of equipment costs, while for the first five months of 1923 16.5 per cent was required. Similarly, in 1913 these expenditures represented 7.8 per cent of the total operating expense, while now they are 15.5 per cent or double. This account should be normally about the same percentage of the total expense.

A very considerable portion of the increase in recent years is, undoubtedly, due to deferred maintenance. Some of it is due to renewals and betterments to the present rolling stock. As there is no special reserve for renewals of this nature, these costs are being charged directly to operations.

**ARRANGEMENT OF SHOPS**

The general arrangement of the shops is shown in the plan on page 1084. They are well located with respect to the carhouse. The electrical, machine, blacksmith and paint shops are housed in the main brick structure. The carpenter shop, however, is a frame lean-to on the south side of the main building. This frame structure was recently enlarged by addition of a temporary shed to care for the increased work in connection with the remodeling of cars. The present carpenter shop structure will need rebuilding in a few years. By that time the company may expect to be on a better financial basis and a building should be constructed in conformity with the rest of the plant.

The material store house is located in the old power house across the street. This requires a walk of approximately 1,000 ft. when material is required. The rear portion of the middle section of the carhouse is little used except as a place to pile junk. It should be cleared out and used as a store room that will be readily accessible from the shops. The cost of making the store room changes should not be a great deal.

The saving in time and labor in routing the materials should soon repay this expense.

The machine tools are in good condition and with the remodeling of the cars finished any replacement is hardly justified at the present time. A shaper or a milling machine would be a time saver in turning out light work. A check on the number of operations that would be done on this machine with the normal maintenance work should be made and the cost compared with that of similar work done by present methods. It is probable such an investment would be justified.

A large portion of the woodworking machines were purchased in 1921, so there should be no need for additions at this time.
With the remodeling of the cars completed, a reduction in the shop force is contemplated, leaving just enough help to care for the current maintenance. The decrease in the number of cars in service, with the proposed routing in effect, will reduce the labor requirements still further. Fifteen men may be dropped from the payroll, with a weekly saving of $364.50 from the present weekly payroll of $791.10. With a smaller force, administrative duties will be easier and a closer check on the work will be possible.

Based on the five months ended May 31, 1923, the annual cost of materials for equipment maintenance is $52,800. With the recommended routing effective the material costs should be reduced approximately in the same proportion as the number of car-miles operated, or an annual reduction in the material cost of $12,700 may be expected. The carhouse can also be operated with a smaller force and the weekly payroll reduced at least $129.60.

The adoption of all of the recommendations in this
report should be of permanent benefit to both the public and the company. The faster and better distributed service should stimulate business. Reduced congestion will benefit the general public as well as the car rider and the user of the automobile. The merchants and property owners will benefit from the enlarged delivery area and the better distribution of cars through the business district.

The plan will enable the railway to take an important step toward being self-sustaining, as with the plan herein effective a saving of $148,530 in operating expenses can be made. Supplanting these economies, further steps may be taken to improve the net earnings of the railway in three ways: (1) By the people of Charleston patronizing the railway more; (2) by curtailing the proposed service and introducing further economies; or (3) by raising the fares.

The railway deserves more patronage as the low per capita earnings show. An increase of one dollar per capita, or 2 cents per week, would practically wipe out the deficit. The schedules and service proposed in this plan will readily care for 15 to 20 per cent more riders. A 13 per cent increase in the revenue passengers would enable the company to operate without a deficit. This may result from changes in population or from increased riding. If from the latter alone the riding habit must go up from 130 to 147, which, although more nearly what it should be, is a considerable increase over the present.

To curtail the service from that which is proposed is not desirable if any other way out can be obtained. Economies other than those recommended are not desirable from a service standpoint.

At the present time a combination of increased fares and more patronage is a practicable solution. If a straight 7-cent fare for adult city passengers were adopted it is estimated that the railway revenues will be increased $22,500 annually. Possibly the people of Charleston, when they understand this situation, will avail themselves of the service to a greater extent and thus tide over the necessity of either lowering the standard of service or of increasing the rate of fare above 7 cents.

Fares to be equitable must always be based on the cost of rendering service. High costs mean higher fares. As the costs recede the fares should do likewise. At no time, however, can any progressive community prosper with poor car service even though such service is tolerated by the public in order to secure a low rate of fare.

Capitalizing on the Coffin Prize

How the Chicago, North Shore & Milwaukee Railroad Is Turning the Winning of This Award to Good Account—Its Value as a Publicity Asset Is Being Fully Utilized in Newspaper Advertising, Window Displays and Company Publications—The Cover Design of the Prize-Winning Brief Has Been Reproduced on Dining Car Menus and on Attractive Souvenir Calendars

REALIZING the immense value of the Charles A. Coffin prize as a publicity and merchandising asset the management of the Chicago, North Shore & Milwaukee has been quick to apply it. The prize has also been put to use to give an incentive for building up a still greater pride and esprit de corps within the organization. The work already done has taken many different forms and still further applications are contemplated for the future.

As the first step in the program, the report of the Charles A. Coffin Prize Committee and the remarks accompanying the presentation of the prize have been made the basis of a series of large advertisements. Weekly insertions are being made in seven Chicago papers, five Milwaukee papers, two papers in Racine and two in Waukegan. In addition, these advertisements are being published in the local papers of Kenosha, Libertyville, Lake Forest, Highland Park, Winnetka, Wilmette, Glenco and Evanston. This list includes practically all of the larger communities along the line.

A reproduction of the certificate of award was published first. This is being followed up by a series of seven advertisements quoting excerpts from the report of the committee. The seven advertisements are the same in form, the excerpts being inserted as shown in the illustration. Several of the other quotations are given below:

5. Because of improvements in construction practice, which have resulted in reduced first cost, reduced maintenance or greater reliability of service.

"Construction methods which are contributing to the general success of this company include new and better power station equipment; a program of rock-ballasting the entire system is 60 per cent completed; the old light rail is being replaced with 100-lb. rail and concrete and brick platforms are replacing wood at the stations."

—From Report of Committee on Award.

6. Because of particular success in conducting a safety program, and actually reducing the number and seriousness of accidents.

"In fostering greater safety in operation, this company has succeeded in reducing injury and damage claims to 1.82 per cent of the gross. The record was one accident per 16,081 car-miles in 1922. Lectures, safety meetings, safety recommendations. 'Safety First Car' and first-aid drill teams are part of the company's notable safety work."

—From Report of Committee on Award.

7. Outstanding accomplishments in development of good relations between management and employees.

"The fact that your company has secured the award of the Coffin Foundation is proof positive that the greatest spirit of co-operation must have existed among all men concerned in the operation of your railway system."

—Mr. Emmens, Chairman Committee on Award.

It is expected that this series will be carried still further when the existing program is completed.

AWARD ALSO USED IN ADVERTISING NEW SECURITIES

The value of the award as a merchandising asset has also been applied in a campaign conducted for the procurement of new capital. Advertisements for the sale of the company's 7 per cent prior lien stock carry a reproduction of the front and back of the medal with the following statement beneath:

"Awarded October 11, 1923, for distinguished con-