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EDITORIAL NOTICE

Street railway news, and all information regarding changes of officers, new equipments, extensions, financial changes and new enterprises will be greatly appreciated for use in these columns.

All matter intended for publication must be received at our office not later than Wednesday morning of each week, in order to secure insertion in the current issue.

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The Subject of Strikes

The most important event, from an industrial standpoint, which happened last week, in fact the most important industrial event for a long time, and one which promises to have far-reaching effects, was the conference held in New York last week between representatives of "labor" and "capital" and the selection by them of a national committee of thirty-seven members to act as a committee of arbitration, if requested by both parties, to an industrial dispute. This committee, whose organization is undoubtedly familiar to our readers through the accounts in the daily press, is composed of twelve representatives of large corporations, twelve presidents, or other high officials, of labor organizations, and thirteen representative citizens who are not closely allied either with aggregations of capital or of labor. It is a very characteristic fact, and one in which street railway interests should feel a just pride, that two street railway presidents, viz., Senator M. A. Hanna and Herbert H. Vreeland, have been selected as members of this committee, and we have no doubt that the excellent judgment exhibited by them in the management of the large affairs under their direct supervision will be equally shown in the part which they will take in the deliberations of this council. It was a notable fact that one of the principal representatives of the labor element stated at the preliminary conference that he had never known of a strike which could not have been prevented if both sides had previously had an understanding of each other's wishes, and that if this had been done an amicable settlement could have been reached.

No Strike in Philadelphia

Coincident almost with the announcement of the formation of the national committee of arbitration, referred to above, came the news from Philadelphia that, by a vote of about 4 to 1, the conductors and motemen of the Union Traction Company of Philadelphia had voted not to inaugurate a strike on the lines of that company. Rumors of the possibilities of such a strike in Philadelphia had been current for some weeks, although it was known that a considerable proportion of the employees of the company were radically opposed to any action of this kind, and a large number of them, as stated in our issue of Dec. 14, had presented a petition to President Parsons denouncing the agitators who were endeavoring to foment trouble. That this was the opinion of a very large majority of those interested was demonstrated by the vote taken last week and referred to above. The result is certainly a very high tribute to the ability and popularity of the president of the company, John B. Parsons, as well as to the common sense and loyalty of the force of men employed on the Philadelphia lines.

For a force of employees to strike is the poorest way to enforce demands, and being wasteful and always disastrous to both sides engaged in the controversy, is an anomaly in modern industrial efforts. From the employees' standpoint it is also most impolitic, not only because the loss of business occasioned to the employer must weaken his or its financial ability to accord the demands which may be made, but as the employees are a less united force than the corporation, and as their councils are in very great danger of being dominated by a reckless and hot-headed minority, their campaign cannot be conducted with the same ability as that of the corporation. As a result, the latter wins ninety-nine cases out of one hundred, and when peace is finally reached a portion at least of the striking employees find their places occupied by other men. A strike, moreover, if prolonged, will invariably produce a feeling of vindictiveness on at least one side, if not on both, and this feeling will inevitably obscure the real causes of the controversy and prevent a settlement which will be entirely satisfactory to either side.

We realize, of course, that it is not always possible to secure that spirit of co-operation and loyalty in all branches of the service, which is the characteristic of the most successful corporations, street railway or otherwise. We mean that spirit which recognizes on the one side that an injury to the employer is an

injury to the employed, and on the other, that faithful service is entitled to as high a compensation and as fair treatment as the employer can afford, and as is given for similar work in the same locality. This can only be secured by the exercise both of broad-mindedness on the part of the employees and its reciprocal, appreciation and tact, from the manager and board of directors, combined also with the ability of the manager to make his employees understand that the company is doing all that it can, consistent with well recognized business principles, to make the services of every man satisfactory to himself and remunerative. That this has been done, however, on many roads is an undeniable fact, and it has been strikingly exemplified during the past week, as stated above, by the events in Philadelphia. The human mind is so constituted that it is very much easier to criticise and complain than to recognize fairness of purpose in another, so that the action of the Philadelphia employees in testifying to their belief in the intention of the company to investigate any alleged grievances, and to settle them satisfactorily to all concerned, is a testimonial to their good judgment, as well as to the trust inspired in them by the management of the property.

#### Diplomacy in Pole Setting

A pretty little ruse de guerre was worked lately on a sturdy citizen of Long Island, who refused to have a trolley pole planted in front of his store. He waited until the hole for the pole was dug, and then surprised the laborers by jumping into it, equipped with a fur overcoat. That stopped the proceedings, and he might have been holding the fort still, had not the shrewd foreman of the trolley gang, familiar with local affairs, hit upon a cunning scheme. Having drawn off his forces with great ostentation, so that the coast was clear, he then caused a message to be handed to the stout belligerent from a pretty young woman, known to have some personal influence in that quarter. An invitation to call was not to be resisted, and no enemy being in sight, the victor climbed out of his bombproof, declared Ladysmith relieved, and went off to see what his fair friend wanted. When he was about a block away, the trolley forces returned, and the pole was up before he could say "Jack Robinson!" All is fair in love and war, they say, and so now that the thing is done, we have no doubt that the gallant obstructionist, like so many others, will soon be congratulating himself that the trolley runs by his store, instead of in front of some other fellow's.

#### Street Car Accident Damages

Reference is naturally made from time to time in these columns to the outrageous exactions attempted from street railway companies in the form of damage suits. Brooklyn corporations have, perhaps, been the greatest sufferers in this respect, but a stout fight is made against the abuse, and once in a while the biter gets bit most gloriously. One recent case we cannot refrain from noting with a chuckle. Suit was brought by Martin Fitzgerald in the Brooklyn Supreme Court against the Brooklyn Heights Railroad Company, to recover \$1,000 for injuries which he said he had received by being thrown off a car in an altercation about the change from a quarter-dollar. He testified that the first thing he did after recovering from his injuries was to cut some grass in his yard. "That would bring the time up to the middle of winter," said Judge Gaynor. "How could you cut grass then?" Fitzgerald hedged, and changed the period of his incapacity from five months to five weeks. Numerous witnesses testified that the policeman Fitzgerald said assisted the conductor in ejecting plaintiff from the car was not present, and that the car mentioned by number was not running on the line at the time. Judge Gaynor's charge to the jury was practically a direction to bring in a verdict for the defendant, and in less than five minutes they did so. Fitzgerald was directed to remain in court in custody.

Here surely was swift exposure, and the only regret is that quick detection of similar fraud cannot take place more frequently. A corporation is but too often an "easy mark," and some of the schemes set up to fleece it are among the most detestable that can be imagined.

#### Car Advertising

In this country the placing of advertisements in street cars is a fashion of long standing, while in Europe they "go us one better" by printing ads on street car and omnibus tickets, and carrying large signs on the roofs. But in Birkenhead, the Brooklyn of Liverpool, a row appears to have arisen over the use of the windows for advertising purposes also, and the newspapers are full of the subject. Our personal preference is decidedly for an "ad" limited to the panels above the windows, but we don't see that it would make much difference in the murky climate of Birkenhead whether the windows were plastered up or not. Besides, Birkenhead is not an altogether pretty town, and if the blackened houses could be shut out by the vision of, say, a Pears' Soap girl in some stained glass attitude and tint, the æsthetic gain might really be considerable. If the Birkenheaders want their tramcar windows unobscured, they will probably have them that way, but so far as we are aware, the momentous question has never arisen in this country. The only "ads" we have ever seen on a street car window here were those of the soulless company itself, trying hard to save its patrons trouble and money by telling them what to do to get transfers or effect some other benefit of the same nature.

#### Bawbees in Dundee

Some of the difficulties of the municipal ownership of street railways are indicated by a recent episode at Dundee, Scotland. A conductor gave umbrage to a passenger, who thereupon refused to yield up two cents. This did not lead to a Græco-Roman exhibition of wrestling, but the conductor reported the incident to the manager, who in turn wrote a polite letter, asking for the two cents, the passenger being known, or having given his card. The reply ran: "I did not refuse to pay; please tell your collectors to be more civil," but it did not enclose the required amount. The manager wasted more postage and stationery in trying again, with no better result. Then the matter was solemnly brought before the City Council, who debated it seriously, and although it had already cost the grievous sum of three shillings—nearly 75 cents—the council authorized the manager to take legal measures to recover those bawbees of which their trolleys had been deprived in the first instance.

Now we are not able, at this distance, to go into the merits of the agitating controversy, but we try in vain to get ourselves into the frame of mind where we can picture such an occurrence on an American street railway. Cases of trouble here do occur between passengers and conductors, and once in a while they get into the courts, though then the passenger is usually trying to collect damages for forcible ejection, because he would not pay his fare. But in this Dundee instance, and in others we have noted across the Atlantic, where everybody runs the road, and everybody owns it, the probabilities of this kind of trouble are vastly increased, and there must be a resultant loss of economy and efficiency. So far as we know, an alleged incivility on the part of a conductor has never led in America to such a curious incident as this, but with municipal cars and government ownership of any kind, the tendency to red tape methods of settling disputes is obvious and unavoidable. And we are not aware that conductors are any more civil under that regime.

#### Chicago Transportation Committee Report

The report of the committee on local transportation of the Chicago City Council, which we print elsewhere in this issue, is a much more sane and sensible document than would be expected from past utterances of many of the city officials of Chicago in regard to the question of future street railway franchises. It appears from the report, which is in the nature of an outline of what the committee thinks should be incorporated in future franchise ordinances, that it is being realized that the question must be settled on some practical basis soon, and that the theories of the extremists have given place to something more workable. For

example, municipal ownership is admitted to be out of the question as a practical proposition for the present. The committee only goes so far as to recommend that provision be made for the purchase of the street railways by the city in case the city might desire to do so at some future time and gets the necessary legislative permission. Over the clause which would provide for the purchase of street railway properties at an appraised value there is likely to be much discussion, and on the exact meaning of this clause would depend the question of whether any company could accept a franchise on such terms. If the appraised valuation is to be the value of the company's tangible property as scrap, it would be venturesome capital indeed which would invest much in improvements under such an ordinance. One feature of the report highly to be recommended is the desire of the committee for expert engineering advice on many problems which come up in connection with its work. Although the outline as it stands will probably undergo many changes before it is finally adopted, and, of course, must be more definite on some points, it is gratifying to see that some real progress is being made toward the settlement of the uncertain state of affairs in which the Chicago street railway companies have found themselves, even though the outline is not what might be desired. Although the ultimate settlement will probably not be entirely what the companies would wish, as it never is when there are two sides to a case, there is manifestly a much greater tendency to be reasonable on the part of the committee and Council than formerly. Part of this is no doubt to be attributed to the session which General Manager McCulloch, of the Chicago City Railway, recently had with the committee, which brought about much better feeling and better understanding than formerly existed.

#### The Possibilities of Electric Power for Suburban Lines

We had occasion in a recent issue to refer at length to the plans of the Pennsylvania and Long Island Railroads, as recently announced by Presidents Cassatt and Baldwin, to establish a terminus in New York City, connected by tunnels with the existing termini in Jersey City and Long Island City, and to haul passenger trains by steam up to those or neighboring points, and thence into New York by electric locomotives. This marks a radical change in American railroad methods, and it is well to consider how far the example which will be established by such a step will assist in the solution of the problems now facing practically all of the steam railroads in the country which do a large commuter business.

It is an undeniable fact, whether or not the railway companies have awakened to a full realization of the fact, that the most profitable business of many such roads, which is that of hauling passengers in and out of the city every day from the neighboring suburbs, is being invaded to a considerable extent by the existing electric railways. This condition is bound to increase as a result of the installation of higher speed electric lines than those which now exist, if some steps are not taken by the existing railway companies to give the public in the direction of transportation what can be given by electric traction. Up to the present time electric railway construction has been mainly confined, so far as city termini are concerned, to the streets and public highways, so that in point of speed between termini they have not been able to compete with the existing steam roads for that traffic in which time is an important element, but we have no idea that this condition will long continue. The example already set by the promoters of the proposed New York & Portchester line, and described in our issue of December 7, to build a high-speed electric line without grade crossings, will certainly be followed in other sections of the country where the business warrants it. By reason of the higher acceleration attainable by electric motors and the other advantages possessed by them, such roads can undoubtedly most successfully compete, not only in speed but in fares, with the steam railroads for the traffic which the latter now hold by their ability to carry passengers who wish to be delivered at their destination at the

earliest possible moment. As such railways can be built, it lies with the steam railroads to determine whether they will be built as competitors, or whether the steam railroad companies will change their service to give that which they can give if they desire.

The Pennsylvania-Long Island scheme of using electric locomotives, successful as it undoubtedly will be, and especially adapted as it is to the conditions, provided the company does not decide to introduce electric traction on its main line, will, in our opinion, hardly furnish a precedent for the average steam railroad. In the first place, the points where the change from steam to electricity must be made are definitely settled by the proposed construction of two long tunnels under the river on each side of the Union Station, while the traffic conditions at the latter place are not complicated, and necessarily cannot be, as it is under ground, by the existence of extensive switch yards. The more common, in fact, the almost universal, condition is better exemplified by, say, the present Delaware, Lackawanna & Western terminal in Hoboken, where both through trains and local trains run into the same terminus through the main-switch passenger and freight yards of the system.

This particular road is cited because, in many respects, it would seem to be an ideal one for the use of electric power. The main part of its commuter traffic is not carried on its main line, but on a branch, on which a great many stops are made for a distance of some 20 to 25 miles, with the exception of the short distance across the Hackensack Meadows. These stations, for a distance of 20 miles, are located only about a mile apart, and the difference in average speed possible by the use of electric motor trains, equipped with a multiple-unit control, and with an acceleration of 2 miles or more per hour per second, and that of the existing steam equipment would be enormous. The latter can hardly have an acceleration rate on a level of more than 0.4 to 0.5 miles per hour per second, and the local trains hardly get under way before they must be braked for the next stop. On the other hand, assuming that such a branch be converted to electricity, the trains on the main line, which include all of the through trains, could still be run by steam.

Outside of the terminal question, there can hardly be any doubt but that electricity would be greatly superior for the local service mentioned than steam, and it is the latter complication—that is, the track yard—which really contains, in the opinion of many engineers, the crux of the whole problem of the electrical equipment of the suburban branches of the average steam road, as it does in the New York Central tunnel. It is safe to say that the unguarded third rail, as usually employed for third-rail traction, is entirely unsuited for such a location. But if this is so how can the electric trains passing through the switch yard receive their motive power? Can the third rail be satisfactorily protected against accidental contact, or can a change to the overhead system be made quickly and easily, or can storage batteries on the motor cars or locomotives be satisfactorily used for this purpose? We have heard all of these solutions proposed by eminent engineers, and we have no doubt that a solution can be reached. It remains for some company, and it seems now that the New York Central Company may be the one, to make the first trial and determine whether one of these solutions or some other is the best.

Assuming, however, this question settled, and it is not a very complicated one, it is safe to say that with electricity the running time and headway of the trains, and, consequently, the living conditions along a railway of this kind, would change materially. For instance, in the case of the Morris & Essex branch of the Lackawanna Railroad, already referred to, by the use of electric trains the run between, say, Summit and Hoboken, a distance of about 20 miles, could be reduced without trouble from 20 to 30 per cent, if not more, for trains making from ten to sixteen stops. In addition, the service could be greatly increased by the addition of many short trains, and this would undoubtedly increase travel, especially in those hours of the day when the travel is comparatively light. At present, the only service given at these times is by trains run on long headway and stopping at practically every station.

### Recent Track Construction in St. Louis

In the recent laying of new tracks on the Eighteenth Street bridge, in St. Louis, as shown in the accompanying illustration, an innovation has been made by the St. Louis Transit Company in track work in that city, by the use of a 9-in. Trilby rail, manufactured by the Lorain Steel Company.

Since Mr. Dupont has associated himself with the St. Louis Transit Company he has introduced a great many new features in track construction, although it does not differ materially from the methods he used in Detroit, except that he has to adapt himself to certain conditions, as the St. Louis city ordinances require that a side-bearing rail, or one with a broad tram, be used, instead of a groove rail, which is employed in Detroit.

In the construction shown, the rails are placed on metal ties, surfaced on blocks, with tamped concrete stringers under each

### The Adaptability of Electricity to Heavy Railroad Conditions

The inaugural address of William Langdon, the newly elected president of the (British) Institution of Electrical Engineers, was devoted largely to the benefits to be derived from the application of electricity to the existing steam railroads. Referring to this subject he says:

"The operation by electrical means of the passenger traffic, as it is conducted to-day, would appear to present no difficulty, for if necessary each carriage could be provided with the necessary motors for its propulsion; but to work a railway economically—to reap the full advantages of an electrical service—it is necessary that the entire traffic of the line, goods as well as passenger, should be worked by the same means. To work one class of traffic by electricity and the other, as at present, by steam units, although



TRACK CONSTRUCTION ON 18TH STREET, ST. LOUIS

rail. The whole sub-base is then filled up with concrete to the depth required by the class of paving. The only objection to this construction is that it takes five days after laying the track before it is ready to be used.

The rails used by the St. Louis Transit Company over its entire system is a 95-lb. side-bearing girder rail.

In St. Louis the rails are placed on metal ties, 4 ft. apart, with tie-rods every 6 ft. In Detroit the tie spacing varies from 2½ ft. to 10 ft., according to the kind of street paving used, and in some cases with 7-in. rail tie-rods are not used.

If granite, brick or asphalt is used the ties are placed 10 ft. apart, while, if wooden paving, they are 2½ ft., for the reason that if a rain falls on new wooden pavements before the street paving is completed, outside the tracks, the wooden blocks between the tracks will swell to such an extent that the track will be thrown out of gage, unless the ties are very close together.

Very little track construction will be done in St. Louis in 1902, possibly not more than 10 miles, and that will be branch renewals.

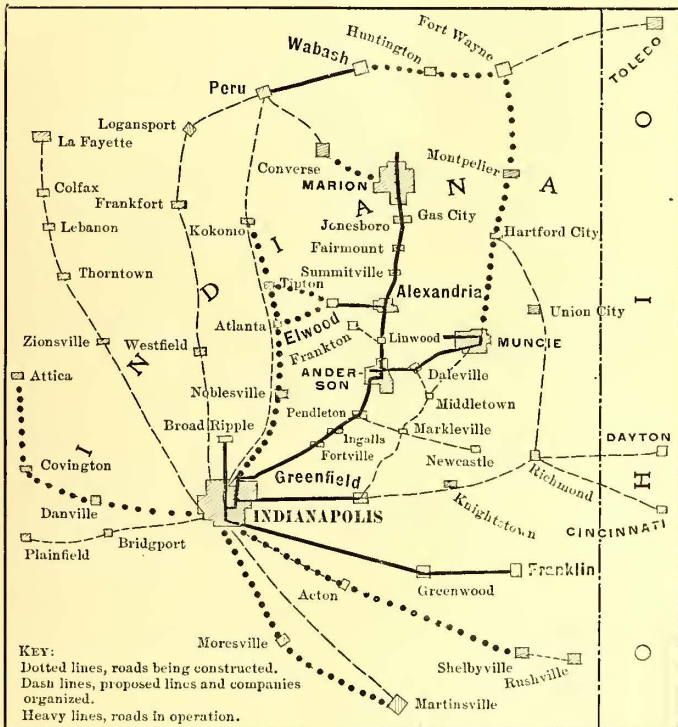
It is said that the members of the Council of St. Louis, Mo., are considering the advisability of introducing into the Council an ordinance providing that only two cents' fare shall be charged for passengers not provided with seats.

such a course is quite practicable, would involve a large increase in both capital and current charges; for the cost of establishing and operating electrical working for the passenger traffic would be very little less than it would be if dealing with the entire traffic, and there would still remain the cost attending that portion worked by the steam locomotive. Such a course appears to me impracticable. Therefore, in considering the initiatory stage of replacing the steam by the electric locomotive, we have to face the present condition of traffic—to deal with the trains as they are made up for the former type of motor. Assuming it were determined to test the possibilities of electricity on a given section of a line of railway, whatever that section might be—whether terminal or intermediate—the electric motor would require to haul the trains that might reach that section of line as they were handed over from, or required to be carried forward by, the steam locomotive. It would, in fact, have to take the place of the latter and do its work. It may be said its capabilities to do this under all conditions has not been proved. It will, however, be clear that, assuming one electric locomotive incapable, there is no reason why two should not be coupled together in the same manner that steam locomotives are coupled. And in doing so it is worth while noting that we should reap some advantage, for not only would it be possible for the two to be controlled by one man, or one set of men, but in distributing the weight over a greater wheel base we

should, to that extent, reduce the impact on bridges and other structures over which the vehicles pass. The importance of this will be apparent when we realize that the total weight of a modern locomotive and tender, loaded, exceeds 100 tons; that of this weight some 34 tons is comprised within a wheel base of 9 ft. 6 ins.; 26 tons and 24 tons each within 5 ft. 6 ins. The tendency of the day is to increase the speed of passenger trains and the load of the goods and mineral trains, and to this end to employ larger and more powerful engines. In either case this course must involve greater stress on both permanent way and structural works; and to this extent it would appear that the two electric locomotives would be more acceptable to the engineer of the line than would the steam locomotive."

**The Electric Roads of Northern and Eastern Indiana**

The extension of electric lines and the development of what is known as the "Electric Belt," in Eastern and Northern Indiana, is remarkable for its present progress and the future promises to develop this district into a network of modern electric lines unequalled in the country. The construction along this line began nine years ago, when the city of Anderson, the first in the "gas



MAP OF ELECTRIC ROADS IN NORTHERN AND EASTERN INDIANA

belt," discarded the primitive mule cars. Five years ago the first interurban line was constructed between Anderson and Alexandria, and it was the beginning of the Union Traction Company of Indiana, and of the present great "Electric Belt" system of roads now radiating to and from Indianapolis. The former company has now contracted for an extension from Elwood to Tipton, and thence to Kokomo. Three more extensions proposed are from Linwood to Frankton, from Daleville to Middletown, from Marion to Converse, and probably from Converse to Peru. From Tipton to Indianapolis a company is working quietly that is to all intents and purposes the Union Traction Company, buying private right of way, and construction will begin in a few weeks. Full particulars of the Union Traction Company's system were published in the STREET RAILWAY JOURNAL for Dec. 7.

The Central Traction Company, said to be an offshoot of the great Everett-Moore syndicate, of Cleveland, has begun the construction of an electric railway from Kokomo to Indianapolis, by way of Noblesville. The first 13 miles are graded and ready for the steels. This company announces that its plan is eventually to extend its line from Kokomo to Peru, where a connection will be made with the line of the White River Traction Company, now in operation between Peru and Wabash, and from there connection will be had, by Fort Wayne, to Toledo, Cleveland, Ohio, and Pittsburgh, Pa. Although the Central and the Union Traction Companies both declare they will build to Indianapolis from Kokomo, the popular belief is that there will be an agreement or consolidation of the two companies, or interests, rather than parallel lines, which makes it certain that electric cars will

soon run between Indianapolis and Kokomo, and eventually connect with the great Everett-Moore syndicate's Eastern Trunk lines.

The recent sale of the Indianapolis and Greenfield line to the Indianapolis & Eastern Traction Company will result in extending the line eastward at once. Arrangements are made to construct an extension from Greenfield to Knightstown this year, and thence to Richmond. This will give Indianapolis almost direct connection with Dayton and Cincinnati, as the Ohio lines are being built to Richmond. President Fauvre, of the Indianapolis & Eastern Traction Company, says the company will also construct a line from Knightstown to Rushville. The capital stock of \$200,000 of this company will be increased at once. This sale is regarded as the most important interurban deal in which Indianapolis capital has figured, and is one of the first instances wherein a new electric road has been financed almost entirely by Indianapolis capital.

Preliminary work has begun on the construction of the line of the Muncie, Hartford City & Fort Wayne Company, from Muncie to Fort Wayne, by way of Hartford City and Montpelier.

Articles of incorporation have been filed by the New Castle, Cadiz, Markleville, Pendleton and Western Railway Company, for a line from New Castle by way of the cities named to Pendleton, where connection will be made with the Union Traction line to Indianapolis. This line will be built principally by the farmers, and will be in operation next year. Right of way has been secured for a line from Muncie to Greenfield by way of Middletown. This line, when completed, will also connect with a line at Greenfield into Indianapolis.

Work is progressing rapidly on three other lines out of Indianapolis. A line to Shelbyville, a line to Martinsville and a line to Attica, by way of Danville and Covington. Strong companies have been organized, and the preliminary work well in hand for the construction of the proposed lines from Indianapolis to Lafayette; to Frankfort and Logansport and to Plainfield. Doubts are expressed concerning the proposed line to Martinsville, as one line is now almost completed to that place by way of Mooresville.

**Compressed Air Car Operation**

Some very interesting results are shown in a statement of operating figures, made by the Rome (N. Y.) City Street Railway. Compressed air cars, made by the Compressed Air Company, New York, have been operated on this line with great success, although the traffic conditions of the city are such that the present plant is not giving the most economical service. With one-third more mileage required no additional expense would be incurred, except a slight increase in coal consumption. The statement recently compiled and given below contains a record of the cars for November, 1901, during which month traffic was suspended for two days on account of the condition of the bridges over the canal.

**OPERATION OF COMPRESSED AIR CARS, ROME, N. Y., NOVEMBER, 1901.**

CAR No. 105; 78 CU. FT. STORAGE; AIR BRAKE	
Number of days in service.....	28
Number of miles run.....	2,743
Average miles per day.....	98
Average feet of free air per mile.....	737
CAR No. 108; 73 CU. FT. STORAGE; AIR BRAKE	
Number of days in service.....	28
Number of miles run.....	2,436
Average miles per day.....	87
Average feet of free air per mile.....	641
CAR No. 575; 78 CU. FT. STORAGE; AIR BRAKE	
Number of days in service.....	28
Number of miles run.....	2,560
Average miles per day.....	91
Average feet of free air per mile.....	727
CAR No. 578; 78 CU. FT. STORAGE; HAND BRAKE	
Number of days in service.....	26
Number of miles run.....	2,282
Average miles per day.....	88
Average feet of free air per mile.....	711
During the month the general average per car mile for all cars was 704 cu. ft. of free air.	
Total cost of operation of, and repairs to power plant and cars, exclusive of motormen and conductors...	\$951.99
Cost per car mile, free air consumed, including all expenses .....	.08.2
Cost of repairs per car mile.....	.01.3
<b>Total cost of operation.....</b>	<b>.09.5</b>

**A Portable Accelerometer for Railway Testing\***

BY F. B. COREY, SCHENECTADY, N. Y.

1. The recent rapid development of high-speed transportation, especially that which involves the use of electricity as the motive power, is largely due to the attention given by railway engineers

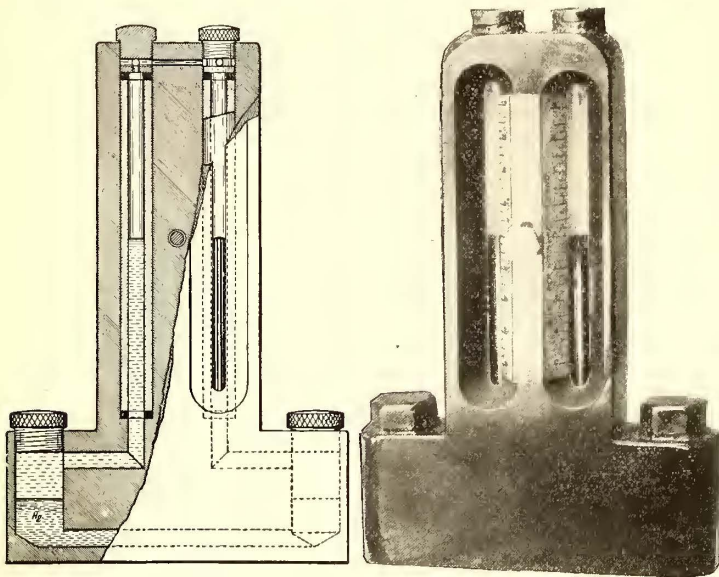


FIG. 1—POCKET ACCELEROMETER—FIG. 2

to the most minute details of locomotive and train performance. In order to obtain exact information concerning these details, most exhaustive tests are instituted, and for the proper carrying out of these tests new measuring instruments have been devised, both for indicating and recording the magnitude of the various functions involved. In all railway work, both steam and electric, the all-important factor to be considered is speed, and it is often necessary to secure accurate data in regard to the rate at which the speed changes under various conditions of equipment and operation. To obtain the desired information from a continuous speed record is generally as unsatisfactory as it is laborious, and various devices have from time to time been tried in order

- (d) It should be practically "dead-beat" to record rapid fluctuations.
- (e) It should not require for its operation any mechanical connection with the axle.
- (f) It should be of such size that it may be readily carried about in small space.
- (g) It should either be independent of grades or be capable of measuring the degree of inclination, so that its indications may be readily corrected.

In addition to the above requirements, it is extremely desirable that the instrument be such that continuous records may be made, so that we may properly study the various changes of acceleration and retardation throughout any given period of time.

3. The instrument which I am about to describe seems to satisfy, in greater or less degree, each of the above requirements, and,

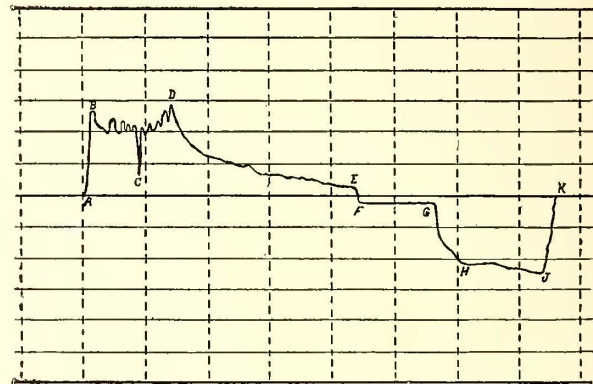


FIG. 4.—RECORD OF ACCELEROMETER

although it has certain limitations, I believe it to be more generally satisfactory under the various conditions of practical testing than any instrument of the kind heretofore used.

The action of this instrument depends upon the inertia of a small mass of mercury contained in a horizontal passage, the ends of which are in communication with two short vertical columns of mercury. Thus, the flow induced in the horizontal passage produces a difference of level in the vertical columns, which difference of level is wholly dependent on the horizontal component of the acceleration in the plane which passes through the axes of the two vertical columns. Upon this difference of level, or rather, upon the change of level of either column from a given zero position, must depend the indication of the instrument. In a small instrument, however, such as might be conveniently carried in the pocket, this change of level is very small. For instance, assuming a distance of 4 ins. between the centers of the mercury columns, the change of level would be less than  $\frac{3}{8}$  of an inch for an acceleration of 4 miles per hour per second, which is about the maximum possible on steel rails. It is, therefore, evident that some method of multiplication must be used to secure a reading scale sufficiently extended for practical work. For this purpose, colored alcohol or other liquid of low specific gravity is introduced into the spaces above the mercury column, to which spaces the reading tubes are connected. The reading tubes are of comparatively small diameter. Thus, the ratio of the cross section of the mercury column to the cross section of the reading tube becomes approximately the multiplier of the changes of mercury levels. The upper ends of the two reading tubes are connected together so as

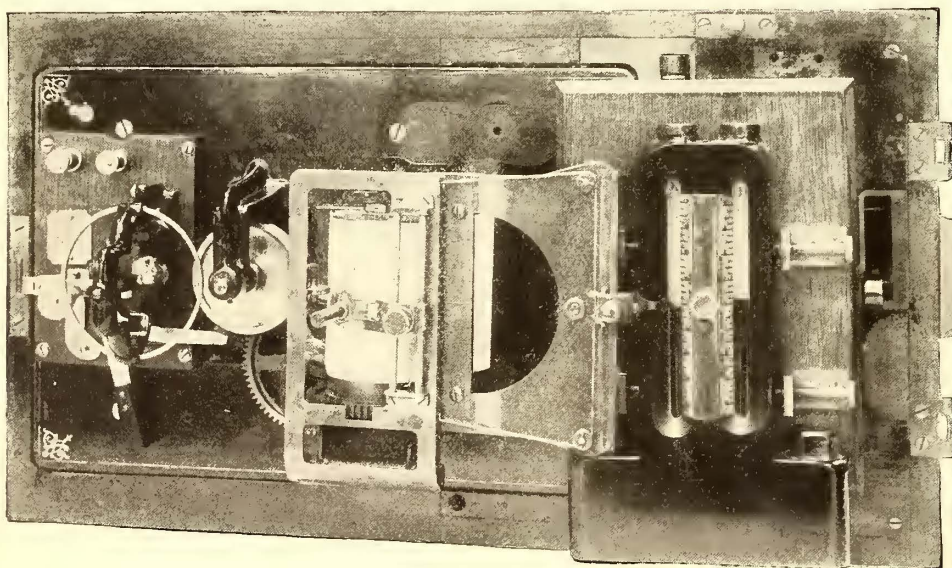


FIG. 3.—RECORDING ACCELEROMETER

to secure direct readings of acceleration and retardation of moving cars and trains.

2. The following seem to be the requirements to be met by a practical instrument of this class:

- (a) It should have no delicate moving parts.
- (b) It should be susceptible of accurate calibration, and this calibration should be permanent.
- (c) The reading scale should be sufficiently extended to render the readings reasonably accurate.

to prevent evaporation and spilling the liquids. The reading scale is provided with vertical adjustment to facilitate the proper location of the zero point.

Fig. 1 is a photograph of the instrument as arranged to be carried in the pocket. In this form it is found to be very convenient. By placing it on a window ledge, or other convenient place, the acceleration and retardation of any car may be easily observed.

Fig. 2 is a partial section, showing its construction. This particular instrument is made from hard rubber with glass reading tubes sealed in.

\* A paper presented at the New York meeting of the American Society of Mechanical Engineers, Dec. 3 to 6, 1901.

4. Since the acceleration of gravity (32.2 ft. per second, or 21.95 miles per hour per second) is produced by an accelerating force (resultant) of unity; that is, of 2000 lbs. per ton, it is evident that acceleration may often be best expressed in effective pounds accelerating force per ton weight of car or train. Hence, we have two separate scales for reading in either unit desired, each of which units is readily convertible into the other.

If we represent any given horizontal acceleration as a fractional part of the acceleration of gravity, as  $g \div n$ , the angle which the surface of any liquid thus accelerated will make with the horizontal is that whose tangent is  $1 \div n$ . Therefore, in the calibration of this instrument, we have only to lay out a series of angles whose tangents are, say, .05, .10, .15, and .20, and place the instrument at the corresponding inclinations to determine the points on the reading scale corresponding to the effective accelerating forces of 100 lbs., 200 lbs., 300 lbs. and 400 lbs. per ton, respectively.

5. It is evident that if the accelerometer be set to the zero position when the car is either at rest or moving uniformly on either a level or gradient, the indications will be accurate only so long as the car remains on track of constant grade. When the grade changes, the accelerometer must be readjusted or the proper correction made. Usually either a stop or a period of constant speed running gives opportunity to reset the instrument or determine the correction. When this cannot be done at the time of testing, the accelerometer should be set at zero on a level track, and the car run over the road and brought to rest on all grades to be measured. It is evident that used in this way the instrument becomes a gradiometer, giving an indication of 20 lbs. per ton for every 1 per cent of grade.

6. I referred above to the desirability of an accelerometer by which continuous records could be made. In fact, without some such device, the accelerometer is useful only in measuring maximum and minimum values. Fig. 3 shows the instrument described above, mounted on a recording device that is a modification of one originally used in connection with an ammeter. In this device the fluctuations of the instrument are followed by hand, the record being produced upon a continuous strip of coated paper, which is caused to pass at uniform speed over a drum; the drum was driven by an ordinary phonograph motor. This method of producing record curves has been found to be entirely satisfactory.

7. Fig. 4 is a reproduction of a portion of the record strip of a run with a single car of approximately 40 tons weight, equipped with standard electric train-control apparatus, the part shown representing a short run (between stations) from start to stop. On the vertical scale 1 space represents 50 lbs. per ton effective accelerating force, or .55 mile per hour per second acceleration, while on the horizontal scale 1 space represents a time period of ten seconds.

The interpretation of this diagram is as follows: Beginning at *A*, the acceleration rises very rapidly, indicating 1.4 miles per hour per second after an elapsed time of 1.5 seconds. The acceleration rapidly falls off until the master controller is turned to the second notch, when it again rises, the maxima and minima depending largely upon the skill or wishes of the motorman. At *C* is seen an almost instantaneous drop in acceleration, the curve theoretically touching the base line. This occurs at the point of transition from the series to the parallel motor combination. The error here is due more to inability to follow accurately the sudden fluctuations than to any fault in the operation of the instrument itself. At *D* the full parallel position is reached, when the acceleration rapidly falls off until, at *E*, it has dropped to about .14 mile per hour per second. At this point power was cut off and the acceleration immediately dropped to a negative value of about .13 mile per hour per second, equivalent to a retarding force of about 12 lbs. per ton due to friction. The distance *FG* represents the time during which the car was allowed to coast freely. At *G* a service application of the air brakes was made, the retardation rapidly increasing until, at *H*, the full power of the brakes is applied. From *H* to *J* the gradual increase in retardation will be noted, due to the increase in the coefficient of friction with reduction of speed. At *J*, just before the car came to a full stop, and when the retarding force had reached a maximum of 125 lbs. per ton, the brakes were partially released and the car was brought easily to rest.

8. There is, of course, an error in this instrument due to the difference in the ascending and descending meniscus surfaces. With columns of as large diameter as those used, however, this error would, under any circumstances, be small, and here it is almost entirely obviated by the slight but rapid vertical vibration of the moving car.

One of the most noticeable characteristics of this instrument is the accuracy with which it will follow rapid changes without excessive, and sometimes without perceptible, oscillation due to

the inertia of the moving liquids. The best results are obtained when the cross section of the passage at the bottom of the mercury columns is so proportioned as to give the proper damping effect.

9. If any given acceleration be multiplied by the time during which it is maintained, the product is the resulting increment of speed. It is, therefore, evident that the integrated area between the acceleration curve and the datum line up to any given ordinate multiplied by a proper constant is the speed of the car at the corresponding instant. This constant, or the speed per unit of area, is equal to the scale of abscissas multiplied by the scale of ordinates. For example, in Fig. 4 the area included between the acceleration curve and the datum line up to the instant at which power was turned off is found to be 0.66 sq. in. Therefore the speed of this car at the instant corresponding to *E* on the curve was 20 (seconds) multiplied by 2.2 (miles per hour per second) multiplied by 0.66 = 29 miles per hour. (On the original diagram, 1 in. on the vertical scale equalled 2.2 miles per hour per second acceleration, and 1 in. on the horizontal scale, twenty seconds.) If the speed is to be measured at any instant during retardation, the required area is the algebraic sum of the areas above and below the datum line up to the designated ordinate. Thus, by means of the planimeter, the instantaneous speed of the car may be measured directly from the accelerometer record.

10. Another useful application of the accelerometer is in the measurement of running friction under different conditions of operation. The accelerometer, as has been explained, gives directly the effective resultant accelerating force per unit of weight. If, therefore, we know the mass moved and the force applied at the axle or draw-bar, we readily obtain the friction loss at any instant by comparison of this force with the indication of the accelerometer.

From the above, it will be seen that an instrument of the class described, although not strictly an instrument of precision, is of great practical value to the railway engineer, and it is to be hoped that improvements may be made in the near future that will still further enhance its value as a testing instrument.

### Street Railways in Pennsylvania

Major I. B. Brown, chief of the State Railway Bureau, of Pennsylvania, draws some interesting comparisons between the condition of street railways in 1887 and during the year ending in June, 1901, in his annual report now in preparation. In 1887 there were 519.85 miles of street railway, costing, with equipment, \$12,326,068. Capital stock outstanding was \$17,911,680, and the funded and unfunded debt, \$7,677,131. These roads used 10,923 horses, and carried 184,835,994 passengers. The total receipts were \$10,025,907, and operating expenses, \$5,646,606.

During the year, from June, 1900, to June, 1901, there were 2167.91 miles of street railway, with a total capitalization of \$167,703,628; capital stock outstanding of \$108,676,774; funded debt outstanding, \$44,998,055, and current liabilities, \$14,028,799. The cost of construction last year was \$84,192,336, and cost of equipment, \$10,423,910. The companies now own stocks amounting to 54,045,327, and bonds to the amount of \$689,000; their current assets are \$10,922,931; and other assets, \$10,008,050; making total assets of \$170,281,600. Total earnings of these lines last year were: From operation, \$26,424,396; from other sources, \$973,747; or a total income of \$27,398,143. During the past year the lines carried 530,634,629 passengers. The mileage during the year has increased something over 100 miles, there being 1653.36 miles last year, and 1768.90 miles this year. The total number of cars owned last year was 6395; this year, 6618. The total number of employees last year was 14,798; this year, 15,828. The total compensation paid to these employees last year was \$8,043,589; this year, \$8,745,024. Last year the total number of passengers carried was 538,194,532; this year it was 580,654,629.

While the figures above given indicate an increase of capitalization, expenses of maintenance of way, structures and equipment, an increase in the number of passengers carried as well as an increase in receipts from operation and other income, there is, perhaps, a greater percentage of increase in the number of accidents which have occurred to passengers, employees and other persons incident to the operation of street railways in Pennsylvania for the year ending June 30, 1901.

Over one-half of the employees of the Camden & Suburban Railway Company, of Camden, N. J., were recently awarded prizes for not having had an accident to their cars during the period set aside by the company. The total prize money amounted to \$500, and each man got about \$5.

## Report of Local Transportation Committee in Chicago

The committee on local transportation of the Chicago City Council made a report to the Council on the evening of Dec. 10, 1901, in which it outlined its conclusions as to what provisions ordinances for the extension of franchises expiring in the near future shall contain. In view of the importance of this report, not only as bearing on the local situation in Chicago, but because of its possible influence on similar problems as they come up in other cities, the report is printed here in full. It will be discussed at a number of public hearings:

CHICAGO, December 11, 1901.

To the Mayor and Aldermen of the City of Chicago, in Council Assembled:

Your special committee on local transportation begs leave to report herewith the outline of a street railway franchise renewal ordinance which it has had under consideration for some time. The committee has aimed to incorporate into this outline what it believes should be the provisions of any street railway franchise renewal ordinance or ordinances hereafter passed, the two important omissions being that the particular streets or parts thereof to be covered by the grant and the amount of the compensation to be exacted are not named.

The committee invites the fullest discussion of the features of the outline, both by the City Council and by the public generally, and with a view to promoting such public discussion the committee is desirous of giving a limited number of public hearings, at which representatives of civic and trade organizations shall be afforded an opportunity of giving expression to their views as to what should be the provisions of the franchise renewal ordinances. Most of the provisions of the outline speak for themselves and call for no extended explanation in this report. A few of the more general questions of policy involved seem, however, to deserve some attention.

### I.—MUNICIPAL OWNERSHIP AND OPERATION

The immediate municipalization of the street railways of Chicago as a practical proposition, most persons will readily admit, is out of the question. The wisdom of such municipalization in the future, whether near or remote, is an open question, and in the opinion of your committee it should be left open. While we do not wish to commit the city definitely to the policy of future municipalization, neither do we wish to preclude the practical possibility of such action if the people of the future shall desire such a policy. It is indeed unfortunate that the last General Assembly of the State did not enact the necessary enabling legislation to give to City Councils full power to provide for future municipalization. If it were the interests of the companies alone that would be injured by delay, your committee might favor refusing to renew any franchise grants until such time as the desired enabling legislation should be secured. But the public is greatly interested in early improvement of Chicago's belated and inadequate transportation facilities, and to that end it should be prepared to consider the terms of an early settlement of the general franchise question, in so far as a settlement may be an important element in leading to improvement of service. However, because of the failure to secure desired legislation at Springfield, the settlement to be offered the companies now cannot be the same as it otherwise might have been. For one thing, in the opinion of the committee, there ought not, under present conditions, to be an unqualified twenty-year grant. The provision in the outline submitted is for a twenty-year grant, with a reservation to the city of the right of purchase at any time after ten years; of course, on the assumption that this agreement for purchase shall be ratified by future legislation, and with the further important stipulation that, in case the desired State legislation shall not have been secured, the grant may be terminated any time after ten years, and that in such contingency the grantee shall be required to sell its street railway property at an appraised valuation to some other corporation to be designated by the City Council. With these stipulations in the ordinance, your committee believes it would be wise to settle the pending franchise controversy as early as possible, without waiting for further State legislation.

### II.—MUNICIPAL CONTROL

The one point upon which the committee lays more stress than upon any other is that of municipal control. Our experience, and that of other cities, has shown that without measures which recognize to the fullest extent the right of the municipality to control the operation of street cars, proper and efficient service is impossible. The stockholders of a street car company and the directors, who are their executives, represent one interest, which is that of making as much money and as great dividends as possible out of the operation of street cars. It is needless to emphasize that this

tendency is not compatible with the best service—that efficient transportation and the comfort of the public and excessive dividends to stockholders cannot go hand in hand. The outline reserves to the representatives of the people the right in the matter of street car transportation to represent their interests. If this outline is followed in a franchise grant, everything pertaining to the operation of street cars—their running time, the kind of cars in use, heating, lighting and ventilation—in fact, everything in which the people have an interest as adding to or detracting from their comfort in use of street cars—will be under control of the City Council, as representatives of the people. It will be the duty of the City Council to enforce performance on the part of transportation companies of their duties toward the public and to guard every right which the people have in the business, for the purposes of which they yield up the use of public streets.

### III.—DOWNTOWN TERMINALS

One of the most perplexing questions with which the committee has had to deal is that of terminal arrangements for street car lines. The present system of downtown terminals, if it can be called a "system," is probably the worst that can be conceived. We have here, in the heart of the city, the operation of cars on almost every street, the continuous crossing and recrossing of divers lines in a manner which seems planned, if there is any plan to it, for the purpose of creating the greatest possible confusion. This state of affairs is due chiefly to the fact that the various companies reaching the heart of the city operate entirely independently of each other, and after they have received their grants of franchise, privileges are largely, if not altogether, removed in this respect from control by the city government. Your committee is of the opinion that complete unification of the street car interests entering the downtown district is essential to any satisfactory solution of this problem, and to that end all the influence of the city government should be exerted to the utmost to bring about unification. As the very least that ought to be acceptable to the city in this regard, the committee has recommended that within an area including everything that might be called the terminal district no exclusive rights be given to any company, but that each company must operate within that district upon such streets in such manner as shall be from time to time determined by the city authorities. We also attempt to cover this point by a provision which makes it obligatory, in the district named, for companies to provide for joint use, whenever it is deemed necessary, of tracks and motive power.

The committee is aware that even if the best arrangements, with this outline as a basis, are made, there will still be certain defects, which will eventually have to be remedied by the adoption of the subway proposition in some form or another, and we have deemed it essential that the future existence of subways in the heart of the city should be taken into consideration in the coming franchise grants.

### IV.—FARES AND COMPENSATION

In the nature of things, whatever is said in the outline upon these questions is merely tentative. We have deemed the betterment of service of so much greater importance that the question of fares has been practically relegated to a secondary position. The only principle which we can state as applicable to fares is that, in the nature of the business carried on by street car companies, they should be forced by ordinance, as, indeed, they are forced by the common law, to furnish their services at the lowest price which is compatible with first-class transportation. The committee has adopted the proposition of six fares for twenty-five cents not as absolutely final, but rather as expressive of their opinion that good service can be furnished with this as a maximum price. Recalling the fact that this was the price of street car transportation more than twenty-five years ago, when cars were propelled by the most expensive (animal) power, and when the city, as to its area and population, was a mere village as compared with its present dimensions, we do not think that this proposition will be seriously disputed.

As to compensation to be paid the city in return for the grant, the committee has made a specific recommendation only as to the form of the compensation, leaving the amount of such compensation open for determination after negotiations between the city and the companies. The amount of the compensation for a grant cannot be intelligently determined until there shall have been a decision as to what the terms and conditions of the grant in all other respects are to be, and until reliable estimates shall have been made as to the cost of the radical improvements in service, which the committee expects in the near future.

In its work the committee has felt the need of engineering experts to advise it and to furnish it information upon the technical phases of the local transportation problem. The aid of such engineering expert will be needed even more when the committee shall enter into negotiations with representatives of the companies and shall be called upon to deal directly with matters, the proper



treatment of which requires engineering knowledge. The engineering expert selected ought to be a person of actual street railway experience, and he should be a man of such standing in his profession that his conclusions and recommendations will carry great weight. Naturally, the services of such a man cannot be secured for small pay.

Among the subjects that call for investigation by an engineering expert or experts are the following:

I. Routes—Street car routes have been laid out heretofore without any systematic inquiry into the needs of the city as a whole. The proper arrangement of routes is of fundamental importance in relation to service. It would be of great benefit to the city to have an engineer of practical street railway experience make a scientific and systematic study of the subject of routes, and advise the City Council as to what arrangement of routes would best serve the public. The companies should then be required to construct their lines in accordance with such plans, and not simply place lines where they may choose, and nowhere else.

II. Terminals—Closely related to the question of routes—or perhaps a part of the same question—is the question of terminals in the downtown district. This, as already stated, is one of the most complicated and perplexing features of the Chicago traction problem. Radical changes of the downtown terminals are absolute requisites to marked improvement in street car service, to say nothing of relieving congestion in the downtown streets. It would be highly profitable to have an engineering expert of practical street railway experience recommend a solution of this vexing problem.

III. Motive Power—One of the most important questions confronting the city of Chicago at the present time in connection with traction matters is the question of motive power. The people of Chicago are absolutely opposed to trolley poles and overhead wires in the business district. They know that the underground trolley is in successful operation in New York and Washington. But they are often told that there are peculiar reasons why the underground trolley cannot be successfully used in Chicago—at least, not on any extensive scale. The city ought to have, from engineering experts in the pay of the city, advice on these points. Moreover, the city ought to have, from its own engineers, reliable estimates as to the cost of underground trolley construction, for the amount of underground trolley that the city will be prepared to insist on depends, to a considerable extent, on the cost of installing the system. Then, too, when the city is getting a substitute for the overhead trolley system it should know that it is getting the best now available.

IV. Subways—The question of subways or tunnels for the accommodation of street cars is one calling for extensive expert study and investigation. The investigation and study preliminary to the construction of the Boston subway cost something like \$50,000.

Besides the four subjects before mentioned, there are various questions upon which expert advice will be desired. For instance, if the City Council, in insisting on the use of grooved rails, shall meet with objections to the use of this kind of rail and shall be told that some other kind of rail is better, it should be able to ask for an authoritative opinion on the subject from its own expert. If the city is to know what amount of compensation it would be fair to exact for the grant, and not leave the matter to mere haphazard guesswork, it must have reliable figures and estimates from experts as to costs and values.

We recommend that for the future work of the committee provision should be made which will enable it to secure the help of an engineering expert or experts, and also such legal assistance as may be necessary.

**J. M. Roach on the Chicago Situation**

President J. M. Roach, of the Chicago Union Traction Company, in an interview in one of the Chicago daily papers recently expressed the opinion that the attitude of Chicago's Mayor with reference to franchise extensions was responsible for the present uncertain and unsatisfactory state of affairs. In regard to the work of the local transportation committee, the report of which is given elsewhere in this issue, Mr. Roach said: "They have worked earnestly and conscientiously, I believe, and some day they may hit on the right idea. I do not desire to hinder or embarrass their work. If we had a man at the head of the city's affairs who was able to understand conditions, and to see what was best for the people, things might be different." As to the report of the committee referred to Mr. Roach said nothing, pending the five public hearings before the committee, at one of which the Chicago Union Traction Company will present its ideas.

In regard to the delays to traffic from heavy wagons, which are now so common on some streets in Chicago, Mr. Roach ad-

vanced the suggestion that coal-hauling and other heavy teaming in the downtown district be done at night. This would do away with much of the inconvenience to the public, and relieve the congestion of downtown streets, as well as prevent the blocking of street cars so frequently.

**SPECIAL CORRESPONDENCE**

**Tests of Mechanical Stokers at the General Electric Works, Schenectady, N. Y.**

NEW YORK, DEC. 20, 1901.

EDITORS STREET RAILWAY JOURNAL:

There appeared in the Nov. 7 issue of the *Engineering News* an article which consisted of extracts from the report of a series of tests made by Prof. J. E. Denton and Mr. George H. Barrus, representing the American Stoker Company, and Messrs. Deane and Main, Boston representing the General Electric Company. Owing to the manner in which these extracts were presented by the *Engineering News*, and the absence of reference to several important facts connected with the tests, the article in question does not present the case in a manner equally fair to all parties concerned.

As stated in the report, these tests were conducted for the purpose of determining whether the American Stoker Company had fulfilled certain guarantees in their contract with the General Electric Company. On account of a clause in the contract, in which the American Stoker Company guaranteed to "generate a net horse-power of steam as economically as the Roney Stoker," the engineers decided to test one of the Babcock & Wilcox boilers equipped with the Roney Stoker, which had been installed in 1898, and which had been in operation continuously, day and night, for over two and a half years.

The position was taken by the engineers, that as the tests were to be conducted for the purpose of determining whether the American Stoker Company had fulfilled its guarantees, the manufacturers of the Roney Stoker had no interest or part in the matter, their stokers having been accepted and paid for several years before. Under this ruling the Roney Stoker was brought into a competitive test, in which the makers were not permitted to direct its operation, and were not represented, except by an erecting superintendent who was allowed to witness the final test, but not to give directions. One of the results of this ruling is shown in that part of the report regarding "labor required for operating the stokers," where the report states that "in the Roney Stokers, according to the practice of the fireman during the test, there was continual attention and exertion required, etc." This method of handling the stoker was contrary to the instructions for operation, which are furnished with the Roney Stoker, and was the result of inexperience, the fireman having never fired on a test before. If the manufacturers had been permitted to direct the operation of the stoker this unnecessary labor would have been avoided.

Under the paragraph "Comparative Economy of the American Stoker and Roney Stoker," various costs of operation are summed up as follows:

	Costs per H. P. per year.	American Stokers. Repairs according to 3 mos. record on log book.	Roney Stokers. Repairs guaranteed in con- tract.
Cost of coal.....	\$34.95	\$34.95	\$35.76
Cost of repairs.....	0.77	0.12	0.48
Wages of fireman and helpers.	1.44	1.44	1.44
Interest and depreciation.....	0.38	0.38	0.38
Total .....	\$37.54	\$36.89	\$38.06

In the above table, it seems rather illogical, from an engineering standpoint, to credit the American Stoker repair account with the excess over 5 per cent, which the makers, under their contract, assumed for a period of two years. The question of financial liability will not be apt to have much effect on the actual deterioration of the stoker.

As the report assumes that this table demonstrates that "the cost of steam is less with the American Stoker than with the Roney Stoker," it is but fair to call attention to some facts not brought out in the report, which bear on the other side of the question.

The principal item in the table is "Cost of coal" per horse-power per year. This is obtained by dividing the amount of water

required per horse-power for 360 days, of 24 hours each, by the net evaporation from, and at 212 degrees Fahr., per pound of coal. This method of determining the efficiency of the stoker by means of the boiler performance is manifestly an improper one. The condition of the boiler, or the arrangement of the heating surface may be such that its inability to properly absorb heat will neutralize the most perfect combustion obtainable in the furnace. If in these tests the boiler evaporation was to be assumed as the standard of stoker efficiency, the boilers should have been of the same type, and the heating surface and settings in the same condition. The Babcock & Wilcox Boiler and Roney Stoker had been in use over two and a half years, and had never had the fire sides of the tubes cleaned, except by blowing from the outside, and the setting was more or less cracked, while the Stirling Boiler, with American Stoker, was new and recently put in service. A contract test was made some six months after this Babcock & Wilcox Boiler and Roney Stoker were put in service, at which an evaporation of 12.66 from, and at, 212 degrees per pound of, combustible was obtained, exceeding any of the results obtained by either stoker in the series of tests under consideration. Substituting this evaporation for that obtained on June 18, 1901, when the boiler was old and dirty, would make the cost of coal required per horse-power per hour \$34.08, instead of \$35.76, as given in the above table. If the table be corrected to make the "Cost of coal" correspond with what it was when the boiler was new and clean the "Cost per horse-power per year" of operating the Roney Stoker would be \$36.40 per horse-power, instead of \$38.06, as given in the table, and less than either of the amounts given as "Cost of operating" the American Stoker.

The "Cost of repairs," namely, 48 cents per horse-power per year, is excessive on account of the fact that the draft of the Babcock & Wilcox Boiler was only .15 to .16 of an inch in the furnace, due to insufficient chimney. These boilers and stokers are operated with natural draft, and the poor draft caused high temperature in the ashpit and excessive repairs. The records of many large plants show that the cost of grate-bar repairs for the Roney Stoker, with proper draft conditions, should not exceed 12 cents per horse-power per year.

A stoker does not evaporate; its function is to burn coal, and the measure of its efficiency is the ability to produce good combustion, as shown by the analysis of the flue gases, and not the amount of water evaporated per pound of coal by the boiler to which it is attached. The record of the analysis of flue gases from

the Roney Stoker shows an average of  $\frac{CO_2}{14.2}$ ,  $\frac{O}{4.67}$ ,  $\frac{CO}{0.29}$ . This is as good combustion as has ever been obtained, and the fact that the evaporation from and at 212 degrees Fahr. per pound of coal by the Babcock & Wilcox Boiler and Roney Stoker was 11.169, instead of 11.7, as obtained when the same boiler was new and clean, simply shows that the difference is due to the fact that the boiler was not in condition to absorb the heat generated by the stoker. The heat balance given in the report shows that the Stirling Boiler absorbed 77.1 per cent, and the Babcock & Wilcox Boiler 72 per cent of the heat combustion. Or, in other words, judged by the ability of the boilers to absorb heat, the Roney Stoker was handicapped by a difference in boiler efficiency of 7 per cent. This is more than double the amount given in the table quoted above as the difference between the two stokers in "Cost of steam per horse-power per year," and completely reverses the statement in the report that, "in point of relative economy the guarantee of the American Stoker Company is fulfilled." It is most important, in comparing these tests, to remember that the boiler to which the Roney Stoker was attached was old and dirty, and that the combustion was of the best. In comparing the economy of the two stokers the operation of the boilers should have been eliminated and the efficiency of the stokers determined by their ability to produce good combustion. To be consistent, the experts should have considered the results of the tests from this standpoint. Had they done so their conclusions would obviously have been different.

WILLIAM R. RONEY.

### Pennsylvania Decision on Highway Rights of Electric Railways

A ruling upon municipal consent and the right of street railways to occupy streets under the railway act of June 7, 1901, has just been made by Judge Rice, of the Superior Court, in his opinion affirming the decree of the Common Pleas Court of Chester County in the case of the Coatesville & Downingtown Street Railway Company against the Uwchlan Street Railway Company.

The complainant, the older corporation, sought to restrain the Uwchlan Company, a new corporation, from building a street railway upon a street covered by the Coatesville Company's charter. Both applied for municipal consent, and the cases came up

at the same time. The application of the Uwchlan Company was granted, which, in effect, Judge Rice says, was a refusal of the application made by the Coatesville Company. The lower court dismissed the bill, Judge Rice says, because the complainant, although the older corporation, had not obtained municipal consent.

"It was urged," the opinion continues, "that the Larimer Railway case does not control the case at bar because the act of June 7, 1901, under which the plaintiff's charter was granted, provides that the corporation shall have two years within which to obtain municipal consent, and that 'whenever a charter, after the approval of this act, shall be granted to any corporation to build a road, as provided by this act, no other charter to build a road on the same streets shall be granted to any other company within the time during which, by the provisions of this act, the company first securing the charter has the right to commence and complete this work.'

"But it was decided in the case of Homestead Street Railway vs. Pittsburgh, etc., Street Railway, 166 Pa., 162, that under the act of 1889 there could be but one street railway franchise upon the same highway, that as between two corporations the older has the better right, and that there must be conceded to it a reasonable time within which to obtain municipal consent.

"Construing the first section of that act the Court said: "There can be but one meaning to these words, and that is if the track is already laid, or even authorized to be laid, on the proposed street or highway, then there can be no incorporation of such company. It cannot come into existence, and, as a matter of course, if a charter should be obtained in such circumstances, it would be simply nugatory; it could confer no power in hostility with the law of its creation."

"It is thus seen that the right of the older corporation chartered under the act of 1901 is not greater than the act of 1889, as construed in the case last cited. The difference is that the 'reasonable time' within which, under the act of 1889, municipal consent must be obtained, in order to perfect the company's right to occupy the street, is fixed by the act of 1901 at two years.

"This difference is not such as warrants a different decision as to the standing of a company chartered under the act of 1901, which has not obtained municipal consent, to invoke the aid of a court of equity. If the plaintiff obtains municipal consent within two years, it may then be in position to insist upon its exclusive use of the street under its prior charter and extension, as the court below well said.

"But as the case now stands the following language, taken from the opinion of the Supreme Court in the Larimer Railway case, is as pertinent here as it was in that case: 'The charter gave the company a legal existence, clothed it with corporate power, placing it in a position to undertake the purpose for which it was organized, and to solicit the privilege of entering upon the streets in question to construct its road; but its right so to do was expressly conditioned upon the action of Councils to that effect. Unless it obtains that right, it cannot be said to suffer any special damage or irreparable injury, which would call for the intervention of equity; for, as we have said, although the appellees may, perhaps, have no right, it is clear that the complainants have none.'

After discussing the powers of the court in such a case, Judge Rice affirms the decree of the lower tribunal, and dismisses the bill at the cost of the appellant.

### Brake Tests on the Anderson (Ind.) Line

Mr. Hamlin, master mechanic of the Union Traction Company of Indiana, calls attention to the fact that the piston travel in the service stop made with 20 lbs. pressure in the braking experiments on his line, and described on page 817 of the issue of this paper for Dec. 7, should have been given as  $3\frac{3}{4}$  ins., instead of  $5\frac{1}{2}$  ins.

### High-Speed Experiments in Germany

According to United States Consul-General Mason at Berlin, the highest speed yet attained on the Berlin-Zossen road is 150 km (93.2 miles) per hour, which is considered the practicable limit of advisable speed with the equipment thus far devised. Above that velocity the increasing danger of derailment and the strain upon track would be too great. It is, therefore, understood that the experiments are suspended, at least until some radical changes, suggested by this experience, may be made in the construction of track and apparatus. The experiments so far made indicate no trouble in getting the current into the car from a triple overhead wire used. The maximum air pressure registered by the instruments placed in front of the cars was 134 kilograms per square meter—approximately, 16.7 lbs. per square foot.

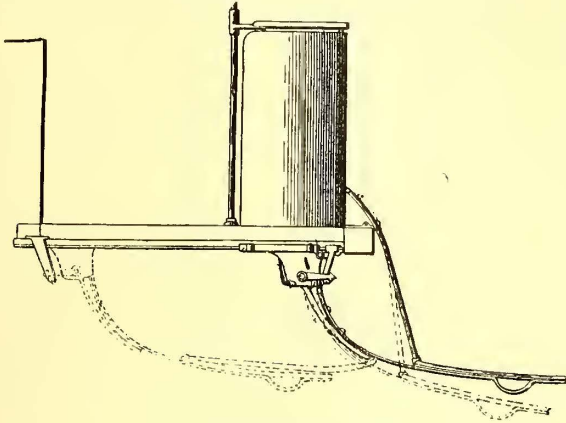
### Street Railway Patents

[This department is conducted by W. A. Rosenbaum, patent attorney, 177 Times Building, New York.]

UNITED STATES PATENTS ISSUED DEC. 17, 1901

688,821. Automatic Brake Mechanism for Railway Cars; W. H. Bates, Dixie, Wash. App. filed May 6, 1901. A ball governor automatically couples the winding drum with an axle when the speed gets too high, and thus sets the brake.

688,898. Car-Wheel; H. C. Tazewell, Wilmington, Del. App. filed March 23, 1901. Details.



PATENT NO. 689,962

688,904. Metallic Sleeper; C. G. Vachon, Paris, France. App. filed July 25, 1899. An inverted channel-shaped tie having a groove in its face to receive bolts holding the rail.

689,962. Fender for Vehicles; W. A. McGuire, Chicago, Ill. App. filed Feb. 1, 1901. The fender is constructed to yield in a rearward direction when it is struck, and thus avoid a shock.

689,024. Rail Cleaner; A. Rom, Lian, Christiania, Norway. App. filed Oct. 10, 1900. The scraping wheel is carried at the end of a double-pivoted arm, and springs are attached so that when the wheel is deflected from the rail it will be returned to its working position.

### PERSONAL MENTION

MR. GODFREY MORGAN, formerly general manager of the Niagara Gorge Railway, of Niagara Falls, N. Y., has been appointed general superintendent of the Youngstown & Sharon Electric Railway, of Youngstown, Ohio.

MR. THOMAS E. ELLIOTT, of the Atlanta Railway & Power Company, presented a very interesting paper on the subject of "Electricity and its Application to Motive Power" at a recent meeting in Atlanta of the Southern and Southwestern Railway Club.

MR. W. H. DOUGLAS, of Akron, assistant to Charles Curry, general manager of the Northern Ohio Traction Company, of Akron, Ohio, has been appointed superintendent of the Canton-Massillon Railway, recently acquired by the Northern Ohio Traction Company.

MR. IRA McCORMACK, general manager, and MR. C. W. WASON, purchasing agent, of the Cleveland Electric Railway, have just completed an inspection trip over the street railway lines of Pittsburgh, Philadelphia, Schenectady, New York, Brooklyn, Baltimore and Washington.

MR. BENJAMIN REECE, who has been connected for several years with the Diamond State Steel Company, Wilmington, Del., died recently. Mr. Reece has been prominently identified with the railroad interests of the country for a long time, having been recognized as an authority on track maintenance, and published a number of articles on this and allied subjects.

MR. S. W. CHILDS, who installed some two years ago for J. G. White & Company a system of electric tramways at Perth, Australia, has just returned to Western Australia to supervise the installation of the Kalgoorlie tramways. On the day after his arrival, Mr. Childs was tendered a complimentary dinner at Perth, by a number of his former associates connected with the Perth tramways and other friends. Mr. E. E. Rogers, managing director of the Perth electric tramways, and the Kalgoorlie electric tramways, occupied the chair. At the close of the banquet, a handsome gold watch, chain and pendant was presented to Mr. F. A. Jones, the superintendent of the Perth electric tramways. genial disposition.

MR. BURT VAN HORN, general manager of the International Traction Company, of Buffalo and Niagara Falls, resigned from that company last week, and is planning to spend the coming winter in taking a well-earned rest, after his arduous labors in connection with the traction problems presented during the recent Pan-American Exposition. It is understood that Mr. Van Horn, who has a number of business interests outside of railways, has been desirous for some time of laying aside the active duties required of the manager of such a large property, but has been deterred from doing this at an earlier date partly on account of the personal interest which he had in the property, which he was largely instrumental in consolidating, and partly on account of the desire of his business associates to retain his services as long as possible. Mr. T. E. Mitten has been appointed to the place left vacant by Mr. Van Horn's resignation. Mr. Van Horn was born in Niagara County, N. Y. He was graduated from Yale University in 1874, and from Columbia Law School in 1878. After practicing law in New York City for several years he returned to Lockport, N. Y., on account of ill health, purchased a large tract of land and engaged in fruit culture, which proved very profitable. When the Buffalo & Niagara Falls Railway was organized, Mr. Van Horn, who was a personal friend of Mr. Ely, the president, undertook the work of getting franchises and consents for the new road, and during its construction and operation acted as vice-president and general manager. When control of the Buffalo Railway Company was secured by the same interests, and the International Traction Company was organized, Mr. Van Horn accepted the position of general manager of the new company, which position he has since held.



BURT VAN HORN

MR. HENRY C. PAYNE, whose appointment by President Roosevelt to the office of Postmaster-General has given such general satisfaction to the country, is also widely known as one of the ablest and most successful street railway managers in the country, having for many years been vice-president of the Milwaukee Electric Railway & Light Company, and of its predecessor, the Milwaukee Street Railway Company. In 1893-94 Mr. Payne was president of the American Street Railway Association, and his hospitality to the association at its Milwaukee meeting will long be remembered. He has also been prominent in steam railroad operation and finance, and was one of the receivers of the Northern Pacific Railroad Company from the time it went into insolvency until it was reorganized. Mr. Payne comes of Puritan stock, and was born at Ashfield, Franklin County, Mass., Nov. 23, 1843. His early education was obtained in the village school, and also in the Shelburne Falls Academy. From this institution he was graduated at the age of sixteen, and went into business in Northampton, Mass. In October, 1863, he removed to Milwaukee, Wis., in which city he has since resided. His first business engagement was with a dry goods house, with which he remained four years. In 1872 Mr. Payne became interested in politics, and assisted in organizing the Young Men's Republican Club, which later became the Republican Central Committee of Milwaukee County. He was afterward chosen chairman of the State central committee. For ten years following 1876 he held the office of Postmaster of Milwaukee, having been appointed by President Grant, so that he will rank with ex-Postmaster-General James in entering that high office with a thorough practical knowledge of the business. He has also been a member of the Republican National Committee since 1880, and was vice-chairman of the committee in 1896 and 1900.



HENRY C. PAYNE

Mr. Payne has for a number of years been prominently identified with the business interests of Milwaukee, and under his supervision the Milwaukee Street Railway Company was organized and the system equipped for electric traction, and finally all the rapid transit facilities were consolidated under one supervision. Mr. Payne is popular with all who know him, either socially or in a business way, being a gentleman of engaging manners and of genial disposition.

## LEGAL NOTES

## CHARTERS, ORDINANCES, FRANCHISES, ETC.

## ALABAMA.—Construction—Location of Tracks—Injunction.

1. The construction and operation of an electric street railway, with the consent of the municipal authorities, along the public streets, and conforming to the grade, with no special injury to the fee of the abutting property owners, is not the imposition of an additional servitude for which the owner can demand compensation.

2. In order for a street railway company to exercise the privileges and franchises granted to it for constructing its tracks through an incorporated city or town, it is not necessary for the declaration of incorporation, or the charter granted by act of the legislature, or the consent of the municipal authorities to limit the number of tracks to be constructed upon the streets, or to designate the exact location of the tracks of said company latitudinally upon the streets along which the company proposes to construct its railway.—(Barker et al. vs. Selma St. & S. Ry. Co., 30 S. Rep., 464.)

## INDIANA.—Extension of Track—Written Agreement—Period of Operation—Intention of Parties—Modification—Consideration—Option in Railroad Company.

1. Plaintiff, owner of a driving park, agreed in writing with a street railway company to extend its track to the park, the track to be ready for operation at a given date. No period for the continuance of the track was specified. In a complaint for tearing up the track and discontinuing its operation some four years later, plaintiff alleged that it was "the intention and understanding" of the parties that the track should be permanently operated, and, in another count, that it was "the intention and understanding of the parties" that the track should be operated for a reasonable time, which would be twenty-five years. Held, that the complaint did not show any breach of contract by the railroad company, as the language of the written agreement could not be modified by an allegation of the intention of the parties.

2. Plaintiff, owner of a driving park, agreed with the defendant street railroad company that, if the latter would extend its track to the park he would buy the necessary rails, donating \$500 of the purchase price, and receiving reimbursement for the balance from the company's earnings. The contract provided that the track should be in operation by a given date, but contained no provision as to the period for which its operation should continue. Held, that the \$500 did not constitute a consideration for the operation of the track for any definite period.

3. Under a written agreement with a private individual by a street car company to extend its track to a driving park and have it in operation by a given date, which does not specify the period for which the operation of the track is to continue, the right to determine that question remains with the street car company.—(Barney vs. Indiana Ry. Co. et al., 61 N. E. Rep., 194.)

## MASSACHUSETTS.—Street Railroads—Location—Appeal.

1. An electric railroad company, in accordance with the provisions of Pub. Laws 1899, c. 119, sec. 6, applied to the municipal officers of a town for their approval of a proposed route and location. The municipal officers neglected and refused to approve, and the company appealed to the supreme judicial court. While that appeal was pending in court, the company made a second application to the municipal officers, identical with the first, except that a portion of the proposed route in the first application, described as "thence over and along said Big Bridge and drawbridge to Bridge Street," was omitted from the second. Upon the second application the municipal officers neglected and refused to give their approval, and the company again appealed, the former appeal still pending.

Held, that the pendency of the former appeal is not cause for the abatement of the latter.

2. A route or a location of a street railroad presented to the municipal officers for their approval cannot be considered with reference to particular streets one by one, but must be viewed as a whole. The municipal officers are vested with a judicial discretion. They may consider the width and other conditions of the streets, the convenience and safety of the public, and, in case where it is proposed to cross the bridge, they may also consider whether the bridge has the requisite strength to support a street railroad and moving cars.

3. The omission in the latter application of a single street or a bridge may put an entirely different phase upon the questions presented, and action of the municipal officers, or their refusal to act, might thus be put upon new and different grounds. In short, the location as a whole, as presented to the municipal officers for their action is not the same.—(Appeal of Cherryfield & Milbridge Elec. Ry. Co., 50 Atlantic Rep., 27.)

## NEW JERSEY.—Removal of Causes—Filing Record Before Succeeding Term—Jurisdiction to Make Ex Parte Orders.

Where proceedings against landowners for the condemnation of land under the eminent domain statutes of a State are removed by defendants into a Federal Court, the adverse party may file the record therein at any time, without waiting until the first day of the succeeding term; and thereupon it is competent for the judge to make such ex parte orders as are conformable to the State practice in like cases, such as fixing a time for the appointment of commissioners, etc.—(In re Newark & H. Traction Co., 110 Fed. Rep., 26.)

## NEW YORK.—Trust Mortgage—After-Acquired Property—Attachment—Priority of Lien—Foreclosure—Sale and Parcels—Terms of Mortgage—Construction—Construction of Charter—Extension of Line.

1. Laws, 1890, c. 566, sec. 60, authorizes the incorporation of electric light companies by their making, signing, and acknowledging a certificate stating the objects of the corporation, etc., and the name of the town and county in which the operations are to be carried on, among other things; and thereupon the persons who signed the same, their associates and successors, shall be a corporation by the name so stated. Held, that a corporation organized under such statute had power to execute a trust mortgage securing its long-term bonds, which would cover after-acquired property, since, if such bonds were to become available and salable in the public market, it was a matter of public necessity that they should be secured by the lien of a mortgage on the company's extensions and new property.

2. Where, subsequent to the execution of a trust mortgage securing long-term bonds by an electric light company organized as a corporation under Laws 1890, c. 566, sec. 60, an attaching creditor of the corporation levied on wire bought by the corporation to extend its line, but which had not yet been strung, the mortgage was a superior lien to the execution subsequently issued by the judgment creditor, but on a sale of the property under foreclosure the property would be sold in parcels, and the wire sold last.

3. Where a mortgage executed by an electric light company to secure its bonds provided that it should cover all and singular the lands, tenements and hereditaments, and the entire property of said electric light company, the mortgage was sufficient to cover after-acquired property.

4. Where the charter of an electric light company provided that its objects were to be the manufacture and sale of electricity for light, heat or power in the village of D., in the counties of H. and F., of the State of New York, and in other cities, villages and towns in said State, such charter was sufficiently broad to authorize the company to extend its line into an adjoining town.—(Metropolitan Trust Co. of City of New York vs. Dolgeville Electric Light & Power Co. et al., 71 N. Y. Suppl., 1055.)

## NEW YORK.—Railroad in Street—Abutting Owners—Right to Damages—Findings by the Court—Inconsistency.

Where a railroad constructed in a street in which the company held certain limited rights by grant was extended beyond such limits, and an abutting landowner sought to enjoin such use and to recover damages on a complaint averring such extension to be the act of the company, but the court found that the extension was by a commission under the statute, and that defendant was not liable for any damages by the act of the commission, but awarded as rental damages the exact amount which he found the plaintiff had suffered by reason of such changes, the judgment will be reversed for inconsistency in the findings.—(Welde vs. New York & H. R. Co. et al., 61 N. E. Rep., 554.)

## NEW YORK.—Franchises—Streets—Paving—Company's Liability—Municipal Corporation—Franchises—Powers—Corporate Franchise—Statutes—Constitutional Law—Obligation of Contract—Pre-existing Contracts—Ratification—Effect.

1. A street railway company's franchise, granted in 1882 and renewed in 1894, required the company to pave the street between the rails and for 20 inches outside of them on both sides of the track with "small stone," and "that the same should at all times be kept in good condition." In 1889 the village required the corporation to pave such space with brick, and, the company refusing to do so, the village did the work at its own expense. Held, that the village was entitled to recover such expenses from the railroad company, since the village was entitled to exact what it deemed a suitable pavement in 1899, and was not limited to a pavement composed of "small stone."

2. A franchise granted by village trustees to a railroad company, requiring the company only to pave the streets occupied by it with "small stone" is no defense to an action by the village to

recover the cost of paving such streets with brick, after the company had refused to do so, since the trustees were persons of limited powers, and could not give up the streets to private corporations, nor surrender the rights of the public to have the streets kept in proper condition for use.

3. That a street railway company by its franchise was required only to pave the part of the street which it occupied with "small stone" did not render Laws 1892, c. 676, sec. 98, requiring a street surface railway corporation to keep its street way in repair as and when directed by the local authorities, unconstitutional as to such street railway, as impairing the obligation of the railway's contract with the village as evidenced by its charter.

4. Where a street railway company's charter only required the company to pave the streets occupied by it with "small stone," which charter was renewed, the passage of Laws 1901, c. 494, sec. 1, ratifying pre-existing contracts between street railway corporations and villages, constituted no defense to an action by the village to recover the cost of paving the railway company's portion of the street with brick, after the company had refused to do such paving as directed.—(Village of Mechanicville vs. Stillwater & M. St. Ry. Co., 71 N. Y. Suppl., 1100.)

MASSACHUSETTS.—Sprinkling Street—Condition of Grant—Enforcement—Jurisdiction.

1. Under Pub. St. c. 113, sec. 7, providing that the Selectmen of a town may grant a location for a street railway under such restrictions as they deem the interests of the public may require, a condition of the grant that the railway company shall water the street over which the track is laid, between certain dates, is a lawful restriction.

2. Under Pub. St. c. 113 sec. 63, providing that the Supreme Judicial Court shall have full equity powers to compel the observance of all laws governing street railway companies, and of all regulations thereof made by the Selectmen of a town, the court may compel a street railway company to comply with the condition of its grant that it should sprinkle the street of a town on which its track is laid.—(Newcomb et al., Selectmen vs. Norfolk W. St. Ry. Co., 61 N. E. Rep., 42.)

NEW YORK.—Municipal Corporations—Street Paving—Assessment—Exemption—Extensions—Contracts—Construction—Same—Validity—Ratification—Statute—Same—Effect—Pending Actions—Same—Ratification—Constitutionality—Amendment of Charter—Same—Same—Vested Rights—Subsequent Legislation.

1. Where a city agreed with two street railway companies that they should pay one-fifth of the net cost of laying new pavement between the rails, the contract to apply to any extensions of their tracks, and be binding on their successors and any company with which they might be consolidated, such contract embraces a subsequent extension of the tracks made by a company formed by the consolidation of the two companies contracting.

2. Under Railroad Law, sec. 93, as amended by act April 23, 1901, providing that any city of the third class can contract with a street railway company regulating the payment of percentages for paving of streets, and ratifying any such contract theretofore entered into, a contract previously made between a city and a street railway company that such company should pay one-fifth of the net cost of laying new pavement between the rails of its tracks, which contract extended to any extension of the tracks, was ratified, and the company was not liable in any greater amount than stipulated for paving on an extension.

3. Where a city of the third class had contracted with street railway companies as to the cost of new pavements between the rails, a general law authorizing cities of the third class to make such contracts, and confirming those previously made, passed after the commencement of suit by taxpayers to compel the city to disregard the contract, and enforce against the company a tax to the full extent provided by law, destroys the right of action.

4. Act 1893, c. 231, ratifying and legalizing in express terms a contract between a city and street railway companies as to cost of pavements between the tracks, cured all infirmities of the contract arising from lack of power on the part of the contracting parties, and being, in effect, an amendment to the charter of the city, giving it power to make the contract, was not violative of the constitutional provision against the passage of special laws.

5. Act 1893, c. 231, ratifying and legalizing in express terms a contract between a city and street railway companies as to cost of pavements between the rails, is not unconstitutional, as granting an exclusive privilege, immunity, or franchise to a private corporation.

6. There being no general law imposing any duty of paving on street railway companies at the time of the passage of an act ratifying a contract between them and a city as to the cost of pavements between the rails, such act made the subject of paving a matter of contract, which could not be affected by the general railroad law, subsequently passed, relating to the extent of lia-

bility of railroads for street improvements.—(Weed et al. vs. Common Council of City of Binghamton et al., 71 N. Y. Suppl., 282.)

#### LIABILITY FOR NEGLIGENCE.

MASSACHUSETTS.—Electricity—Use of Poles—Telephone Companies—Lessee's Employees—Injury—Liability.

1. A telephone company contracted for the use of the poles of the defendant street railway company, and agreed to assume all risks for injuries which the telephone company's employees might sustain while working on the poles. Plaintiff, an employee of the telephone company, was injured while repairing a leak caused by the defendant company's guard wire sagging so that it came in contact with the trolley wire whenever a car passed beneath. There was no evidence that the telephone company had the right to repair defendant's wires, or that the repairing was done at defendant's request. Held, that defendant was not liable for the injury.

2. The H. St. Ry. Company rented the use of its poles to a telephone company, which agreed to assume all risk for damages to its employees. Plaintiff, an employee of the telephone company, was injured while repairing a leak caused by the H. Company's guard wire sagging so that it came in contact with the trolley wire. The H. Company owned the poles and wires of its line, but the power was supplied by the L. Street Car Company. Held, that evidence tending to show that the wires were imperfectly insulated several hundred feet from the accident, but which did not show that plaintiff's injury was occasioned by such imperfect insulation, was not sufficient to render the L. Company liable for the injury.—(Sias vs. Lowell L. & H. St. Ry. Co. et al., 60 N. E. Rep., 974.)

NEW YORK.—Injuries at Crossings—Negligence—Evidence—Sufficiency—Same—Contributory Negligence—Same—Evidence—Contradictory Statements.

1. Plaintiff, a passenger on one of the defendant's street cars, on alighting therefrom at a crossing, passed behind it to cross the other track, when he was struck and carried about 60 ft. by a car, which he saw approaching thereon about 50 ft. away, when he started to cross, and which could have been stopped in 25 ft. Held sufficient to go to the jury on the question of defendant's negligence.

2. Plaintiff, having the right to assume from the distance of the car that it would be controlled or so slackened as to give him time to cross, was not guilty of contributory negligence as a matter of law.

3. Where, in an action for injuries, a physician testified that plaintiff, at the time he made a statement, was under the influence of morphine, which the doctor had injected, and afterward testified that he did not know of his own knowledge whether plaintiff was under the influence of morphine or not, but did not deny injecting it, it was not error to refuse to strike out his testimony, it being for the jury to determine which statement was true.—(Cohen vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 268.)

NEW YORK.—Expert Testimony—Competency—Opinion Evidence.

In an action for injuries, a physician testified that he first examined plaintiff three years after the accident, but gave no evidence as to the result of the examination, and that pains suffered by a person nearly three years after a blow on the head, received while in good health, would be attributable to the injury, and that such pains would be permanent and progressive, and indicate a certain ailment. Held, incompetent, as opinion evidence, being based on no facts from which the jury could determine its weight.—(Sullivan vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 280.)

NEW YORK.—Reference—Parties—Substitution—Motion—Same.

1. In an action against a street railway company, a reference should not be had to determine questions arising on plaintiff's motion to substitute another company as defendant on the ground that service was intended to be made on the latter company.

2. Where limitations would be a bar to another action against defendant, a default against plaintiff, owing to his attorney's negligence, taken before a referee appointed to determine questions arising on plaintiff's motion to substitute another for defendant on the ground that the latter was intended to be served, was properly opened to permit plaintiff to proceed to a hearing on the merits of his motion to amend.—(Weinberger vs. Metropolitan Traction Co., 71 N. Y. Suppl., 289.)

NEW YORK.—Negligence—Personal Injuries—Electric Wires—Evidence.

Plaintiff testified that while riding a bicycle on the street he received a severe electric shock from a falling strain wire connected

with defendant's trolley wire. Defendant's linemen testified that the broken wire was not charged, and that they mended it with their bare hands, and the manner of its attachment to the trolley wire tended to show that it could not have been charged. The testimony of electricians was that plaintiff could not have received a shock therefrom while riding a rubber-tire wheel on a dry asphalt pavement. Held, that a verdict for plaintiff could not stand.—(Walters vs. Syracuse Rapid Transit Ry. Co., 71 N. Y. Suppl., 853.)

NEW YORK.—Collisions—Negligence—Questions for Jury—Same—Imputed Negligence — Instructions — Same—Damages—Excessiveness.

1. The driver of a brougham, accompanied by plaintiff's intestate, who was seated with him, seeing street cars approaching on either side of the crossing, checked his horse, and, after they passed, started across the track, when a collision occurred with a car following one of the others. The car following gave no notice of its approach, and its speed was not checked until the collision was imminent. The driver did not notice the following car, and it did not appear whether or not deceased looked for an approaching car before the brougham was driven on the track. The street was lighted, and there was no obstruction to the view. Held, that the questions of the company's negligence and the deceased's contributory negligence were for the jury.

2. Where deceased, at the time of the collision with a street car, was seated with the driver of his father's carriage, and it did not appear that he had any control over such driver, so as to create the relation of master and servant, it was not error to instruct that he was not responsible for any negligence of the driver.

3. In a suit for negligently causing the death of a sixteen-year-old son, who resided with his father, and, being on the eve of graduation, was in position to greatly aid him in his business, a verdict for \$7,500 will not be disturbed as excessive.—(Morris vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 321.)

NEW YORK.—Operation of Car—Negligence—Evidence—Sufficiency—Same—Requested Instruction—Same—Speed of Car—Proof—Same—Evidence—Admissibility—Damages — Personal Injuries.

1. Defendant's car was running fast, and the motorman when he was within 125 ft. of a child which was approaching the track, heard a woman scream in the second story, and looked in that direction, and then looked back into the car, and did not discover the child until close upon it. Held, that the evidence was sufficient to support a finding that the motorman was negligent.

2. Where the substance of a requested instruction, in so far as it was applicable to the evidence, was fully submitted in the general charge, it was not error to refuse the requested instruction.

3. Where there was no evidence of what was the ordinary speed of electric cars in the streets of the city, an instruction that if defendant's car was being managed with ordinary care, and was running at the ordinary speed of electric cars lawfully authorized to be operated on the streets of the city, plaintiff could not recover, was properly refused.

4. Where a small child was injured by a street car in front of the premises where it lived, evidence that the child's mother was in poor health and that its father was dead was properly admitted, as bearing on the question of the contributory negligence of the parents in allowing the child on the street.

5. Where the injuries sustained by a small child necessitated the amputation of one limb, and two toes from the other, a verdict of \$3,401.20 was not excessive.—(Fullerton vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 326.)

NEW YORK.—Contradiction of Witness—Prior Statements.

The party who calls a witness cannot show by other witnesses, or by an affidavit formerly sworn to by such witness, that he has made prior contradictory statements.—(Fleischer vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 382.)

NEW YORK.—Evidence—Stipulation—Reading from Record—General Objection.

Where the parties had stipulated that testimony given at a former trial might be read in evidence from the record, a general objection to the reading of inherently admissible testimony of a witness was insufficient to raise the question of the impropriety of reading previous testimony of such witness, who had appeared in person at the second trial.—(Kay vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 386.)

NEW YORK.—Negligence—Act Under Emergency—Same—Instructions.

1. A street car had stopped, and plaintiff was about to alight, when a large truck came up behind the car, the driver endeavoring to check his team. The horses slipping on the wet pavement, so that the wagon pole was elevated and in danger of running into the car, the conductor suddenly started the car, and the plaintiff fell against the dashboard, so that she was injured. Held, that, in

an action against the railway, the jury were not justified in treating the act of the conductor (whether to avoid injury to himself or the passengers, or whether the accident was caused by the conductor striking plaintiff in endeavoring to start the car, or by the actual starting) as negligence on the part of defendant.

2. Defendant requested the court to charge that if the accident was caused by the act of the conductor, seeking to avoid an actual peril, as a person of ordinary prudence might have acted under the circumstances, defendant was not guilty of negligence; but the court instructed that if the conductor jostled the plaintiff in his voluntary action, or if the accident arose from the involuntary act of the conductor in the presence of a peril to himself, or from plaintiff falling to the platform without any negligent starting of the car, defendant was not liable. Held, that the requested instruction should have been given.—(Kautrowitz vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 394.)

NEW YORK.—Negligence—Question for Jury—Same—Contributory Negligence—Same—Evidence—Privileged Communications.

1. Where, in an action against a street railroad company for injuries, the jury might find from the evidence that the plaintiff, a boy between seven and eight years of age, walked out on the track, and stood there ten or fifteen seconds, waiting for a car to pass on a parallel track, being in full sight of the motorman of the car approaching on the track on which he stood, and that no signal was given, the question of defendant's negligence was for the jury.

2. The question of plaintiff's contributory negligence was for the jury.

3. A boy, having been injured by a street car, was taken to a nearby drug store, where a physician volunteered his services. About ten days later he saw the boy at the hospital, and the latter responded to inquiries on the part of the physician as to the details of the accident. Held, that the boy was justified in considering the person addressing him a physician, and in answering him freely, and his statements were not admissible against him in an action for his injuries.—(Griffiths vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 406.)

NEW YORK.—Injuries—Contributory Negligence—Evidence—Question for Jury—Damages—Excessiveness.

1. Plaintiff, with others, was engaged in pushing an iron beam up a way extending from the street to a building that was in process of construction. One of defendant's street cars approached, and plaintiff raised his hand, and called to the driver to stop. The driver was looking at him, and took hold of the brake handle. Plaintiff then turned to his work, the car passed rapidly, struck the beam, and plaintiff was injured. Plaintiff testified that the beam was not more than about an inch from the side of the car. Held, that the question of plaintiff's contributory negligence was for the jury.

2. Where plaintiff, in an action for injuries, before the accident had an earning capacity of \$12 per week, and had been incapacitated from work for fourteen months, and one of his legs was an inch shorter than before, and he experienced considerable pain in it, and it was shown that, owing to the shortening of his leg, he could not do all the kinds of work that he could before, a verdict for \$3,000 was not excessive.—(Weingarten vs. Metropolitan St. Ry. Co., 70 N. Y. Suppl., 1114.)

NEW YORK.—Negligence—Pleading—Answer—Contributory Negligence—Striking.

Where, in an action against a street railroad for injuries, the answer denied negligence on the part of defendant, and alleged that plaintiff had been guilty of contributory negligence, the striking out of the allegation of contributory negligence was not authorized by Code Civ. Proc., sec. 545, declaring that irrelevant and redundant matter may be stricken on motion of the party aggrieved thereby, since, while the allegation was not essential, it could not prejudice plaintiff.—(Bogardus vs. Metropolitan St. Ry. Co., 70 N. Y. Suppl., 1094.)

NEW YORK.—Crossing Accident—Contributory Negligence.

In an action against a street railway company for injuries received at a crossing through the alleged negligence of defendant, it was error to charge that, if defendant could have avoided the accident by the use of reasonable care, it was liable, even if the accident was caused in the first instance by the carelessness of plaintiff.—(Goodman vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 177.)

NEW YORK.—Municipal Court—Removal of Cause.

Where a complaint in an action for personal injuries brought in the municipal court of New York City asked judgment for \$245, with interest from a stated time, and the interest, if allowed, would make the damages exceed \$250 at the time when a removal to the city court was asked, the order of removal was properly given.—(Lewis vs. Metropolitan St. Ry. Co., 71 N. Y. Suppl., 948.)

## FINANCIAL INTELLIGENCE

## THE MARKETS

## The Money Market

WALL STREET, DEC. 24, 1901.

The critical period in the money market is generally admitted to have passed. With Saturday's reported contraction of \$13,000,000 in loans, the surplus reserve was sustained in the face of heavy cash demands, and with only one more week to go before capital begins to be redistributed in the January settlements, the present surplus will doubtless prove ample for all purposes. Money rates are pretty certain to rule high, as extensive calling and reloading of money will be in progress during the final days of the year. It would not be surprising in fact if excessive premiums were paid at times by the day-to-day borrowers. But the worst stage of what came near being a serious stringency is now unquestionably over. There are a variety of explanations offered for the week's enormous loan reduction. Some critics regard it as a reflection of heavy lending by foreign bankers and by bankers at other domestic centers. Others feel that it is due to the collapse of the Copper speculation, while still another reason is that credits taken out some time ago, in one or more of the numerous syndicate transactions, have been returned. The last is rather more plausible than the other two. But at all events the decrease in deposit liability, and in the required reserve which the loan contraction caused, have served to slightly more than offset what the banks have had to pay out in cash to the Treasury. The unusually large withdrawals in the early part of the month, by the interior banks, and the exports of gold to Europe, have alike been checked by the rise in the local money market. It is the abnormal government revenue position, the consequences of which are not affected by the course of the money rate, which are still the chief menace in the situation. If Congress sees fit to act upon the internal tax reduction recommendations, it would be the greatest benefit which could be conferred on the borrowing community. Should no such relief be forthcoming, the usual reflux of funds from the interior, which follows the turn of the year, is the thing that must be depended upon to improve bank resources, and put the market in shape to pay off the obligations to Europe, which it is understood will mature in quantity next month. Call money has averaged from 6 to 7 per cent during the week, with 10 per cent paid on exceptional occasions. Time money is steady at 6 per cent for all periods.

## The Stock Market

The stock market situation has not materially changed since the last writing. Developments in the copper trade, and in the affairs of the ill-fated Amalgamated Copper Company, have been the leading topics of interest. The nub of the matter is, that with the long-standing uncertainty dispelled by the violent cut in the metal, and by the reduction in the dividend to half its former rate, the copper troubles have lost their fascination over the general stock dealings. Everyone realizes now that the worst news is out, and the general market during the last few days has borne all the characteristics of a speculation relieved from a powerful element of suspense. Had it not been for the closeness of the money market, the improvement in security prices would unquestionably have been greater. But even as it was, the rising tendency was distinct and constant, and although no public interest was reflected, it seemed plain that the great body of sentiment was inclined to be cheerful over the immediate future. It would be surprising if any important movement were to occur during the next ten days, because the combination of tight money and the holidays is not conducive to speculative activity. The test of the market will come very soon, however, when the New Year season is past and lendable capital becomes more abundant. Wall Street will then doubtless have a chance to see the trial of the opposing theories which are now entertained respecting the current level of prices. One would be very foolish to overlook the fact that on both sides of the question whether the market is high enough there are ranged able students of financial conditions and values. It seems to us very largely a matter of technical conditions whether another upward movement is to occur this winter. And by technical conditions we mean principally the attitude of the speculative public, in the face of temptations which the large holders of stocks may put out to develop the buying spirit.

All the local tractions have been benefited by the general rally of the week. In Metropolitan and Brooklyn Rapid Transit pool manipulation and covering of short contracts were the main stimulants to the rise, although some buying of the latter stock seems

to have gone on for parties which wish to increase their representation at the approaching annual meeting. The dealings in Manhattan have reflected at times manipulative buying by the former pool in the stock, and at other times some rather mysterious realizing. A good many outside purchases have also been made on the idea that if the general market goes up Manhattan will figure as one of the leaders. The week's changes in the traction group have not been accompanied by any news of a specific character; they simply correspond with the changes in speculative conditions generally.

## Philadelphia

The market for Union Traction has been favorably affected by the definite decision of the company's employees not to go on strike. When the decision first became known last Wednesday the stock rose a point to 33¾. The advance encountered heavy realizing sales, however, and as the pool in the stock made no further effort to advance it, the quotation subsequently fell back to 33¼. No news or gossip has come to hand during the week concerning the action of the company upon the assessment and the proposed counter-balancing dividend. Philadelphia Traction moved up a half point in sympathy with Union Traction, and held steady at 98. Consolidated Traction, of Pittsburgh, sold in a few large lots on Saturday and yesterday at 23 and 23½, and sales were reported in the preferred at 63¾ to 64. This represents a slight advance from former quotations. American Railways changed hands in fractional lots, between 43 and 45. Other lesser transactions of the week included Railways General at 4¾, Rochester Passenger at 42, Consolidated of New Jersey at 67½, Indianapolis Railway at 45, and United Traction of Pittsburgh at 52¼. In bonds the only sales recorded were in Indianapolis 4s at 88, Electric People's Traction 4s at 97½ to 98, and People's Passenger 4s at 107.

## Chicago

Metropolitan Elevated shares have shown the greatest activity for the week among the Chicago tractions. The preferred, with total dealings of 1500 shares, just touched 91½, and then fell back to 89½. The common, on a smaller volume of business, rose fractionally to 39¾, and then reacted to 39¼. Up to the end of the third week of December the average daily traffic on this road was 123,000 passengers, a total which easily breaks all former records. Odd investment lots of Northwestern Elevated sold on a scale down from 89 to 88½, and the common also fell to 37¼. The market for the stocks was apparently not affected by the renewed talk of an extension of its North Shore line. It is said that the St. Paul Railroad's branch, in this section, will be used, and a rent paid of 4 per cent on \$1,500,000. One hundred shares of South Side Elevated sold on Friday at 108½, and 25 shares of Lake Street at 10¼, the latter being off a point from previous sale. Shares of the surface roads were a shade lower, West Chicago dropping to 90½, and City Railway to 187, but Union Traction was about unchanged at 11⅞ for the common, and 47 for the preferred. The recent cold weather has driven a good deal of the surface traffic to the elevated lines.

## Other Traction Securities

There has been practically no change among the Boston traction stocks this week. All the transactions in Massachusetts Electric common have been around the one figure, 32½, and in the preferred the same at 91. Boston Elevated rose a point to 168 on Saturday, but dropped back again to 167 on Monday. West End common and preferred are unchanged from last week, at 93½ and 112, ex-dividend, respectively. United Railways, of Baltimore, securities have continued to be more or less unsettled, but with some indications that bottom has been reached in the late decline. The common stock, after selling at 14¼ last Wednesday, rose to 14¾ yesterday, and closed at 14½. The income bonds touched the lowest point, 66½, on Friday, and since then have rallied fractionally to 66¾. The 4 per cent bonds were comparatively steady around 94½. Other transactions in the Baltimore market include Atlanta Railway 5s at 106¾, Norfolk Railway 5s at 112, City Railway of Newport News 5s at 96½, City & Suburban of Washington 5s at 94, Anacostia & Potomac 5s at 97, Norfolk Railways common stock at 11, and Nashville Railways common at 3. St. Louis Transit has been inactive on the New York curb, advancing, however, on the bid price, to 33¾. United Railways of St. Louis, preferred, is about unchanged at 88¼ bid, and the bonds at 90 bid. A single sale of a hundred New Orleans common was reported a week ago at 30¾, this being stock outside the pool. Later 31½ was bid. The exercise of the option ending on January 1, by H.

H. Pearson, Jr., is contingent on the stockholders accepting a modification of the original offer of purchase. The demand for such modification is based on the ground that on investigating the property the syndicate representatives found that the amount necessary to expend for improvements very greatly exceeds the original estimates.

**Iron and Steel**

The iron trade continues to be confronted with the astonishing fact that while production is far ahead of all previous records an actual scarcity is threatened in many branches of the industry. Leading producers, both furnace men and manufacturers, have booked their entire capacity for long periods ahead. Were it not for the knowledge that the heads of the industry are bending every energy to hold prices in check, the scramble on the part of buyers for nearby delivery might conceivably develop into a semi-panic. As it is, the extraordinary conditions of the market are beginning to tell in a slow but steady upward movement in the price schedules, and many critics are of the opinion that a more decided advance cannot be prevented for much longer. Bessemer pig iron is quoted at \$16.50, steel billets at \$27.50 to \$28.00, and steel rails at \$28.00

**Metals**

Quotations are as follows: Copper 13 cents; lead, 4 cents; tin, 22½ cents and spelter, 4¾ cents.

**Security Quotations**

The following table shows present bid quotations for the leading traction stocks, and the active bonds, as compared with a week ago:

	1901	
	Closing Bid	Dec. 17 Dec. 23
American Railways Company.....	43	44½
Boston Elevated .....	166	166½
Brooklyn R. T. ....	62½	64¾
Chicago City .....	*187	185
Chicago Union Tr. (common).....	10½	10½
Chicago Union Tr. (preferred).....	47	47
Cleveland City .....	112	113
Cleveland & Eastern .....	31	31½
Cleveland Electric .....	..	77½
Columbus (common) .....	45	45
Columbus (preferred) .....	101	101
Consolidated Traction of N. J.....	67½	67½
Consolidated Traction of N. J. 5s.....	109¼	109¼
Consolidated Traction of Pittsburgh (common).....	22¾	23
Consolidated Traction of Pittsburgh (preferred).....	64	63½
Detroit United .....	..	73
Detroit United Certificates .....	..	73
Electric-People's Traction (Philadelphia) 4s.....	98	97½
Elgin, Aurora & Southern .....	..	40
Indianapolis Street Railway .....	42	42
Indianapolis Street Railway 4s.....	87½	87¾
Lake Street Elevated .....	113½	10¼
Louisville (common) .....	107½	107½
Louisville (preferred) .....	115¼	115¼
Manhattan Ry. ....	134¾	133¼
Massachusetts Elec. Cos. (common) .....	32	32½
Massachusetts Elec. Cos. (preferred).....	*91	91
Metropolitan Elevated, Chicago (common).....	39¼	39¼
Metropolitan Elevated, Chicago .....	90½	90¼
Metropolitan Street .....	160¾	162½
New Orleans (common) .....	31	30¾
New Orleans (preferred) .....	105½	104½
North American .....	92½	93
Northern Ohio Traction (common) .....	..	45
Northern Ohio Traction (preferred) .....	..	88½
North Jersey .....	25	24
Northwestern Elevated, Chicago (common).....	35	36¼
Northwestern Elevated, Chicago (preferred) .....	88	87
Philadelphia Traction .....	97¾	97½
Rochester (common) .....	40½	41
St. Louis Transit Co. (common) .....	33	33¾
South Side Elevated (Chicago) .....	108½	108½
Syracuse (common) .....	23	23
Syracuse (preferred) .....	60	60
Third Ave. ....	121	122½
Twin City, Minneapolis (common) .....	107½	108
United Railways, St. Louis (preferred) .....	87	88½
United Railways, St. Louis, 4s.....	89¾	90
Union Traction (Philadelphia) .....	32¾	33

\* Ex-dividend. † Ex-interest. (a) Asked.

be issued \$1,000,000 of 6 per cent non-accumulative preferred stock and \$2,-500,000 of common stock. The American Loan & Trust Company, of Boston, is to be the trustee for the new bonds.

NEW ORLEANS, LA.—E. C. Jones & Company, of New York, it is said, now offer to lease the New Orleans City Railway, paying 2 per cent per annum on the common stock, provided they be given the right to purchase at 35 after three years' dividends.

SPRINGFIELD, MASS.—The stockholders of the Amherst & Sunderland Street Railway Company have authorized an issue of \$30,000 twenty-year 5 per cent bonds.

MINNEAPOLIS, MINN.—The Twin City Rapid Transit Company reports earnings as follows:

	1901	1900
November		
Gross receipts .....	\$266,800	\$238,216
Operating expenses .....	114,444	109,477
Earnings from operation.....	\$152,356	\$128,739
Receipts from other sources.....	1,717	1,497
Gross income .....	\$154,073	\$130,236
Fixed charges .....	58,350	51,963
Net earnings .....	\$95,723	\$78,273
Dividend, 7 per cent on pref'd stock.....	17,500	17,500
Surplus .....	\$78,223	\$60,773
Eleven months ending Nov. 30	1901	1900
Gross receipts .....	\$2,857,921	\$2,558,834
Operating expenses .....	1,301,345	1,199,984
Earnings from operation .....	\$1,556,576	\$1,358,850
Receipts from other sources.....	21,713	23,702
Gross income .....	\$1,578,289	\$1,382,552
Fixed charges .....	619,788	577,623
Net earnings .....	\$958,501	\$804,929
Dividends .....	192,500	187,250
Surplus .....	\$766,001	\$617,779

TRENTON, N. J.—The Trenton & New Brunswick Railway Company, which now has under construction an electric railway to connect Trenton and New Brunswick, has just filed for record at New Brunswick a mortgage for \$1,000,000.

NEW YORK, N. Y.—The Metropolitan Street Railway Company has declared the regular quarterly dividend of 1¼ per cent, payable Jan. 15. Books close Dec. 24 and reopen Jan. 16.

CLEVELAND, OHIO.—The Cleveland City Railway Company will increase its capital stock \$1,000,000. Under date of Dec. 19 the company announces an annual and special meeting of the stockholders will be held Jan. 20, for the purpose of electing a board of directors; also, of voting on a proposition to increase the capital stock from \$8,000,000 to \$9,000,000. Books for transfer of stock will close Jan. 15 and open Jan. 21.

COLUMBUS, OHIO.—The Columbus, Buckeye Lake & Newark Traction Company has given to the Knickerbocker Trust Company, trustee, a mortgage to secure an issue of \$1,500,000 5 per cent twenty-year bonds.

CLEVELAND, OHIO.—Directors of the Southern Ohio Traction Company and the Cincinnati & Northwestern Railway held a conference Dec. 14, relative to the formalities necessary for the possible consolidation of the properties. No public announcements have been made.

READING, PA.—The Reading Traction Company has declared a dividend of 75 cents per share, payable Jan. 1 to stock of record on Dec. 20.

CHATTANOOGA, TENN.—It is known that negotiations are being conducted for the purchase of the Chattanooga Rapid Transit Company, Chattanooga Electric Railway Company and the Chattanooga Electric Light Company. The plan is to consolidate the properties, but no authentic information is available. It has, however, been said that the deal will be consummated early in January.

RICHMOND, VA.—A leading official of the Cleveland Construction Company, which is building and has a large interest in the Richmond & Petersburg Electric Railway, denies absolutely that there is any truth in the report that the Richmond & Petersburg Electric Railway has been bought by the Richmond Passenger & Power Company, or that the two companies are to be consolidated, as has been reputed. The Richmond & Petersburg Electric Railway is rapidly nearing completion, and has arranged with the Passenger & Power Company to enter Richmond over its lines.

OSHKOSH, WIS.—The daily papers say that there is on foot an electric railway deal that is the largest ever contemplated in the State of Wisconsin, the plan of which is to make Oshkosh a central or radiating point.

MONTREAL, QUE.—The Montreal Street Railway Company reports earnings as follows:

	1901	1900
November		
Gross receipts .....	\$153,568	\$146,923
Operating expenses .....	96,489	96,257
Earnings from operation.....	\$57,079	\$50,666
Receipts from other sources.....	1,345	692
Gross income .....	\$58,424	\$51,358
Fixed charges and interest on loans.....	*13,968	9,190
Net earnings .....	\$44,456	\$42,168

SAVANNAH, GA.—The plan for the merging of the Edison Electric Illuminating Company and the Savannah, Thunderbolt & Isle of Hope Railway Company provides for the issuance of \$6,000,000 in securities. The consolidated company will be known as the Savannah Electric Company, it is said, and the plan is to issue \$2,500,000 of 5 per cent fifty-year gold bonds, dated Jan. 1, 1902, with July and January interest coupons. There will also



TABLE OF OPERATING STATISTICS

Notice.—These statistics will be carefully revised from month to month, upon information received from the companies direct, or from official sources. The table should be used in connection with our Financial Supplement "American Street Railway Investments," which contains the annual operating reports to the ends of the various financial years. Similar statistics in regard to roads not reporting are solicited by the editors. \* Including taxes. † Deficit due to strike.

COMPANY	Period	Total Gross Earnings	Operating Expenses	Net Earnings	Deductions From Income	Net Income, Amount Avail-able for Dividends	COMPANY	Period	Total Gross Earnings	Operating Expenses	Net Earnings	Deductions From Income	Net Income, Amount Avail-able for Dividends
<b>AKRON, O.</b>							<b>DULUTH, MINN.</b>						
Northern Ohio Tr. Co.	1 m., Nov. '01	49,249	27,746	21,501	11,492	10,009	Duluth-Superior Tr.	1 m., Oct. '01	38,678	22,523	16,156	9,181	6,975
	1 " " '00	40,932	27,042	13,890	11,620	2,270		10 " " '01	373,946	204,074	169,872	91,559	78,313
	3 " Sept. '01	193,833	98,904	94,929	-----	-----	<b>ELGIN, ILL.</b>						
	3 " " '00	158,379	94,977	63,402	-----	-----	Elgin, Aurora & Southern Tr.	1 m., Nov. '01	27,322	17,138	10,184	-----	-----
	9 " " '01	462,800	263,361	199,439	98,973	100,466		9 " " '00	25,323	16,681	8,642	-----	-----
	9 " " '00	387,972	241,782	146,190	109,786	36,404		9 " " '01	275,504	152,904	122,600	75,000	47,600
								9 " " '00	234,125	149,851	84,274	67,500	16,774
<b>ALBANY, N. Y.</b>							<b>HAMILTON, O.</b>						
United Traction Co.	1 m., Nov. '01	121,007	85,464	35,544	22,040	13,504	Southern Ohio Tr. Co.	1 m., Nov. '01	27,701	15,988	11,713	7,500	4,213
	1 " " '00	111,610	73,198	38,412	19,901	18,511		1 " " '00	22,876	13,708	9,178	7,500	1,678
	5 " " '01	626,048	408,525	217,523	101,644	115,879		11 " " '01	312,432	168,174	144,259	82,500	61,759
	5 " " '00	595,528	392,962	202,566	99,929	102,637		11 " " '00	270,164	140,027	130,137	82,500	47,637
<b>AUGUSTA, GA.</b>							<b>LONDON, ONT.</b>						
Augusta Ry. & Elec. Co.	1 m., Oct. '01	18,031	10,012	8,019	-----	-----	London St. Ry. Co.	1 m., Nov. '01	12,084	6,002	6,082	2,176	3,907
	1 " " '00	15,772	9,668	6,104	-----	-----		1 " " '00	10,425	5,106	5,319	1,647	3,672
	10 " " '01	169,950	102,279	67,671	-----	-----		1 " " '01	128,898	78,277	50,622	21,972	28,646
	10 " " '00	157,049	91,785	65,264	-----	-----		11 " " '00	108,066	74,748	33,318	19,941	13,376
<b>BINGHAMTON, N. Y.</b>							<b>MILWAUKEE, WIS.</b>						
Binghamton St. Ry. Co.	1 m., Nov. '01	15,107	8,304	6,805	-----	-----	Milwaukee El. Ry. & Lt.	1 m., Nov. '01	206,356	102,286	104,069	63,166	40,903
	1 " " '00	13,615	6,591	7,024	-----	-----		1 " " '00	189,961	98,550	91,411	62,960	28,451
	5 " " '01	95,500	48,621	46,529	-----	-----		1 " " '01	2,198,416	1,079,875	1,118,541	687,977	430,564
	5 " " '00	83,588	42,252	41,336	-----	-----		11 " " '00	2,010,811	1,031,800	979,011	754,923	224,089
<b>BOSTON, MASS.</b>							<b>MINNEAPOLIS, MINN.</b>						
Boston Elev. Ry. Co.	12 m., Sept. '01	10,869,496	7,336,597	3,532,899	2,896,359	636,539	Twin City R. T. Co.	1 m., Nov. '01	268,517	114,444	154,072	58,350	95,722
	12 " " '00	10,236,994	6,828,110	3,408,884	2,932,839	476,044		1 " " '00	109,477	130,235	51,965	78,270	42,168
<b>Massachusetts Elec. Cos</b>	12 m., Sept. '01	5,778,133	3,915,486	1,862,648	937,206	925,442		11 " " '01	2,879,635	1,301,345	1,578,289	619,787	958,502
	12 " " '00	5,518,837	3,659,337	1,859,500	994,294	865,206		11 " " '00	2,582,536	1,199,984	1,382,551	577,622	804,929
<b>BROOKLYN, N. Y.</b>							<b>MONTREAL, CAN.</b>						
Brooklyn R. T. Co.	1 m., Oct. '01	1,067,106	* 772,396	294,710	-----	-----	Montreal St. Ry. Co.	1 m., Nov. '01	154,913	96,490	58,423	13,967	44,456
	1 " " '00	991,454	* 639,982	351,472	-----	-----		1 " " '00	147,616	96,257	51,358	9,290	42,168
	4 " " '01	4,500,707	* 3031519	1,469,188	-----	-----		2 " " '01	330,973	181,700	139,273	29,351	109,922
	4 " " '00	4,217,912	* 2601525	1,616,387	-----	-----		2 " " '00	306,893	182,070	124,823	18,797	106,026
	12 " June '01	12,135,559	* 7216008	4,919,551	4,341,748	577,803	<b>NEWBURGH, N. Y.</b>						
	12 " " '00	11,768,550	* 7106373	4,662,177	4,135,405	526,772	Newburgh Electric...	1 m., Aug. '01	13,615	5,699	7,916	-----	-----
<b>PUFFALO, N. Y.</b>								1 " " '00	12,780	4,932	7,848	-----	-----
International Tr. Co.	1 m., Oct. '01	601,241	368,989	332,252	100,928	231,323		2 " " '01	27,003	10,767	16,236	-----	-----
	1 " " '00	240,417	120,454	119,963	82,758	37,205		2 " " '00	25,769	10,182	15,587	-----	-----
	4 " " '01	2,477,793	1,029,687	1,448,106	408,134	1,039,972	<b>NEW YORK CITY.</b>						
	4 " " '00	1,031,887	469,199	562,688	324,551	238,137	Manhattan Ry. Co.	3 m., Sept. '01	2,284,565	1,312,130	972,434	632,350	340,084
<b>CHICAGO, ILL.</b>								3 " " '00	2,081,964	1,236,711	845,253	626,925	218,328
Chicago & Milwaukee Elec. Ry. Co.	1 m., Nov. '01	12,041	5,804	6,237	-----	-----		12 " " '01	10,455,872	5,328,649	5,127,223	2,682,132	2,444,001
	1 " " '00	9,781	5,604	4,177	-----	-----		12 " " '00	9,950,735	5,195,312	4,755,423	2,688,644	2,066,779
	11 " " '01	159,453	68,234	91,218	-----	-----	<b>Metropolitan St. Ry.</b>	3 m., Sept. '01	3,750,285	1,563,260	2,187,025	1,148,714	1,038,311
	11 " " '00	131,065	53,940	77,125	-----	-----		3 " " '00	3,608,306	1,555,036	2,053,270	1,128,985	924,285
<b>Northwestern Elev.</b>	12 m., June '01	978,766	322,645	656,121	400,693	255,428		12 " June '01	14,720,767	6,755,131	7,965,636	4,534,068	3,431,567
	7 " " '00	525,023	180,452	344,571	221,553	123,018		12 " " '01	14,437,134	6,631,254	7,805,880	4,445,720	3,360,160
<b>Union Traction</b>	12 m., June '01	8,158,809	3,942,194	4,216,615	4,058,040	158,575	<b>OLEAN, N. Y.</b>						
	12 " " '00	8,345,748	3,761,797	4,583,951	3,979,876	604,075	Olean St. Ry. Co.	1 m., Nov. '01	4,200	2,044	2,156	1,146	1,010
<b>CLEVELAND, O.</b>								1 " " '00	3,934	2,392	1,541	1,597	-----
Cleveland & Chagrin Falls	1 m., Nov. '01	4,305	3,768	537	1,404	-----		5 " " '01	25,876	11,077	14,799	7,160	7,640
	1 " " '00	4,327	2,912	1,315	1,416	-----		5 " " '00	23,837	11,005	12,832	7,276	5,555
	11 " " '01	43,670	29,583	14,087	12,642	1,445	<b>PITTSBURG, PA.</b>						
	11 " " '00	45,152	30,600	14,552	12,322	2,230	Consolidated Traction	1 m., Oct. '01	375,571	126,261	179,491	63,974	115,517
<b>Cleveland &amp; Eastern</b>	1 m., Oct. '01	8,765	4,624	4,141	3,205	936		1 " " '00	285,277	108,137	177,140	63,213	113,927
	1 " " '00	7,201	3,443	3,758	3,123	635		7 " " '01	2,048,300	878,495	1,169,805	444,825	724,980
	7 " " '01	75,163	43,125	32,038	35,653	-----		7 " " '00	1,920,716	797,583	1,123,134	434,751	698,383
	7 " " '00	52,131	29,856	22,278	27,568	-----	<b>PHILADELPHIA, PA.</b>						
<b>Cleveland El. Ry. Co.</b>	1 m., Nov. '01	191,295	105,588	85,758	21,635	64,122	American Railways	1 m., Nov. '01	73,798	-----	-----	-----	-----
	1 " " '00	174,734	96,808	77,926	20,795	57,131		5 " " '00	61,888	-----	-----	-----	-----
	11 " " '01	2,097,210	1,158,183	939,027	222,526	716,501		5 " " '01	418,929	-----	-----	-----	-----
	11 " " '00	1,876,050	1,019,601	856,450	239,008	617,441		5 " " '00	373,025	-----	-----	-----	-----
<b>Cleveland, Elyria &amp; Western</b>	1 m., Nov. '01	21,125	12,370	8,756	4,478	4,278	<b>Union Traction Co.</b>	12 m., June '01	13,431,680	5,836,186	7,595,495	6,734,228	861,267
	1 " " '00	15,813	11,793	4,021	3,228	793		12 " " '00	13,249,825	5,624,905	7,624,921	6,686,899	938,022
	1 " " '01	229,853	125,768	104,085	49,253	54,833	<b>RICHMOND, VA.</b>						
	11 " " '00	163,674	92,993	70,681	35,503	35,179	Richmond Trac. Co.	1 m., Sept. '01	20,991	15,669	5,322	3,196	2,126
<b>Cleveland, Painesville &amp; Eastern</b>	1 m., Nov. '01	13,228	8,619	4,608	-----	-----		1 " " '00	20,727	10,770	9,957	3,843	6,115
	1 " " '00	10,925	6,311	4,614	-----	-----		12 " " '01	218,569	139,542	79,027	38,618	40,410
	9 " Sept. '01	124,184	63,243	60,941	54,375	6,566		12 " " '00	203,057	108,198	94,859	37,608	57,250
	9 " " '00	106,187	49,979	56,207	54,375	1,833	<b>ROCHESTER, N. Y.</b>						
<b>CORTLAND, N. Y.</b>							Rochester Ry.	1 m., Oct. '01	79,972	45,150	34,821	24,923	9,899
Cortland & Homer Tr. Co.	12 m., June '01	31,624	19,857	11,767	7,297	470		1 " " '00	77,866	51,107	26,759	24,155	2,604
	12 " " '00	28,925	16,927	11,998	22,129	df 10,131		4 " " '01	342,856	187,436	155,420	99,784	55,636
<b>DENVER, COL.</b>								4 " " '00	323,693	195,186	128,508	96,531	31,976
Denver City Tramway Co.	1 m., Nov. '01	118,863	64,838	54,024	32,437	21,588	<b>ST. LOUIS, MO.</b>						
	1 " " '00	109,768	60,858	48,911	31,607	17,303	St. Louis Transit Co.	1 m., Aug. '01	509,048	-----	-----	-----	-----
	11 " " '01	1,374,784	750,850	623,934	350,749	273,185		1 " " '00	505,728	-----	-----	-----	-----

## NEWS OF THE WEEK

## CONSTRUCTION NOTES

**BIRMINGHAM, ALA.**—The Birmingham Railway, Light & Power Company has purchased two blocks of property between Third and Fifth Avenues and Tenth and Eleventh Streets, and will in a short while begin the erection of a new street-car house and machine shop.

**LOS ANGELES, CAL.**—G. J. Griffith has applied to the Board of Supervisors for a franchise to build an electric railway from the intersection of Hartford Street and Sunset Boulevard to Griffith Park, about 2 miles from Hollywood.

**LOS ANGELES, CAL.**—James E. Kays, representing Eastern capitalists, has withdrawn his application for a street railway franchise. In a communication to the Council he said that the interests he represented had decided to make no further effort to secure the grant in view of the action taken by the Los Angeles Railway Company in transferring the belt line franchise to the Pacific Electric Railway Company, thereby establishing two separate franchises on Sixth Street, which had been included in the route proposed by Mr. Kays.

**OAKLAND, CAL.**—The San Francisco & Piedmont Railway Company has been incorporated by F. M. Smith, F. C. Havens, W. H. Martin, E. A. Heron and W. F. Kelly, who are connected with the Oakland Transit Company, which controls all of the Oakland street railway lines. Both of these corporations and the new Oakland & San Jose Railway Company are backed by the Realty syndicate, which has large holdings of real estate in and around Oakland, and it was recently announced that the capitalists who are at the head of these companies had decided to carry out, in the near future, plans which they have been long considering as to providing rapid transit between San Francisco and Oakland. At present the local trains of the Southern Pacific Railroad Company take passengers from Oakland to the end of the long wharf, where they are transferred to ferryboats, the entire trip between the two cities consuming forty-five minutes. The new plans of the competing line are to build a long iron pier extending from the foot of Fortieth Street some distance into the bay, at the end of which fast electric cars will connect with new propeller steamers capable of high speed. It is furthermore proposed, if the government will consent to the location of a terminal on Goat Island, to lay a steel tube  $1\frac{1}{2}$  miles long, at a cost of \$1,000,000, from the end of the wharf to a point on the island. Thence, it is claimed, the ferryboats could make the trip to San Francisco in five minutes, instead of the twenty minutes required from the present Oakland Mail. The eastern terminal of the new line, which is about 17 miles in length, will be near Leona Heights. The capitalization of the company is \$2,500,000.

**GREELEY, COL.**—C. W. Beer and his associates have applied to the Council for a franchise for the construction of an electric railway. If the franchise is granted, it is planned to have the road extend to several nearby towns.

**BOULDER, COL.**—The bondholders of the Boulder Railway & Utility Company have decided to begin at once the extension of the street railway lines here.

**OURAY, COL.**—The Council has granted the San Juan Electric Company a franchise to operate an electric railway here. Under the contract approved by the city the company is to build a power plant and electric railway from Ouray to the coal fields, 27 miles north of the city. The franchise includes privileges to furnish the city and mines of the district with light and power. A. S. Munson is president of the company, and the directors are: G. A. Taft, J. A. Barclay, S. T. Hamilton and W. R. Thurston, of Colorado Springs.

**WILMINGTON, DEL.**—Final arrangements for the construction of the extension of the People's Railway from Brandywine Springs to Kennett Square have been made. It is expected that work will be begun at once.

**BUFFORD, GA.**—The Cumming & Buford Electric Railway Company, which, as previously stated, proposes to construct an electric railway to connect Bufford, Gwinnett County, and Cumming, Forsyth County, has been granted a charter by the Secretary of State. The proposed new road will be about 16 miles long. The incorporators of the company are: J. G. Puett, R. W. Shadburn, H. L. Patterson and John H. Hockehull, of Cumming; H. D. Jaquish, of Gainesville, and M. S. Garner, G. W. Thompson, Charles H. Smith, Jr., R. J. Owens and J. O. H. Brown, of Buford.

**CHICAGO, ILL.**—The Chicago Underground Trolley Traction Company, capitalized at \$2,000,000, has been incorporated by Daniel S. Bergin, A. L. Ringo, corporation expert of Chicago, and Philip Lawrence. The object of the company is to conduct a general transportation business wherever franchises may be secured.

**AURORA, ILL.**—The Aurora, De Kalb & Rockford Electric Traction Company has been incorporated, with a capital stock of \$100,000, to build an electric railway to connect Aurora and Rockford, passing through Kane, De Kalb, Ogle and Winnebago Counties. The incorporators and first board of directors of the company are: R. W. Nichols, Jr., Charles C. Davis, A. E. Read, Albert J. Claussen and William P. Koff, of Chicago.

**STEWART, ILL.**—It is said that the construction of the proposed electric railway to connect Stewart, Lee Centre and Dixon, with a branch to Amboy, will be begun in the spring. The officers of the company that will build the line here are: G. H. T. Shaw, of Dixon, president; E. L. Titus, of Stewart, vice-president; I. R. Titus, of Stewart, secretary; F. N. Vaughan, of Amboy, treasurer; S. D. Frost, of Amboy, general manager; ex-Senator Baxter, of Rochelle, attorney.

**SPRINGFIELD, ILL.**—E. H. Helm, of East St. Louis, has just completed a survey between Springfield and Girard for the proposed electric railway to extend from St. Louis to Springfield, and it has been decided to continue the survey to Carlinville.

**GALESBURG, ILL.**—Quite some progress has been made in the construction of the line of the People's Traction Company, and it is probable that the line will be in operation at an early date. The plan of the company is to build between Galesburg and Abingdon.

**KNIGHTSTOWN, IND.**—O. D. Ogburn and others, of New Castle, have secured from the County Commissioners a franchise for the construction of an electric railway along the National road. This franchise is secured in the interest of the proposed electric railway to extend from Indianapolis to Richmond.

**SHELBYVILLE, IND.**—Considerable grading has been done by the Shelbyville & Southeastern Electric Railway Company, and the ties and rails for the line have been ordered. It is expected that the road will be completed in the near future.

**COVINGTON, IND.**—The City Council has granted the Fountain & Warren Traction Company a thirty-five-year franchise for the construction of an electric railway in this city. A condition of the franchise is that the line shall be extended 8 miles east of the city. The line will extend from Danville, Ill., and is expected to form a part of an extended system to connect Lafayette, Logansport, Wabash and Ft. Wayne.

**LEXINGTON, KY.**—Rapid progress is being made in the construction of the Lexington & Georgetown Traction Company's road, and it is expected that the line will be ready for operation by Feb. 1. The company's car house at Georgetown is nearing completion. Entrance to Lexington will be gained over the lines of the Lexington Railway Company, and that company will furnish power for operating the entire road.

**BALTIMORE, MD.**—James E. Ingram, Jr., Frank H. Callaway, D. B. Banks, F. C. Slingluff and M. W. Offutt are reported to be perfecting plans for the incorporating of a company that will have for its object the constructing of an electric railway to extend from Garrison Avenue and Liberty Road, where connections will be made with the lines of the United Railways & Electric Company, to Libertytown, Frederick and other suburban towns. It is said that the company will be capitalized at \$1,000,000.

**BALTIMORE, MD.**—It is now stated that the construction of the Washington & Annapolis Electric Railway will be begun early in 1902. Beginning at Chesapeake Junction, where a connection will be made with the Columbia line of the Washington Traction Company, the new road will parallel the Pennsylvania Railroad at a distance of 1 mile to  $1\frac{1}{2}$  miles on the east to Odenton, Md. Continuing to the east, the new road from Shipley to Baltimore will parallel the Baltimore Short Line, and will enter Baltimore at Westport, where connection will be made with the United Railways. The distance over the line between Washington and Baltimore will be 31 miles. It will be a double-track road, the rails 80 lbs. The company will erect its own power station. W. H. Lamprecht and W. O. Lamprecht, the Cleveland bankers, are interested in the new road.

**BOSTON, MASS.**—The Boston *Herald* says that the New York Central has asked for estimates on the cost of electrically equipping the Newton circuit of the Boston & Albany Railroad.

**DETROIT, MICH.**—The Detroit, Pontiac, Lapeer & Northern Railway Company has filed with the Railroad Commissioner a map showing that portion of its proposed line in Berrien County, with crossings of the Pere Marquette and Michigan Central Railroads. This line will extend from Detroit to Bay City, and will have in all fourteen crossings of steam roads, all of which will be made either overhead or undergrade.

**KALAMAZOO, MICH.**—The Grand Rapids, Kalamazoo & South Haven Traction Company will petition the Board of Supervisors at its next session for permission to dam the Kalamazoo River near Allegan for power purposes.

**DETROIT, MICH.**—The Detroit, Ypsilanti, Ann Arbor & Jackson Electric Railway is now in regular operation between Ann Arbor and Grass Lake, and it is expected that cars will be running into Jackson before Jan. 1. The Jackson & Suburban Traction Company's cars run between Jackson and Grass Lake, so, by transferring at Grass Lake, passengers may now ride the whole distance between Jackson and Detroit.

**LANSING, MICH.**—The Lansing, St. Johns & St. Louis Railway Company will begin in a few days running by steam, and will furnish a train every hour until its trolley line is completed, which will be within two or three weeks. A satisfactory arrangement has been made with the Pere Marquette Railroad Company regarding the overhead crossing on Centre Street, North Lansing, and work on the bridge will be begun immediately.

**GRAND RAPIDS, MICH.**—A. D. Prosser is authority for the statement that the Southern Michigan Traction Company will begin work on its proposed line from Grand Rapids to Kalamazoo immediately after the holidays, and that the road will be completed during the year 1902.

**GRAND RAPIDS, MICH.**—The Grand Rapids, Holland & Lake Michigan Railway Company has succeeded in adjusting all differences between the company and the city of Holland, and a new franchise has been granted that appears to be satisfactory to all concerned. The principal change is in the requirement that the company shall do all paving between its tracks.

**LANSING, MICH.**—The Lansing Electric Street Railway Company is securing the necessary right of way for an extension of its line to Haslett Park, on Pine Lake, and a first-class hotel will be built there.