



labor or produce in the neighboring village, town or city, retaining at the same time all of the advantages of rural life. The factory hand no longer has to live within fifteen minutes' walk of his shop, nor is the farmer obliged to spend half a day, two or three times a week, in hauling his farm produce over rough country roads to dispose of it in the nearest market. In this way the electric road has and is effecting in the districts in which it has been introduced a revolution in social life and environment, and in adding enormously to the value of the rural property is contributing a generous increment to the morals, health and well-being of the community through which it passes. The same condition of affairs, it is needless to say, is also occurring in other parts of the country, particularly in Ohio, Indiana and eastern and southern Michigan, where the interurban railway activity up to the present has been most pronounced. But as a social factor the interurban railway is making its influence felt in all parts of this land of ours, and will do more so as its sociological advantages become more thoroughly realized.

### American Roads as Seen Through German Eyes

When Burns penned his famous distich, "O wad some power the giftie gi'e us, to see oursel's as ithers see us," he undoubtedly had in mind the sentiment that the opinion popular held of a man's work and character is often not so elevated as that possessed by the person himself. While this is undoubtedly true in many instances, we believe that the owners and managers of our leading street railway systems do not often realize the advances which have been made by them during the past ten years, until the fact has been impressed upon their attention by the surprised comments of some visitor from abroad. Such an instance has been furnished during the past month by the opinion passed upon electric railway development in this country by Count Otto von Moltke, nephew of the great German field marshal, the late Count Helmuth von Moltke. Count von Moltke has been in this country since Oct. 4 having been commissioned by the Prussian Parliament, of which he is a leading member, to study our transportation methods, including street and other railway transportation, as well as traffic on highways, rivers and canals. He is chairman of the committee on transportation in the Prussian Parliament, and has written several pamphlets on German canal and railway transportation. Just before his departure on Oct. 30 for the steamer at Hoboken by which he was to return to Berlin he expressed himself in regard to American electric railway enterprises as follows:

I gained much valuable information at the American Street Railway Exhibition at Madison Square Garden during the second week in October.

I am perfectly electrified with the progress you Americans have made in the methods of transportation. It is impossible for anyone in Europe to understand this without seeing it. The best expression I have heard here is "up to date," which tells the whole story. You have shown the most progress in adapting electricity as a means of transportation. The German Siemens are the fathers of electrical improvements, and the Germans conceive many methods, but they can't take hold of things the way the Americans do. Conservative methods keep the Germans from launching out extensively in any scheme. Europeans are theoretical and Americans are practical. The Europeans formulate and you put into practice.

In this country you are quick to raise money and even speculate on success and failure, while on the other side of the water we must feel sure that an investment will be successful before we risk any money.

### The Secret of America's Success in Electric Railways

Undoubtedly one of the most potent factors in the success of electric railroading in this country is contained in the last remark of Count von Moltke, as expressed above. By this we do not intend by any means to minimize the benefits derived at home through American inventive genius in the electrical and railway fields; our inventors have placed the country under enduring bonds of obligation for their services. But without the hearty and liberal co-operation of the financiers of this country, first, in developing the inventions until they can be brought up to the marketable stage and, second, of the street railway owners in installing street railway apparatus largely untried and, as experience has often shown, unsuitable in its existing form to the conditions, though susceptible of modifications until success had been attained,

the work of the inventor would have been fruitless. It is unnecessary to repeat here for the benefit of our readers the threadbare fact that apparatus so installed in the early days of electric railroading had to be replaced with better, and that in turn many times long before it had worn out with still more improved appliances, until the perfected system was secured. This expenditure, made liberally by the railway companies to secure perfected motive power, is now often stigmatized as "water" by advocates of higher street railway taxation and lower fares. Because the tangible property of a street railway company might now be replaced at 50 or 75 per cent of its existing capital, the remaining 50 or 25 per cent represents, in their opinion, either unjustified and inexcusable inflation, which should be reduced, or else an indeterminate asset, which should be taxed. It need hardly be said that neither of these views is legitimate, either from a financial standpoint or from that of public policy. It would be clearly unjustifiable to tax an individual on the debt incurred by him in building a house which had subsequently been destroyed by fire, or a steamship company on the value of a vessel which had been wrecked or sunk beyond the possibility of recovery. Nevertheless, this policy is advocated in many quarters in the case of street railways, even by those who pretend to make a specialty of problems of this kind.

### Temporary Relief for Congestion in Brooklyn

Although permanent relief of the traffic congestion in Brooklyn is not possible until the new East River bridges have been completed and the changes made at the New York end of the Brooklyn Bridge, the Brooklyn Rapid Transit Company is making every effort to afford such relief as is possible, and has recently devised a plan for diverting a portion of the New York cars from lower Fulton Street during the rush hours of the morning and evening. According to the new plan of operation, the New York cars of the Gates Avenue and Putnam Avenue lines run by way of Vanderbilt Avenue, Park Avenue and Concord Street, going in both directions, between the hours of 7 and 10 a. m and 5 to 6:30 o'clock p. m. The number of New York cars run by this route are limited strictly to the requirements of the New York business, and a sufficient number of additional cars are run to the City Hall and Fulton Ferry to accommodate the local Brooklyn traffic. This has resulted in the separation of the New York travelers from the local Brooklyn travelers, relief has been afforded in the congested section of Fulton Street, and the New York cars and local Brooklyn cars are thus enabled to make better time. The company has still further relieved the congestion in lower Fulton Street by diverting during the rush hours the New York cars of the Flatbush and Third Avenue lines and sending them through Atlantic Avenue instead of Fulton Street. The company has also recently inaugurated a belt line service, which is the first line of its kind in Brooklyn. The belt line does not take the place of any line or lines, and the operation of the line was decided upon after a thorough investigation of traffic conditions in the Williamsburg and Greenpoint sections of the city, which are affected by the new service. The new belt line starts from Ridgewood via the Gates Avenue line, turning into Broadway at the intersection of Gates Avenue and Broadway; thence down Broadway to Lorimer Street. At the intersection of Broadway and Lorimer Street the belt line really begins. One-half of the cars at this point turn into Lorimer Street and run to Tenth and Twenty-Third Street ferries, passing through Manhattan and Greenpoint Avenues. The other half of the cars continue down Broadway to the ferries at the foot of Broadway. Both lines of cars on arrival at their respective ferries reverse their routes returning, and loop between Broadway ferries and the Tenth and Twenty-Third Street ferries via Kent Avenue and Franklin Street.

### "Unnecessary Labor"

Once or twice lately we have noted efforts made to stop the running of street cars on Sunday. It is now reported from Espy, Pa., that residents there had begun proceedings to stop the oper-

ation on Sunday of the Columbia & Montour Electric Railroad. The arrest of a motorman was ordered, but the constable refused to serve the paper. The attempt to stop the operation of the railroad is made under the act of 1794, which provides that if any person perform any unnecessary labor on Sunday he shall be liable to a fine of \$4 for each offense. The date of the "blue law" is suggestive of medieval sumptuary legislation, and it is rather late in the day to stop travel on sabbatical grounds. The broader view prevalent is that the "unnecessary labor" of a few is the means of lessening the labor of a great many. In fact, if the street cars in New York City were deprived of the fares of the increasing number of those who find them convenient in attending church, there would be quite a hole in the Sunday income; while, on the other hand, the operation of a few cars has made the day a genuine holiday to thousands who want to reach the parks and breathing spaces for an hour or two of pure air and innocent recreation. The trolley street car has been a great factor in making Sunday a day of rest.

So much for the ostensible merits of the action of the virtuous and high-minded residents of Espy—but on looking a little further into the matter, it would appear that desire to maintain the inviolability of the Sabbath was, after all, not the impelling motive. The same law was invoked recently in the neighboring city of Reading, and, as pointed out last week, an Alderman who tried to curry favor with some disgruntled strikers fined seventy men who were running cars on Sunday—in despite of the strike—\$4 and costs apiece. This was promptly opposed by Judge Endlich in habeas corpus proceedings, who has wisely held that the Sunday operation of street cars is a necessity, and has imposed the costs of the writ of habeas corpus upon the malicious prosecutors. As the Court remarked, "You are not trying to protect the sanctity of the Sabbath." True. It would be safe to say that, on the contrary, it was a very disgusting display of hypocritical spite.

### The Services of Electricity

Anthony N. Brady furnishes to the pages of the *North American Review* of November a fitting article on "Electricity in the Service of Man," in which he sums up the growth of electrical application and investment, and presents a striking picture of what the protean agent is doing for the world at large. To some people the article may prove a disappointment, as it embodies practically no passages of a controversial nature. If Mr. Brady would only sit down, moreover, and detail carefully the story of his wonderful success, not merely in creating a great fortune for himself, but in massing together scattered or unproductive properties and welding them into great, profitable systems, he would enjoy the most eager attention of a vast audience among those who have watched his career. But he abstains from personal reminiscence and financial discussion, and approaches his subject rather from the academic side. That is well enough, however, and goes to show that those who spend their lives in building up great electrical properties are not without a keen personal interest in the art itself and in what electricity can do besides earning dividends.

It is interesting to note how strongly the trolley comes out in Mr. Brady's statistics. Giving the weight of his indorsement to the statistics compiled by T. C. Martin for the New Century number of *Electrical World and Engineer*, he shows that the grand total of \$4,000,000,000 can be safely taken as the total capitalization of tangible electrical industries and properties in the United States. Now, as our readers will doubtless remember, American street railways represent just about one-half of that total, or at least two billion dollars. It is singular and interesting that, as the article shows, each successive electrical industry looms bigger than its immediate predecessor. The telephone counts for much more than the telegraph, and the electric light development is twice as big as that of the telephone, while the trolley again doubles up the values for lighting. If this process goes on it will soon run into far heavier figures even than those now indicated, and the newer arts of power transmission, automobile work, telpherage, electric heat-

ing, etc., bid fair to burgeon out in grander and grander developments. We fancy, however, that the electric railway will stay at the top, for it widens out even now from the street to the country highway, and from that to the main steam systems of the country.

### The American Invasion of England

In an interesting series of articles which have recently appeared in the London *Daily Mail*, Fred A. McKenzie has described, in popular but no less convincing language, the inroads on British industries which are being made by American importations. "From shaving-soap to electric motors, and from shirtwaists to telephones," as the author tersely expresses the situation, the American seems to be clearing the field of his British competitor. To those of us on this side of the water who hear of certain total export values the fact of this wholesale invasion of British markets is not appreciated so vividly or in such a concrete form as it must be to the Londoner, as walking down Oxford Street, the Piccadilly or other of his main thoroughfares, he sees announcements of American goods on every side. The average Englishman has always considered his country supreme in manufacturing, and this wholesale confiscation of his local markets has evidently caused him no end of worry.

The articles have recently been reprinted in book form, and from the chapter entitled "Electric Traction," which is one of the most interesting in the series, a good idea can be had of the progress of American manufactures in this industry. The author says in part:

But it is in the manufacture of electric traction materials that the greatest triumphs of the American invaders have occurred. When the construction of steam railways opened up a new era of industry England was first and the rest of the world nowhere. It was English engineers who designed, English capital financed, and very often English labor constructed the great lines of many countries. To-day steam is hissing its own funeral dirge, and electricity is rapidly taking its place as the motive power of the immediate future.

The amount of capital invested in electric traction undertakings will before long rival the expenditure on steam roads. In eleven years electric railways of America have increased to 20,000 miles, involving an outlay of about a thousand million dollars. In England we are just awakening to this new business. But during the past session alone bills were presented to Parliament asking power to construct 773 single mile tracks of electric road, costing over £24,000,000 and with borrowing powers of nearly £30,000,000.

In short, one of the most gigantic industries of the twentieth century is springing to life under our eyes. Who has this business? In England we have allowed it to pass largely into American hands.

One or two enterprising British firms have, it is true, managed to hold their own by filling their shops with American tools and by adopting American methods. The splendid works of the English Electric Manufacturing Company, of Preston, are an instance of what we are now doing. But in the manufacture of electric machinery for traction purposes the Americans are to-day right atop. Their representatives secure most of the best contracts, and they are planning schemes for still greater conquests. As one New York technical paper put it not many weeks ago: "For the past few years, when any important (English electric) railway contracts were pending it has not been a question as to who, but as to which American, would carry off the prize."—[STREET RAILWAY JOURNAL, April 6, 1901.]

About one-half of the motors on the street cars in Britain are American. For trucks, the Brill Company, of Philadelphia, and the Peckham Company, of New York, hold the field. For the splendid equipment of the Central London Railway the English engineers went to the General Electric Company, of New York, and for their lifts, to the Sprague Company. Macartney, McElroy & Company, of New York, boast that they have fitted out eleven of the leading street electric tramway lines in Great Britain. The British Thomson-Houston Company, the English agents for the General Electric Company, of New York, supplied the electric street car equipment for the new West London lines, and for two dozen others. The Westinghouse Company, one of the most powerful corporations, has entered the field on such a scale and with such splendid facilities that its progress represents the march of a triumphant army.

Mr. McKenzie makes certain recommendations as to how the British manufacturer may regain, at least, his own markets, which have been lost, he thinks, largely through lack of British manufacturing enterprise and the blight of trades unionism. But unless steps be taken quickly he evidently believes that the life of the average Englishman at the beginning of the twentieth century will be like that drawn by Sydney Smith of his compatriot at the opening of the nineteenth, who began life in a taxed cradle, was pursued by the tax collector in every act of his life, and finally was buried in a taxed coffin and wrapped in a taxed shroud, except that his tributes through life are now paid to the American manufacturer instead of in the form of taxes as formerly.

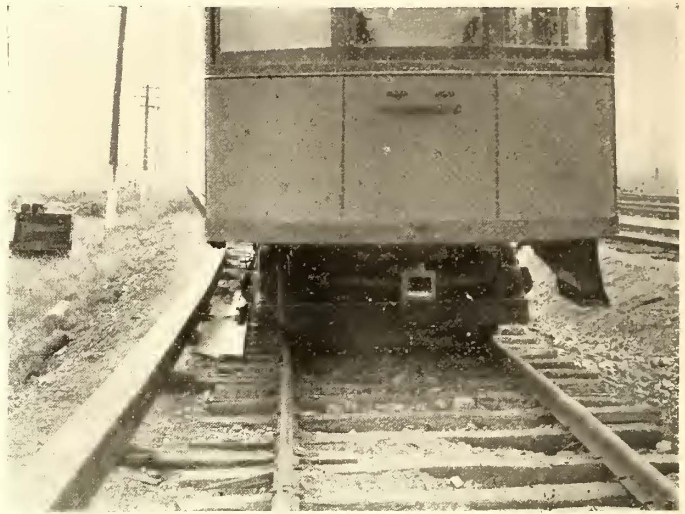
**The Farnham Third-Rail System**

On Saturday, Nov. 2, a number of engineers and railroad men of Chicago were invited to a test of a third-rail system which is the invention of E. W. Farnham, superintendent of special car service of the Chicago, Burlington & Quincy Railroad. Mr. Farnham had a special train for the invited guests, which conveyed them from the Union Depot to a point near Clyde, Ill., west of Chicago. There a stretch of track about one-third of a mile long had been equipped with the Farnham third-rail system.

This system has a flat third rail enclosed in an inverted trough, which protects it from short-circuits and also avoids the danger of persons receiving a shock from that portion of the rail which is alive. However, only a short piece of rail is alive at any one time. At regular intervals is a short section of rail which is not fixed rigidly, as is the greater portion of the third rail, but is free to swing with a slight endwise motion. The contact shoe of the car is carried on an arm extending out laterally from the truck, as is shown in one of the accompanying engravings, and this arm reaches up underneath the trough which covers the third rail and bears on its end the shoe. The shoe bears on both sides of the third rail, which is a flat piece of steel. There is sufficient friction between the shoe and third rail so that when the shoe passes the swinging rail this rail is given a slight endwise movement. This endwise movement of the section of third rail mechanically operates a switch which throws the current on to the section of track upon which the car is entering. When once the current is thrown on to this section of track the switch supplying it is held closed by an electromagnet in the feeder circuit as long as there is any current flowing through the car; that is, the switch holds itself closed automatically by the current flowing through it. Of course, in order to keep the switch closed when the current is thrown off from the motors it is necessary that a heater or a lamp circuit be always in use on the car. When the car leaves the section the switch supplying the section automatically throws itself out by gravity. The same process is repeated upon entering the next section; that is, the contact

rail while the car is upon it, it is only necessary to open all the circuits on the car which is on that section, so that no current is flowing through it. The sections of third rail can be any length desired. On the trial track which was inspected the sections are several hundred feet long. The swinging-rail sections which operate the switches are, of course, short. The movement of the swinging rail necessary to operate a switch is very small.

The accompanying illustrations show the third rail both as it



END VIEW OF CAR, SHOWING METHOD OF MAKING CONTACT

appears finished and under construction. A car with the arm carrying the contact shoe is also shown. It will be seen from these illustrations that the third rail is at a considerable distance out-



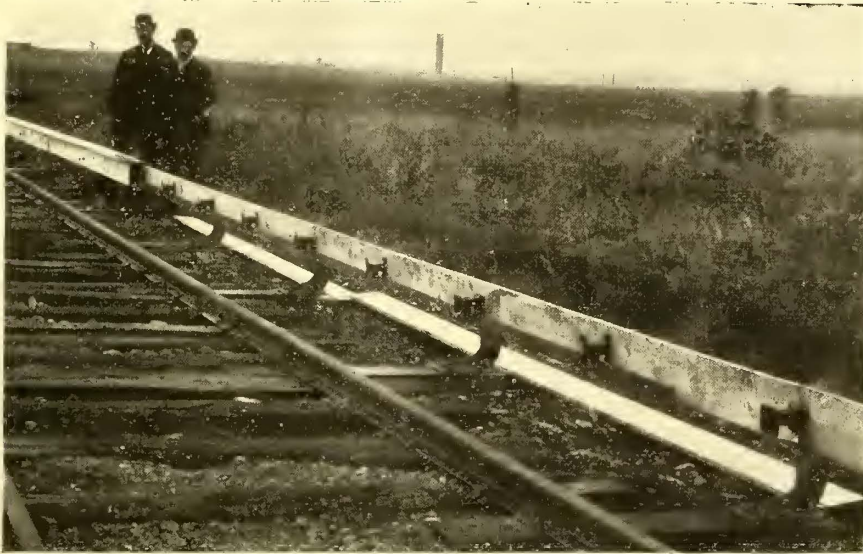
VIEW OF THIRD-RAIL CAR AT CLYDE, ILL.

shoe of the car passes under the swinging rail which operates to close the switch on the section ahead. On a single-track road it is, of course, necessary to have each section of swinging rail equipped with two switches, one switch for the section ahead going in one direction and the other for the other direction. The function of the swinging rail is simply to close the switch supplying the section of third rail ahead of the car. After the switch is closed this swinging rail goes back by gravity to its original position, and the switch supplying the section will open if no current is flowing through it. If it is desired to cut the current off of the third

side of the track. The principle upon which the Farnham system is based is certainly a very simple one, and while the details of the switches have probably not been worked out as thoroughly as they will be, the operation at the trial was entirely satisfactory, both at speeds as high as 20 miles per hour and low speeds, and there were no hitches of any kind.

The cost of construction with a light third-rail is given by Mr. Farnham as considerably less than that of an ordinary overhead trolley system, and the promoters also talk of its use in conduits in city service. It would, of course, be possible to place the whole

device in a conduit on city streets. It would seem, however, that the greatest field for the system is in the electrical equipment of interurban lines and for suburban service of present steam lines. The daily newspapers of Chicago have asserted that the Burlington road is about to equip the suburban service with Mr. Farnham's



VIEW, SHOWING METHOD OF LAYING AND PROTECTING THIRD RAIL

third-rail system, but there seems to be absolutely no authority for the statement, and Mr. Farnham himself denies it. This is not saying, however, that such a move is not likely to be considered before a great while.

### Improvements in Boston

The Boston Elevated Railway Company is getting its lines in a condition where four-car trains, instead of three-car as at present, can be operated on both elevated structure and subway. The stations in the subway are having their platforms lengthened where necessary, and it is thought that in about a week the new service will be started. The circuitous route followed by the track, even at stations, has necessitated many curved platforms, especially in the subway, and at these sliding sections of floor have to be used at either the end or side doors of the cars if both means of ingress and egress are to be utilized. The immense number of passengers carried and the short hauls made keep all end and side doors busy during the rush hours, and at some stations throughout the day. Some remarkable records are being made by the present three-car trains, 4800 train-miles being the usual day's run, which means between 600 and 700 round trips. In order to keep up this schedule, therefore, it is imperative that great regularity in despatching and precision in the headway be maintained, and a most complete block signal system, indicator system and telephone and telegraph service are in operation. An ingenious form of indicator is used at the Sullivan Square terminal, which shows the attendants at all times the position of trains on the section between the Charleston draw-bridge and the terminal station. This indicator consists of a small board on which is drawn a diagram of the track between the station and bridge. Set in the board at approximately equal distances apart are six or eight small incandescent lamps, connected to the sections which they represent by individual circuits and operated by a storage battery. When a train leaves the bridge the lowest lamp on the board lights up, and as it approaches the terminal it completes the circuit of each of the other lamps in succession. Three of these boards are used in parallel at Sullivan Square—two on the station platform and one in the superintendent's office—and they greatly simplify the work of maintaining the schedule. The dispatchers always know when to expect the next train in and its present position, so that if too long an interval is apparent one of the extra trains which is always waiting in the adjoining yards is run in, manned by a crew in readiness on the platform, and the headway kept as desired. Another important function of the indicators is to inform the dispatchers whether it would be wise for them to hold a surface car, with which the elevated trains make connection in large numbers at this terminal, until the next train arrives or to let it go on its exact starting time. The system has proved so satisfactory in its operation that already steps are being taken to further extend it to other sections of the line. Eventually the entire road may be equipped

### No Politics in New York Street Railways

A typical instance of the way in which charges of wrongdoing on the part of corporations are freely bandied about for political effect by municipal candidates occurred last week in New York, where a certain political speaker charged that the employees of the Metropolitan Street Railway Company were being coerced to vote against the Fusion (or Republican) candidate for district attorney. This was vehemently denied by Mr. Vreeland, himself a Republican, at a meeting of the Metropolitan Street Railway Association held on Nov. 2. In speaking of the employees of the Metropolitan Company at this meeting, Mr. Vreeland said in part:

"For a little over eight years I have been connected with the Metropolitan Street Railway Company. For five years I have appeared on this or the other platforms of this association on nearly every meeting night and talked to the men assembled. There has never been any question brought to the attention of the association save its own affairs. Now, with the other troubles that we have as railroad men, we have another trouble.

"For eight years, as you who are the older men in this association well know, for five, three, two years or one, the younger men know, there has been absolutely no politics in the operation of the Metropolitan Street Railway system. You have not had to depend on any political leader to secure a position, you have not had to depend on any political leader to keep a position. Your work, your record, the character of service rendered by you has been the only thing entering into the question of your employment. For the time that I have been connected with this property no man connected with the property, irrespective of his position, can honestly say that until now I have ever discussed politics in any shape whatever. No man has been or ever will be asked or held responsible for the exercise of his rights politically while I am president of this company, while I know it. [Cheers.]

"It is but fair to you, fair to myself, for me to say now that I myself have always been a Republican, that I have never voted anything but the Republican ticket. The principal stockholders of this company, who are its directors and executive board, are the leading Republicans in their States and in the affairs of the nation. So an attempt to connect us with any political party is absurd. I felt it was due myself as president of this company, and to you as employees of this company, to say to-night that the assertion that you and I were acting as receivers of stolen goods, administering properties which were stolen from the public, was a base lie. There is not a franchise that the Metropolitan Street Railway Company has gotten since its organization or owns to-day but was bought in the open market and bought in at a price, and any set of men had a right to go there and make a bid for it. It is false when any one says that this company has never paid the highest market price for any property which it controls.

"I say further that since we have been pulled into this political issue we have been accused of all kind of things. We have been accused of coercion, attempting to say what you shall do. I answer any man who says so that it is an insult to the intelligence of the men of the Metropolitan Street Railway Company to say that they would allow me or any other man to influence their judgment as to what was fair and right to their city and country."

Mr. Vreeland's speech was enthusiastically cheered, and when he had concluded three cheers for "the next President of the United States" were called for and given with a will.

### Sheet-Iron Panels in Dry Climates

It has been noted in these columns at various times that sheet-iron car panels are used in a number of Western cities—most notably at Los Angeles, where the very dry weather at certain seasons makes the shrinking and cracking of a wood panel almost a certainty. The same plan is also in use by the San Antonio Traction Company, at San Antonio, Texas. While the climate is not uniformly dry at San Antonio, it nevertheless is dry enough part of the time, so that sheet-iron panels are found to be the thing. In the Rocky Mountain districts the climate is so dry the year round that no seasoning that can be given a panel in Eastern shops will prevent it from cracking and drawing. In Southern California and in Texas there is sufficient moisture at some seasons, but this only makes the shrinking of the panels more noticeable and objectionable the dry times.

### Dangers from Trolley Wires and Their Prevention \*

BY PROFESSOR ANDREW JAMIESON

#### I.—Recent Accidents and the Necessity for the Proper Protection of Trolley Wires from Contact with Other Overhead Conductors.

These accidents prove that so long as telephone, telegraph and electric light wires are permitted to cross over electric tramway routes, there is a liability to their occurrence; and further, that we still lack a perfect system of guarding trolley wires from accidental contact with other conductors. There is also danger from the fracture of the trolley wire and its contact with persons or animals.

We have had in this city of Glasgow several instances of broken telephone and guard wires coming into contact with live trolley lines and producing alarming scintillations; although, fortunately, no fatal electrocutions have, so far, occurred from these causes. Many other electric tramway installations, however, both at home and abroad, supply sad instances of injury and even death.

#### II.—Methods Which Have Been Adopted and Proposed for Protection Against Contacts with Trolley Wires.

The form of guard adopted at Liverpool, Leeds, etc., with the view of preventing contact between the trolley wires and other broken or sagging conductors, is illustrated by Fig. 1. It consists of strips of wood machined to the shape shown by the cross section and supported by brass distance pieces or clips, which are soldered

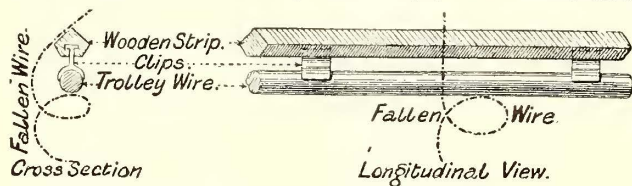
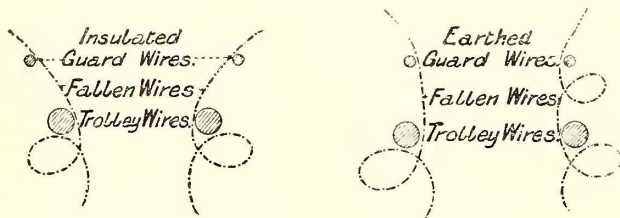


FIG. 1.—GUARD SYSTEM HITHERTO ADOPTED AT LIVERPOOL, LEEDS AND ELSEWHERE

to the upper surface of the trolley wire at convenient intervals. Although one of the cheapest, and perhaps one of the least unsightly forms in use, its inefficiency as a safeguard against fallen springy bronze telephone wires was demonstrated by the Liverpool catastrophe. The dotted lines in the cross section and longitudinal view of the previous figures serve to indicate how the telephone wires curl and make contact with trolley wire; or they may be dragged into connection therewith by a passing vehicle or car. In fact, to prevent the trolley wire current entering any of the fallen overhead conductors, the insulation resistance of the wooden strips would require to be great under all atmospheric conditions, the broken wires must clear the trolley wire and remain free until repaired. But such assumptions are most unlikely of fulfilment in stormy or snowy weather and where there is considerable traffic.

Figs. 2 and 3 show the two methods of arranging the guard wires which have been tried in Glasgow and many other installations.



FIGS. 2 AND 3.—GUARD WIRES AS ADOPTED IN GLASGOW AND ELSEWHERE

Wherever telephone or other wires are suspended above and across the trolley wires, each of the latter is guarded by one No. 7 S. W. G. galvanized steel wire, carried parallel to and about two feet above the live car wires. At first these guard wires were insulated from earth and placed from 8 ins. to a foot to the left and right of the respective trolley wires. Now, however, they are earthed at the feeder pole of each half-mile section and placed for the most part vertically above the trolley wires which they intend to protect, as in Fig. 3. But, as has been proved in actual practice, and as is shown by the dotted lines in Figs. 2 and 3, the fallen springy telephone wires do make contact, not only with the guard, but also with the trolley wires. When the former were insulated the current from the latter entered the fallen wires, and was therefore not

only a great source of danger to passing human beings and animals, but has been known to set fire to telephone stations, wherein there were either no protecting fuses or inefficient ones. When the guard wires are earthed the short piece of contact-making fallen wire is expected to melt almost instantaneously and the street end thereof to fall harmlessly to the ground. This may happen without affecting the fuses or the automatic cut-out switches at the tramway sub or main stations. In the case of a large number of overhead conductors simultaneously making contact with the guard and trolley wires these safety devices are expected to act and thus render the trolley wire of the section neutral and harmless.

#### III.—Board of Trade and Postoffice Regulations.

In the Board of Trade "Electric Tramway Rules" which were issued in March, 1894, there are no regulations as to guard wires. In Form No. 2, revised and published by the Board of Trade in 1896, we find in clause 22 the following statement regarding crossing wires: "Where an aerial line crosses or is in proximity to any metallic substance, precautions shall be taken by the undertakers against the possibility of the line coming into contact with the metallic substance, or of the metallic substance coming into contact with the line by breakage or otherwise."\*

The regulations by the postoffice authorities for telegraph and telephone wires crossing above trolley wires, prior to August, 1901, have been as follows:

(1) "When there is only a single trolley wire or two trolley wires not more than 12 ins. apart, two guard wires should be erected, as shown in Figs. 4 and 5.

(2) "When trolley wires are more than 12 ins. apart, and do not

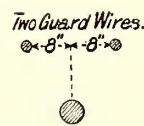


FIG. 4.—ONE TROLLEY WIRE

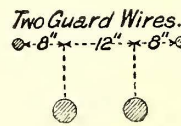


FIG. 5.—TWO TROLLEY WIRES, NOT OVER 12 INS. APART

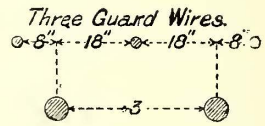


FIG. 6.—TWO TROLLEY WIRES, NOT OVER 3 FT. APART

exceed 3 ft., the guard wires should be increased to three in number, as shown by Fig. 6.

(3) "When the distance separating the trolley wires exceeds 3 ft., each wire should be separately guarded by two wires, as shown by Fig. 7."

If these postoffice regulations were faithfully and carefully carried out, there can be no doubt that the chances of broken telegraph or telephone wires coming into contact with the tramway trolley wires would be minimized. But tramway contractors and companies or corporations, as well as the general public, may be expected to object to the multiplicity of such wires so near the roadway, their liability to become inextricably mixed up in the case of an accident to one or more of them, and also on aesthetic grounds. I understand, however, that these regulations have been adopted in Bradford and other places. I am not aware of any place where cross-lacing or hammock-netting guard wires have been introduced, as proposed by the postoffice, where the erection

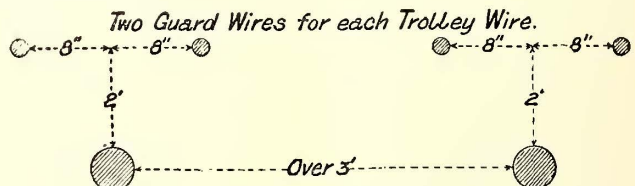


FIG. 7.—TWO TROLLEY WIRES, NOT OVER 3 FT. APART

of telegraph or telephone wires are so close to the trolley wires as to render the aforementioned protections inadequate.

#### IV.—Contacts Between and the Breaking of Guard and Trolley Wires.

The chief and the primary causes of such contacts and breakages arise from:

(1) The omission to turn the trolley-pole at the end of a tram-car line in the proper slanting direction for the return journey, or whenever the direction of the propulsion of a car has to be reversed. The neglect of this precaution often unships the trolley-

\* Combined recent inspections have been made by the postoffice and the Board of Electrical Engineers, with the view of formulating a joint set of rules. I have been promised copies of these before the reading of this paper. It is therefore likely that these special rules will be printed here in the proceedings of this institution.

\* Extract of paper read at the Glasgow International Engineering Congress, 1901.

pole from the trolley wire, and permits the former to foul the guard wire or its cross street span wire, thus severing the binding between the latter two wires, or breaking the guard wire.

(2) Unshipment of the trolley pulley at street corners where the hangers are too short, or the frogs and the cast bronze (Y) or (+) brackets at crossings are badly adjusted.

(3) Disconnection between the trolley wire from hangers, slicing ears or sectional insulators, due to their imperfect soldering and clipping; or due to the breaking of ears and of the trolley wire at the pinching pins of bracket crossings.

(4) Fusing of the trolley wire due to intermittent contact and arcing between it and a disconnected guard or span wire.

Since the guard wires are generally made of but one No. 7 S. W. G. galvanized steel wire (of 18 ins. diameter, having a breaking stress of less than 2000 lbs.), whereas the cross-street spans for the guard wires are composed of seven-strand galvanized steel wires (each wire of which is No. 14 S. W. G. of .08 in. diameter, with a combined breaking stress of over 3500 lbs. for the complete strand), the chances are that either the guard wire or its weak binding to the span wire is broken. Then the guard wire falls into contact with the trolley wire. If the former be insulated and originally fixed about 2 ft. above and some 8 ins. to 1 ft. to the right or left of the trolley wire, it has the chance of falling clear of the same. The current may then be switched off at the nearest street pillar-box from the half-mile section in which the mishap took place and the guard wire refixed without causing any damage. If, however, the guard wire should be earthed, either at the center or the ends of its half-mile section, or, preferably, at several pole-points along the same, and if it be originally supported vertically above its trolley wire, then it naturally falls upon the latter, and the current therefrom enters the former and causes delay and trouble.

When the guard wire is only earthed at each end of a half-mile section, and contact takes place between it and the trolley wire (say about the center of this section), then the joint resistance of the contact and the two quarter-mile lengths of guard wire may be so great that the current passing through the contact does not increase the normal trolley wire current by an amount sufficient to blow the nearest station fuses (if there are any), or to free the automatic cut-out.

I am of the opinion that guard wires and their bindings should be made of silicon bronze instead of the usual galvanized steel. These would be stronger for the same size, and would not only have greater conductivity, but they should withstand the rapid corrosive effect which grimy chemical-laden atmospheres have upon galvanized steel wires.

It is seldom that the trolley wires break from overtension arising from mal-erection, or even from fouling the trolley poles. They are usually composed of the very best hard-drawn 98 per cent conductivity copper, having a diameter of .37 in., which is equivalent to No. 3/0 S. W. G., or fully 00 B. and S. gage. The initial stress which this wire will stand before beginning to stretch is over 54,000 lbs., or 24 tons per square inch of the full section. But when subjected to a continuous steady pull, the very small elongation of 4 per cent is accompanied by a gradual diminution of the original cross area of fully 40 per cent. In any case there is comparatively little chance of the trolley wire being broken by an accidental stress, except where it becomes rapidly worn at sharp street curves. Special watchfulness is therefore necessary at such curves, in order that the copper wires may be renewed before they become unduly reduced in size.

V.—*Freeing, Earthing, and Other Safety Devices.*

Even assuming that the trolley and guard wires are made of the best materials and have been erected in the most substantial manner; further, that the former is divided into separate half-mile sections, of which as few as may be practicable are supplied with current from the power house or sub-station by any single "feeder;" it is, nevertheless, necessary to be able to render any section inoperative or "dead" as soon as possible after any one or other of the previously mentioned faults occur therein. Many devices have been proposed and adopted with this object in view, of which the following may be mentioned:

(1) Fuses and automatic cut-out switches at the supply stations. But, as we have already stated, these do not always act unless an abnormal current is demanded by a "short circuit" to "earth," or to the "return" conductor.

(2) Fuses or automatic cut-out switches, or simply hand switches, in each of the half-mile street-pillar switch boxes. There should also be a telephone, or a connection for one, in each of these boxes, in order to be able to communicate direct to the current supply stations and the engineer's office. It is unusual to place either fuses or even automatic switches in these pillar boxes, for most tramway engineers object to multiplying such devices. They therefore simply insert therein a main feeder hand switch and a

trolley-wire section hand switch for each car line, plus a telephone wire connection. Moreover, keys for opening these boxes are (as a rule) only given to the engineering staff, and consequently neither the car driver, nor the conductor, nor the car inspectors can operate these switches in case of an accident to any particular section. All that they can do under the circumstances is to use their insulating gloves and pliers, or earth a fallen wire to the rails and communicate with the head office from the nearest special telephone pillar. This roundabout proceeding causes an unnecessary waste of time and blocking of the traffic, as well as a possible cause of danger to passengers. Why not supply these employees with keys, and give each of them clear printed instructions how to act under certain circumstances?

(3) Blackwell & Company's "earthing device" is attached to either a bracket arm or a trolley wire suspension, and it acts when the trolley wire breaks by mechanically short circuiting it to the rails.

(4) Placing an earthing switch in each ear. In the case of the severance or disconnection of a trolley wire, or a serious downfall of overhead conductors, all that the driver or the guard has to do is to break the glass front of a special box and turn a switch or insert a plug into a metal hole, thus immediately earthing the trolley wire to the tramway rails through the trolley pole and car-wheels. This operation instantly causes an abnormal current to flow in the feeder to the section in which the car happens to be at the time, and consequently blows its safety fuse or frees its automatic switch at the station. This device, which is being tried in Leeds, seems to me to be one of the simplest and most direct methods of rendering a section neutral in the case of an emergency. The attendant at the station should be authorized to close the freed automatic circuit breaker three successive times; when, should it persistently and immediately fly out again, he must attend to the telephone for instructions before again closing the switch.

VII.—*Aerial Telephone and Telegraph Cables versus Underground Wires or Cables.*

In Glasgow there are now three authorities dealing with these important matters, viz.:

(1) The Government Postal Engineering Department, which has placed its principal telegraph and telephone city wires underground, but which has still a large number of aerial wires. (See specimen.)

(2) The National Telephone Company, which has hitherto carried its fine bronze wires overhead, and which, being prevented from opening the streets, is now running aerial telephone cables. These consist of about one hundred paper-insulated wires twisted together, and then insulated as a whole with canvas and vulcanized india rubber, protected by waterproof matting and strong woven tape. These cables are suspended by hooks hung from strong stranded steel span wires attached to brackets fixed to the walls or the roofs of buildings. Two conductors are used for each closed telephone circuit, to avoid induction, etc. Such cables and their suspension spans are not likely to interfere with tramway trolley wires; and even if they did come down in the case of a fire, they are so large, well insulated and strong that they could be more readily dealt with than a similar number of bare bronze springy wires.

(3) We have the corporation of Glasgow, which has very properly taken the precaution to place all its telephone wires and cables in underground east-iron pipes where they approach the tramway lines.

There cannot be the slightest doubt that the only sure and safe plan is to place all non-tramway electrical conductors of whatever kind underground.

APPENDIX.

TABLE I.—TESTS OF TROLLEY, SPAN AND GUARD WIRES FOR GLASGOW CORPORATION TRAMWAYS

(By the Steel Company of Scotland, Ltd., Hallside Works, Aug. 30, 1900.)

Samples	Diam. Ins.	Actual Stress			Break- ing Stress Tons per Sq. In.	Initial Stress Lbs. per Sq. In.	Exten. per cent. in 8 in.	Size of Fracture		Per Cent.
		Area Sq. in.	Tons	Lbs.				Dm ins	Area Sq. In.	
Cold drawn copper trolley wire, 3/0 S.W.G.	.37	1.075	2.6	5824	24.2	54,200	4.0	.24	.0452	57.9
Trolley span wire, Galvanized steel of 7 strands. Each wire No. 12 S. W. G.	.105	.0606	2.15	4816	35.5	79,500	..	..	..	..
Guard span wire, galvanized steel of 7 strands. Each wire No. 14 S.W.G.	.085	.0397	1.60	3584	40.3	90,200	..	..	..	..
Guard wire, one No. 7 S. W. G. galvanized steel.	.180	0.253	0.85	1904	33.6	75,200	15.0	.12	.0112	55.3

CHEMICAL DEPARTMENT, October 5, 1900.  
TABLE II.—ANALYSIS OF THREE SAMPLES OF COPPER ALLOY  
FOR "EARS" AND "PULL-OFFS"

	Straight Line Ear	Guard Doub'e Pull Off	Trolley Single Pull Off
Copper.....	88.54	85.84	85.84 per cent.
Tin.....	7.79	4.57	8.73 "
Lead.....	0.75	2.86	0.72 "
Zinc.....	...	6.24	4.13 "

## TEST III.

Tensile Test of Globe Strain. (Insulation green color.)

The first perceptible extension was noticed when the tensile stress reached 2.5 tons (5600 lbs.), while the composition slightly cracked. The specimen broke through bottom eye at the maximum stress of 2.9 tons (6436 lbs.), while the original crack in the composition widened.

## TEST IV.

Tensile Tests of Two Brooklyn Strain Insulators. (Composition red color.)

The large one broke through large eye after a stress of 3.3 tons (7392 lbs.) was reached. The small one broke through large eye after a strain of 2.2 tons (4928 lbs.) was reached. The composition did not show signs of cracking in either case.

## TEST V.

Tensile Test of Double Pull-off. (Composition green color.)

First perceptible extension observed when the tensile strain reached .07 tons (156.8 lbs.) Insulated bolt became fast at 1.1 tons (2464 lbs.), ruptured through one arm at a stress of 1.9 tons (4256 lbs.)

Original distance between centers of eye-holes 6 ins., extended 3 ins. to 4 ins. when bolt became fast. Total extension at rupture, 2 ins. Composition intact.

## TEST VI.

Tensile Test of Single Pull-off. (Composition green color.)

The first perceptible extension showed at a stress of .09 tons (2016 lbs.) Insulated bolt began to bend at 1.2 tons (2688 lbs.), and center of bolt to center of eye-hole extended 1 in. Final rupture at 1.9 tons (4256 lbs.)

## TEST VII.

Compression Test on Single Pull-off Insulated Bolt. (Red color.)

Original diameter 1.18 ins., slightly tapered.

At 4 tons (8,960 lbs.) very slight cracks observable in composition.

At 6 tons (13,440 lbs.) diameter or deflection stood at 1.17 ins.

At 10 tons (22,400 lbs.) diameter or deflection stood at 1.165 ins.

At 11 tons (24,640 lbs.) diameter or deflection stood at 1.15 ins.

At 11½ tons (25,760 lbs.) badly cracked.

## TEST VIII.

Compression Test on Single Pull-off Insulated Bolt. (Green color.)

Original diameter 1.18 ins., slightly tapered.

At 4 tons (8,960 lbs.) showed very slight cracks.

At 6 tons (13,440 lbs.) diameter or deflection was 1.17 ins.

At 8 tons (17,920 lbs.) diameter or deflection was 1.16 ins.

Cracks in composition gradually extended as weight was applied, until at 8 tons (17,920 lbs.) it was badly cracked.

## TEST IX.

Tensile Test of Ear with Insulated Bolt Screwed in. (Green color.)

After gradually applying the stress up to 2 tons (4480 lbs.) the composition came off head of bolt. The ear collapsed on both sides of screwed neck when the stress reached 4.6 tons (10,304 lbs.)

## A Pleasant Outing of the New England Street Railway Club

One of the most enjoyable excursions which the New England Street Railway Club has ever had was made on Thursday, Oct. 31. Through the efforts of the president, H. E. Bradford, division superintendent of the Worcester Consolidated Street Railway Company, permission was obtained to inspect the works of the Washburn & Moen department of the American Steel & Wire Company at Worcester, and a large party of railway engineers and their friends left Boston in a special car attached to the noon train for Worcester. On arriving at the station the party was greeted by officers of the Consolidated Railway and considerably increased in numbers by the addition of out-of-town members who had reached Worcester by other routes. Special trolley cars were furnished to the visitors, in which they were taken to the works, where about three hours were most pleasantly spent in a general inspection of such of the operations and processes as could be consistently shown. The well-known policy of the company in discouraging visitors makes the courtesy of Vice-President P. W. Moen in extending the invitation to inspect the factory all the more marked, and much gratification was felt by the members of the club at the honor done them. The railway men were greatly interested in the many special machines which have been perfected for the manufacture of the numerous products of the company. The making of different forms of steel wire fence, of which a large quantity is used on the New England suburban lines, was watched, and the mechanical perfection of the fence machines greatly admired. Another process

which attracted attention was the manufacture of steel spring sand-box ducts. The spectacular effects of the rolling mills and foundries produced, as usual, the greatest outbursts of enthusiasm, and the party was permitted to witness a large "pour." The party returned by the special cars to the Bay State Hotel, where the usual monthly banquet was held, President Bradford acting as toastmaster. About seventy members and guests were present, and after the dinner Mr. Bradford, in a few well-chosen words of welcome and congratulation expressed the pleasure of the local railway in being able to serve the club, and pointed out the importance which the club has assumed in New England street railway affairs. Although little over a year old, the membership is considerably over the two hundred mark, and every meeting brings in large additions to the roll. Thanks to the efforts of the club's energetic secretary, J. H. Neal, this growth is likely to continue. Several short speeches were made before the party broke up, among the speakers being C. F. Baker, superintendent of motive power and machinery of the Boston Elevated Railway Company; E. C. Spring, superintendent of the Newton & Boston Street Railway Company; G. B. Larrabee, superintendent of the Hartford & Springfield Railway Company, and William Pestell, superintendent of motive power of the Worcester Consolidated Street Railway Company. Among those who participated in the outing were the following:

G. H. Dodge, Boston & Lowell Street Railway Company; J. T. Conway, Old Colony Street Railway Company, Quincy; Percy Hodges, Boston; John W. Ogden, Concord, Maynard & Hudson Street Railway Company, Maynard; John N. Sherman, Old Colony Street Railway Company, Brockton; Frank Miller, Worcester & Webster Street Railway Company, Oxford; W. D. Wright, Union Railroad Company, Providence; E. W. Goss, Milford, Holliston & Framingham Street Railway Company; H. E. Farrington, Lynn & Boston Railroad Company; George W. Rounds, Old Colony Street Railway Company, Hyde Park; George B. Larrabee, Thompsonville, Conn.; C. A. Rodwell, Sanford, Maine; F. P. Quackenbush, Natick & Cochituate Street Railway Company; F. D. Hall, Boston & Maine Railroad, Boston; John R. Cochrane, Newton & Boston Street Railway Company, Newtonville; C. F. Shepard, Lawrence & Reading, Reading; J. B. Whitney, Union Freight Railroad Company, Boston; E. J. Ranch, Old Colony Street Railway Company, Campello; Edward B. Spring, Newton & Boston Street Railway Company, Newtonville; F. G. L. Henderson, Newton Street Railway Company, West Newton; C. W. Shippy, Boston; Charles F. White, Boston; Henry F. Kellogg, Frank Ridlon Company, Boston; J. B. Robinson, Harrington & Robinson, Boston; Sidney E. Junkins, Westinghouse, Church, Kerr & Company, Boston; F. H. Henry, Heywood Bros. & Wakefield Company, Wakefield; Frank O. Nourse, Sherburne & Company, Boston; J. E. Johnson, Laconia Car Company, Boston; N. L. Wood, Frank Ridlon Company, Boston; John C. Spring, Laconia Car Company, Boston; James F. Wattle, Rand-Avery Supply Company, Boston; Edgar W. Upton, Peabody; C. S. Hawley, Consolidated Car Heating Company, New York; George C. Morse, Rochester Car-Wheel Works, Taunton; L. H. McClain, Massachusetts Railroad Inspector, Newtonville; H. W. Smith, Stuart-Howland Company, Boston; Robert Mathias, Frank Ridlon Company, Boston; George W. Evans, Bloomfield, N. J.; W. S. Fernald, F. O. Dewey Company, Boston; Frank Ridlon, Frank Ridlon Company, Boston; Philip W. Davis, Electric Storage Battery Company, Boston.

## Some Interesting Features of the Austin Rapid Transit Operation

The Austin Rapid Transit Railway Company has recently completed its new power house, which it was obliged to build after the breakage of the municipal dam from which power was obtained for operating the street railway line. New car shops at the same location have also been completed. The company operates ten cars without conductors. At the principal transfer point in the center of the city a small house has been erected just outside the sidewalk line, where a man stays to make small repairs, furnish change, and help collect fares from crowded cars.

One peculiar point noticed on some of the closed cars in use in Austin is the presence of a runningboard and hand rail along the outside of the ordinary box car. On special occasions, with the limited number of cars at the company's disposal, it is necessary to provide every possible means to carry passengers, and the boys and men are glad to take a place on the runningboard of the closed car on such occasions rather than not go at all.

F. E. Scoville, secretary and general manager of the Austin Rapid Transit Railway Company, has done much to improve the property in the face of adverse financial conditions at the time he took hold.



**Hydraulic Power Plant at York Haven, Pa.**

Work has already been commenced on the large water-power plant at York Haven, Pa., on the Susquehanna River, which, when completed, will be one of the largest in the country. The project was conceived by Henry L. Carter, president of the York Haven Power Company, who some seventeen years ago established the mills of the paper company at this place, and has since utilized a portion of power. It was not, however, until the spring of 1901 that Messrs. Morris and Whitehead, bankers of Philadelphia, investigated the proposition with their engineers and made propositions which, with some modifications, were acceptable to all parties interested. Satisfactory financial arrangements being made, work was at once commenced on the development of the property. Mr. Carter, president of the company, at once took direct charge of all construction, with Thomas Green as general superintendent, and ably seconded by H. B. Montgomery as general business manager and paymaster, while the Hon. Judge W. F. Bay Stewart championed the financial arrangements.

On June 17 work was commenced on the construction of the cofferdam enclosing the site of the proposed power house, which is located about .400 ft. to the eastward of the mill buildings of the York Haven Paper Company. The improvements decided upon in order to make available the entire flow of the stream consists of a low dam at the head of the falls, which will be connected with the power house and forebay by a masonry wall 3500 ft. in length and from 26 to 38 ft. in height, 16 ft. in width at top and 19 ft. at base, this wall forming a head race which will be 375 ft. in width, with an average depth of 16 ft. This wall will contain 100,000 cu. yds. of masonry. The available head at ordinary stages of water will be 22 ft.; this will be increased to 25 ft. at periods of extreme low water. The head-race well will be carried to an elevation 6 ft. higher than the crest of the dam, or 9 ft. above the extreme low water, for the purpose of maintaining the normal head during ordinary floods.

The line of the power house will be parallel to the direction of the current in the river, making a slight angle with the wall of the head race. The power house will be 478 ft. in length, 51 ft. in width, with twenty wheel chambers, each containing two turbines, each turbine having a capacity of 600 hp. There will also be two smaller chambers, in each of which will be placed a turbine of 250 hp, for the operation of electric exciters. Each pair of the larger turbines will operate a 750 kw generator.

The switchboard, 75 ft. in length, will be located on a floor near the south end of the building, above and overlooking all the machinery on the power house floor.

The transformer house will be located about 200 ft. directly west from the portion of the power house in which the switchboard is placed and connected with the power house with a broad walk and railway tracks.

The location of the development at York Haven is extremely favorable from a business point of view, as the existing demand for power within a radius of 16 miles is largely in excess of the supply. The city of York is within 11 miles, Middletown 8 miles, Steelton 12 miles, Harrisburg 16 miles.

The company is thoroughly equipped with all kinds of machinery with which to prosecute the rapid construction of the work, instructions having gone forth to push the work steadily and vigorously through the winter months, with the expectation that they will be able to deliver power in any of the cities mentioned or upon their own lands by the fall of 1902. Contracts have been closed with the Stanley Electric Company for the entire electrical equipment.

**Annual Report of the Montreal Street Railway Company**

The annual report of the Montreal Street Railway Company for the year ending Sept. 30, 1901, presented at the annual meeting of the company, held Nov. 6, showed a net profit of \$649,252, as compared with \$647,247 for the previous year. Out of this amount four quarterly dividends of 2½ per cent each were declared, amounting in all to \$551,700, leaving a surplus of \$97,552, of which amount the sum of \$50,000 has been added to the contingent account, and the balance, \$47,552, has been added to the surplus account. An amount of \$23,277, expended during the year on special renewals, has been charged against the contingent account. While the increase in the company's business during the year has been most satisfactory, the operating expenses show an increase of 11.32 per cent over last year. This increase is mainly due to the increased cost of coal and increased expenditure required for the maintenance of the roadbed and rolling stock of the company.

One-quarter of the amount of power contracted for with the Montreal & St. Lawrence Light & Power Company (formerly the

Chambly Manufacturing Company) has been successfully transmitted from the company's William Street power house since March 26, 1901, and machinery to accept the balance of the power contracted for is on order, and will be delivered and installed early next year. The buildings to receive the same are at present under construction. In addition to this electrically-driven plant, the company has purchased and installed two steam units, capable of developing 3000 hp, establishing the policy of having duplicate plants, capable of meeting all contingencies and providing for the increase in the company's business. The rolling stock has been increased during the past year by the addition of thirty-one motor cars, fully equipped, also one rotary snow plow with equipment.

The company has obtained franchises from the municipalities of St. Louis and St. Paul, thereby adding a large and valuable territory to its main system, and on June 20, 1901, the company purchased certain bonds and stock of the Montreal Park & Island Railway Company, which purchase was subsequently ratified at a general meeting of shareholders, held on July 10.

A comparative operating report of the company for 1901 and 1900 follows:

Year ending Sept. 30	1901	1900
Gross receipts.....	\$1,900,680	\$1,769,905
Operating expenses.....	1,105,269	992,926
Net earnings .....	\$795,411	\$776,979

**An Important Decision in Ohio**

The decision of Judge Fisher in the Circuit Court at Hamilton, Ohio, in the five injunction cases of the Hamilton & Lindenwald Electric Transit Company, the Cincinnati, Hamilton & Dayton Railroad, Louis Duemer, O. V. Parrish and Christian Henes against the Hamilton, Glendale & Cincinnati Traction Company (Mill-creek Valley Railroad) has aroused great interest among lawyers, street railway men and property owners along proposed or existing street railway routes in municipalities of Ohio. In overruling the motions of the defense to strike out those parts of the petitions referring to the purchase of contents, Judge Fisher gave the first judicial discussion on the question of selling consents in the history of Ohio courts, it is said. The following extracts from the Court's opinion are of interest:

"The questions are new, although they do not involve a new principle. Street railways in Ohio or any other State are due to the wonderful progress that has been made in the development of motive power, and our statute is much unsettled. Entire new systems have been developed by reason of electrical appliances. The whole matter is uncertain, and the precedents made by the courts are not yet sufficiently tested as to be certain that they are abreast of the new order of things and the new conditions that confront the general public.

"It (by authority quoted) appears that the action of the council is not conclusive against the counting of consents. I am therefore of the opinion that if the right vested in the abutting property-owner by the statute to grant or withhold consent to such use of the street is such an individual, tangible or property right as other abutting owners have no interest therein, then such abutting owner might sell his consent, and the fact of the sale would not be material; but otherwise he would have no such right, and consent obtained in such a way would become material as against other abutting holders who refuse to sign.

"Every abutting owner on the street is affected by the vote of every other abutting owner. His protection under the statute depends upon a fair, impartial and honest exercise of the right of those entitled to vote with him. He is compelled to submit to the will of the majority; he is compelled to surrender his wishes, his desires, his convenience, and probably his comfort to the wish of a majority, without compensation. If the majority of abutting owners upon the street over which the council has laid out a route of a railroad votes for the grant of that street for the use of a railroad, the minority cannot complain, and they have no right whatever of compensation, except, if in the use of the street, their incidental or acquired rights are interfered with, and it seems to me that in making this surrender he has a right to require a fair, impartial and honest vote, uninfluenced by any money consideration, or any other consideration which inures entirely to him.

"The consents simply authorize the council to make a grant. It may or may not, after these consents are filed, make the grant. It cannot make the grant without the consent, but is under no obligations to make the grant with the consents. In other words, it acts independently of the consents of the people as to the exercise of its legislative authority in granting it after the consents are filed, so far as the refusal to grant may be concerned."

"I think the doctrine is well established that the consents procured in this way (by purchase) or in a way which is a fraud upon the rights of the abutting owner and the legislative body, and this is a questionable fact, is not a legal consent and cannot be counted as against non-consenting abutting owners.

"Abutting owners, the public, have rights which the court must with a firm hand protect, and much caution should be employed by courts in setting precedents, where loose legislation opens the door to infringement upon their rights or right by corporation or individuals, and new principles are to be applied to new methods.

"The statute provides that before the City Council can make a grant to construct a railroad a majority of the feet front must be filed.

"The council is supposed to act in granting this largely, or in a great measure, upon the willingness of the people whose property abuts upon the route to consent to the railroad.

"Every abutting owner upon this railroad has the right to vote, as far as his street is concerned, as to whether he desires the railroad upon that street. This vote is, like any other vote, cast for the influence it has upon the council as to the granting of the right, and it is of the highest importance, so far as it concerns public policy and the integrity of the citizenships, that these votes be cast honestly and fairly, without influence of a money consideration. Look to what it would lead.

"It may be said that this holding up by those plaintiffs was mere spite work. I am not here to say that this road is being held up by these plaintiffs; the court cannot look to that question in determining this motion.

"The statute provides—wisely provides—that the abutting owners' consents must be obtained, and the purpose of the statute ought to be carried. The railroad company, for its own protection, the people, for their own protection, require that the purpose of the statute be not dwarfed, and the courts should say that consents should be honestly and fairly obtained, and that where purchased are illegal, and should inquire through evidence whether the vote was a free exercise of the right or purchased.

"If it be true that a railroad company, or person, can be permitted to step out and buy consents, and the courts would recognize this as legal, any railroad company could be held up for thousands and hundreds of thousands of dollars. There would be no way of getting into a city except by purchase of the consents of mercenary people. The very policy of the law and the very purpose of protection, both to the company and to the people, are destroyed if courts permit this to be done.

"I do not know what the facts may be in these cases, nor do I know whether the plaintiffs are prosecuting in good faith or are the paid tools of another corporation, all done to harass. All this is evidence. I have to do now only with the principle involved. Is a purchased consent of an abutting owner a valid consent, and should it be counted, and can evidence be offered at the suit of an abutting owner upon such consent? I think such consent would be illegal, and evidence as to illegality may be heard.

"The motion, therefore, will be overruled."

### Some Interesting Facts for Mechanical Engineers

There were recently completed in a large manufacturing company a series of tests made in its boiler room on the American stoker. This automatic firing device has been rapidly growing in favor among the engineers of the country, and the company referred to installed twelve of the stokers under six 517.5-hp Stirling boilers, in order that a thorough investigation of their operation might be made. The tests were under the direction of Prof. J. E. Denton, Dean and Main, and George H. Barrus, who have recently submitted their report to the parties interested. The following guarantees were made by the American Stoker Company in the contract, and the tests were made in competition with another make of stoker, to determine their fulfilment: By the proper use of the stokers the stacks were guaranteed to be practically smokeless, except at such times as fires are being cleaned, new fires started, or boilers unduly forced; by the proper and intelligent use of the stokers an evaporation of 11.5 lbs. per pound of dry coal from and at 212 F., based on the use of coals containing not less than 14,500 B. T. U. determined by standard calorimeter; and an increased capacity above boiler builder's ratings of 33 1-3 per cent. The manufacturers further assumed all repairs and renewals above 5 per cent over contract price due to proper use and incident to wear and tear in the operation for the first two years from date of actual operation by the purchasers. In determining guarantees as made, it was agreed that no boiler test should be run for less than 10 hours nor longer than 24 hours, and during efficiency trials the boilers were to run at or within 10 per cent of their minimum rating.

Forced draft was used with the stokers, the blast being furnished by the usual fan, supplied with power from an electric motor. One fan supplied the air for three boilers. The tests were eight in number, part of them preliminary and part final. The preliminary tests determined the coal which most satisfactorily filled the specifications of heat value obtainable at the plant, and trained the firemen to the use of the stokers, so that in the final tests no objections could be made by either of the competitors.

In the complete evaporative trials, of which all the tests consisted, the methods laid down by the boiler test committee of the American Society of Mechanical Engineers' code of 1899 was substantially accorded to the "alternate" method advocated by this committee, being used in starting and stopping a test, so far as this could be done on boilers fitted with stoking apparatus. To determine the amount of steam used by the American stokers, steam for the two steam motors which operated the device was passed through an orifice arranged for the attachment of a gage on each side, and frequent observations were made of the fall of pressure due to the passage of the steam through the orifice. The readings of the gage were referred to a calibration made by passing the steam exhaust of the motors through a surface condenser and collecting and weighing the resulting condensing water. Frequent observations were made of the gases escaping from the stacks, but no systematic attempt was made at determining the precise degree of smokelessness or quantities of smoke produced, as the case might be. Whenever the stokers were operating in a normal manner and the fires were not worked by hand in any way, the report states that there was practical absence of smoke. Following is an abstract of the general deductions made from the results of the tests as contained in the report:

The economy realized by the Stirling boiler and American stoker under the conditions prescribed by the contract is shown by a test made June 6, 1901. The result of this test is a gross evaporation from and at 212 degs. per pound of dry coal of 11.889 lbs., and a net evaporation of 11.743 lbs. The guarantee calls for 11.5 lbs. Consequently, the results obtained exceed that guaranteed by .389 lbs. gross and .243 lbs. net per pound of coal, which are respectively 3.4 per cent and 2.1 per cent above the guarantee.

On a test made June 8 the boiler developed 716 gross horse-power and 705 net horse-power, which quantities are respectively 38.4 per cent and 36.2 per cent above the builder's rated capacity of 517.5 hp. The stoker contract stipulates a rated horse-power of 500. On this basis the percentages are respectively 43.2 per cent and 41 per cent above the rating. The contract calls for an increase of 33 1-3 per cent above the rating; consequently, whichever rating is taken, the guarantee is amply fulfilled.

In this connection it may be stated that the boiler was not crowded to its utmost capacity, there being, as the record shows, practically no blast under the side grates. For a period of one single hour during the trial the amount of water evaporated was 24,120 lbs., which represents 835 hp, or 60 per cent above the rated capacity of 517.5.

The cost of fuel is derived from the results of the tests of June 18 and 19, taking the price of coal at \$3 per ton of 2240 lbs. In the case of the Stirling boiler with American stoker the weight of coal used per year is

$$\frac{34.5 \times 24 \times 360}{11.421} = 26,093 \text{ lbs.}$$

or 11.65 tons. This, at \$3 per ton, cost \$34.95. The cost of repairs on the American stokers which must actually be borne by the purchaser is fixed by the contract for a period of two years, and cannot exceed 5 per cent of the cost of the installation. This, reduced to the horse-power basis, amounts to 12.5 cents per horse-power per year.

Finally, the conclusions of the engineers respecting the fulfilment of the guarantees stipulated in the American Stoker Company's contract state that the stack is practically smokeless, as required; the evaporation per pound of dry coal exceeds the stipulated 11.5 lbs.; the capacity developed is above the 33 1-3 per cent excess required, and all of the American Stoker Company's guarantees were fulfilled.

This test is probably the most elaborate and thorough of any stoker test ever made.

### Opening for Americans in Great Britain

The British Electric Traction Company, of Norfolk Street, Strand, London, one of the largest tramway companies in Great Britain and the owner of a number of railway systems, is extending its operation and is desirous of securing the services of a number of competent men as managers and for other positions.

### Improvements at Cape Town

The electric equipment of the Camp's Bay Tramway Company, of Cape Town, South Africa, is being carried forward rapidly, and the company expects to commence operations before long. The line is to be 7 miles in extent, with twenty-four motor cars. It is being carried on under the direction of the general manager of the company, Chester P. Wilson, formerly of Milwaukee.

### Street Railway Patents

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

UNITED STATES PATENTS ISSUED OCT. 22, 1901

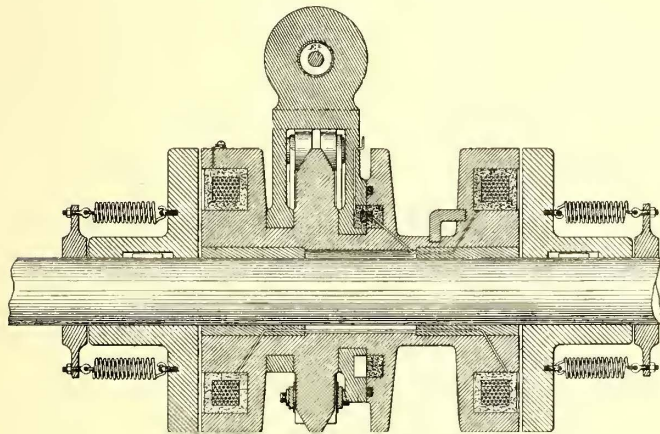
684,791. Electric Resistance; E. R. Carichoff, East Orange, N. J. App. filed Aug. 1, 1901. A resistance for cars, consisting of looped material extending downward from the bottom of the car and exposed in the open air for ventilation.

684,952. Street Railway System; J. J. Ruddick and C. E. Rand, Newton, Mass. App. filed Feb. 27, 1899. The signal circuit contains normally open contacts and normally closed contacts. The former are closed by the car when it enters the block, and the latter are opened by the car as it leaves the block, which also reopens the normally open contacts.

684,956. Cable Grip; P. R. Stuart, Oakland, Cal. App. filed Feb. 23, 1901. A lower jaw and an upper jaw hinged at one side of the plane of travel of the rope, and a pivoted cam lever adapted to press upon the upper jaw to force it against the rope between the jaws.

684,964. Car Fender; G. W. Webb, St. Louis, Mo. App. filed July 12, 1901. The fender is pivoted to the front of the car and extends rearward and forward of the pivotal line, so that it can be tilted.

634,969. Rail-Bond; H. W. Wynman, Worcester, Mass. App. filed March 20, 1901. The lug at the end of the bond is provided with a wedge-shaped opening for a plug. The lug is inserted in an opening in the rail, and the plug then driven in to spread it.



PATENT NO. 685,393

685,023. Brake-Shoe; B. Wolhaupter, Chicago, Ill. App. filed March 18, 1901. A brake-shoe composed in part of soft or quick-wearing material and in part of hard or slow-wearing material, the hard-wearing material being disposed in symmetrical relation to the center of the shoe, said sections having their inner or wearing faces nearer to the point of support of the shoe than their parts adjacent to the outer part or back of the shoe.

685,109. Car Fender; J. P. Cornelius, St. Louis, Mo. App. filed Aug. 15, 1901. Details.

685,118. Trolley; A. J. Eberwine, Slatington, Pa. App. filed Aug. 8, 1901. Inclined guard-plates are arranged each side of the wheel to direct a wire thereto.

685,120. Car Starter and Mover; J. B. Erwin, J. N. Moehn, Milwaukee, Wis. App. filed Dec. 3, 1900. A prying lever the fulcrum of which is a star-wheel adapted to rest upon the rail to prevent slipping.

685,193. Snow Plow for Cars; J. G. Weniger, Mambach, Germany. App. filed Aug. 7, 1899. The plow carries two rotating scoop-wheels, lying parallel to the rail and rotating in the same direction.

685,200. Safety Switch Lock for Street Railways; E. E. Burke, Anderson, Ind. App. filed Aug. 7, 1901. Details.

685,229. Spring-Rimmed Wheel; E. C. Smith, Schenectady, N. Y. App. filed June 6, 1901. The central and peripheral portions of the wheel have elastic play relative to each other.

685,232. Ball Bearing Car-Wheel; W. M. Conway, Baltimore, Md. App. filed July 19, 1901. The periphery of the wheel is provided with a circumferential groove containing anti-friction balls mounted to roll freely therein, the groove having overhanging edges to retain the ball.

UNITED STATES PATENTS ISSUED OCT. 29, 1901

685,393. Electric Brake; P. P. Crafts, Boston, Mass. App. filed Nov. 30, 1900. The invention resides in the location of the energizing coils in the heads of the drum around which the brake chain passes. These coils furnish the power for a clutch, the other member of which is keyed to the axle.

685,394. Electric Brake; P. P. Crafts, Boston, Mass. App. filed Nov. 30, 1900. An electromagnetic locking device to hold the brake in its applied position.

685,395. Car Fender; A. M. Cupples, Tyrone, Pa. App. filed July 19, 1901. Details.

685,425. Railroad Track Cleaner or Flanger; E. J. Martin, Madison Lake, and B. F. Emerson, Rochester, Minn. App. filed March 26, 1901. A hand car carries a plowshare adapted to clear out the space for the wheel flange.

685,595. Switch-Throwing Device; F. P. Frein, Allegheny, Pa. App. filed March 29, 1900. A mechanical switch-throwing device operated from the car.

685,604. Electric Switch; J. W. Hearn, Brooklyn, N. Y. App. filed Jan. 22, 1901. An electrically operated railway switch involving a magnet and a system of levers connecting it with the switch tongue, the magnet being located on a post at the roadside.

685,616. Car Fender; L. S. Kirker, Wheeling, W. Va. App. filed June 19, 1901. Details.

### PERSONAL MENTION

Mr. G. A. BARTHOLOMEW has been appointed superintendent of the Toledo, Columbus, Springfield & Cincinnati Railway, of Lima, Ohio. The road will shortly be placed in operation between Lima and West Minister.

MR. S. S. NEFF has resigned as superintendent of the Boston Elevated Railway Company, of Boston, Mass. Mr. Neff has made no definite plans for the future, but it is understood that he will enter construction work.

MR. HENRY O. BRADLEY, the last member of the firm of Osgood Bradley & Sons, car manufacturers, of Worcester, Mass., died after a short illness at his home on Oct. 22. The business of the Bradley Car Works, one of the oldest concerns in the trade, will be continued by his son, Mr. John E. Bradley.

MR. J. G. WHITE, president of J. G. White & Company, New York, and well known as an electrical engineer, has returned to this country after a prolonged business trip abroad. He expects to remain on this side for some length of time.

MR. HERBERT A. PASHO has been appointed superintendent of elevated service of the Boston Elevated Railway Company. Mr. Pasho is an old employee of the company, having entered the service of one of the constituent companies some sixteen years ago as conductor and worked his way to his present position. He assumed his new duties on Nov. 1.

MR. W. O. HANDS, formerly manager and financial agent of the East Side Electric Railway Company, of Kansas City, Mo., which was recently absorbed by the Metropolitan Street Railway Company of Kansas City, has been appointed to an important position on the engineering staff of the Metropolitan Company. Mr. Hands had entire charge of the construction and operation of the East Side Electric Railway.

MR. R. C. BROWN, general manager of the São Paulo Tramway, Light & Power Company, Ltd., at São Paulo, Brazil, has returned to the United States. His address for the present will be Room 840, Cable Building, New York. Mr. Brown had charge of all the important work of his company, both constructing and operating, and has so successfully completed the former that his presence on the ground is no longer necessary.

MR. JOHN B. McDONALD, contractor; E. B. Bryan, general manager; S. L. Deyo, chief engineer; L. B. Stillwell, electrical engineer, and John Van Vleck, mechanical engineer, of the Rapid Transit Subway Company, of New York, have just returned from Europe, after making a tour of inspection of the underground railways of London and Paris, with a view to obtaining suggestions for the New York subway. In London the party met William B. Parsons, the chief engineer for the Rapid Transit Commission, who went over some weeks earlier, and who will not return until next month. The Lecco, Sondrio & Chiavenna Railway, in Italy, which is equipped with the Ganz system, was also inspected, as were several important installations in Germany.

## LEGAL NOTES

EDITED BY J. ASPINWALL HODGE, JR., OF THE NEW YORK BAR.

### CHARTERS, ORDINANCES, FRANCHISES, ETC.

ALABAMA.—Eminent Domain—Street Railroads—Appeal—Evidence.

1. Code 1896, sec. 1717, gives either party thirty days within which to appeal to the Supreme Court from the preliminary decree rendered by the Probate Court on the hearing of an application for an order of condemnation. Sec. 1720 allows an appeal to the Circuit Court from the final order of the Probate Court on the report of the commissioners awarding damages, and provides that on such appeal the trial shall be de novo, and no appeal shall suspend judgment if a sufficient bond shall be given. Held, that sec. 1717 must be construed as giving a party thirty days within which to appeal from the preliminary decree, provided such appeal is taken before the final order is made on the report of the commissioners, under sec. 1720, at which time the right of appeal under the latter section arises.

2. The word "purchasers," used in Code 1896, sec. 1199, authorizing purchasers of the franchises and property of a street railroad at a judicial sale to organize as a corporation, embraces subpurchasers.

3. The action of stockholders of a street railroad, in changing the location of its right of way, may be shown by parol evidence, where no minutes have been kept of their proceedings.—(Birmingham Ry. & Elec. Co. vs. Birmingham Traction Co., 29 So. Rep., 187.)

CALIFORNIA.—Railroad Commission—Jurisdiction—Constitutional Interpretation.

1. Const. art. 12, sec. 22, defining the judgment and jurisdiction of the Railroad Commission, and authorizing it to establish rates of charges for the transportation of passengers and freight by railroad and other transportation companies, does not give the Commission jurisdiction and control over street railroad companies, since such companies are not railroad or transportation companies, within the meaning of the act.

2. A legislative interpretation of a constitutional provision contemporaneous with its adoption may be considered by the courts in an interpretation of a doubtful provision thereof.—(Board of Railroad Commissioners of State of California et al. vs. Market St. Ry. Co. et al., 64 Pac. Rep., 1065.)

GEORGIA.—Ratification—Legislative Grant—Effect—Corporations—Powers—Injunction—Supreme Court—Jurisdiction—Public Improvements—Use of Streets—City's Consent—City Ordinance—Validity.

1. The act of Aug. 31, 1891 (1 Acts 1890 91, p. 169), providing that "all charters heretofore granted by the Secretary of State to street and suburban railroad companies are hereby confirmed and declared to have had full effect from their dates," was, in effect, a general law giving the consent of the General Assembly that street and suburban railroad companies heretofore organized under the charters referred to might in the future exercise the corporate powers mentioned in such charters; and with this legislative consent such companies became, after either an express or an implied acceptance of the provisions of the act, de jure corporations, with all the powers granted in the charters; and this is true whether the charter in a given case was originally granted without authority of law, or in violation of law.

2. The General Assembly had in 1891 authority to grant corporate powers to a street car company, though the consent of the corporate authorities of the town or city in which the lines of street railway were to be located had not been first obtained; but the grant of such powers did not authorize the construction of a line of street railway upon the streets of any town or city until the consent of the corporate authorities had been obtained.

3. That a corporation may have acquired a portion of its property in violation of law is not a sufficient reason for enjoining it from exercising its legitimate corporate powers, at the instance of a private citizen whose property will be damaged by the exercise of such powers.

4. Following the decision of this court in Moore vs. City of Atlanta, 70 Ga. 611, this court will not control the discretion of the trial judge in refusing to grant an interlocutory injunction which would interfere with a public improvement in which no part of the property of the applicant is actually taken, although there was evidence before the judge authorizing a finding that the property of the applicant be damaged by the improvement.

5. Even if in 1891 the General Assembly had no power to confer upon street car companies the authority to become common carriers of freight, the grant of such authority would not in any way affect other powers which had been lawfully granted to such companies.

6. A street car company which has acquired the lines of street railway of two other companies may, when authorized by its charter, and with the consent of the authorities of the city in which its lines of railway are situated, connect the lines acquired from the other companies by laying its tracks upon such portions of a street of the city as may be necessary to make the connection.

7. A street car company having authority to lay its tracks along the streets of a city will not be enjoined from laying its tracks along a given street, at the instance of one claiming to have an interest in a line of street railway in another street, on the ground that the construction of the new line may operate as an abandonment of the line in which he is interested.

8. The lawmaking body of a municipal corporation may pass a special ordinance which is in conflict with a prior general ordinance, when there is nothing in the charter prohibiting this kind of legislation.

9. A general power in the charter of a street railway company to construct a line of street railway authorizes the construction of double tracks upon the streets of a city, provided the authorities of such city consent that the streets may be so used.—(Brown vs. Atlanta Ry. & Power Co. et al., 39 S. E. Rep., 71.)

GEORGIA.—Appeal—Assignment of Error—Street Railroads—Interference with Tracks—Injunction—City Ordinance—Motion to Reconsider.

1. An assignment of error upon an order denying an application for injunction, made in the following words: "To which order the plaintiff excepted, and now excepts, and assigns the same as error, in that it is contrary to the law and the evidence in the case,"—is good. The motion to dismiss the writ of error for insufficient assignment of error is overruled.

2. A street railway company which has constructed, and is legally operating, a line of railway in the streets of a city, is possessed of such a property interest as gives it a legal right to maintain an application to restrain a similar company from interfering with its line of tracks already laid, and from constructing a line of road over its private property without authority of law. To such an application the city is not a necessary party defendant.

3. Notice of a motion to reconsider the passage of an ordinance by a legislative body of a municipal government, which requires the approval of the Mayor to give it force, has no other effect than to prevent the immediate transmission of such ordinance to the Mayor for action thereon. If the motion to reconsider is not made at the next regular meeting, the notice is functus officio, and the ordinance so passed stands as the action of the body which passed it, and, on the adjournment of such meeting, should be transmitted. (a) The action of the General Council of the city of Atlanta, in fixing Jan. 7, 1901, as a day for the regular meeting of the Aldermanic Board, was, under its rules, had by a two-thirds vote. (b) The ordinance in controversy, granting a franchise to construct and operate a line of street railroad in certain streets, having been legally passed by the two legislative bodies of the city of Atlanta, and approved by the Mayor in due time, it operates as a legal and valid consent of the city to the exercise of the powers conferred by law on the Atlanta Rapid Transit Company, upon the terms incorporated in such ordinance.

4. Under the evidence, the trial judge was fully warranted in ruling that Cherokee Avenue was one of the public streets of the city of Atlanta.

5. Under the terms of the contract made by the two parties at interest, a connecting track of a street railway, to be made by one of them at Hunter Street, with the tracks of the street railway on Whitehall Street, which was authorized by the municipal authorities, is not in violation of any legal right of the other owner of an equal interest in, and right to use, such tracks.

6. No error was committed in refusing the application for injunction.—(Atlanta Ry. & Power Co. vs. Atlanta Rapid Transit Co., 39 S. E. Rep. 12.)

IOWA.—Paving Street Intersections—Duty of Street Railway—Ordinances.

The words, "property owners abutting," in an ordinance pro-

viding that where railway tracks are laid on a street already paved the company shall pay the property owners abutting for the paving between the rails, do not apply to the city, as owner of the streets, so as to require the company to pay for paving at street intersections.—(City of Council Bluffs vs. Omaha & C. B. St. Ry. & Bridge Co., 86 N. W. Rep., 222.)

**KENTUCKY.**—Right of Street Railroad to Cross—Municipal Authority—Jurisdiction of Railroad Commission—What Constitutes "Reasonable and Feasible" Crossing.

1. Ky. St. sec. 767, forbidding the construction of one railroad across another without the approval of the Railroad Commission, does not apply to the crossing of a trunk railroad by a street railroad, as street railroads, by Id. sec. 821, are expressly excepted from the jurisdiction of the Railroad Commission.

2. Where a street railroad company prior to the adoption of the present constitution constructed its road over certain streets of the city under an ordinance by which the city reserved the right to declare forfeit the right of way and privileges "therein granted over such streets or parts of streets as said company should not have occupied by constructing and operating a line of street cars as therein provided at any time after five years from the passage of the ordinance," no forfeiture having been declared by the city, the company had the right after the adoption of the constitution, and more than five years after the passage of the ordinance, to extend its lines over other streets and parts of streets named in the original ordinance, without becoming the highest and best bidder for the privilege, as required by Const., sec. 164, as the grant was an entirety, and the constitution did not repeal any part of it; work having been begun thereunder prior to the adoption of the constitution.

3. A city ordinance granting to a street railroad company the right to operate its cars by electricity was valid, though the company was authorized by its charter to operate its cars only by animal power, and the grant made by the city became effective when the company was subsequently authorized by its charter to operate its road by electricity.

4. Const., sec. 216, providing that "all railway, transfer, belt line and railway bridge companies shall allow the tracks of each other to unite, intersect and cross at any point where such union, intersection and crossing is reasonable or feasible," applies to street railroads as well as steam railroads, and restricts the right of a street railroad to construct its track across the tracks of a steam railroad in the streets of a city to cases where the crossing is reasonable or feasible.

5. The crossing at grade of a trunk railroad by an electric street railroad in a narrow street will not be enjoined as unreasonable or not feasible merely because several tracks will be crossed, and forty or forty-five trains pass each day, or because the overhead wires will be a source of danger in the operation of trains, and street cars may stop on the track by reason of the failure of the current.—(Louisville & N. R. Co. vs. Bowling Green Ry. Co., 63 S. W. Rep., 4.)

**MASSACHUSETTS.**—Private Right of Way.

A street railway company organized under general laws may be constructed in part over lands acquired by purchase which are outside the limits of streets and highways.—(Farnum vs. Haverhill & A. St. Ry. Co., 59 N. E. Rep., 755.)

**MICHIGAN.**—Construction of Road—Ordinance.

Defendant secured an ordinance from the relator authorizing it to construct and operate an electric street railway within its limits. The ordinance provided, "The track \* \* \* may be of the style known as 'T-rail,' or 'girder rail,' at the option of the grantee." The City Council reserved the right to make such other rules, orders, and requirements as might from time to time be deemed necessary to protect the interests, safety, welfare, and accommodation of the public, not inconsistent with the provisions of the ordinance, and to require the defendant to use such fixtures and appliances upon its said road, plant, and cars as might be deemed necessary to the public safety in the operation of said road. The Council subsequently amended the ordinance by requiring the defendant to put down a girder or grooved rail. This was rendered necessary by the fact that the old T-rail is unsuitable in streets paved with brick. Held, that under the terms of the ordinance the city retained the power to require the use of the girder or grooved rail.—(City of Kalamazoo vs. Michigan Traction Co., 85 N. W. Rep., 1067.)

**MICHIGAN.**—Turnouts.

Under an ordinance authorizing a street railway company to construct and maintain a single-track railway along certain streets, with the right to construct, use, and operate all necessary and convenient tracks for turnouts, side tracks, curves and switches wherever the same may be necessary, the same to be constructed and in operation within one year from the date of the passage of the ordinance. Held, that the relator was authorized to construct such turnouts, after the road was constructed, as should be made

necessary by the increase of travel, without further legislative action on the part of the city.—(Detroit Citizens' St. Ry. Co. vs. Board of Public Works of city of Detroit, 85 N. W. Rep., 1072.)

**MICHIGAN.**—Villages—Railway Franchise—Acceptance—Liquidated Damages—Deposits—Contract—Failure to Perform—Right to Retain Deposit.

A street railway franchise provided that it should be void unless accepted within ten days, unless the grantee should deposit with the clerk of the village within thirty days after acceptance a certified check for \$2,000, returnable on completion of the railway within the time provided, and in case of a default to be forfeited to the village. The ordinance required construction and equipment on or before Nov. 10, 1897; otherwise, the ordinance was to be void, at the option of the village board. Plaintiff's assignor sought and obtained a franchise under the ordinance, and complied with the terms thereof by depositing the \$2,000 check, but never entered on the construction of the road. Held, that the village was entitled to retain the amount deposited, as liquidated damages.—(Whiting vs. Village of New Baltimore, 86 N. W. Rep., 403.)

**MINNESOTA.**—Construction.

Villages of this State having less population than 3000, incorporated under the provisions of title 3, c. 10, Gen. St. 1894, have no authority to authorize the construction and operation, for a definite term of years, of street railways in the streets of such villages.—(City of Stillwater vs. St. Paul & M. Suburban R. Co. et al., 86 N. W. Rep., 103.)

**MISSOURI.**—Screens to Protect Motorman—Statutes—Construction—Constitutional Law—Information.

1. Act March 5, 1897, entitled "An act requiring persons, associations and corporations owning or operating street cars to provide for the well-being and protection of employees" (Acts 1897, p. 102), and providing that electric cars shall be provided during the winter months with a screen to protect the motorman, and for a penalty for any violation of the act, is not so indefinite as to be inoperative, but imposes on the owner or operator of such cars the duty to equip them with screens, and makes subject to the penalty any person who, owning and operating such a car, operates it without the screen, and also any agent or officer of an association or corporation operating or owning such cars who violates the act.

2. The title of Act March 5, 1897, "An act requiring persons, associations and corporations owning or operating street cars to provide for the well-being and protection of employees" (Acts 1897, p. 102), sufficiently indicates the subject-matter to be a requirement that electric street cars be equipped with screens for protection of motormen, and imposition of penalty for operation of such cars with screen.

3. Act March 5, 1897, requiring a screen on the front of every electric street car during the winter for protection of motormen, is not special legislation, within the prohibition of Const. art. 4, sec. 53.

4. Act March 5, 1897, imposing a fine of from \$25 to \$100 for every day that an electric street car is operated in the winter without a screen for protection of the motorman, does not impose cruel and unusual punishment, in contravention of Const. art. 2, secs. 24, 25.

5. Const. art. 2, sec. 30, providing that no person shall be deprived of liberty or property without due process of law, is not contravened by Act March 5, 1897, requiring every electric street car to be provided during the winter with a screen for protection of the motorman, and declaring a penalty for violation of the act.

6. Const. U. S. Amend. 14, is not contravened by Act March 5, 1897, requiring every electric street car to be provided during the winter with a screen for protection of the motorman, and declaring a penalty for violation of the act.

7. An information is not good against W. which charges that an electric street railway company, through W., its president, agent, and officer, did knowingly and unlawfully operate an electric street car not provided with a screen for protection of the motorman, in contravention of Act March 5, 1897; it not alleging that W. owned or operated the car.—(State vs. Whitaker, 60 S. W. Rep., 1068.)

**NEW JERSEY.**—Municipal Corporation—Control of Streets—Width of Sidewalk—Mandamus.

1. A municipal corporation which is empowered by its charter to regulate its streets, and to prescribe the manner of their use by any person or corporation, has exclusive power to determine in the first instance how the space within the bounds of the highway shall be appropriated to the varied uses of the highway.

2. A general ordinance prescribing a certain width of the sidewalk in avenues of a certain width is modified by a subsequent special ordinance making a different disposition of a particularly named avenue.

3. A trolley-railway track, laid in accordance with the direction

of the special ordinance, will not be enjoined from operation because its location works inconvenience and injury to the abutting owners.

4. If the municipality has so unreasonably appropriated the divisions of the highway as to work injury to the abutting owners, their remedy is not in equity, but in the courts of law, which supervise the action of inferior jurisdictions.

5. A mandatory injunction will not be decreed where the legal rights of the complainants are disputed and unsettled, and where the acts complained of are adequately remediable in the courts of law.—(Budd et al. vs. Camden Horse R. Co. et al., 48 Atl. Rep., 1028.)

NEW JERSEY.—Turnpikes and Toll Roads—Right of Way—Lease—Consent—Pleading—Proof.

1. By joining issue on a plea, a complainant admits the sufficiency of the facts stated as a defense, if they are proven to be true.

2. If their truth be established by the evidence, the complainant's bill must be dismissed as to the defendant who files the plea, although the matters stated in the plea do not constitute a valid defense to the suit.

3. If the defendant fails to prove the truth of the facts pleaded, the plea will be overruled as false, and the complainant will be entitled to a decree according to his case as stated in the bill.

4. A trolley company, if it desires to locate its railway upon a turnpike road, is not, under the act of March 14, 1893 (Gen. St. p. 3241, sec. 135), compelled to acquire that privilege by lease. It may acquire a mere use of part of a roadway by consent of the turnpike company, under section 130 of that act (Gen. St. p. 3238).—(Hunt et al. vs. West Jersey Traction Co. et al., 49 Atl. Rep. 434.)

NEW JERSEY.—Location—Application—Notice—Extension.

By the eighth section of "An act to provide for the incorporation of street railway companies, and to regulate the same," passed April 6, 1886, as amended March 27, 1889 (3 Gen. St. p. 3220), it is provided "that the board of aldermen, common council, or township committee, upon the petition of the directors of any company incorporated under this act, or a majority thereof, for a location of the tracks of its railway therein, conformably to the route designated in their articles of incorporation, or for an extension of the same, shall give notice to all parties interested [in a specified manner] of the time and place at which they will consider such application for location; and, after hearing, they shall pass an ordinance refusing such location or extension, or granting the same, or any portion thereof, under such lawful restrictions as they may deem the interests of the public require; and the location or extension thus granted shall be deemed and taken to be the true location or extension of the tracks of the railway, if an acceptance thereof in writing, by the directors, shall be filed with the secretary of state within thirty days after receiving notice, and a copy thereof delivered to the clerk or other equivalent officer of the municipality or township." Held, that the right of a street railway company incorporated under this act to construct an extension of its railway depends (1) upon municipal action granting it authority to do so, with such restrictions as the municipal body may deem proper; and (2) the filing by the company of an acceptance of the grant, with its restrictions, in the office of the secretary of state, and the delivery of a copy thereof to the clerk of the municipality. Held, further, that the statutory provision cited empowers the municipality to grant to a street railway company a right to extend its railway from its legally authorized terminus, but that it does not justify a grant to construct an addition to an extension which has been built without legal warrant.—(Trenton St. Ry. Co. vs. Pennsylvania R. Co. et al., 49 Atl. Rep., 481.)

NEW YORK.—Location—Determination of Commissioners—Confirmation—Authority of Court.

1. Const. art 3, sec. 18, and Laws 1890, c. 656, sec. 94, providing that, on application for leave to construct a street railroad, the determination of commissioners, confirmed by the court, may be taken in lieu of the consent of the property owners, the determination thus referred to means one only that is in favor of the road; and there is, therefore, no express authority for the action of the appellate division when the report is unfavorable.

2. The appellate division, having power, under Laws 1890, c. 565, to appoint commissioners to determine as to the construction of a street surface railroad, has power, where the commissioners fail to make such a report as the law provides for, to set aside such report and appoint other commissioners, or remit the matter to the same commissioners, with instructions.

3. Where the appellate division denies, for want of power, an application to set aside the report of commissioners appointed under Laws 1890, c. 565, to determine whether a surface road should be constructed in a public street, where the report was unfavorable to the surface road, its judgment must be reversed, though no reason therefor was given in the notice of motion, as it was the duty of such division either to refuse to hear the applica-

tion, because no reason was specified, or to examine the report and to decide whether the commissioners substantially complied with the law.—(In re Nassau Elec. R. Co., 60 N. E. Rep., 279.)

NEW YORK.—Consolidation—Paving of Streets—Contracts.

Under Railroad Law (Laws 1890, c. 565), sec. 72, providing that consolidation of railroad companies shall not relieve the new company from any of the restrictions or liabilities of the several companies so consolidated, where street railway companies, having a contract with a city relieving them from their obligation to keep the streets over which they operate in repair on condition of their assuming payment of the part of the cost of laying new pavement between the rails of their tracks, consolidate, and the new company afterward consolidates with other companies not parties to the contract and under statutory liability to pave the streets between their tracks, such first contract does not relieve the last company from paying the full costs of paving streets on the lines of the companies not parties to the contract, and not embraced in any of its provisions, though the contract stipulates that it is to inure to any company with which the parties to it may consolidate, and that it shall extend to any additions or extensions of the tracks of such railway companies.—(Kent vs. Common Council of City of Binghamton et al., 70 N. Y. Suppl., 465.)

NEW YORK.—Highway Crossings—Consent of Authorities.

Const. art. 3, sec. 18, and Laws 1890, c. 565, secs. 90, 91, prohibit the construction or operation of a street railroad on a street or highway without the consent of the local authorities. Laws 1890, c. 565, sec. 11, authorizes the supreme court to allow a railroad company to occupy or cross a street or highway. Held, that a company incorporated as a street surface railroad company, and constructing a road on its own right of way through a town, could not cross highways without the consent of the local authorities, since sec. 11, c. 565, Laws 1890, applies only to steam railroads.—(In re Syracuse & S. B. Ry. Co., 68 N. Y. Suppl., 881.)

OHIO.—Carriage of Merchandise.

An electric railway company owning and operating a road upon a street of a city and an interurban electric railway company may, by favor of the provisions of section 3443-11 of the Revised Statutes, enter into a valid traffic arrangement for the carriage of merchandise for hire upon said street.—(State vs. Dayton Traction Co. et al., 60 N. E. Rep., 291.)

WISCONSIN.—Construction—Streets—Exclusive Use—Plat—Reference—Effect—Ambiguous Deed—Parol Evidence—Admissibility—Damages—Release—Innocent Purchaser—Notice—Inquiry—Duty—Injunction.

1. A land company platted land on both sides of W. Street, and sold lots with reference thereto, and before recording the plat executed a warranty deed to a railroad corporation conveying right to construct and operate a street railroad upon W. Street according to the plat thereof, with all the rights incident to the operation of railroads. The street, to the knowledge of the railroad company, had been laid out as a public street, and in consideration of being allowed to construct its road the railroad company agreed to grade and prepare the street for public use with a space on each side for vehicles and for the construction of sidewalks. Held, that the deed did not entitle the railroad company to the exclusive use of the entire street for railroad purposes, and operate as a revocation of the incomplete dedication of W. Street, since the grant was not of a right of way, but of a right to construct and operate a railroad with reference to W. Street.

2. Where a land company granted a railroad corporation the right to construct and operate a railroad on W. Street according to the plat of the land company of such street, the reference to the plat was not merely for description and location, but imported the plat into the deed.

3. Where a land company granted a railroad corporation the right to construct and operate a railroad on W. Street, the use of the words in the deed, "with all the rights incident to and necessarily used in connection with the railroad," did not entitle the railroad corporation to an exclusive right of way over the whole street on the ground that the words indicated a clear intent to grant such right of way.

4. Where a subsequent clause in a deed was inconsistent with the preceding clause, and rendered the deed ambiguous, parol evidence was admissible to explain the ambiguity.

5. Where a railway company was granted a right to construct and operate a railroad on a certain street as platted by the grantor, and the railway company was to grade it without any material change in the natural surface, a release of damages in the deed did not release those arising from a substantial change in the grade.

6. Rev. St. 1889, sec. 1828, subd. 5, provides that every corporation formed under chapter 87 shall have power to change the course and direction of any highway or street when made necessary or desirable to secure more easy ascent or descent by reason

of any embankment, and to take land necessary therefor. Held, to refer to commercial railways, and not to a street railway organized under Rev. St. 1889, c. 86.

7. Where a deed to a street railway company was ambiguous, and conferred only a limited right to operate a road in the center of a street, subject to the rights of the public to use it as a public street, and the company had so exercised the grant for four years, and conveyed its rights to defendant on the same terms, the latter was not entitled to assert any rights as an innocent purchaser.

8. Where a street was not within the limits of any city, and a street railway was operated on it, the adjacent owners were entitled to an injunction restraining the company from substantially changing the grade of the street without condemnation proceedings, as provided by Rev. St. 1898, sec. 1863a, conferring on street railway companies the right of condemnation over a highway.—(Murray Hill Land Co. vs. Milwaukee Lt., Heat & Traction Co., 86 N. W. Rep., 199.)

TEXAS.—Appeal and Error—New Parties—Successor to Defendant—Error in Forma Pauperis—Affidavit—Notice of Filing.

1. Where, between the entry of judgment in an action against a street railroad company and the issuance of a writ of error, the defendant railway company was dissolved by decree of court, and a traction company was organized as its successor, an allegation in the application for the writ of error that the charter of the railroad company had been canceled by the decree, and that the traction company had become its successor in all things, and had acquired its property and rights, and assumed its liabilities, was sufficient to make the traction company a party to the proceedings in error.

2. No notice of the filing of an affidavit of inability to give a writ of error bond in lieu of the filing of such bond to perfect the proceedings in error, as authorized by Rev. St. art. 1401, is necessary.—(Proctor et al. vs. San Antonio St. Ry. Co. et al., 62 S. W. Rep., 938.)

#### FEDERAL COURTS

MARYLAND.—Mortgage—Foreclosure and Reorganization—Rights of Bondholder.

A committee having charge for first mortgage bondholders of the foreclosure sale and reorganization of a street railroad company were authorized to purchase the road and other property for their benefit, and organize a new corporation to operate it. The bonds concerning which the agreement related were bonds on which there had been a general default on May 1, 1897, and the bondholders agreed to surrender such bonds to the committee, and that the latter should "use the said bonds and coupons" to pay for the property purchased. Bonds were deposited, subject to an order of the committee, pursuant to an agreement under which the holders of receipts for bonds were "entitled to receive for each bond deposited a new noncumulative income mortgage bond (against the new company) for each bond deposited." One of the depositors, though consenting to the reorganization as planned, detached and retained coupons maturing on and after May 1, 1897, and subsequently collected the same from the proceeds of the mortgage sale; thereby obtaining more for himself than the other bondholders, who deposited such coupons for the committee's use in purchasing under the foreclosure. Held, that he could not claim bonds against the new organization in the hands of the committee without producing or surrendering the defaulted coupons which he detached, or paying the money collected therefor out of the proceeds of the foreclosure.—Fuller vs. Venable et al., 108 Fed. Rep., 126.)

TEXAS.—Municipal Corporations—Ordinance Authorizing Street Railroad—Construction—Corporations—Contract with Stockholder—Preference to Creditors—Validity—Statutes of State—Interpretation in Federal Courts—Same—Provisions as to Receivers—Application to Receivers in Federal Courts—Street Railroads—Mortgage—Foreclosure—Receivership—Administration of Property—Preferred Claims—Same—Mortgages—Delivery—Presumption—Mortgage of Street Railroad—Scope of Lien—After-Acquired Property—Chattel Mortgages—Failure to Record—Priorities.

1. An ordinance of the city of Galveston embodied a contract between it and promoters of the Galveston City Railroad Company, whereby the latter was given the right to construct and operate its railway on condition that, in lieu of a percentage on its net receipts and of a bonus for the contract, 600 shares of its stock should be transferred to the city, as fully paid up. This was accordingly done, and it was entered as a stockholder on the company's books; and, as the ordinance provided, it was also represented by its Mayor on the company's board of directors, when he voted for a resolution mortgaging the company's railway system. Held, that a further provision in the contract that, in the event that the company should allow itself to be incumbered with debt, the city should have a lien on the company's franchise and

property, to be secured to it by proper process after its organization, did not make the city in any sense a creditor of the company, and that the lien was intended merely to secure its interest as a stockholder, giving it a preference in the distribution of the capital stock or net assets of the company, but postponing it to the rights of the mortgagee and other creditors.

2. A contract between a corporation and a stockholder by which the latter is to receive the par value or any part of his stock before all the corporate debts are paid is contrary to public policy and void.

3. The federal courts will follow the Supreme Court of a State in the interpretation of its statutes.

4. Rev. St. Tex. arts. 1472, 1489, 1490, authorizing the appointment of receivers, defining their powers and duties, and regulating their proceedings, are inapplicable to receivers in the federal courts.

5. A court of equity, engaged in administering mortgaged railroad property under a receivership in a foreclosure suit, in distributing the income or proceeds of the property may prefer to the prior mortgage lien unpaid claims for current expenses of its ordinary operation within a limited time before the receivership; and hence the preference in such a case of claims for current expenses of a street railroad accruing five or six months before the receiver's appointment was proper, but not of claims for labor and materials furnished, at the latest, a year and a half prior thereto, and for which the company's notes had been given and renewed beyond the date of the receiver's appointment.

6. A creditor of a street railroad company is not entitled to a preference over a mortgage lien in the distribution by a receiver of the income or proceeds of the property on foreclosure simply because that which he furnished the company prior to the receiver's appointment was for the preservation of the property and for the benefit of the mortgage security, though that would be important in considering the equity of his claim to a preference.

7. The date of acknowledgement of a mortgage differing from the date of the mortgage, the mortgage, in the absence of any evidence on the subject, will be held to have been delivered when it purports to be acknowledged.

8. A mortgage of a street railroad system covering after-acquired property creates a lien on engines thereafter furnished to the company in constructing a plant which was a part of its system, and is not to be displaced by a stipulation in the contract of sale that title should not pass till they were fully paid for.

9. Rev. Stat. Tex., art. 3328, provides that mortgages or other instruments intended to operate as liens on undelivered personalty shall be absolutely void, as against subsequent mortgagees in good faith, unless forthwith deposited for record, and hence a Texas chattel mortgagee that failed to record its mortgage till several months after another mortgagee had secured in good faith an effective mortgage on the same property lost its priority.—(Guaranty Trust Co., of N. Y., vs. Galveston City R. Co. et al. Same vs. City of Galveston et al., 107 Fed. Rep., 311.)

#### LIABILITY FOR NEGLIGENCE

ILLINOIS.—Collision—Backing Car—Negligence.

There is evidence for the jury on the question of negligence and contributory negligence where, a street car having passed, a team turned to cross the track back of it, and the car, backing to get to a switch it had passed, struck the team, there being testimony that the driver of the team did not know the car was going to back; that no signal therefor was given; that, if given, it was not heard by such driver; and that there was no one at the rear end of the car looking out for travelers.—(Central Ry. Co. vs. Knowles, 60 N. E. Rep., 829.)

INDIANA.—Injuries to Passenger—Collisions—Pleading—Sufficient Averment of Negligence.

1. A complaint in a personal injury suit, which stated that, while plaintiff was riding on the street car of the C. Co., "this car, by and through carelessness and negligence of the defendants C. Co. and S. Co. in conducting and managing their said street cars, was struck, run into, and caused to collide with a certain street car then and there being run on the tracks of S. Co.," whereby plaintiff was injured, did not show that the S. Co. owed any duty with regard to the operating of the car in which plaintiff was riding, or was guilty of negligence in running the car which was on its own track; and hence did not state a cause of action against the S. Co.

2. A complaint in a personal injury suit against a street railway, which contained no other allegation of defendant's negligence than a statement at the close of the pleading that plaintiff's injuries in a collision were received through defendant's carelessness and negligence, was insufficient and demurrable, because not showing to what carelessness and negligence the injuries were attributed.—(South Chicago City Ry. Co. vs. Moltrum, 60 N. E. Rep., 361.)

## FINANCIAL INTELLIGENCE

### THE MARKETS

#### The Money Market

WALL STREET, Nov. 6, 1901.

The money market continues to move under conflicting influences, but the outlook continues to improve. On the one hand gold exports to Europe have set in in quantity, and they are likely to continue so long as money remains comparatively easy here and firm abroad. The excess of the government's receipts over expenditures remains heavy; it amounted to \$8,000,000 in the last two weeks of October, and while interest payments will keep down the excess during the early part of the current month, it will undoubtedly grow heavy again after the 15th. But, on the other hand, the Secretary of the Treasury has renewed his offer to buy government bonds at prices which are unquestionably attractive to holders. It is fully expected that the bonds will be turned in freely as they were under the first tender six weeks ago, and that the offerings will be increased if money rates advance. These operations, as they did before, will probably turn the Treasury from a debtor to a creditor in the money market. At the same time a steady stream of gold from Australia and the Alaskan mines is flowing into the depositories on the Pacific Coast, and the specie thus deposited is at once transferred to the New York banks in the form of a credit upon the local Sub-Treasury. More important than this, the outward movement of currency to the interior has slackened visibly. Last week the banks gained some \$2,000,000 more than they lost through the domestic exchanges. While this is no doubt an exceptional result, it apparently marks the beginning of the period when remittances to the South and Southwest will be offset by the return of funds sent out two months ago to the wheat regions of the West and Northwest. It may be that we shall not see for some weeks yet any gain in local bank reserves, but all danger of anything approaching a money stringency has been removed. A further shrinkage in bank resources, reflecting itself in a rise in money rates, would operate automatically toward its own correction, for the higher rates would at once check gold exports and stimulate offerings of government bonds for redemption.

Money on call is quoted at  $3\frac{3}{4}$  to 4 per cent. Time loans for all dates are made at  $4\frac{1}{2}$  per cent.

#### The Stock Market

A steady tendency toward improvement has been shown during the past fortnight on the Stock Exchange. No important operations for a rise have been disclosed; the speculation has remained dull and in professional hands entirely. But the undertone of growing confidence has been unmistakable, and whatever the feelings may be against the expediency of a rise at this time, the superficial indications are that a movement of the kind has begun. Money conditions, as may be inferred from the foregoing article, are no longer the obstacle to the speculation that they were a month or even two weeks ago. Some critics are crying out that prices of stocks are already high enough, that the export trade is declining, that the depression in foreign industry will be later on communicated to this country, and finally that the losses from the corn crop damage have yet to be reckoned with. But in spite of all these objections, the leading interests in the market are inclined to favor the view that the unprecedented railroad earnings and the projects for new railway alliances and readjustments in various parts of the country are sufficient justification for a campaign for the rise. Acting on this conviction, a quiet but steady accumulation has been going on for several weeks in the leading railroad stocks. Except in one or two instances, no efforts have been made to bid up prices, but the buying, nevertheless, has been persistent enough to account for the gradual hardening which has been obvious from day to day in the market.

Among the local traction stocks Manhattan is the one where the best buying has occurred. Apparently the main incentive is the annual statement, due very soon now, which, according to the well informed, will make a remarkably favorable exhibit. There is some reason to expect that the earnings, after charges, will amount to nearly 6 per cent on the stock. Those who are active in the speculation naturally reason that if this result can be obtained while the road is getting no benefit from the \$15,000,000 increase in capital made to provide for the change in motive power, the price of the stock has far from discounted the great enlargement of profits which is looked for under electricity. The clique in Manhattan is one of the strongest in the entire stock market. Brooklyn Rapid Transit shares have been taken in hand by the leading speculative interests in the property, and a short interest

formed at the time the annual earnings statement was published has been forced to retreat. The increase in October earnings over a year ago helped the advance during the last week. On the other hand, Metropolitan is not receiving any strong support, and it has been sold down by professional traders who have fully made up their minds that the dividend rate is to be reduced.

#### Philadelphia

Dealings in the Philadelphia traction market, while they have been a trifle more animated during the last two weeks, have been confined chiefly to two or three of the regularly active specialties. Union Traction was rather weak during the early part of the period, falling as low as  $26\frac{7}{8}$  on October 28. But the decision of the company's employees not to strike removed the main cause of depression in the speculation, and the price rallied to 28. Consolidated Traction of Pittsburgh, both common and preferred, has held firm on comparatively large dealings. Anticipating the success of the amalgamation deal with the Philadelphia Company, the common stock rose to 24 on Oct. 23, but after the formal announcement that a large majority of the stock had been deposited for conversion, thus insuring the success of the plan, the quotation fell back to  $23\frac{3}{8}$  under realizing sales. The preferred, after selling freely at 64, dropped to 63. A fair volume of investment buying has been in evidence in Philadelphia Traction, but without advancing the price, which has varied between  $95\frac{1}{2}$  and 96. Several hundred shares of American Railways sold as high as  $40\frac{1}{2}$ , but on scattered offerings the stock receded to 40. Other minor transactions during the fortnight were 100 shares of Railways Company General at  $2\frac{3}{4}$ , 9 shares of Consolidated Traction of New Jersey at  $67\frac{1}{2}$ , 20 shares of Germantown Passenger at  $147\frac{1}{2}$ , and 1 share of Philadelphia City Passenger at  $207\frac{1}{2}$ . In bonds the features have been the 4 per cent and 5 per cent issues of the Indianapolis company. Citizen Passenger of Indianapolis 5s rose from  $110\frac{3}{8}$  to  $111\frac{1}{8}$ , and Indianapolis Railways 4s went up from  $84\frac{7}{8}$  to  $86\frac{1}{2}$ . This is an advance in the latter of 6 points since the end of September. The buying in these securities is said to come chiefly from Indianapolis home investors. Other bond sales reported are Consolidated Traction of New Jersey 5s at  $110\frac{1}{4}$  and  $110\frac{1}{2}$ , Scranton Railway 5s at 103, and Electric-Peoples Traction 4s, which have been actively dealt in, at  $97\frac{1}{4}$  and  $97\frac{3}{8}$ .

#### Chicago

The whole interest in the Chicago traction properties is focussed on the recent decision of the Illinois Supreme Court, enforcing the collection of the general property tax on franchises of the Chicago surface roads, among other Chicago corporations, instead of merely upon tangible property, which heretofore has been the basis of the assessment. This means a heavy additional burden upon the companies affected, and the prompt reflection of the decision upon the market for the securities shows that the judicial action is regarded as final. Union Traction common, which two weeks ago sold as high as  $17\frac{1}{2}$ , fell under heavy liquidation to  $12\frac{1}{2}$ , and the preferred was even weaker, dropping from  $58\frac{1}{2}$  to  $49\frac{1}{2}$ . West Chicago, which is a leased line of the Union Traction, sympathized with the break at first, but subsequently the market for the stock reflected confidence that the inroad of the increased taxation upon Union Traction earnings would not be severe enough to endanger the guarantee of the 6 per cent dividend on West Chicago shares. The elevated roads were not directly concerned in the decision, but the sentiment of the community is that they, as much as the surface lines, deserve to bear a larger tax assessment. Anticipating some such result, all of the elevated stocks have weakened, Lake Street selling down to 12 and Metropolitan and Northwestern common each from 40 to 39.

#### Other Traction Securities

The feature of the last ten days among the other traction securities has been a rapid advance in the stocks of the St. Louis company. St. Louis Transit common, which sold at  $25\frac{1}{2}$  a fortnight ago, was bid up almost violently to  $30\frac{1}{2}$  on Monday of this week, and United Railways preferred rose in the same time from 81 to  $85\frac{1}{2}$ . It is reported from St. Louis that the company is about to acquire the St. Louis & Suburban system, and as a plausible support to this view it is recalled that out of a total of \$8,000,000 bonds held in the treasury \$3,000,000 was especially set aside for purchasing the suburban property when it seemed desirable. The buying of both common and preferred has been extensive and often urgent, both in the St. Louis market and on the New York curb. Dealings elsewhere were small and unimportant. Louisville Street Railway preferred has sold in odd lots at  $115\frac{1}{8}$ , and the common is heavy around  $107\frac{1}{2}$ , although with little offered at that



figure. New Orleans Traction common has varied between 31¼ and 30½, and the preferred between 105½ and 106. Sales of New Orleans City & Lake 5 per cent bonds are reported at 113¾. The securities of the reorganized Washington Traction & Electric are quoted at 82 bid for the 4 per cent bonds, 42 bid for the preferred stock and 22 bid for the common. Under the plan of readjustment fixed charges of the property were cut in two. Rather large dealings in Massachusetts Electric issues have taken place without material variation in prices. The common has shifted between 36 and 37¼, while the preferred has changed hands pretty uniformly at 94. Fractional lots of Boston Elevated sold at 167 and 168.

**Auction Sales**

At the last weekly auction sale held by Adrian Muller & Son, the only transaction in street railway securities was the sale of twenty-five shares Broadway & Seventh Avenue at 248⅞.

**Stock Quotations**

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

	1901	
	Oct. 22	Nov. 5
American Railways Co.....	40	39½
Boston Elevated .....	166	167
Brooklyn R. T.....	61¼	63
Chicago City .....	201	195
Chicago Union Tr. (common).....	17½	13¼
Chicago Union Tr. (preferred).....	58½	50½
Cleveland Electric .....	..	84¼
Columbus (common) .....	45	44
Columbus (preferred) .....	101	100
Consolidated Traction of N. J.....	65½	67
Consolidated Traction of N. J. 5s.....	109¾	109¾
Consolidated Trac. of Pittsburgh (common).....	23	23½
Detroit United .....	..	73
Indianapolis Street Railway.....	45	44
Lake Street Elevated.....	11¾	12½
Manhattan Ry. ....	121	123¾
Massachusetts Elec. Cos. (common).....	36	37¼
Massachusetts Elec. Cos. (preferred).....	91	94
Metropolitan Elevated, Chicago (common).....	40	39
Metropolitan Elevated, Chicago.....	90	90
Metropolitan Street .....	157½	154½
Nassau Electric 4s.....	97½	97½
New Orleans (common).....	31	30½
New Orleans (preferred) .....	105½	106
North American .....	95	95
Northern Ohio Traction (common).....	..	38
Northern Ohio Traction (preferred).....	..	88
North Jersey .....	22½	22½
Northwestern Elevated, Chicago (common).....	39	39
Northwestern Elevated, Chicago (preferred).....	85	85
Rochester (common) .....	30	32
St. Louis Transit Co. (common).....	25½	30
South Side Elevated (Chicago).....	108	108
Syracuse (common) .....	25	25
Syracuse (preferred) .....	63	63
Third Ave. ....	118	118
Twin City, Minneapolis (common).....	99¾	99
United Railways, St. Louis (preferred).....	81	85½
United Railways, St. Louis, 4s.....	89	89½
Union Traction (Philadelphia).....	27½	27¼
United Traction (Providence).....	108½	108½

a Asked. b Bid. \* Quotation of new stock.

**Iron and Steel**

Business in the iron industry continues in enormous volume, both in the unfinished and the finished branches. Buyers of pig iron are contracting for deliveries as far ahead as next February, but there seems no likelihood yet awhile of this demand causing a further advance in prices. The requirements of the consuming interests in steel are even more urgent, and so great is the rush of orders that premiums are being paid for prompt delivery. In this department the tendency of prices is upward, and the probabilities are that the consumption will hold its present volume in face of the rise. There is no longer any doubt that the 1902 output of steel rails will be the largest ever known. The pool is not disposed, however, to advance prices. Quotations are \$16 for Bessemer pig, \$27 for steel billets, and \$28 for steel rails.

**Metals**

Quotations are as follows: Copper, 16¾ cents; tin, 24¾ cents; lead, 4¾ cents; spelter, 4.30 cents.

ATHENS, GA.—The Athens Electric Street Railway Company has executed a trust deed to the Title Guaranty & Trust Company to cover a bond issue of \$400,000. Of that amount only \$200,000 is to be taken up now. The other \$200,000 will not be issued unless in the future the company should desire to engage in a further development of its plant or some new industry allowed under its charter. Of the \$200,000 secured \$100,000 will be used to take up the present bonded indebtedness of the company, and the other \$100,000 to complete the development of Tallasec Shoals and the equipment of the large electric power plant there, as well as upon other improvements of the holdings of the street railway company. The bonds are to run thirty years, the company reserving the right to redeem them at an earlier date. The rate of interest is 6 per cent.

DETROIT, MICH.—J. D. Hawks and S. F. Angus, who own the Detroit, Ypsilanti & Ann Arbor Electric Railway, and are now extending the same to Jackson, have purchased the Lansing Street Railway. The price is said to be in the neighborhood of \$200,000. It is the intention of the company to extend the line from Jackson to Lansing in the near future.

DETROIT, MICH.—The Detroit, Pontiac, Lapeer & Northern Electric Railway Company has filed a mortgage for \$3,000,000 to the Morton Trust Company, as trustee, to provide for the construction of an electric railway to extend from Detroit to Pontiac, Oxford, Lapeer and Bay City. The proposed new line will be about 125 miles long.

BOSTON, MASS.—The directors of the Boston Elevated Railway Company have voted to ask the West End Street Railway Company to issue bonds in payment of charges against the West End, held by the Boston Elevated for new construction. Total charges for new construction aggregate about \$1,800,000.

CAMDEN, N. J.—The Camden & Trenton Railway Company has filed for record a general mortgage to the Providence Life & Trust Company, of Philadelphia, as trustee, securing \$1,750,000 of 5 per cent gold bonds. The bonds are in denominations of \$500 and \$1,000, dated 1901, and due July 1, 1931. Of the new bonds \$400,000 are to be issued for extensions and additions to the power houses, equipment, etc.; \$750,000 are to be reserved to take up, at maturity, a like amount of outstanding first mortgage bonds, and the balance are to be reserved to provide for extensions in either Trenton or Camden.

WHITEHALL, N. Y.—The Railroad Commissioners have granted the application of the Whitehall & Granville Railroad Company for permission to reduce its capital stock from \$750,000 to \$400,000. The company now has under construction an electric railway that will extend from Whitehall, at the head of Lake Champlain and the Champlain Canal, through Granville and the adjoining slate district, to West Paulet, Vt., a distance of 20 miles. The officers of the company are: Emmet J. Gray, of Whitehall, president; Eugene R. Norton, of Granville, vice-president; Charles I. Baker, of Troy, secretary; Daniel D. Woodard, of Granville, treasurer; C. B. Story, of Whitehall, general manager.

RUTLAND, VT.—The Rutland Street Railway Company is seeking authority to increase its capital stock from \$150,000 to \$1,500,000 to provide for extensions from Rutland to White River Junction, a distance of about 50 miles, and for a line from Rutland to Whitehall, N. Y.

BOSTON, MASS.—Moore, Baker & Company, bankers of 99 State Street, have recently printed, in small pamphlet form, a treatise on the possibilities of interurban railways, by Guy Morrison Walker. Mr. Walker makes some interesting comparisons of the receipts and operating expenses and capitalization of typical interurban railways and steam railroads which they parallel. For instance, he shows that the Detroit & Port Huron Electric Railway, 72 miles long, is capitalized at only \$34,480 per mile, while the Grand Trunk Railroad, with which it competes, is capitalized at \$93,714 per mile. The Toledo, Fremont & Norwalk Railway, an electric railway 62 miles long, running from Norwalk, Ohio, to Toledo, is capitalized at \$40,000 per mile, while the Lake Shore & Michigan Southern, which it parallels, is capitalized at \$70,000 per mile. The Southwest Missouri Electric Railway, running from Carthage through Joplin to Galena, Kan., a distance of 41 miles, is capitalized at \$31,700 per mile, while the St. Louis & San Francisco Railway, with which it competes, is capitalized at \$56,100 per mile. The average capitalization of steam roads in the United States, according to the report of the Interstate Commerce Commission for the year 1900, was \$61,490 per mile, while the average capitalization of electric interurban railways will not average over \$35,000 per mile. On the other hand, the average passenger earnings of steam roads in America from passenger traffic for the past year amounted to \$1,674, while the average earnings of the interurban electric roads were nearly two and one-half times that amount, being approximately \$3,800 per mile. The earnings of many roads, however, run very much higher, as the Southwest Missouri Electric Railway, which earns \$4,735 per mile; the Union Traction, of Indiana, with earnings of \$4,984 per mile, and the Northern Ohio Traction, with \$5,520 per mile. He also points out that the earnings of interurban lines are not so quickly nor so severely affected in times of industrial depression as are steam roads, because when people begin to economize they naturally first curtail those disbursements which are heaviest and travel on the cheaper electric lines. The average fare per mile received by steam roads in America last year was 2.0003 cents, while the average fare in the interurban lines was only 1.3 cents per mile, while in several cases a rate of less than 1 cent per mile prevailed. He then gives some interesting statistics as to the effect of this competition, and cites the travel between Ann Arbor and Detroit, where the steam railroad fare is \$1.20, while the electric fare is only 50 cents. As a result, passengers to Detroit would leave the steam road at Ann Arbor and continue to Detroit by the electric line, making a saving of 70 cents. Coming now to the average cost of operation, that of the steam railroads, as reported by the Interstate Commerce Commission, is 64.6 per cent of the gross earnings, while that of the interurban lines is given by Mr. Walker as 54 per cent. He believes that the interurban roads will eventually carry a large amount of freight, and that their securities will increase in favor with investors.

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.

Table with columns: COMPANY, Period, Total Gross Earnings, Operating Expenses, Net Earnings, Deductions From Income, Net Income, Amount Available for Dividends. Rows include companies like AKRON, O., ALBANY, N. Y., BINGHAMTON, N. Y., BROOKLYN, N. Y., BUFFALO, N. Y., CHICAGO, ILL., CLEVELAND, O., CORTLAND, N. Y., DENVER, COL., DETROIT, MICH., DULUTH, MINN., ELGIN, ILL., HAMILTON, O., LONDON, ONT., MILWAUKEE, WIS., MINNEAPOLIS, MINN., MONTREAL, CAN., NEWBURGH, N. Y., NEW YORK CITY, OLEAN, N. Y., PITTSBURG, PA., PHILADELPHIA, PA., RICHMOND, VA., ROCHESTER, N. Y., ST. LOUIS, MO., SCRANTON, PA., SYRACUSE, N. Y., TOLEDO, O., and W. NEW BRIGHTON, S. I.

## NEWS OF THE WEEK

## CONSTRUCTION NOTES

ENSLEY, ALA.—J. S. Kennedy, one of the promoters of the Steel Cities Railroad Company, is authority for the statement that arrangements are being perfected for beginning construction work on the company's proposed line. The company has already secured the necessary permission to build the road. The plan is to have the road connect Adamsville, Pratt City, Sandusky, Ensley, Graysville, Brookside, Bessemer and Pinckney City.

MONTEREY, CAL.—The Del Monte, Monterey & Pacific Grove Electric Railway Company has been incorporated to purchase, acquire, operate, construct, lease and maintain street railways in and adjacent to the towns of Monterey and Pacific Grove. The capital stock of the company is \$200,000, divided into 20,000 shares. The directors of the company are: J. D. Carr, of Salinas; Charles Carr, J. P. Sargent, H. R. Robins and R. F. Johnson, of Monterey.

COLORADO SPRINGS, COL.—The Osborn Engineering Company, of Cleveland, is completing plans for a large power house for the Colorado Springs Railway Company. The buildings alone will cost in the neighborhood of \$60,000. Contracts for the equipment of the road are being closed.

ALTON, ILL.—President J. F. Porter, of the Alton & East Alton Railway & Power Company, states that the closing of the option on the tract to be purchased by the Federal Lead Company for a smelter site has insured the prompt construction of the projected electric railway between Alton and East Alton, which will connect with an electric railway to be built from East Alton to St. Louis. The work of grading will be started in a short time. The electric railway will be built so as to pass the site of the Federal Lead Company, and will give the employees of the plant quick means of transportation to Alton.

EAST ST. LOUIS, ILL.—The Murphysboro & Carbondale Electric Railway Company has been incorporated, with a capital stock of \$50,000. The purpose of the company is to construct an electric railway from Murphysboro to Carbondale. The incorporators and first board of directors are: William Jens, of St. Louis; Thomas Logan, of Murphysboro; Charles L. Ritter, of Carbondale; E. F. Harper, D. M. Browning and S. Foreman, of East St. Louis.

ELKHART, IND.—James F. Rothwell, of St. Louis, has been granted a franchise to build an electric railway along highways from Goshen, through the southern quarter of the county. The line is to be constructed between Goshen and Fort Wayne and connect at Goshen with the line of the Indiana Railway Company, which joins Goshen, Elkhart, Misawaka and South Bend, and is to be extended next spring to Benton Harbor.

MARKLEVILLE, IND.—An effort is now being made to organize a company to construct an electric railway from Markleville to New Castle. The new line would give a through line to Indianapolis. The promoters are confident that the line would prove profitable.

KOKOMO, IND.—The Union Traction Company, of Anderson, has been granted a franchise for the construction of an electric railway through Kokomo. The franchise will be utilized in the construction of an electric railway from Indianapolis to Kokomo via Noblesville and Tipton.

WABASH, IND.—Thomas W. Latham, D. A. Dangler, D. H. Kimberley and others who are identified with the Century National Bank have completed a deal for the purchase of franchises and right of way of a company organized some time ago to build an electric railway from Wabash to Rochester, 34 miles. The towns to be touched by the proposed road voted bonuses to the amount of \$100,000, and the Cleveland people will receive the subsidies and build the road, which will cost in the neighborhood of \$750,000. The stock transfer has been made, and construction work will start as soon as material can be secured.

FRANKFORT, IND.—The Frankfort & Indianapolis Electric Railway Company, which was recently organized to construct an electric railway from Indianapolis to Frankfort, passing through Clinton, Hamilton and Boone Counties, has just been incorporated. The company is capitalized at \$50,000. The directors of the company are residents of Frankfort, and include David F. Allen, John G. Clark, David A. Coulter, William P. Sidwell, James McClamrock, George T. Dinwiddie, Chalmer Hillis, Fred. A. Sims and J. A. Hedgecock. The officers of the company are: D. F. Allen, president; J. A. Hedgecock, secretary; D. A. Coulter, treasurer.

WICHITA, KAN.—The Wichita Railroad & Light Company has decided to build a new brick car house 25 ft. x 50 ft., with a storage capacity of eighteen cars. The car house will be located on a plot of ground opposite the power house. The company will purchase eight new cars—four summer and four winter.

ORANGE, MASS.—It is said that the Orange & Irving Street Railway is overcoming the legal and other obstacles that have prevented the construction of the proposed road to connect Orange and Irving, and that the construction of the line will be begun in the spring. The capital stock of the company now is \$70,000, but it is planned to increase this to \$150,000. The new line is promoted by local people.

PITTSFIELD, MASS.—The officers of the Pittsfield Electric Street Railway Company were re-elected at the annual meeting of the company, held a few days ago. Bonds to the amount of \$95,000 and \$20,000 in new stock have been authorized to provide for building extensions. A balance of \$2,734 was carried to the surplus account, after paying a dividend of 6 per cent and charges for depreciation.

GRAND RAPIDS, MICH.—The Grand Rapids, Grand Haven & Muskegon Railway Company has secured a franchise and will extend its line to North Muskegon.

AVA, MO.—The plans of the Ava Northern Railway Company, which proposed to construct an electric railway to connect Ava, Douglas County, and Cedar Gap, Wright County, have been changed, and the promoters of the line have decided to operate the road by steam power.

JACKSON, MISS.—The Council has recently passed an ordinance prohibiting the operation of open cars after Nov. 1. The Jackson Electric Railway, Light & Power Company was given but a few days to comply with the provisions of the ordinance, and it is expected that an interesting contest between the city and the company will result.

OMAHA, NEB.—An officer of one of the companies which was to have been included in the street railway, power, gas and electric consolidation is reported as having stated that the plans for the development of the large new power plant have not been abandoned, although the efforts to effect a consolidation of the various interests have been abandoned. It is generally believed that the officer has been misquoted, as it is difficult to conceive how any arrangement for the joint construction of this plant could be perfected by the companies that have failed to agree upon a plan of consolidation.

DOVER, N. H.—Wallace D. Lovell, whose operations in the construction of electric railways in this vicinity are well known, was in Dover Oct. 23. Mr. Lovell said that he proposed to build an electric railway line to connect Dover with Salmon Falls and South Berwick soon, the line having already been surveyed. He also expects to build from Franklin Square, Dover, to the Maine line at the Eliot Bridge. Mr. Lovell drove over the proposed electric route between Dover and Concord via Northwood, for which he was granted a charter last winter. Mr. Lovell was most favorably impressed with the country, and feels sure that the trip to Concord from this city by electric railway can easily be made over the route in 1½ hours. Application has been made for a charter for the Portsmouth, Great Bay & Dover Electric Street Railway, which, if built, will complete electric railway connections between Rochester, N. H., and Massachusetts.

PATERSON, N. J.—The Jersey City, Hoboken & Paterson Street Railway Company is reported to have awarded a contract for the construction of a new car-house and repair shop here, which will cost \$100,000. There will be sleeping rooms for the men employed on the emergency wagons. It is said that an assembly hall and stage will be provided for the use of the employees.

BURLINGTON, N. J.—The power house of the Burlington & Mount Holly Traction Railroad Company, which is operated by the Pennsylvania Railroad Company, was recently destroyed by fire. The loss is estimated at \$40,000. The trolley road is operated over the steam railroad, and it is said that the operation of trolley cars will be discontinued and that the locomotive will be resorted to.

NEW YORK, N. Y.—The Rapid Transit Commissioners have passed favorably upon plans to extend the underground railway along Lenox Avenue, from 143d Street to 149th Street, where a terminal will be built. According to the present plan, the tunnel goes only as far as 143d Street, at which point it makes a detour across the Harlem River.

NORTHPORT, N. Y.—The Railroad Commissioners have granted the application of the Northport Traction Company for permission to construct an electric railway from the station of the Long Island Railroad through Northport. Interests identified with the Long Island Railroad are promoting the new line, and the plan is to have it in operation early next year. The new road will really act as a feeder to the Long Island Railroad.

ELMIRA, N. Y.—The Elmira & Waverly Railway Company has been incorporated, with a capital stock of \$200,000, to construct an electric railway between Elmira and Waverly, Tioga County, a distance of 18 miles. J. M. Diven, C. A. Allen and George W. Miller, of Elmira, are interested.

NEW YORK, N. Y.—The Railroad Commissioners, in a decision rendered Oct. 29, recommend that the Union Railway Company construct a branch on Morris Avenue, Bronx Borough, New York City.

WATERTOWN, N. Y.—The Watertown & Carthage Traction Company has been granted a franchise for the construction of an electric railway on Water Street, Watertown. The company is to pay the city one-fifth of 1 per cent of its earnings each year. The plan of the Watertown & Carthage Traction Company is to construct an electric railway from Watertown to Carthage. Twenty miles of line will be constructed in all. J. W. Carlisle is president of the company.

CANASTOTA, N. Y.—The Railroad Commissioners have granted the application of the Canastota & Morrisville Railway Company for permission to construct an electric railway from Canastota to Morrisville. The new line will be about 15 miles long. The directors of the company are: Leander W. Burroughs, John Reidy, John A. Johnson, John H. Broodland, Brownell Tompkins, of Morrisville; William H. Patten, Milton De Laus and John B. Weaver, of Canastota; W. Emmet Coe, of Peterboro.

SYRACUSE, N. Y.—The directors of the Syracuse & Suburban Railway Company have adopted resolutions providing for the construction of a 50-mile extension of the company's lines. Oneida, Canastota, Chittenango, Cazenovia, Delhi and Jamesville are some of the towns to which it is proposed to build. The rights of way and permits have been secured for a large part of the proposed extensions, and some of the necessary preliminary steps for the construction of the new roads have already been taken. It is said that the construction of the extension will be begun this winter.

ROCHESTER, N. Y.—The promoters of the Rochester & Eastern Rapid Railway Company are planning to begin the construction of the new line at once. The line will extend from Cobb's hill, on the outskirts of Rochester, and proceed through the villages of Pittsford and Victor to the village of Canandaigua, practically paralleling the Auburn branch of the New York Central between Rochester and Canandaigua. From the latter place to Geneva the route will lie somewhat to the south of the New York Central's tracks, and will thus cut off the extended loop which the latter makes. The new road will shorten the distance between Geneva and Canandaigua, the county seat of Ontario County. At Geneva the road will make a close connection with the lines of the Geneva, Waterloo, Seneca Falls & Cayuga Lake Traction Company. Entrance to Rochester will be secured over the Monroe Avenue line of the Rochester Railway Company. The new line will form an important line in a continuous line extending from Albany to Buffalo.

CLEVELAND, OHIO.—The Mansfield, Savanna & Wellington Railway Company, which recently commenced work near Ashland, is evidently very much in earnest, as large forces have since been placed at work at Mansfield and Wellington. The company is now asking for a franchise for a branch line in Shelby. The Pomeroy-Mandelbaum syndicate, which proposes to build the Cleveland, Ashland & Mansfield Railway over practically the same route as the above, claims to have a private right of way practically all secured, and it is said that the syndicate is determined to make no change in its plans. Construction work on the line will not start until next summer, as they have all the work they can attend to with other lines under construction.

AKRON, OHIO.—The Northern Ohio Traction Company has applied for a franchise to build a new line on Main Street, to afford entrance for the Canton line now building.

CEYLON, OHIO.—The last important condemnation suit brought by the Lake Shore Electric Railway in order to complete its line has been settled out of court by the company buying outright an entire farm near Ceylon. A large force of graders has been placed at work on the strip, and every effort is being made to complete the line at an early date.

TIFFIN, OHIO.—The Tiffin & Southern Railway, which has recently been organized to build an electric railway from Tiffin to Kenton by way of Upper Sandusky, has bought up all the right of way and franchises held by the Bullock Company, which commenced work over the same route last year. The new company now has entirely private right of way secured from Tiffin to Upper Sandusky and from Kenton to the Wyandotte County line, so that only a short distance remains unsecured. A right of way is now being secured for an extension from Kenton to Sidney, where connection will be made with the line building to Cincinnati. Construction work on the road is to start in the spring.

CANTON, OHIO.—J. C. Welty, J. E. Monnet, J. J. Whitacre, A. E. Townsend, J. C. Harmony, Augustus Dannemiller and others of Canton, several of whom have been interested in the promotion of traction lines, are securing rights of way and franchises for an electric railway to extend from Canton to Medina, touching Massillon, Canal Fulton, Clinton, Warwick, Wadsworth, Seville and Lodi. The road would touch fourteen towns and three lake resorts, and it is claimed would draw from a population of 100,000.

CINCINNATI, OHIO.—The Fort Wayne, Dayton & Cincinnati Traction Company, which is projecting one of the longest electric railways in the country, extending from Fort Wayne to Cincinnati, has secured control of the Cincinnati & Westwood Railway, a steam railroad that extends almost to the center of Cincinnati, thus affording private right of way to the city. It is claimed that all franchises and rights of way have been secured, and, according to the terms of several of the franchises, work must commence by Feb. 1, 1902. The road will touch the following towns: Bridgetown, Miamitown, West Elkton and Gratis, from which there will be a branch to Dayton, Eaton, Eldorado, Savona, whence one branch runs to Bradford and other to Celina and Wilshire; then crossing to Indiana, Union City, Portland, Bluffton and Fort Wayne, will be touched. The officers of the company are: Dr. S. F. George, of Dayton, president; D. W. LaFetra, of New York, vice-president; C. L. Hyde, of Pierre, S. D., second vice-president; C. W. Gebhart, of Dayton, secretary-treasurer.

ASHLAND, OHIO.—The Norwalk, Ashland & Southern Railway Company, which is promoted by Ashland people, announces that all right of way has been secured and that construction work will start early in the spring. The road will extend from Ashland to Norwalk by way of New London.

CLEVELAND, OHIO.—A despatch from Piqua, Ohio, states that the Western Ohio Railway Company has commenced securing right of way with a view to extending the line from Piqua to Troy, as part of the connecting link between the Western Ohio and the Southern Ohio Traction companies' lines. Secretary Lang, of the Western Ohio Company, states that his company is not securing the right of way in question, and will not build the connecting link. The line between Troy and Piqua will be an extension of the Dayton & Troy Traction Company, which is owned by the Winters-Clegg syndicate, of Dayton. The two syndicates are on friendly terms, and when the line is completed traffic arrangements will probably be made whereby cars can be operated clear through, over the three lines just referred to. When the Western Ohio is extended north to Toledo, which is entering into the plans for the future, this will give a through line from Cincinnati to Toledo.

CINCINNATI, OHIO.—The Cincinnati, Portsmouth & Georgetown Railroad, which is to be turned into a standard-gage electric railway, has contracts for this change of equipment, as follows: The Westinghouse Manufacturing & Electric Company, of New York, was awarded the contract for alternating generators, and the Hooven, Owen & Rentschler Company, of Hamilton, Ohio, the contract for cross-compound condensing engines. The work of changing the equipment is to be finished by June 1.

BARBERTON, OHIO.—Thomas L. Childs, of Akron, is endeavoring to secure consent of property owners in Barberton for a line through the city. It is believed that the project is one which he has been working on for some time—that of a line along the Ohio & Erie Canal from Portsmouth to Cleveland. He has applied to the State Canal Commission for a right of way along the route. Such a line would parallel several existing roads.

CLEVELAND, OHIO.—Frank De Haas Robison has incorporated the Cleveland Traction Company, which is understood to be proposing to build 80 miles of opposition lines in Cleveland.

COLUMBUS, OHIO.—The Columbus Railway Company is expending during the current year about \$60,000 in extensions and improvements of its track and equipment as follows: New suburban line, Columbus to Arlington, 5.6 miles; extension of old lines, 1.9 miles; track relaid, 5.6 miles; double tracking, .5 miles; new large open motor cars, fifteen; new large closed motor cars, twenty; also new boilers, fuel economizers, water purifying plant, feed-water pumps, steam heaters, piping, etc., for main power station.

CONNEAUT, OHIO.—The power house of the Pennsylvania & Ohio Railway at Conneaut has been placed in operation. The road will be in operation between Conneaut and Ashtabula within a few days.

CINCINNATI, OHIO.—C. C. Bragg, the millionaire real estate owner, has laid before the Norwood Council an offer to build and operate a line of street cars in Norwood, and to haul passengers free until he can land them in Cincinnati on equal terms with the Cincinnati Traction Company.

SANDUSKY, OHIO.—The Sandusky, Bellevue, Monroeville & Norwalk Railway Company has secured another extension of its franchise in Sandusky. The road must be completed by March 1, 1902. This is the fourth extension of time which has been granted by the Council. J. L. Daley, of Philadelphia, chief engineer of the road, states that rails will be delivered within ten days, and that the road will be in operation by Jan. 1. Construction work was started on this road nearly two years ago, and it has been delayed on account of financial difficulties. It is stated that new interests have become identified with the company.

CLEVELAND, OHIO.—The Cleveland, Elyria & Western Railway, or, more properly speaking, the Pomeroy-Mandelbaum syndicate, has taken up the project started some time ago for the construction of an electric railway from Oberlin north through South Amherst and North Amherst and Brownhelm to the lake shore, and then west along the lake shore to Vermillion. A right of way and several franchises were secured by the original promoters. The line would make a direct route from Oberlin to Lorain and lake resorts, and it would open up a fine agricultural district. It will be operated as a part of the Cleveland, Elyria & Western system, connecting two divisions of that road.

CLEVELAND, OHIO.—The aggregation of capitalists who claim to be preparing to build a system of 3-cent-fare lines in Cleveland held their first formal meeting here a few days ago. F. L. Kuhn, in whose office the meeting was held, says he is not financially interested in the project and is merely acting as their attorney in securing consents of property owners. The company is still in an embryo stage and exists only as a partnership at present, no organization having been effected. Mr. Kuhn declines to give the names of any of the promoters, but claims they are abundantly able to build the lines. A number of routes were discussed at the meeting, but the only one thus far decided upon is across Doan Street and Woodland Hills Avenue. Consents of property owners have already been secured over much of this route, and it is stated that a franchise will probably be asked for within the next two months. It is probable that there will be a line touching all the parks and boulevard systems, another extending out Lake Street, and still another extending through the flats, which are not at present provided with any service. Mr. Kuhn says the whole matter will be made public within a short time. It is generally believed that the entire agitation is for political effect, to assist Mayor Johnson in his cheap-fare, single-tax campaign.

YOUNGSTOWN, OHIO.—The Youngstown & Sharon Railway is now in operation its entire length. The road is 18 miles in length, built entirely on private right of way, and a schedule of 45 minutes will be maintained between the towns. Passengers will be carried into Youngstown over the Youngstown Street Railway. The road is owned by the Penhale-Devit syndicate, of New York, but Youngstown people are heavily interested. The syndicate is also building the Sharon & New Castle Railway, and owns the Sharon & Wheatland and Sharon & Sharpesville roads, also important lighting properties.

TOLEDO, OHIO.—A. K. Detwiler, George Detwiler, George Metzger, Irving Squire and other well-known promoters who are back of several electric railway projects in Northwestern Ohio, have taken up the project for the construction of an electric railway from Toledo to Ypsilanti, Mich., by way of Petersburg, Milan and Dendee. Right of way for the road was secured some time ago by Michigan people who are now said to have turned it over to the Toledoans.

CLEVELAND, OHIO.—The Lake Shore Electric Railway has purchased a private right of way several miles in length near Woodville, which will be graded and track laid as soon as possible. This eliminates one of the worst curves on the Toledo, Fremont & Norwalk division, besides giving private right of way and saving time. The policy of reducing curves and improving grades is being carried out all along the line with a view to making fast time.

LAWTON, OKLA. TER.—A territorial charter has been granted to the Lawton & Mt. Scott Transportation Company, capitalized at \$500,000. The purpose of the company is to construct an electric or horse railway from Lawton to Mt. Scott and the government forest reserve, with branch lines to Ft. Still and to Sulphur Springs. E. F. Mitchell, of El Reno; James C. Robb, of Kingfisher, and J. R. Eckles, of Lawton, are interested in the company.