

Electric Railway Journal

Consolidation of *Street Railway Journal* and *Electric Railway Review*

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Eliminate Waste in the Electric Railway Business

IT MIGHT have been expected that the first work of the Federated American Engineering Societies, after Mr. Hoover was elected its president last fall, would be a study of the reduction possible in waste. When Mr. Hoover was called upon during the war to act as food director, not only of the United States but of a considerable part of the world, the question of waste was one which particularly attracted his attention. With his training as an engineer he recognized that waste represents not only energy which is lost but energy which would be productive if properly applied. In consequence, as food director he declared war against waste in food by issuing his famous "clean platter" and other regulations, which were gladly followed by the people during the period of food scarcity. A study of industrial waste offers a much broader opportunity for saving than even waste in food. The electric railway industry was not one of those especially studied by the committee, but many of the conclusions reached in the report just completed apply with almost equal force to electric railways.

Fortunately electric railways are largely free from very great seasonal variations in their business. With the exception of roads serving summer resorts, the business throughout the year has a fair regularity, but it is possible that something might be done more than at present toward a definite plan of supply of men to help out the forces of the summer roads and toward adjusting the work of the track forces on an eight months' if not a twelve months' basis. A more fruitful opportunity for waste reduction probably lies in the lessening of the turnover percentage. The report estimates the annual avoidable labor turnover in the metal trades at 100 per cent and the cost of each "separation" as from \$50 to \$250 each. If the first figure in the electric railway industry is taken as only 50 per cent and the cost of training is taken as only \$50, the cost of annual turnover in the electric railway industry would amount to \$6,000,000 a year. Probably 50 per cent is too large an estimate now, though it probably would not have been five years ago. However, much can be accomplished along these lines. Standardization is another point to which the report calls particular attention, and it even mentions the electric railways as possibly being able to do more than they are now doing in car standardization.

There are undoubtedly other ways in which waste and duplication, which is the same as waste, can be reduced on electric railway properties. Each manager might well consider what he can do on his own property, as he not only serves his own company but increases the community wealth in any saving which he may be able to effect.

One practice, insignificant perhaps in the amount of money involved as compared with some of those mentioned in the report but nevertheless involving the same

principle, is common in the industry and might be mentioned here. This is the plan followed by some companies of circularizing the industry for information which is already available, either in the reports of commissions, the data on file in the office of the association or through existing publications. Railway companies realize that when information of this kind is solicited by this paper the material is published, so that it is available for everybody and the company should be relieved from other requests for similar data. Hence, requests for duplication of this information really come under the ban of Mr. Hoover's principle against waste. In fact, a good principle to follow is that work which is being well done by one existing agency need not be duplicated by another.

A Study in Wage Readjustment

REDUCTIONS in wages commensurate with the reduced cost of living are to go into effect in New York as a result of negotiations between management and men. In the case of the Interborough Rapid Transit Company the saving is estimated at \$2,600,000 for the year. This is a sum whose beneficial effect is likely to be overestimated. In consequence the management of the company has found it necessary to issue a warning as to the probable effect of this saving. The solution of the transit problems in New York lies in making the investment of the company and the city self-supporting, so that, as President Hedley of the Interborough says, the capital required by the city's growing transit needs may be commanded. The wage reduction now brought about cannot possibly have such effect. The same comment also holds true of the savings effected through the cut in wages on the Brooklyn Rapid Transit System. In the case of that property, however, no statements appear to have been bandied about by self-seeking politicians in regard to the probable effect of the saving there.

These are the purely monetary aspects of the matter. There is another side to this question, however, that is more significant in its way than the help these savings in dollars and cents will be to the companies still battling against the odds imposed by the 5-cent fare. That side is the way in which the readjustment downward was brought about. The negotiations were conducted by the companies direct with committees of their own men. No rancor as to means or methods attended the conferences in either case. The companies put the decrease before the employees in the spirit of give and take, the same that prompted the companies to disregard wage agreements in the period of advancing prices when the helping hand was extended to the men. The employees, on their part, met the companies in the same spirit. As Vice-President Porter of the Brooklyn City Railroad said, the spirit in which the negotiations were conducted was most gratifying and showed a keen

appreciation of actual conditions. Moreover, they are significant of what men and management can accomplish under the plan of employee representation in which both sides are free to proceed without being embarrassed by interference from outside sources.

Clear Analysis of the Duties of a Common Carrier

A CLEAR analysis of the duties of a common carrier is contained in the decision rendered on July 21 by Judge John E. Keeler of the Connecticut Superior Court in the case of some of the jitney bus drivers who could not understand why they should be stopped from operating. The case came up through the plea for an injunction restraining the Public Service Commission from carrying out certain laws enacted at the last session of the Legislature. In deciding this question adversely Judge Keeler answered two kinds of arguments commonly heard in cases of this kind. One of these is from those citizens who find it difficult to understand why an added transportation facility should be abolished.

"If it was not a good thing," they argue, "people would not patronize it. Competition ought to be desirable. It will keep each transportation agency up to the mark." The other line of argument often put forward in cases of this kind is based on the question of personal liberty and runs somewhat as follows: "Why should not the public carrier business be open to all? And why can a man be ruled off the highway because he runs the bus, but be free to use it if he runs a truck or private car? Why should a commission give a license to operate on the streets to a trolley company and refuse the same permission to a bus company? This is arbitrary power exercised in violation of constitutional rights."

Now all these questions can be answered very easily and simply if the nature of the common carrier business is understood. It is not like an ordinary mercantile business where the proprietor can open or close his shop whenever he likes, keep what goods he wants and sell for any price he chooses. A common carrier cannot do any of these things. He must agree to provide a service at times both when it is not profitable to do so as well as when a profit can be earned, and he is limited as to the charges which he can make for that service. His is not a private business. It is a quasi-public undertaking though conducted as a private corporation for profit, and as the nature of the business is such that it can be given much more cheaply if carried on by one concern than by a number, the authorities are acting in the interests of the public when they confine the service to one company and require it to do the thing right. Hence, action by a commission in favoring one concern and forbidding another is not an arbitrary exercise of power, except to the extent that any decision between individuals as to appointment to do certain work is arbitrary. The state requires the commission to make a decision of this kind. Finally, action by a commission in a case of this kind is in the interests of the public as a whole, so that it is a legitimate exercise by the state of its admitted police power.

Elements in Connecticut with a stake in the jitneys are naturally lambasting the Public Service Commission over the law which Judge Keeler was asked to construe. In this assault they are aided by all the avowed enemies of the Connecticut Company. As a

matter of fact, the law is harder on the Connecticut Company than it is on the jitneys. The commission has ruled that where railway service is adequate or can be made adequate to the needs for transportation, there is no room for the jitney. It has also declared, at least in effect, that where the trolley furnishes the transportation, it must make good or go down in defeat. The railway knows then that it is fighting for its life as never before, as witnessed by the heroic efforts which it is making to increase its trolley service and to supply bus facilities where the commission has indicated that this is what is expected of it.

The situation is, in fact, fraught with greater danger to the Connecticut Company, with its vast investment in immovable assets, than it is to the bus owners, whose property can quickly be converted to other uses. In an excess of zeal to guard what seem to them to be their own best interests, the jitney operators appear to have lost sight entirely of this fact.

Due Process of Law Impossible in Public Rate Decision

"THERE is no way in the world for a public utility to be heard before the mass of the public who are going to vote to fix rates, and that is a part of due process."

A United States District judge is quoted as using these words in summing up, in a recent case, the inequity of settling by popular vote the matter of public utility rates. Whether it formed part of the formal decision or not, the statement quoted is undoubtedly true. The futility of submitting a question of this kind to popular vote has been almost universal. There have been only two or three instances in which approval has been granted. Hence, appeal to the courts based directly on guarantees of the Constitution has been quite frequent.

While the courts have very clearly stated the law regarding the confiscation of property, none of the decisions that have come to our attention has referred to the difficulty of obtaining a public-wide hearing. Those railway companies that have attempted to gain public approval of an increase at the polls have in many cases utilized every known means of getting an understanding of their case to every one. Yet the result was the usual disappointment. This can only be explained by the fact which is outlined clearly in the expression quoted above.

Publicity of a constructive and pleasing nature undoubtedly can be made to accomplish much in improving the general attitude toward a traction company, but history has demonstrated that the public will not readily vote to pay increased utility rates in response to the somewhat intangible plea that the utility will thereby be able to improve its service. This points to the desirability, in drawing up future franchises, of avoiding any condition on fare changes requiring popular approval at the polls, and of declining to acquiesce in the proposal of any city council, where it has full authority in itself to raise fares, to sidestep responsibility by passing the question on to a vote of the people.

Even in those sections of the country committed to the principle of the referendum, this argument would still apply. A rate of fare is a business proposition, and not of the nature of laws for the referring of which to the general public there may be many reasons not applicable to utility rate questions.

Constructing the Overhead in Detroit

Equipment Employed Is Largely of Standard Design—Earth-Boring Machine Speeds Up Work of Digging Holes and Setting Poles—Backbone Construction Used on All Curves—Special Strain Anchors on Trolley and Corner Construction on Feeder Cables Are Features



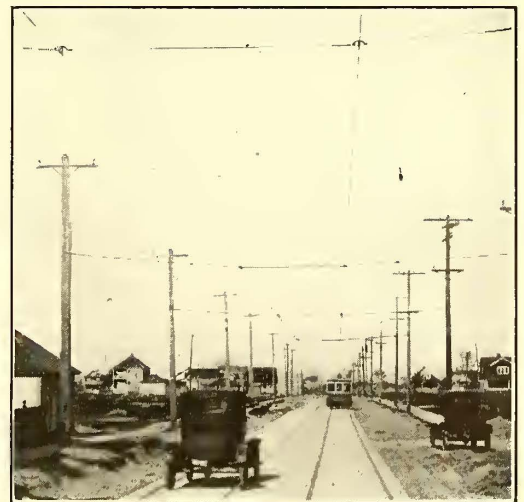
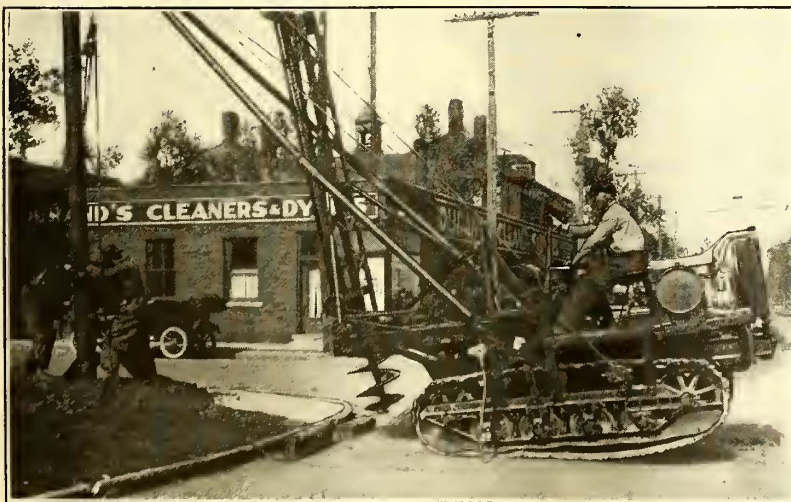
TYPICAL APPEARANCE OF THE OVERHEAD AT SPECIAL WORK LOCATION, SHOWING BACKBONE CONSTRUCTION

ADHERENCE to the use of standard fittings and materials, substantial and permanent nature of the construction and the use of labor-saving devices and methods characterize the overhead work of the Detroit Municipal Railway, just as they were pointed out in an article in the issue of July 23, to be the special attributes of the track construction. Following the requirements of a city ordinance, tubular steel poles are used within a circle approximately 2 miles in radius, with the center at the City Hall, except where wood poles are already existing. Wherever possible, the overhead of the street railway department was supported on poles of the Detroit Edison Company or the Department of Public Works, so as to avoid the erection of a duplicate pole line. The steel poles are 30 ft. high and made up in three sections, 7 in., 6 in. and 5 in. in diameter, for tangent track and fitted with a plain cast-iron cap and a 2-ft. dog guard placed to extend 1 ft. above and 1 ft. below the ground line. The bottom

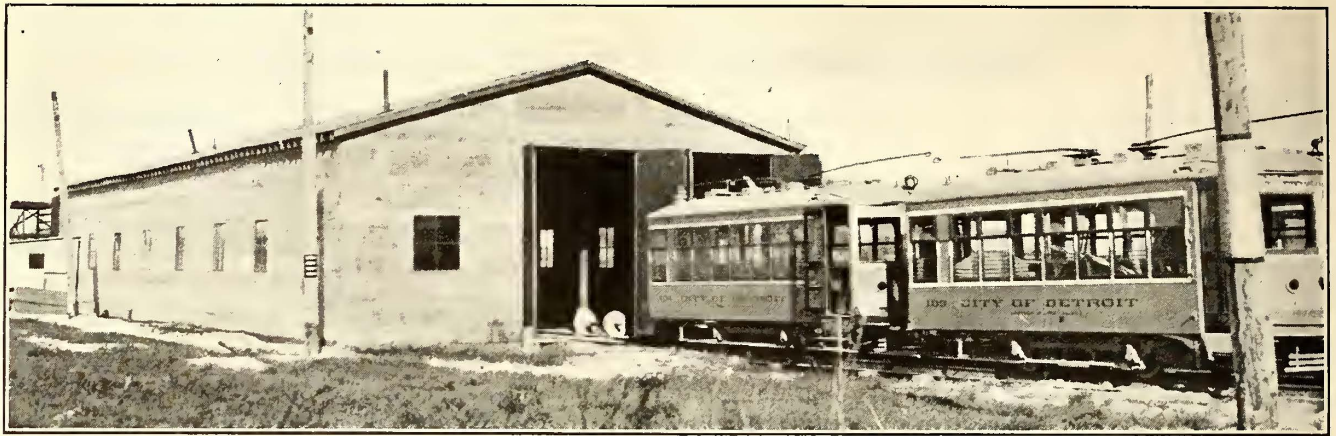
section of these poles is extra heavy, the other sections being of standard thickness. For use at strain points the steel poles are made up of 8-in., 7-in. and 6-in. diameter sections. Outside of the 2-mile radius, Western red cedar class B poles of A. E. R. E. A. specifications, mostly 30 ft. high, with some 35-ft. and 40-ft. poles, are used. These poles were treated by a process including a four-hour immersion in hot creosote followed by a four-hour immersion in cold creosote.

The steel poles, which also practically conform to the A. E. R. E. A. specifications, are set in concrete 6 ft. in the ground. The wood poles are set the same distance in the ground and provided with a ring of concrete 1 ft. high at the bottom of the pole and a concrete collar at the ground line. To improve the appearance of the overhead construction where the Charlevoix Avenue line crosses East Grand Boulevard, a Massey hollow concrete pole was set on either side of the boulevard.

The No. 00 hard-drawn round trolley wire was made



AT LEFT, THE HOLE DIGGER IS ALSO EQUIPPED WITH WINCHES AND DERRICK AND IS USED TO SET THE POLES. AT RIGHT, APPEARANCE OF COMPLETED OVERHEAD ON TANGENT TRACK. POLE LINE AT THE LEFT WAS SET BY THE RAILWAY COMPANY



TEMPORARY CAR SHOP OF THE MUNICIPAL SYSTEM

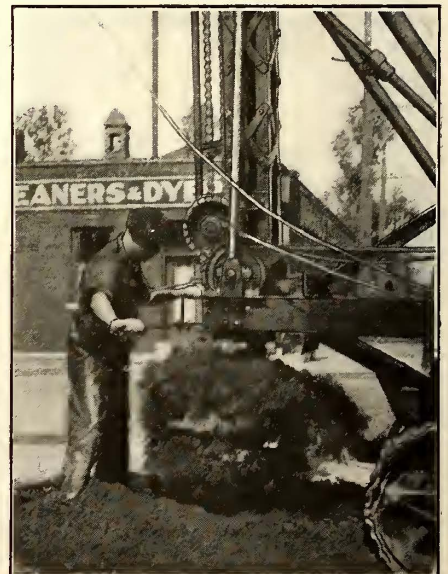
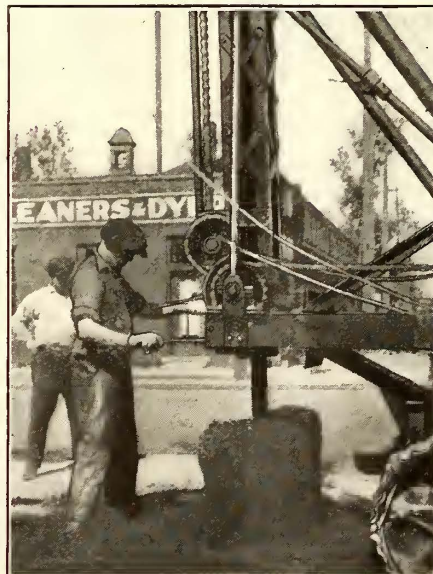
after A. E. R. E. A. specifications by the Detroit Copper & Brass Company. This was used over tangent track and phono-electric wire over the curves. The hangers used were of the standard round top design and supplied by various manufacturers. Standard single and double curve pull-overs were employed. Porcelain strain insulators were used exclusively, for the reason that in case of breakage the loops of the span wire lock together and, while the insulation is lost, the overhead does not fall. Where the span wires are attached to wood poles double insulation is provided between the trolley and the pole by the hanger and a single strain insulator. With the steel poles, however, an extra porcelain insulator is inserted so that triple insulation is secured.

The span wire is $\frac{3}{8}$ -in. seven-strand galvanized steel and the pull-off wires are $\frac{1}{2}$ -in. seven-strand steel galvanized wire. All curves are erected with a backbone construction using either $\frac{3}{4}$ -in. or $\frac{1}{2}$ -in. seven-strand galvanized steel wire, depending on the strain at the particular location. By using this backbone construction all pull-offs are placed radially and "pockets" in the overhead work avoided. Up to the time of this writing the overhead construction had been done with the use of an ordinary stationary platform tower mounted on a motor truck. This was taken down at night in order to drive through the streets with safety.

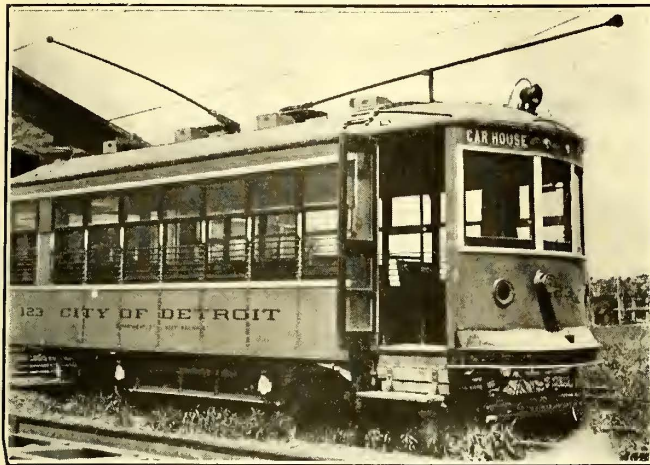
Orders have been placed, however, for one 2½-ton truck equipped with a Trenton tower and one 4-ton platform truck on which a winch will be mounted, for use in the further construction work. All of the trolley and span wire was strung under a definite tension measured by dynamometer, and all poles were set with a plumb bob and given a rake of 1 ft., measured at the top.

A feature of this Detroit overhead construction was the use of a new anchor strain plate designed by the General Electric Company and its location at mid-span. It is shown in an accompanying picture. One of these plates is installed on each trolley wire and the two are connected with two lateral wires having strain insulators at the middle point and terminating in a ring outside the trolley wire. These rings are then guyed by diagonal wires running to the four poles of that span. At the present time these strain anchors are installed only at the approaches to curves, but it is planned to install them on tangent track every 1,000 ft. later on. As the strain plates are installed at the middle of a span, the anchor may be installed at any time without disturbing the construction already in place.

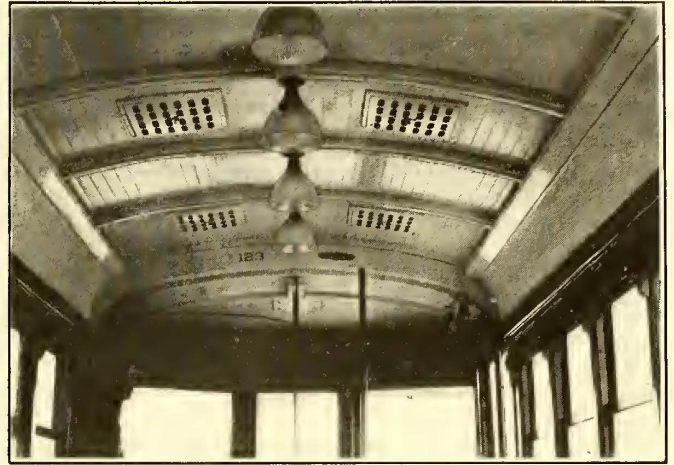
The 500,000-circ.mil feeder cable, where it is installed, is carried on an insulator mounted on a Way insulator pin which loops over the cross-arm so that the only hole made in the cross-arm is that for the through-



AT LEFT, DIGGING A POLE HOLE. THE AUGER IS ROTATED AND FORCED DOWNWARD. IN CENTER, ROTATION STOPPED AND AUGER BEING RAISED TO LIFT SOIL OUT OF THE HOLE. AT RIGHT, SPINNING AUGER TO REMOVE SOIL WHICH IS THROWN AROUND THE OUTSIDE OF THE HOLE



TYPE OF CAR BEING USED ON THE DETROIT MUNICIPAL LINES



THIS SHOWS THE ROOF CONSTRUCTION AND LIGHTING ARRANGEMENT

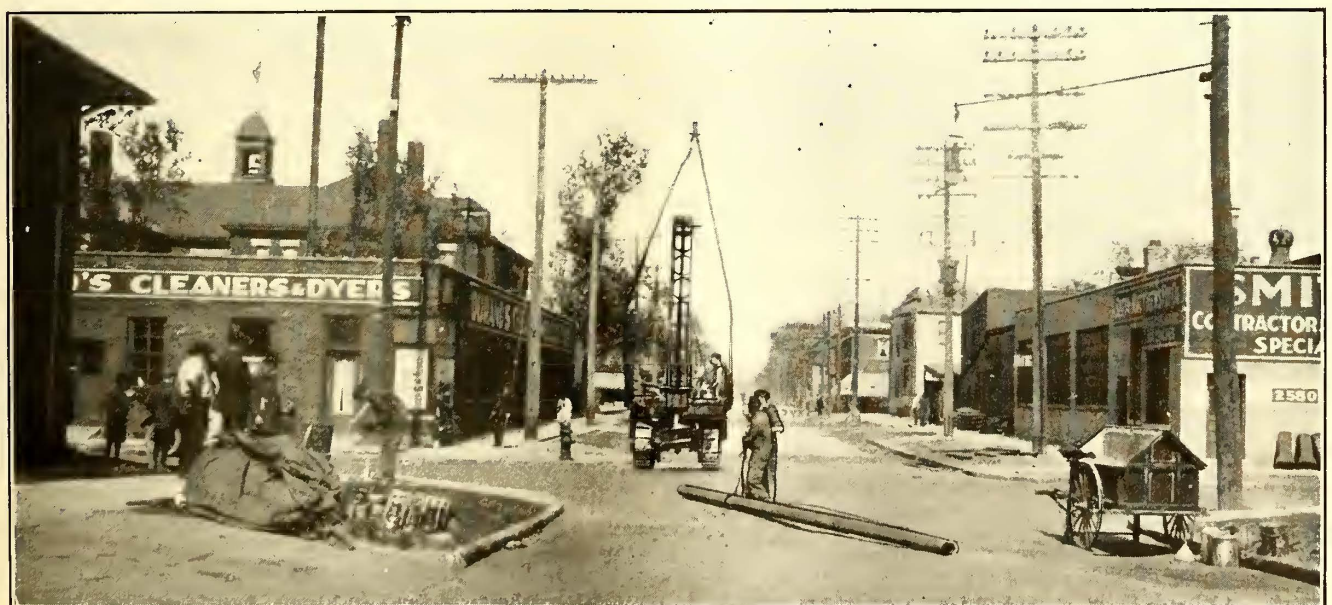
bolt fastening at the pole. A unique system of making short turns around corners with the feeder cable has been adopted. Instead of the cable being carried around the turn continuously, it is cut and stub-ended in the two directions, one piece being installed higher than the other at the corner. A piece of the cable is then installed vertically between the two and connected to them by Dossert connectors pulled up tight with a wrench and taped. Accompanying views picture this construction.

The cross-arms are Washington fir and the braces and other pole-line hardware are of standard A. E. R. E. A. design. The feeder cable is of standard triple braid weatherproof stranded copper with No. 0000 feed-in taps. No negative feeder has been installed as yet except that making connection from the nearest point of a car line with the Detroit Edison substation, from which direct-current power is purchased. As already noted, however, the trackwork is being very thoroughly bonded, with a view to the ultimate use of a completely insulated negative return system, following recommendations of the Bureau of Standards.

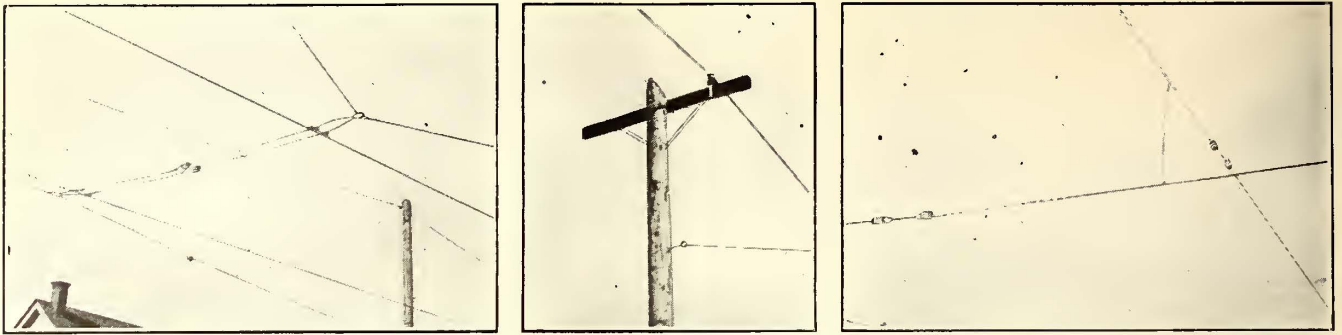
Perhaps the most interesting phase of the construction work in connection with the overhead is the labor-saving machine used in digging holes and setting poles. Two earth-boring machines equipped with winches and

derrick, manufactured by the Winthrop Truck Company, and distributed by the Western Electric Company, are used for this purpose. The following is the procedure in using this machine, and the various steps are clearly pictured in accompanying illustrations.

The machine is mounted on caterpillar tractors and of course is self-propelling. A pole to be set is first snaked by the tractor to a position close to the hole. The operator then runs the machine into a position such that the 24-in. auger is directly over the point at which a hole is desired. It should be said in passing that this tractor will go anywhere, over curbing, over open trackwork and, like the army tanks, seemingly knows no obstructions. With the machine properly set, the auger is lowered, revolved and forced into the ground approximately 2 ft. until the auger is filled with earth. The rotation is then stopped and the auger raised above the hole and spun. This throws the dirt out centrifugally around the edge of the hole. The auger is again lowered and the hole drilled about 2 ft. farther into the ground and the operation repeated. A hole may thus be dug 8 ft. deep if desired, the depth to which the Detroit pole holes are bored being 6 ft. When the hole is dug the machine backs away slightly, picks up the pole and, with two men to guide it, lowers it into the hole.



EARTH BORING MACHINE AND TRACTOR DRAGGING POLE INTO POSITION ADJACENT TO HOLE



AT LEFT, NEW TYPE OF STRAIN PLATE MOUNTED AT MID-SPAN WITH GUYS TO THE FOUR POLES OF THE SPAN. IN CENTER, TYPE OF POLE, CROSSARMS AND HARDWARE EMPLOYED. FEEDER CABLE LOOP INSULATOR PIN WHICH AVOIDS A HOLE IN THE CROSSARM. AT RIGHT, DEAD-END METHOD EMPLOYED IN MAKING SHORT TURN OF THE FEEDER CABLE

The propulsion of the tractor and handling of the derrick are controlled from the operator's position on the machine. The rotation and raising and lowering of the auger is controlled from levers extending in front of the machine by a man who stands on the ground. On speed tests, the hole has been dug and pole set in two minutes. This ordinarily requires about four minutes. Including the time required in moving from one position to the next, a pole may be set about every ten or fifteen minutes. This, of course, does not allow for breakdowns, which always occur with any piece of machinery subjected to very heavy duty and rough handling. The machine is served by four men on the average.

At present all power used by the municipal railway is furnished by the Detroit Edison Company. What the future power supply will be depends on the working out of the study being made by the Public Lighting Commission to determine the advisability of building a large new modern steam plant of sufficient capacity to handle the street lighting and lighting of public buildings and the railroad load, to displace the present small

and positive and negative feeder cables connecting the lines, the power company having furnished everything else needed.

Outside of the streets already occupied by the Detroit United Railway, Detroit is miserably laid out for a street car system. The streets are very narrow, the blocks short and few streets run through, thus making necessary many sharp curves, including frequent reverse curves at points where there is a jog in the street. Sufficient clearance for the passing of safety cars on the curves has been secured, but if the large Peter Witt type cars are later used, the vestibule platforms will have to be narrowed in about 7 in. to give proper clearance. Some of the short, sharp reverse curves make this matter of clearance a difficult problem. Some of the routes are necessarily rather circuitous and some encounter many grade crossings with steam roads, main line and switching yards.

These various things will tend to make operation difficult and slow and somewhat hazardous. The city is making an effort to remedy these conditions as far as is practical by engaging in a great street widening campaign, coincidentally with the railway construction. Most of the streets on which car lines are being built are either only 26 ft. or 34 ft. wide. These streets are being widened to 36 ft. and 40 ft., this work usually following along after completion of the track. The widening and paving of some of the streets in which new car lines are being built will open up badly needed through, short cuts between sections of the city not now having any direct communication. These lines will thus be subjected to the conditions imposed by more or less heavy vehicular traffic, perhaps further impeding rapid street car operation, though helping materially to develop the city. So the municipal railway officials will have operating problems to keep them interested after the construction work is done.

The cars in use and purchased thus far (300 in all) are divided 250 of the standard one-man safety type and fifty of the Peter Witt type. The present cars are equipped with Woods locked fare boxes and air-operated International registers, center lighting, Nichols-Lintern indicating signals, headlights mounted on the roof and an electrical interlock making the car inoperative if both trolley poles are on the wire. Some complaint has been made that the cars were noisy, and this has been attributed by some to the rigid type of track construction. An investigation with some experiments showed that the noise could be materially lessened if some sound-deadening material was put in the roof of the car, there being no head-lining. It is expected that this trouble will be largely overcome in the cars now on order.



ANOTHER VIEW OF THE FINISHED TRACK AND OVERHEAD SHOWING SAFETY STOP SIGNS EMPLOYED AND CONCRETE POLES ERECTED ADJACENT TO BOULEVARDS

steam plant used for street lighting and the lighting of public buildings alone. So the railway department is confronted with the problem of arranging for a temporary supply of energy for the next two years, and thereafter, for the permanent supply either with the Detroit Edison Company or the Municipal lighting plant. At present, the only power equipment owned by the city is the feeder plants in the Detroit Edison substations

Commission Popular in Keystone State

Pennsylvania, with Its Less Rigid Commission Laws and Decisions, but with the Largest Number of Public Utilities of Any State, Is Regulating Very Effectively—Safety Work an Important Duty—Classification of Pennsylvania Utilities

STATE regulation of railroads, the usual initial step toward public utility regulation, is comparatively new in Pennsylvania, the first law controlling them having been enacted in 1907. This law created a commission of very limited powers, lacking in the main the final orders mandatory for railroads and giving but little jurisdiction in many important phases of railway regulation until strengthened by later amendments.

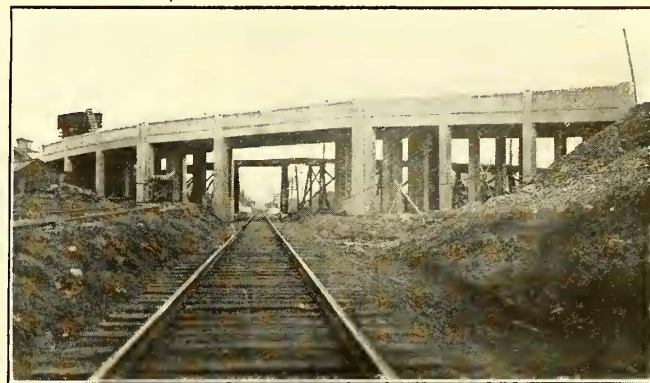
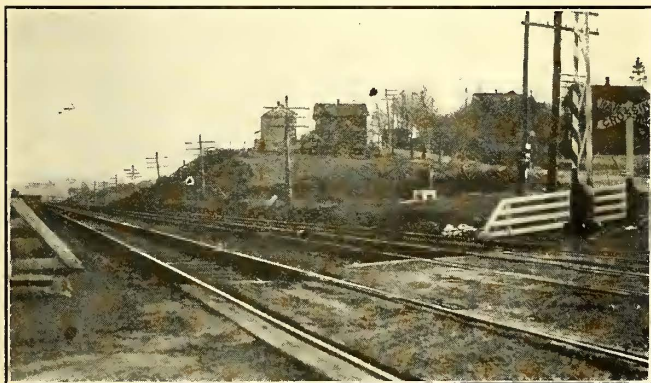
The law controlling railroads was in many respects copied from other railroad commission laws and resembled closely the law of Wisconsin, which had been in active use for several years. Later, necessity arising, the Legislature of Pennsylvania completed another law, regulating at this time not only railroads but all public service companies. This law in effect is as follows:

An Act defining public service companies; and providing for their regulation by prescribing and defining their duties and liabilities; prescribing, defining and limiting their powers and regulating their incorporations and to a limited

The personnel of the commission consists of seven commissioners as follows: William D. B. Ainey, chairman; James S. Benn, Samuel L. Clement, Jr., S. Ray Shelby, John W. Reed, John S. Rilling, Milton J. Brecht.

The secretary of the commission, John G. Hopwood, under its direction, is the executive officer, besides having jurisdiction over the remainder of the staff, preparing and issuing its determinations, rulings and orders.

The Attorney-General of the Commonwealth is ex-officio general counsel of the commission, appointing two attorneys as counsel and assistant counsel. These are Frank M. Hunter and John Fox Weiss respectively. The duties of the counsel are to attend hearings before the commission, conduct examination of witnesses and represent the commission in the courts as well as to perform all other professional duties required of them by the commission.



AT LEFT, VERY OBJECTIONABLE GRADE CROSSING IN STATE HIGHWAY WAS ABOLISHED BY A VIADUCT CONSTRUCTED 400 FT. EASTWARD. AT RIGHT, NEW CONCRETE VIADUCT WITH TEMPORARY WOODEN TRESTLE IN BACKGROUND

extent regulating municipal corporations engaged or about to engage in the business of public service companies; creating and establishing a Public Service Commission for the regulation of aforesaid; prescribing and defining the powers and duties of such commission and its officers. . . .

For the purpose of regulating these public service companies and of carrying out the provisions of this act, the Public Service Commission was created which consists of seven members, who are appointed by the Governor and approved by the Senate, the term of office being ten years. This long term of office is an unusual feature which provides a means of securing great continuity of administration. By the usual arrangement in the first appointments of a four-year term for the first commissioner, five for the second, six for the third and so on, until the last commissioner has a ten-year period, the term of only one commissioner expires every year. Each commissioner appointed must have the qualifications set by the law, which are: He must be a resident of the commonwealth, must be an elector therein for a year before his appointment and not less than thirty years of age. Neither shall he be connected directly or indirectly with any business, employment or vocation the duties of which are incompatible with the duties of his office, nor shall he participate in any hearing or proceeding in which he has any pecuniary interest.

The staff of the commission is subdivided into six bureaus, namely:

Engineering under Chief Engineer F. H. Snow; accounts and statistics under R. F. Busher; accidents and safety under John P. Doheney; rates and tariffs under P. F. Fickenscher; public convenience under Major E. M. Vale; and a law department under Counsellor Frank M. Hunter.

POWERS AND DUTIES OF BUREAUS

Engineering—The chief duties of the engineering bureau are to make strict investigations and act in an advisory capacity, reporting directly to the commission on all assigned subjects. By law several valuations are required, such as original cost, reproduction value less depreciation and such other valuations as are deemed necessary by the bureau.

In connection with this work this bureau has developed a system of engineering conferences for the purpose of saving the time of the commission and expediting the work. At these engineering conferences, made up of engineers representing the interested parties before the commission and presided over by an engineer representing the commission, questions of the inventory and appraisal are discussed item by item and

if possible agreed upon. If agreement is not possible, the differences are noted and called to the attention of the commission or are left open for the presentation of testimony at the hearings. The results of these conferences are presented to the commission in the form of a signed report, enumerating in detail the items concerning which agreement was reached. This procedure has been found to reduce very materially the amount of testimony offered at the formal hearings with a consequent reduction in the volume of evidence to be considered by the commission, as well as a reduction in time required for the hearings.

The question of service is incorporated under the bureau of engineering and the standards to be conformed to are set, not by law, but by precedent cases. Service complaints are thoroughly investigated and remedied according to the discretion of the bureau.

Accounts and Statistics—Strict classification of all public service companies with a particular system of accounts to be adopted and used by each class, according to the volume of business transacted by the company, is the chief activity of this bureau. The issuance of reports, forms, cost data and the filing of all data compiled by the commission in its official business constitutes the remainder of this bureau's work. The amount of business transacted by this department is exceptionally heavy since in the State of Pennsylvania there are more public utilities than in any other state, the total being 3,750.

Accidents and Safety—Under this bureau is included all regulation and inspection of safety devices for every kind of public service company as well as all reports pertaining to accidents and their causes. Grade crossing improvements must be approved by the commission as required by law, and since the road-building program of the state increases yearly the amount of grade crossing work is very large.

Under this department comes also the following: Inspection and approval of interlocking systems, signaling devices, methods of construction and inspection of power lines, especially overhead crossings.

Valuable statistics are compiled by this department concerning accidents but these are withheld from public inspection except by permission of the commission.

The bureau of accidents receives approximately 15,000 reports yearly relating to accidents of a public service character, all of which are tabulated and examined with a view toward suggesting a possible remedy for a recurrence of collisions, etc., under similar conditions. Particular attention is paid to accidents occurring at grade crossings of steam railroads. Records show that there are 11,720 public crossings in Pennsylvania, and while the commission is moving as rapidly as time and money will permit in bringing about eliminations, it will be many years before the dangerous grade crossings will have been eliminated.

The advent of the automobile introduced a factor in grade crossing accidents of considerable consequence, as may be observed from the fact that 429 automobiles were struck at these places during the year 1920, and that in one month of the present year automobiles were involved in thirty-four of the thirty-seven collisions with trains. There is no doubt of the existence of crossings surrounded with dangerous conditions, and there is no doubt that in many cases the recklessness of the traveler over the crossing is responsible for the disaster.

Under the direction of this bureau the advance warn-

ing signs adopted by the American Railway Association are being placed 300 ft. from each crossing. The railroads are providing the signs free of charge with the understanding that the municipalities erect and maintain them. The expectation is that before the end of the year these warnings may be seen on all the highways in the state.

SOME PECULIAR ACCIDENTS OCCUR

In the course of its work the commission occasionally deals with accidents of an unusual and peculiar kind. In one instance two street railway passengers in different cars traveling in opposite directions were leaning out the windows; their heads bumped and one of the men was instantly killed. A few years ago a fishing rod carried by a minister of the Gospel came in contact with an electric wire with fatal result, and was it not the irony of fate to find a dead tramp in a railroad wreck with nothing in his pockets but four-leaf clovers?

Public Convenience—This department constitutes a very important factor in the commission's work, for through it pass the applications for incorporations or right to do business.

To the bureau of public convenience there have been assigned by the commission, under the public service company law, all proceedings relating to the issuance of certificates of public convenience and certificates of valuation, evidencing the commission's requisite approval under the various provisions of the act.

These proceedings consist of contracts between municipal corporations and public service companies; incorporation of utility companies; reorganization and amendment of charters of such companies; sale, assignment, transfer, or lease of the property of the public service corporations; consolidation and merger of public utility companies; acquisition or construction by a municipality of a public service plant; acquisition of the right, title, or interest in the stock and bonds of other public service corporations; construction, alteration, and relocation of any crossing at grade, above grade, or below grade at a point where the tracks of a railroad or street railway cross any public highway; valuation of the property and assets of public utility corporations; right of foreign public service companies to do business in the State of Pennsylvania.

PASSES ON CONTRACTS AND FRANCHISES

The character and scope of such proceedings directly under the supervision of the bureau may be better illustrated by the following statement of the cases submitted during the year 1920:

- 134 Service contracts. (Entered into between utility companies and municipalities.)
- 95 Franchise contracts.
- 132 Incorporations.
- 10 Mergers and consolidations.
- 137 Leases and sales.
- 116 Railroad and railway crossings.
- 681 Motor transportation, or taxi transportation, lines.

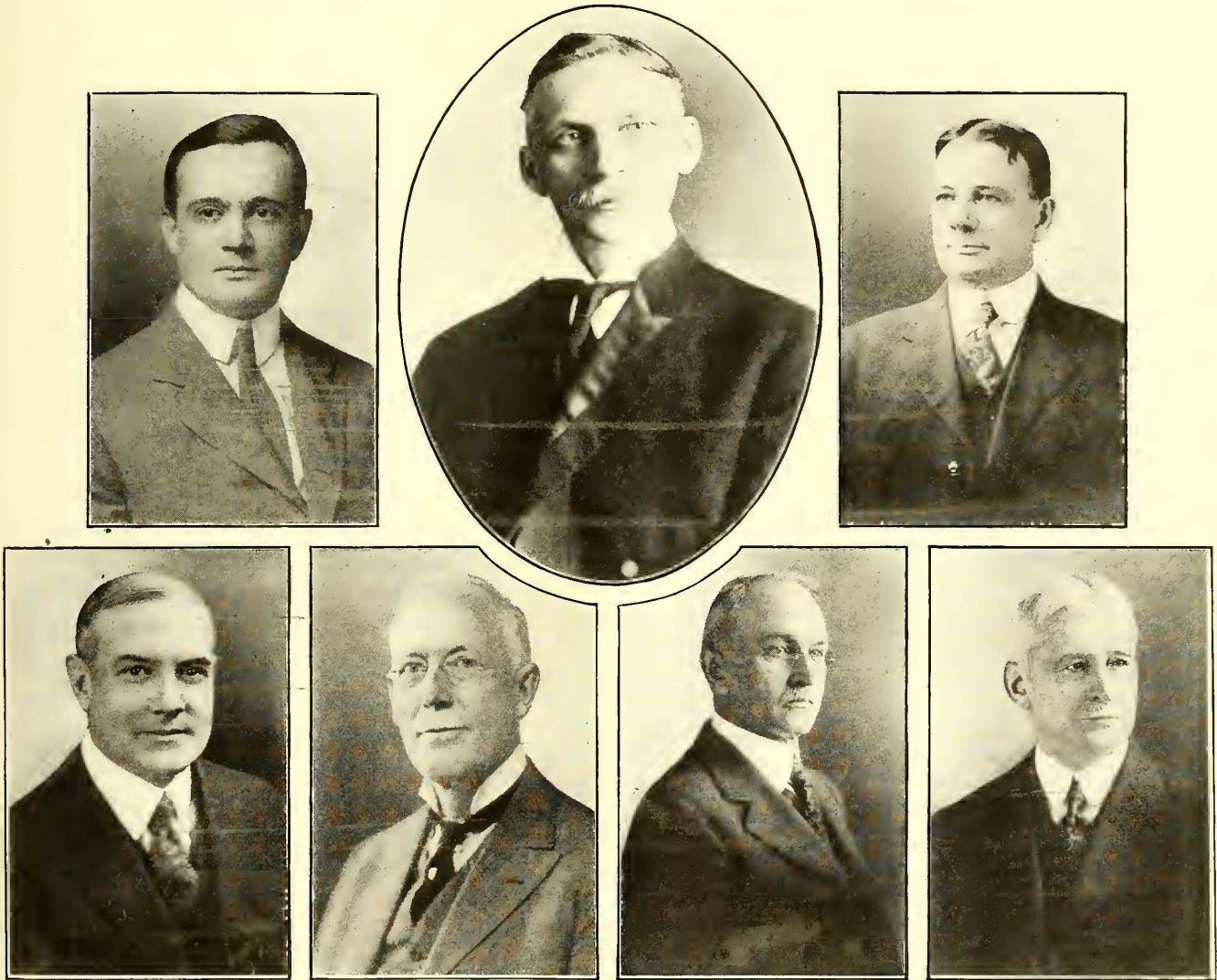
The policy of the commission, as sustained by the Appellate Courts of the State, has been not to approve a franchise contract which fixes the rate to be charged by a utility company, it being held that, under the public service company law, the commission has exclusive jurisdiction to fix rates which a utility shall charge; and that, under the police power, the state has the right to delegate to the commission such power.

On auto transportation lines, the commission has adopted the policy of not approving applications of that nature where existing and operating common carriers

are furnishing service which adequately and conveniently accommodates the public.

In crossing proceedings, the commission follows the well-established principle, as laid down by the courts of the state, namely, that no grade crossing over a public highway by the tracks of a railroad or street railway will be approved, unless the testimony clearly establishes an imperious necessity and the fact that no construction than that at grade is possible. A large number of the crossing proceedings filed during the past year were for the abolition of dangerous grade crossings, or the construction of industrial sidings across

Meter testing and calibration for both utilities and their consumers are problems which have been undertaken to widely varying extent by the different state commissions. In many instances these tests are required of the utilities themselves. In Pennsylvania a very complete laboratory has been equipped for this purpose under the direction of H. B. Pratt. A building near the Capitol in Harrisburg has been adapted for this purpose, in which two floors are devoted to a very complete installation of electrical generating and testing equipment. Several independent forms of electrical energy are provided from remote-controlled motor gen-



MEMBERS OF THE PENNSYLVANIA PUBLIC SERVICE COMMISSION

Top row, left to right, Samuel M. Clement, Jr.; William D. B. Ainey, chairman; S. Ray Shelby. Bottom row, left to right, James S. Benn, John W. Reed, John S. Rilling, Milton J. Brecht.

public highways to serve manufacturing plants. In every case where the commission approves a grade crossing, such approval is made subject to conditions which, in the opinion of the commission, protect and safeguard the public.

Classification of the utilities show there are twenty-seven different classes, including transportation utilities such as airplane companies, which makes an admirable provision for the future. The present commission allows this department no jurisdiction over municipal utilities but only gives it power over those privately owned, a feature differing radically from most state commissions. Jitney regulation was established in this state among the first.

erators located in the basement of the laboratory. Elaborately appointed testing benches provide facilities for rapid connection and calibration of all types of measuring instruments and meter transformers. All calibrations are referred back to the standard cell and potentiometer, while current transformers are tested by the Brooks method, using two wattmeters. Portable Edison storage batteries of large capacity are used for direct-current calibration. Another battery of larger capacity forms part of the equipment and floats upon the direct-current supply busbars.

The law in Pennsylvania provides for tests of utilities standards only. This plan is, of course, open to some objection, since the consumer has no unbiased

source of testing. However, the standards of the utilities are kept in accurate calibration by periodic tests and adjustments in the laboratory of the commission, and such companies are encouraged to install laboratories and follow up consistently the testing of consumers' meters. In Philadelphia and Pittsburgh, where the laboratories are more complete, the standards are calibrated under the supervision of a representative of the commission without making use of the Harrisburg equipment.

Elaborate card catalog records of all meters tested are maintained in the laboratories of the commission at Harrisburg.

RATES AND TARIFFS

The scope of this department is very large, embracing the entire fields of rates, complaints against rates, and reparations or excess fare awards. The number of tariffs handled in this department totals 2,000 per month. This totals over 170,000 since 1914, divided as follows: Railroad tariffs, 140,000; street railroad tariffs, 2,391; other utilities, 30,000. In spite of the preponderance of railroad tariffs the amount of work on non-railroad tariffs is the largest due to details of

change rates, providing the previous rate was not ordered by the commission, and an ample notice of thirty days' time is given so as to allow for complaints in case of a new rate.

CONCLUSION

Conference with Hon. W. D. B. Ainey, chairman of the commission, and one of the leading railway commissioners of the country, emphasized the significance of the Wilksburg Electric Railway case as a precedent for future decisions involving local municipal franchises. No railway may, of course, enter the streets of a city without consent of the municipal authorities. Consent may be granted or withheld for no good reason and the rate of fare is often seriously involved in such a grant. The case in question, supported as it was by Superior and Supreme Court decisions, offers an adequate remedy for such a condition.

Furthermore, the statute to the effect that corporations may not issue stocks or bonds except for cash is carefully enforced by the commission.

Commission regulation in Pennsylvania, though not as completely developed as in other states as far as rigid control is concerned, certainly has been a great success as evidenced by the enthusiasm of the companies affected. It appears to have not so many bitter enemies as are found in some other states, which can be probably attributed to the just and fair administration of the state's laws.

Merchandising Transportation

A Talk on the Principles of Advertising for the Promotion of Traffic—The Principles Sought in Drafting Advertisements Are Given and Typical Advertisements Are Reproduced

By W. H. BOYCE

General Manager Beaver Valley Traction Company, New Brighton, Pa.

THE real object of advertising is to sell. It may be to sell an article, an idea or a service. If an advertisement designed to sell street car rides does not sell street car rides, no matter what other virtue it may have, it is a failure as a transportation sales force.

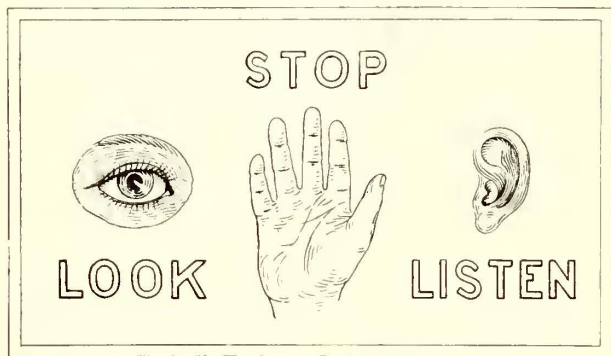
Advertising is the thing that should make our trade increase. Printed matter is not the only kind of advertising. Every act of each employee is an advertisement. Reputation, honesty, politeness, methods, neatness, promptness, and thoroughness are advertisements. The quality, price, frequency, your aggressiveness, everything is an advertisement—either good or bad.

The most convincing—not the loudest—advertisement wins.

One of the best advertisements for street railways is to be found in the good impression carried away by the car riders and reported to their friends and their neighbors.

Advertising directly to increase the sale of transportation has been conducted as far back as 1917 by the company with which the writer is connected. At that time the Beaver Valley Traction Company ran advertisements of the nature of those shown on the opposite page.

Since that time, advertisements along the same line, samples of which are also presented on the opposite page, have been effectively used from time to time by the company.



SUFFICIENTLY UNIQUE TO ATTRACT ATTENTION. WILL IT PREVENT ACCIDENTS?

appraisals and accounting in railway, power and light utilities.

In the field of street railway operation all cities in Pennsylvania charge more than 5 cents for fares, the only exception being in small towns where the people would walk otherwise.

The commission cannot suspend rates but in place of that action excess fare tickets or reparation awards are substituted. This department also has direct control over sales and mergers of utilities but, illustrating a unique feature of the commission, it has no power to control stock and bond issues.

The approval of the commission is not necessary to

CLASSIFICATION OF UTILITIES IN PENNSYLVANIA

Repair shops	16
Auto transit companies.....	38
Canal and navigation companies.....	3
Electric light, heat and power companies.....	227
Ferry companies	25
Artificial gas companies	76
Natural gas companies.....	115
Gas and electric companies.....	12
Inclined plane companies.....	5
Pipe-line companies	12
Municipal sewage treating works.....	14
Steam heating companies.....	18
Steam railroads	130
Electric railway companies.....	114
Telephone companies	196
Toll bridge companies.....	196
Turnpike companies	72
Water companies	711
Miscellaneous	5
Total	1,820

We Are Selling Street Car Rides

When we advertise our business we do so to simplify the selling of our product—street car rides. This is obvious, but the way in which we advertise and how this advertising benefits our customers is decidedly important, as it is an integral part of our "rapid transit merchandising" policy, carefully planned and effectually carried out. With us it is not a case of too many brands of the same article or too many "slow sellers." No, indeed! On the other hand, we concentrate on the highest grade of rapid transit service, including the "last word" brand of street cars and a most generous ride for which we charge you only a

5-Cent Piece

Service

Do You Know:

That service is the only thing we have to sell?

That while increased cost of labor, fuel and material has added greatly to operating expenses the last year,

You May Ride as Far for 5 Cents Today as You Did Before We Were Obligated to Meet This Additional Expense?

We Will Carry You Farther for a Nickel Than Any Other Method

Ever think of it before? No other method of transportation will carry you as far for so little money as street railway lines. Think of the distance from Morado to Junction Park, for instance, 6 miles for 5 cents.

It's cheaper than railroads, automobiles, horse and buggy or even shoe leather.

Yet we carry daily hundreds this distance, who never stop to consider this fact.

Think It Over

What Is Street Car Service?

Street car service is not altogether a matter of rules and regulations—not only a matter of cars operating through your streets.

Street car service is a human understanding of your needs, and the ability to meet those needs to your complete satisfaction.

We want to know more of your needs and attend to them for you.

Won't you write and tell us what you want or need?

TYPICAL DISPLAY ADVERTISING ANNOUNCEMENT BY BEAVER VALLEY TRACTION COMPANY

Personally, we never have been and are not now inclined to the belief that billboard advertising for the merchandising of transportation would be as productive as newspaper advertising, car cards, company publications, and circular letters.

Railway advertising must be of the positive and not of the negative kind. If we are honest with our employees and the public, we do not have to waste a lot of time trying to recall a lot of our former statements;

True economy uses opportunity. It does no one any good to save a little money if by so doing he sacrifices a more valuable opportunity. Each of our street cars in operation offers you an opportunity to economize time and money. We suggest that you improve the opportunity.

"Shop" for the dealer as well as the article. If you could get a 5 per cent reduction in the price of an article by going a block farther down the street, you would be inclined to go to that much trouble. Do you know that the actual intrinsic value of the service that the Beaver Valley merchant is able to render, by reason of his proximity, is often worth more than the 5 per cent? Try our local merchants. They will make good on price, quality and service.

What is "street car service"? Street car service is not altogether a matter of rules and regulations—not only a matter of cars operating through your streets. Street car service is a human understanding of your needs, and the ability to meet those needs to your complete satisfaction. We want to know more of your needs and attend to them for you. Won't you write us a letter and tell us what you want or need?

Value received. When you pay your street car fare the ride you secure is the only physical expression of the service you receive from us. The real value lies in our ability to furnish the kind of transportation you expect. There is no price on this. You get it or you do not. We want to give you a perfect or supremely excellent service. That's our ideal. If for any reason

you do not get the kind of service you want and expect, won't you be kind enough to drop us a note giving the facts in the case? To be successful we must furnish the kind of service that you want.

Don't walk! Ride! The tired worker will enjoy his evening meal more if he rides home on the street car. Rest of body, mind, and complete relaxation comes when you ride. Walking, mind and body must be continually alert to the dangers of the street lest death or injury claim you as a victim. The saving of 5 cents won't pay many surgeons' fees or much of a doctor bill. Ride! Don't walk! Be safe!

Could the public learn by some comparison? Double the number of patrons going into any two of the largest but best-known stores in Beaver Valley in a week's time; count all the patrons of all the theaters in the country on any big Saturday; take and double the crowd at the biggest of the county fair days, and the street car conductors still have a greater number of customers daily.

In view of that do you still think that just anyone can be a conductor—a salesman of rides on these lines? The clerk who makes fifty sales a day may be good—a street car salesman sells ten to twenty times that number daily. Is there any comparison? Some stores have people to "wait on you." Good stores generally have salesmen to sell and serve you.

Our conductors are salesmen in the true meaning of the word if they meet our expectation. And, although we deal in a necessity, yet we go to greater extremes in training, checking up, iron-

hence, we can devote all our thoughts and energy, when dealing with the public, to the selling of our goods.

Statements to our employees and to the public should be easily understood. We must make good on every promise, stated or implied. Only in this way can we gain the confidence of the people with whom we are dealing, and without confidence we cannot be successful.

Don't forget that the human element is the one great thing sought for, or aimed at, in selling campaigns.

ing out, and putting on the proper finishing touch than any concern dealing exclusively in luxuries.

Just "anybody" cannot be a conductor on these lines. Our rigid tests of intelligence, education, experience, and thorough investigation cannot be withstood by any but number one Class A men. After all that, we require a medical examination of each man that insures to you and his fellow employees his freedom from any skin, constitutional, chronic or malignant disease communicable to others.

It is not fair to the service we wish to give that you should commit any untoward act that would tend to break the spirit or lessen the desire of the new employee to become a proficient conductor on these lines. Our older men are experience trained in dealing with you and it is right that you should expect and receive a complete service from them.

Ride—and get there first.

Good logic for the salesman out to see a customer.

Good logic for a housewife out with the market basket.

Good logic for the shopper on the way to the business district.

Good logic for the tired worker on the way home.

Good logic for the suburban dweller.

A ride on the street car assures safety in travel.

A ride on the street car assures a missing of the congested traffic of pedestrians.

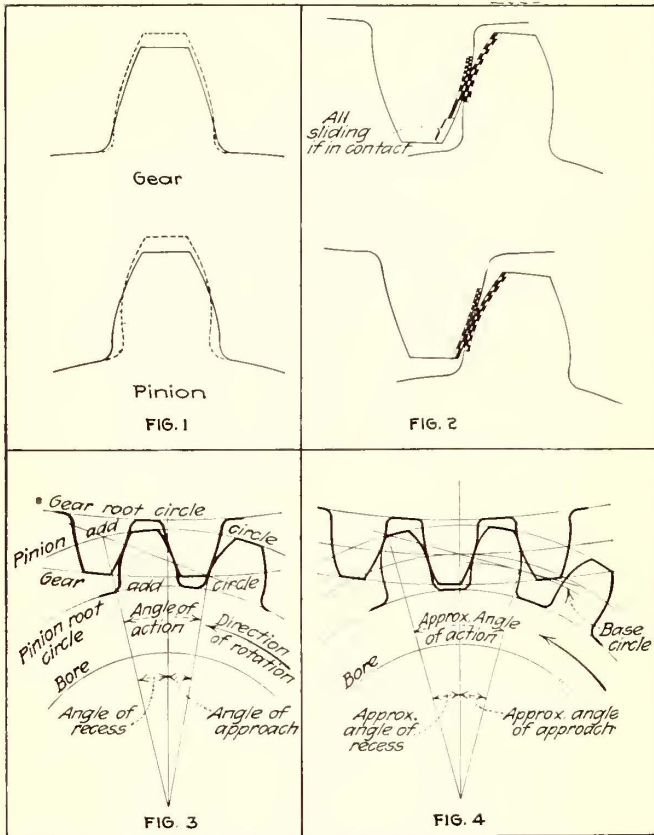
A ride on the street car is a bracer and a rest-up as well.

Don't walk when a ride on the street cars will save you time and energy and keep you safe.

Tooth Contour of the Helical Gear

The Various Design Features of This Type of Gear Are Explained and the Reasons for Its Superiority Over the Spur Gear Are Shown

AT FIRST it is probably not evident just why the helical gear has characteristics superior to those of the spur type. As Messrs. Phillips and Holy pointed out in their paper printed in the July 2 issue of the ELECTRIC RAILWAY JOURNAL there are several undesirable features inherent in the spur gear, although many opportunities for improvement which existed could not be utilized because the multiplicity of standards thereby introduced would nullify the benefits to be derived



MESHING ACTION OF INVOLUTE AND HELICAL GEARING
 Fig. 1—Sections of gear and pinion teeth of both helical and spur gears. (Full line is the helical.)
 Fig. 2—Illustrating the relative amounts of rolling and sliding action. (Above, spur; below, helical.)
 Fig. 3—The angle of recess is greater than the angle of approach with the helical gear.
 Fig. 4—With the spur gear the two angles are approximately equal.

from these mechanical perfections. Therefore, the introduction of the helical gear for railway use automatically clears the way for manufacturers to market a gear embodying the latest development in two forms, since any interchanging of the two types is impossible. At the same time the helical gear corrects the "stepping over" action of the older type and the result is a quieter running gear that can transmit a heavier torque for a given width of face.

The accompanying drawings show how the tooth contour and the meshing action of the two types vary. It can be seen from the full outline in Fig. 1 that the tooth of the helical gear is substantially stronger at the base than the old 14½-deg. tooth. The strength of this new tooth is approximately 200 to 250 per cent of that of the spur-gear tooth. This is true not only because there is more metal at the base, but also be-

cause the tooth is shorter and consequently the moment of the forces acting on it is less.

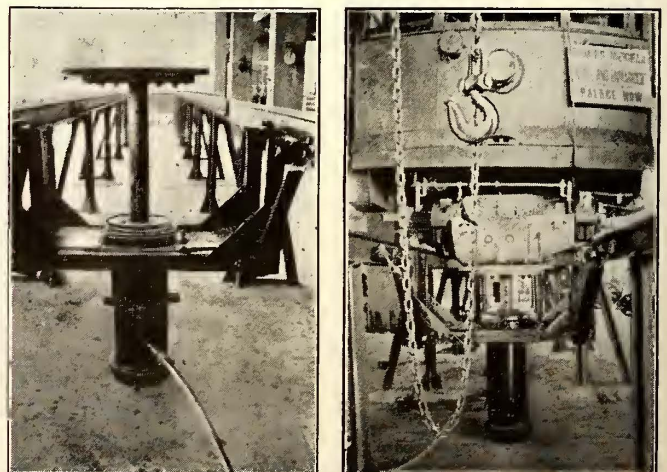
From Fig. 2, the amount of rolling that is obtainable on the new tooth form is illustrated. Small black and white squares indicate the length of tooth contour that mate together. For instance, a length of contour on the gear face equal to the first square starting at gear tip rolls and slides with a length equal to that of the last square on the pinion flank, etc. This shows relative lengths of involute contour for mating gears.

Over the entire face the rolling action of the new tooth form varies from 55 per cent to 70 per cent pure rolling as against approximately 40 per cent for the 14½-deg. spur tooth. This is an increase of about 50 per cent in rolling contact. The cause of this is partly due to the 14½-deg. tooth contour being necessarily corrected for interference, undercutting and methods of manufacturing, whereas the new tooth contour is involute throughout, partly due to increase in pressure angle. From this feature alone there is a decided improvement in uniformity of velocity ratio and smoothness of operation when first installed. As the bearing wears, these advantages over the 14½-deg. contour become even more pronounced.

In Fig. 4 showing the angle of action of the ordinary spur gear it will be noticed that the angles of recess and approach are approximately equal. In helical gearing a better design has been obtained by the use of a long and short addendum, i.e., a long addendum on the pinion and a short addendum on the gear. The benefit derived from this is well understood to the trade and is due to the increase in angle of recess and decrease in angle of approach. The effect of this is to reduce friction and aid in smoothness of operation as the friction of the arc of approach is greater than that of recess. The design as shown in Fig. 3 is such as to secure an angle of approach approximately 70 per cent of that of recess. It will be noted that stubbing the tooth somewhat slightly reduces the total angle of action for the new tooth form, but this is more than counteracted by the added angle of action due to the helix angle.

Convenient Type of Pit Jack

ACCOMPANYING illustrations show a homemade pit jack which was constructed in the shops of the Northern Texas Traction Company and which is giving very satisfactory service. The pits in this shop



PIT JACK WHICH ROLLS ON THE RAIL FLANGES. THE BOTTOM HALF OF A MOTOR IS LOWERED WITH THE ARMATURE IN IT TO FACILITATE REPAIRS

are of the open type and the pit jack is arranged so that it rolls along on the inside of the rail. The frame is constructed of 3-in. channels with $\frac{3}{8}$ -in. corner gusset plates. The rolling elements are made of No. 408 ball bearings that have pitted balls, which make them unfit for other service. The cylinder has a side adjustment of 12 in. and the plunger or push rod has holes drilled 1 in. apart. This allows a $\frac{1}{2}$ -in. pin to be inserted at any desired height as a safety feature. The top has a minimum height of 3 ft. 2 in. and a maximum lift of 5 ft. 7 in.

Portable Substation with Collapsible Construction

A Standard Flat Car Provided with a Superstructure Which Can Be Readily Removed Enables Heavy Parts to Be Handled by Cranes

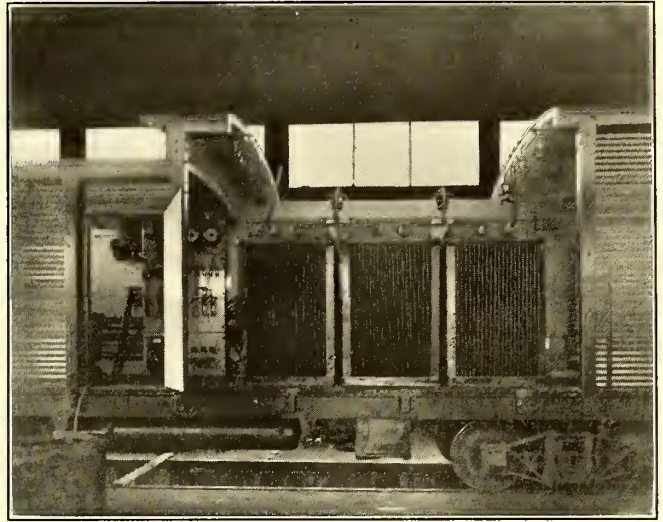
BY F. J. FOOTE

Superintendent of Power Ohio Electric Railway

THE accompanying illustrations show a 500-kw. portable substation which has recently been constructed by the engineering department of the Ohio Electric Railway and which has now been placed in service near Springfield, Ohio. The chief feature of the construction lies in the fact that portions of the roof and sides of the car can be readily removed, thus enabling the heavy parts of the equipment to be reached by crane or derrick. This makes rapid repairs possible and also reduces the cost of such repairs when compared with what would be necessary for a portable substation of the usual type.

One of the company's regular steel underframe flat cars was used and the superstructure built on this, the side posts being placed in the stake pockets along the sides of the car. The type of construction used and the location of the apparatus can be readily seen in the accompanying illustrations.

The construction of the high-tension and direct-current choke coils has some rather unusual features. The high-tension choke coils are made of No. 2 solid bare copper wire and consist of twenty-five turns 15 in. in diameter on a $\frac{3}{4}$ -in. spacing. Each coil is held in shape by three wood clamps running the full length of the coil. The direct-current choke coil is an extra large one, 30 in. in diameter, and consists of ten turns of 400,000



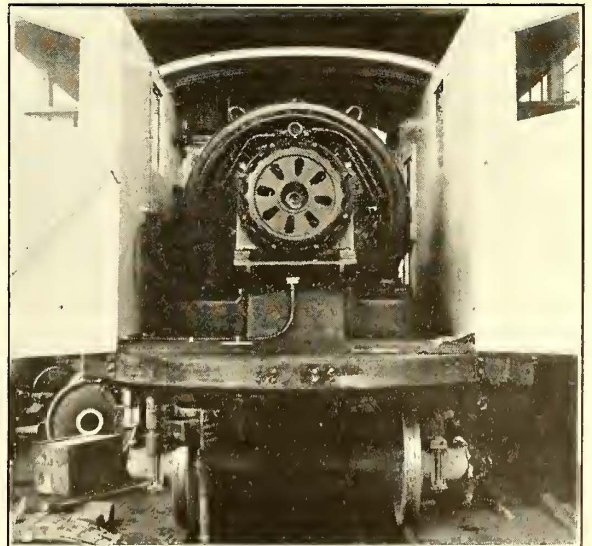
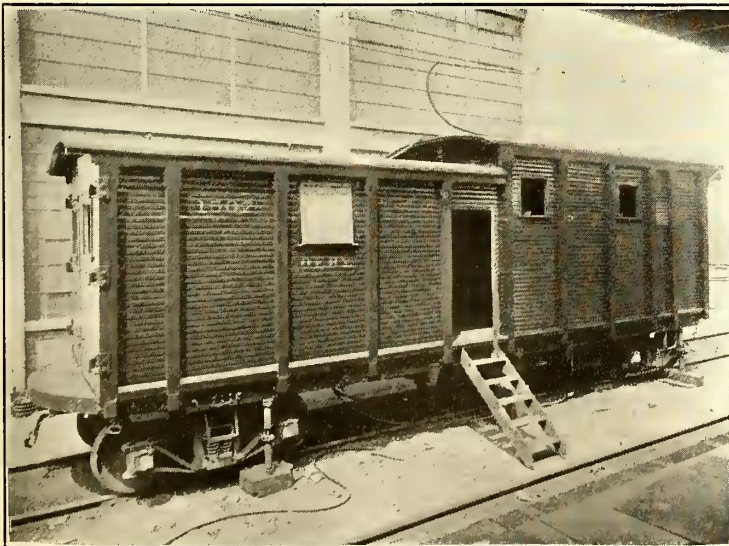
TRANSFORMER SECTION WITH PORTIONS OF SIDE AND ROOF REMOVED

circ.mil covered cable. This is also held in shape by wooden clamps. This direct-current choke coil is placed on the roof of the car and all parts were made in the company's shops.

The equipment of this portable substation consists of a 500-kw., six-phase rotary, three 200-kva., 26,000-volt to 390-volt, oil-insulated, self-cooled transformers, a two-panel switchboard, gap-type lightning arresters and choke coils.

Type of Interurban Car for Germany

IN DESCRIBING some design and structural features of a type of interurban car recently purchased by a railway in Germany, *Engineering Progress* says that despite materially greater strength, it has been found that iron bodies which are designed as a beam of large cross-section are lighter than wooden ones. The fault of the cars built of wood was that none but the longitudinal beams were used to support the body. The cars with bodies having a wooden framework weighed from 19,000 to 20,900 lb., while the steel bodies weighed no more than 17,300 lb. This meant a saving in weight of from 1,700 to 3,600 lb. The steel car has given excellent satisfaction.



AT LEFT, PORTABLE SUBSTATION IN SERVICE ON SIDING; AT RIGHT, GENERATOR END OF THE SUBSTATION

Successful Use of Welded Joints in Baltimore

Notable Immunity from Broken Joints Has Been Experienced in Baltimore,
Where the Welding Is Not Carried Across the
Entire Width of the Joint Plate

By W. W. WYSOR

Chief Engineer United Railways & Electric Company of Baltimore

OF PARAMOUNT importance and interest since the beginning of railroads has been the question of joints. The joint not only determines the life of the rail but, in street railways, is responsible for a very large proportion of the maintenance charges on track and paving, as well as being a factor in accidents and the up-keep of rolling stock.

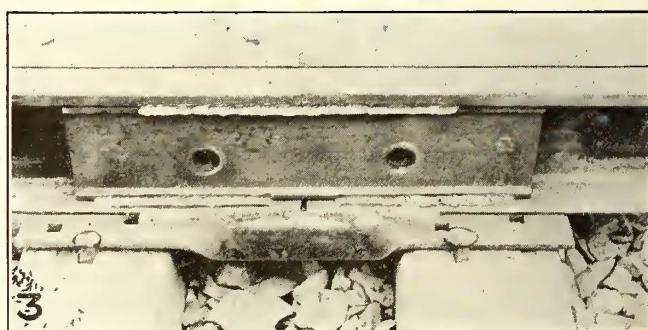
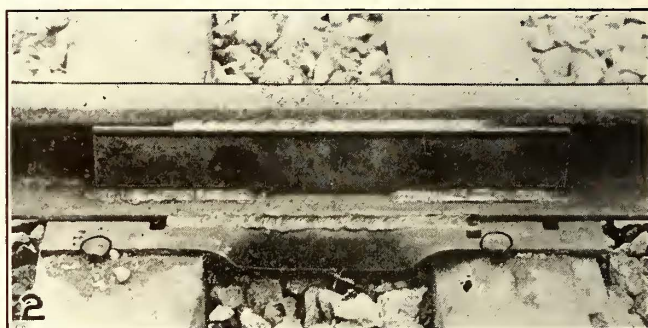
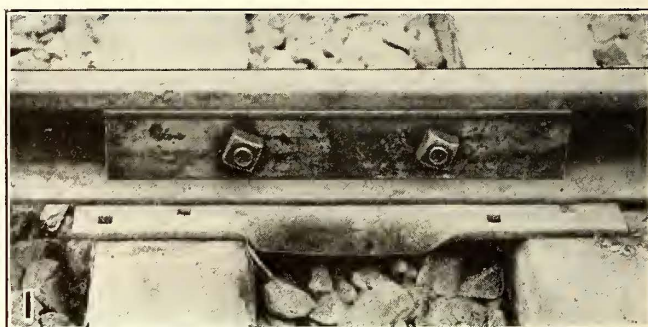
A great deal of time and study has been devoted by engineers to some method of "eliminating" the joints, especially in paved streets, and to this end many forms of splice bars have been developed and placed upon the market. While the modern form of splice bar is a decided improvement over the old fish plates, it has been found that no form of bolted or even riveted joint would have a life equal to the unbroken rail, and in their efforts to reach this goal engineers have turned their attention to welding.

The welding of joints, in some form or other, has been practiced for many years with more or less success, depending largely upon the thoroughness with which the details of the particular process have been worked out and the skill of the men doing the work. Among the better known types of welded joints are the cast, Lorain and thermit weld. All of these have been used with much success and are being extensively employed today. Much interest has been manifested in recent years in seam-welded joints, and it is this particular type of joint with which this article deals.

A seam-welded joint is one in which the rails are joined by standard or special splice bars and the edges welded to the head and base of the rail. The welding may be done by means of an electric arc or by gas flame, but the electric arc is most generally used.

While alternating current has been used to some extent in arc welding, so far as I am aware, direct current has been used exclusively on rail-joint welding of this kind. It may be drawn from the trolley wire direct by inserting in the circuit suitable resistance, or a motor-generator set may be used. In either case the joint, consisting of splice bars and rail, becomes one of the electrodes, the other electrode being the terminal of the lead from the trolley wire or from the motor-generator set. In case current is used direct from the trolley wire, with merely resistance in the circuit, the joint is of course negative, but where a motor generator set is used it is the usual practice to reverse the polarity and make the joint positive. The negative or portable electrode may be either a carbon pencil or a metallic rod. Where a metallic arc is used, the extra metal for welding the seam is contained in the electrode itself, but where a carbon arc is used the extra metal necessary is supplied in the form of a rod or wire cut to the length of the weld to be made and is laid along the seam to be welded and fused with the joint plate and rail.

In Baltimore we use a motor-generator set and the carbon arc process. On girder rail work we use



SEAM-WELDING RAIL JOINTS

No. 1—Standard A.R.A. 100-lb. T-rail with joint plates in place ready for welding.

No. 2—Standard A.R.A. 100-lb. T-rail with joint welded and bolts removed.

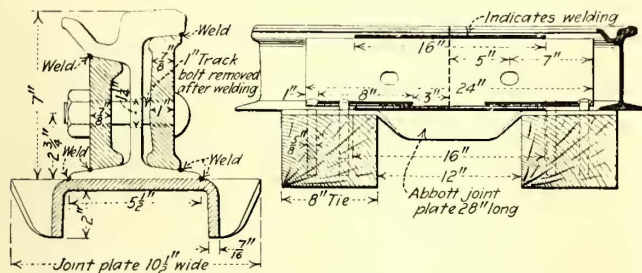
No. 3—7-in. grooved girder rail with completed seam-welded joint.

standard splice bars 24 in. long and a special base plate, this base plate being 28 in. long by 10½ in. wide spanning over two ties. On T-rail work we use a splice bar especially designed for welding, and we also use the same base plate as for girder rail.

Up to the present time we have welded 7-in. girder rail, L. S. Co. Sec. 105-484, and standard 100-lb. T-rail A. R. A. type A only. In both cases we purchased the rail drilled with one hole only, 5 in. from the end of the rail. The splice bars were punched with two holes only, 10 in. center to center. The rails are laid and the joints are applied and secured in place temporarily by two 1-in. bolts. This is sufficient to hold the rails together and keep traffic going until welding can be done. The track is first brought to proper surface and

alignment before the welding is started. When we are ready to weld, the rails that are not already tightly abutted are driven back as closely together as possible. The bolts in the joint plates are then tightened up with a long wrench, the plates being driven into place by slight blows of a sledgehammer as the bolts are tightened. After the welding is done the bolts are removed and used on other joints.

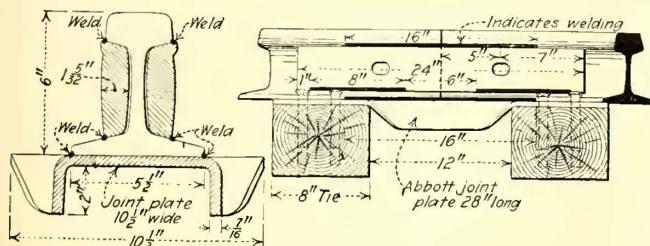
When we first started this welding, about two years ago, we did not employ base plates, but the joint plates



SIDE ELEVATION AND SECTION OF L.484 105-LB. RAIL WITH SEAM-WELDED JOINT

were welded for the entire length, both top and bottom. We had a few of these joints break, or rather the rail broke at the end of the joint, just outside the welding. We then started using base plates, which, as stated above, are longer than the joint plate, and we also began "staggering" the welds. Instead of welding all seams full length, we welded the top seam for a distance of 16 in., leaving 4 in. unwelded on each end. The bottom seam of the joint plate is welded in two places, each 8 in. long, the weld starting 1 in. from the end of the plates, and a gap of 6 in. is left in the center. The base plate is welded for a length of 16 in. through the center. Since this method was adopted, about eighteen months ago, we have not been able to discover any broken rails or welds.

The reason for making the so-called "staggered" or lapped seam welds is twofold. Wherever the weld terminates, there is more or less of a "nick" in the rail and also a metallurgical change in the rail itself, although just what this change is I am not prepared to say, and where these "nicks" or changes are opposite each other the tendency is for the rail to break at that point. The action is analagous to the breaking of a rail by "nicking" it, head and base, with a cold chisel.



SIDE ELEVATION AND SECTION OF A.R.A. 100-LB. RAIL WITH SEAM-WELDED JOINT

The "staggering" of the welds tends to overcome this trouble. Again, the flexibility of the rail is suddenly interrupted by the extreme rigidity of the box-like joint. The "staggering" of the welds tends, to some extent, to break up this rigidity.

We have welded by this process about 4,000 joints and, outside of about fifteen breaks, which occurred in the early stages of our work, we have had no failures that we have been able to discover. There may, of course, be failures or partial failures that are hidden

by the paving, but if so they have not become serious enough to show on the surface. We have had conductivity tests made of the joints and they show an average conductivity of 100 to 150 per cent as compared with the rail.

In welds of this kind, or any other kind for that matter, too much importance cannot be placed on the skill of operators. We have a foreman in charge of this work who is himself a skilled welder and he trains all of the other men. We do not employ for this work men who do not show an interest in welding, and we try to impress upon them from the start just what they are trying to accomplish; that is, the welding of the splice bars to the rail and not merely the playing of the arc on the welding rod until it is melted.

The construction of joints, both T-rail and girder rail are clearly indicated by the accompanying drawings and photographs.

Letter to the Editors

Wages Commensurate with Work Done

THE BEAVER VALLEY TRACTION COMPANY

NEW BRIGHTON, PA., July 21, 1921.

To the Editors:

I heartily agree with your editorial "Get Work Commensurate with Wages Paid" in the July 16 issue of the JOURNAL.

Acting upon this theory, we had a section put into the agreement with our trainmen last year (and it is also in our present agreement) which reads as follows:

Where experienced trainmen of this company with one or more years of experience are rehired they shall be paid at the rate to which their previous experience would entitle them. When trainmen with one or more years' experience on foreign roads are employed they shall receive the rate of pay to which their previous experience would entitle them after their service record has been received and O. K.'d by this company.

This has been the means of our securing experienced men who had formerly been in our service or in the service of other companies and who during the period of scarcity of labor were not willing to start at the low scale of wages. The results have been quite satisfactory.

W. H. BOYCE,
General Manager.

Havana Railway Has Its Troubles

THE needs of the transportation department of the Havana Electric Railway required during the past year that every effort be exerted to keep the greatest possible number of cars in operation and also add to that number as many new cars as could be constructed and equipped. Throughout the year 1920 this was made extremely difficult by the delay and irregularity in the receipt of imported materials of all kinds. Especially was this true during the first nine months when the stock of some important article was always giving out. While shipments were being held up by embargoes or were aboard ships lying in Havana Harbor awaiting an opportunity to unload, it was often necessary to withhold cars from service for lack of wheels or motors or other important parts that could not be provided. In spite of these difficulties thirty-two new cars were completed and delivered to the transportation department, the work on eighteen more was so far advanced that they were expected to be ready for use in January, and nine cars were entirely reconstructed.

Status of Powdered Fuel

Summary of Existing Installations—Detail of Burners and Pulverizers—Test Results from Various Localities—Comparisons with Stoker Plants—Trend in Combustion Methods and Firing Equipment Design

H. D. SAVAGE of the Combustion Engineering Corporation presented a paper entitled "The Use of Powdered Fuel Under Steam Boilers" before the American Iron & Steel Institute at New York on May 27. In this paper Mr. Savage summarized the situation in regard to the use of powdered fuel under boilers in a very able manner.

In regard to the preparation of the pulverized fuel, two mills have become practically standard, respectively called the Raymond and the Fuller. Each of these mills is built in sizes of from 2 to 6 tons per hour rated capacity when grinding to a fineness so that 95 per cent of the coal will pass 100 mesh and 82 per cent through 200 mesh, using bituminous coal of less than 1 per cent moisture. The power consumption is from 15 to 20 hp. per ton per hour of bituminous coal ground to these specifications with a maintenance cost of approximately 5 cents per ton. The grinding of anthracite fuel is much more difficult and entails a higher maintenance cost, but prospects are bright in regard to the use of the Hardinge mill for this purpose.

A new mill is being developed at the present time which uses air separation, but differs otherwise in type and principle from any of the present standard methods. The prospects are good that this mill will be able to grind bituminous coal containing about 3 per cent moisture with only about half the power consumption of the present type mill.

The driers have been standardized into two types, called the single shell drier and the double shell. The latter has greater capacity, better efficiency and greater freedom from internal fires, and the first cost is not greatly different for the two types.

The conveying equipment has become standardized into two types, the screw conveyor and the air transport system. Of these systems the Fuller-Kinyon pump is probably the simplest. It is essentially a high-pressure feeder, consisting of a hopper, high-speed screw and a delivery nozzle. Air is brought into the coal at about 40-lb. pressure and forced through pipes of varying sizes, depending on the capacity for which the pump is designed.

EXISTING INSTALLATIONS

The first commercial installation of any importance was at the Oneida Street plant of the Milwaukee Electric Railway & Light Company, where in 1918 five Edge Moor boilers, each of 468 nominal horsepower capacity, were equipped and have been in successful operation for three years without any operating difficulties. The plant operates on either Illinois and Indiana screenings or Youghiogheny coal. Tests show a combined efficiency as high as

85 per cent on the plants of this company. Another important installation is the plant of the Allegheny Steel Company at Brackenridge, Pa., where nine 333-hp. Wickes boilers and two 600-hp. Stirling boilers have been equipped. The plant has been in operation for about two years and a half and additional boilers are now being installed. A unique feature of this plant is that the coal is used as it comes from the mine without any driers and the pulverizing plant is about 350 ft. from the boiler room, to which a screw conveyor is used to transport the coal.

At the Lima Locomotive Works, Lima, Ohio, there are equipped six 400-hp. Wickes boilers, one 500-hp. Wickes boiler and one 500-hp. Heine boiler. Bituminous coal from the Central Ohio district is used in this plant, analyzing approximately as follows: Moisture, 3 per cent; volatile, 32.2 per cent; fixed carbon, 50.6 per cent; ash, 17.2 per cent; sulphur, 1.94 per cent; B.t.u., 11,935.

DESIGNED FOR THREE FUELS

There are five 500-hp. Edge Moor boilers and two 300-hp. Edge Moor boilers equipped with the pulverized fuel equipment in Oklahoma City, Okla., at the packing plant of Morris & Company. This plant is arranged to operate on either natural gas, fuel oil or powdered coal, whichever the condition of the market warrants as being most economical. A change from one fuel to another can be made in about five minutes. At this plant the fuel used is from the McAlester district, analyzing as follows: Moisture, 5.2 per cent; volatile, 33.39 per cent; fixed carbon, 48.34 per cent; ash, 13.07 per cent; sulphur, 0.63 per cent; B.t.u., 12,417. The results of the operation have been good and observed periods have shown efficiencies of from 78 to 84 per cent. A recent report from this plant covering the first nine months of 1920, using \$4.13 coal and including a 20 per cent charge for interest and depreciation, shows a net cost per 1,000 lb. of steam of \$0.385. Other installations of more recent date are those at the St. Joseph Lead Company, Rivermines, Mo., where two Stirling boilers of 768 hp. were installed and have been in operation for about three months. They are being operated at from 200 to 225 per cent of rating with flue gas temperatures from 580 to 609 deg. F. Another installation is one of eight 1,308-hp. Edge Moor boilers at the new Lakeside plant of the Milwaukee Electric Railway & Light Company. Two of these boilers are equipped with the Fuller system and six with the Lopulco system. All these are now operating.

One of the most interesting installa-

tions is that now nearing completion at the River Rouge plant of the Ford Motor Company, where powdered coal is being installed in connection with four Ladd boilers of 2,640 nominal hp. each. These boilers are the largest that have as yet been built and are intended to operate at from 200 to 250 per cent rated capacity. They will operate on a combination of blast furnace gas and powdered coal, and the design is such that these fuels can be used either separately or in combination. The gas is introduced horizontally at a lower level than the coal through the medium of an especially designed grid burner.

At the plant of the Bethlehem Steel Company, Lebanon, Pa., there are four 520-hp. Babcock & Wilcox boilers that have been in operation approximately one year. The British Columbia Sugar Refining Company at Vancouver, B. C., has two 504-hp. Badenhausen boilers, two 250-hp. Babcock & Wilcox, nine 110-hp. horizontal return tubular and two 500-hp. Stirling boilers. The Puget Sound Traction Company at Seattle, Wash., has ten Babcock & Wilcox boilers from 300 to 600 hp., which have been in operation for about two years.

The foregoing installations are the only plants of any size using the powdered coal equipment. They are located in various geographical locations and operate on a wide range of fuel. From records of the plants operating results have been very satisfactory, according to Mr. Savage.

RESULTS OF TESTS

A great number of tests have been made on powdered coal installations both by the local companies, by the Bureau of Mines and by the Combustion Engineering Corporation. The results of these tests have been presented in various technical articles in the technical press and show that the powdered coal installations are operating very satisfactorily. The effect of fineness and of moisture in coal has not been very marked, but questions of high ratings at high efficiency are still rather unsettled as until recently only a few plants have been designed for burning powdered coal and such tests as were available were taken on changeover plants formerly using other types of fuel-burning equipment. The tests show that the capacity is in direct proportion to furnace volume and that for existing furnaces the most efficient rates of combustion have been obtained when using 1 to 1½ lb. of fuel per cubic foot of furnace volume.

GENERAL DISCUSSION

All of the plants now operated are designed to have the pulverized coal stored adjacent to the boiler and fired through the medium of specially designed feeders. There is a discussion at present in regard to firing the pulverized fuel directly from the mill to the combustion chambers without an interval of rest. But this method.

while very simple and practical from a mechanical standpoint, is subject to several objections brought about by questions of reliability and efficiency. There are many mechanical units connected with the operation of the pulverizer and separator equipments which may get out of order with the result that fuel would fail of delivery to the boiler. Also in these systems the same air is used for separation and for firing, and it is very difficult to control this air in each instant so as to get a uniform mixture at the burner. The most serious deficiency of this system, according to Mr. Savage, is the lack of reserve supply of coal, which throws all the peak demand on the coal-preparing equipment at the time when the station load is at peak, while, on the other hand, a bunker supply permits separation of coal at off-peak intervals and also gives more reliability in the burning due to the elimination of hazardous mechanical arrangements.

In regard to installation costs, Mr. Savage states that if a modern central station using high-grade Eastern coal and average load factor is taken as a basis for the test it is doubted whether the net saving in favor of powdered coal would be better than 10 per cent, but considering the price such a station would pay for coal today the saving would in most cases warrant the additional expense. In an industrial plant having a varying mill load the saving with powdered coal would be more than with any other type of plant, due to its ability to serve fluctuating loads and to the saving during bank periods. In regard to the cost of fuel preparation, Mr. Savage states that in his opinion the cost of firing coal from coal car to ash car is not greater in a pulverized coal plant than in a modern stoker plant. This conclusion is based on some detailed calculations presented in the paper which consider all the auxiliary power for driving stokers and also the saving due to the exhaust steam heating the feed water. The figures on the assumed data show that the plant, when operating at 20,000 hp., burns 31 tons of coal per hour with a power requirement for preparing the coal of a little less than 20 kw. per ton.

IMPROVEMENTS IN FIRING

In regard to the troubles in connection with the burning of powdered coal, the greatest trouble in the early attempts was from slagging. Proper furnace design and correct air admission have practically eliminated this trouble except with coal having a low fusing point, but even with these coals the trouble is confined to extremely high rating when coal in excess of 2 lb. per cubic foot per hour is burned. The use of water screens and multiple zones and other improvements are tending to eliminate entirely any trouble from slagging under high rating with any powdered fuel. In re-

gard to the ash, at Milwaukee careful observation showed that 25 to 50 per cent remained in the combustion chamber, 5 to 12 per cent is collected in the second and third pass, 25 to 35 per cent is caught in the base of the stack and 12 to 25 per cent is lost in the stack. Studies are being made

for eliminating the ash that goes through the stack, although it is so fine and flocculent that it causes no serious trouble. There has occurred no deterioration of the furnace brickwork and, in fact, boiler furnace maintenance has been reduced through use of powdered fuel.

Elimination of Waste

Reports of the Federated American Engineering Societies, Prepared Under the Direction of Fifteen Engineers, Point Out Ways of Reducing Loss from This Cause

DURING this week the Federated American Engineering Societies has made public extended abstracts of the general report of the committee on the elimination of waste, as well as of its detailed reports of the building trade and metal trade. An account of the work of this committee was published on page 1091 of the issue of this paper for June 11. The reports were prepared under the direction of fifteen engineers, known as the committee on elimination of waste in industry. The six industries studied were the building trade, men's ready-made clothing, boot and shoe, printing, metal trade and textile manufacturing.

A number of plants were studied intimately in each industry and a larger number gave additional information. The committee was named on Jan. 12, 1921, and six months later, or on June 15, 1921, the report was approved as a whole by the committee. While the transportation industry was not considered, some of the conclusions reached by the committee are applicable to all industries. In its general report the committee attributes the greater part of the waste in industry to:

1. Faulty management of materials, plant, equipment and men.
2. Interrupted production, resulting from idle men, idle materials, idle plants, idle equipment.
3. Restricted production intentionally caused by owners, management or labor.
4. Lost production caused by ill health, physical defects and industrial accidents.

Under faulty management the committee includes lack of standardization and machinery and methods, lack of cost control and accounting, high labor turnover, ineffective workmanship and faulty sales policies. Under the topic of interrupted production, the committee points out that in many trades there is seasonal unemployment, as well as that due to labor disturbances. There is also idle equipment because of overbuilt factories and idle material. Restricted production is brought about sometimes by managements and often by unions by restricting the use of machinery or requiring wasteful methods because of union rules. Under lost production, a rough estimate is given that the average loss per person per year from illness is thirteen days, and that 42 per cent of this illness is pre-

ventable. This is exclusive of time lost because of accidents.

Suggestions are made by which a number of these causes of waste can be overcome.

REPORT ON BUILDING TRADES

In its report on waste in the building trades the committee estimates that \$500,000,000 a year in wages in this industry is being lost through unemployment. The building industry ranks second only among the industries of the country in size and contributes to the wealth of the nation more than \$3,000,000,000 yearly. The chief sources of waste are irregular employment, inefficient management and wasteful labor regulations.

Referring to irregular employment, the report says that the building trade workman is busy on the average about 190 days in the year, or two-thirds of his time. The public should be educated to the need of a more even distribution through the year of its construction demands and requirements. Haphazard management in planning and controlling work and lack of standards characterize most building undertakings. Union regulations have also produced enormous losses through direct or indirect restriction of output. Greater co-operation between the workmen and the employers is an absolute essential.

Management is blamed for failure to furnish continuity of employment, failure to plan work in sufficient detail, lack of proper schedules to allow proper co-ordination of scheduling, purchasing and delivery, with job requirements; failure to use proper amount or type of equipment, general failure to develop and use a greater amount of mechanical equipment, etc. Wasteful labor regulations, according to the report, consist of requiring skilled men to do work that could be performed by the unskilled, of restricting individual incentive through requiring uniform wages, of limiting the number of apprentices, of an excessive reduction of working hours, of restricting output by prohibiting the use of labor-saving devices, and of jurisdictional regulations. The strike is one of the greatest economic wastes to be found in the building industry, the report declares. In 1920 in Massachusetts 138,519 working days were lost because of strikes and lockouts, and if this figure is ap-

plied to the entire building industry, a waste of some 3,000,000 days per year is found.

REPORT ON THE METAL TRADES INDUSTRY

In its report on the metal trades industry, the committee estimates that the industry as a whole is operating at only about 60 per cent of normal output. It urges manufacturers to hasten a return to normal conditions by producing goods as economically as possible, so as to make selling prices low enough to attract buyers. Much stress is laid in the report on the cost of labor turnover. The average labor turnover for the year 1920, for the plants covered by these studies, was 160 per cent, and the highest turnover was 366 per cent. If 60 per cent of the separations are assumed as unavoidable, due to deaths, marriages, etc., there is still left in the average figure an avoidable or preventable turnover of, say, 100 per cent, and the industry with its 2,000,000 employees has 2,000,000 unnecessary separations. Expert estimates of the cost of labor turnover vary from \$50 to \$250 per employee hired, trained and separated. With an average figure of only \$50, this item would mean a waste of \$100,000,000 due to this one cause in this one industry.

The report also recommends an open interchange of ideas and business results by managements, both in the particular industry and in other industries, so as to lead to a higher level of methods, service and general business estimates. It also urges greater standardization, and in this connection it says:

The great variety of designs called for by those who buy street cars, locomotives, trucks and other transportation equipment is well known to be capable of beneficial limitation if all manufacturers and users could, through some agency, get together and by scientific study of the problems, not only from a utility or service standpoint but from a manufacturing standpoint as well, reduce as much as possible the enormous number of varieties, styles and types now required to be built. Many of these varieties are largely a matter of personal opinion or judgment of the buyers who have not had the opportunity to study the subject in all its phases. A great deal can be done toward standardizing the designs of these products and thus promoting the best interests of all concerned.

Correction in A. S. T. M. Report

The report of the meeting of the American Society for Testing Materials, as published in the July 16 issue of the *ELECTRIC RAILWAY JOURNAL*, page 103, intimated that the proposed tentative specifications for special quality carbon steel rails was adopted by the Association. Such action was not taken. At a meeting of Committee A-1, prior to the presenting of its report to the convention, it was voted to withdraw that specification, and it was accordingly referred back to the sub-committee. Consequently, all reference to it in Committee A-1's report was eliminated and

the specification was not submitted to the convention.

Another typographical error occurred under the topic of corrosion of iron and steel in the reference to the tests made in the Pittsburgh district. The report as published stated that material with 0.06 per cent copper or more failed after five months exposure. This should read fifty-two months exposure.

Iowa Association Meets at Lake Okoboji

THE Iowa Electric Railway Association held a joint meeting on June 24 with the Iowa section of the N. E. L. A. at Lake Okoboji, Ia. President H. E. Weeks, vice-president Tri-City Railway & Light Company, Davenport, Ia., was re-elected to this office for the ensuing year, as were also the other officers of the association.

Two of the papers presented before this meeting have already appeared in the *ELECTRIC RAILWAY JOURNAL*, one being on the "Sale of Securities by Utilities," by H. E. Weeks, which appeared on page 65 of the issue of July 9, and the other on "Valuation and Rate of Return," by L. B. King, appraisal engineer, United Light & Railways Company, Davenport, Ia., which appeared on page 104 of the

issue of July 16. William Chamberlain and John A. Reed, both from Cedar Rapids, Ia., and respectively general counsel for the United Light & Railways Company and the Iowa Railway & Light Company, discussed the status of the Iowa laws pertaining to the regulation of utility rates. F. J. Hanlon, Mason City, Ia., gave the report of the legislative committee and reviewed the matters that had come before the Legislature of interest to the electric railways. A round-table discussion of wages, the open shop, rates of fare, jitneys, etc., occupied the meeting during the afternoon.

The next meeting will be held at Waterloo, Ia., on Sept. 16 and 17.

Engineering Foundation Pushes Highway Research

PROF. W. K. HATT of Purdue University has been appointed director of the new Advisory Board on Highway Research of the National Research Council. In co-operation with other organizations, active research work on national highway questions will be started. The appointment of other committees to consider vehicle designs, economics and cost of transport, finance, traffic and construction are under advisement.

American Association News

Bus Committee Meets

ON JULY 15 the American Association committee on trackless transportation held its second meeting at headquarters. This meeting was for the purpose of going over the sub-committee reports that had been prepared since the meeting of June 24. Among those present were H. B. Flowers, United Railways & Electric Company of Baltimore, chairman, and the following members; C. B. Buchanan, Virginia Railway & Power Company; F. W. Fenn, National Automobile Chamber of Commerce, New York; G. A. Green, Fifth Avenue Coach Company; H. L. Howell, National Railway Appliance Company, New York; C. W. Kellogg, Stone & Webster Company, Boston; C. J. McPherson, J. G. Brill Company, Philadelphia; H. A. Mullett, Milwaukee Electric Railway & Light Company; Albert S. Richey, Worcester, Mass. Others in attendance were J. W. Welsh, acting secretary; L. D. Miller, International Motor Truck Company, and E. B. Warriner, assistant secretary National Automobile Chamber of Commerce, New York.

The sub-committees presented their reports so far as possible but many had found the time allowance too short properly to prepare their part of the report. The committee discussed in detail the question of publishing figures concerning the cost of motor bus oper-

ation. Mr. Welsh stated that there were many requests for this sort of information. Several thought such figures where available should be embodied in the report or at least made easy of access for those interested.

Another meeting is to be held the early part of September at which time the sub-committee reports will be correlated and put in final form for presentation at the convention.

Stores Accounting Report Completed

ON JULY 25 the Accountants committee on stores accounting and the Engineering committee on purchase and stores met jointly at association headquarters. At this meeting the report of the committee on stores accounting was completed and turned over to Acting Secretary Welsh for printing. The report presents a proposed standard classification for material and stock records with forms to illustrate its use. The report also bears the approval of the purchase and stores committee.

Among those present were R. A. Weston, special accountant the Connecticut Company; W. H. Staub, United Railways & Electric Company, Baltimore; W. L. Davis, Lehigh Valley Transit Company, Allentown, Pa., and John Fleming, Capital Traction Company, Washington, D. C.

Convention News

ACTING SECRETARY WELSH of the Association announces that the reports of the T. & T. and Engineering Committees are already in the hands of the printer, and he anticipates now that they will be ready for distribution to members about the middle of August. In view of the fact that a special feature of the convention this year will be prepared discussions on these reports, this early distribution will enable a careful study which should be reflected on the floor of the convention.

The 1920 convention proceedings are now practically ready for distribution. The delay has been largely due to a prolonged strike at the printing plant in Albany. It is expected to ship the completed sets the early part of August.

Announcement is also made of the appointment of E. C. Faber, Aurora, Elgin & Chicago Railroad, as chairman of the convention entertainment committee. The balance of the personnel of this committee will be announced shortly.

Committee on Standard Classification

THE publication in recent issues of this paper of a series of accounting questions and answers which have received the approval of the committee on standard classification of accounts of the Accountants' Association has brought to the office of the ELECTRIC RAILWAY JOURNAL several inquiries as to the history of this committee and its connection with the Interstate Commerce Commission. With the assistance of H. L. Wilson, treasurer Boston Elevated Railway and chairman of the committee, the following has been compiled:

The American Electric Railway Accountants' Association held an organization meeting in Cleveland in 1897, and at that meeting it was the opinion of those present that the most important thing for the association was the adoption of a standard system of accounts by which an intelligent comparison could be made of street railway reports. In consequence a committee of three, composed of C. N. Duffy of Chicago, William F. Ham of Brooklyn and J. F. Calderwood of Minneapolis, was appointed to submit such a classification.

This committee promptly performed its work and submitted a report at the first annual convention of the association, held at Niagara Falls in October, 1897. This report was carefully considered and a revised report was requested. The committee was continued, and at the next annual convention of the association, held in Boston in September, 1898, it submitted a revised report which was adopted, and the classification was recommended for general use by all railway committees.

This classification was in such form as to make it possible for the smaller

companies to keep their accounts without undue trouble or expense, yet was so flexible as to make it entirely possible and practicable for the larger companies to keep their accounts in accordance and have all the detailed information they might desire. This classification was adopted previous to the general advent of interurban roads, but amendments to the classification to suit interurban practice were made and adopted at the convention of the association held in Atlantic City in October, 1907.

At about this time the Interstate Commerce Commission was considering the promulgation of a system of accounts to be used by all electric railways coming under its jurisdiction, and in February, 1908, the commission issued a tentative classification which subsequently, at a largely attended meeting held in Washington on May 12 and 13, 1908, was somewhat modified to meet the views of those representing the electric railways. The accountants' committee and representatives of the Interstate Commerce Commission spent the following week in making up a standard classification of accounts, which was adopted by the Interstate Commerce Commission to take effect from Jan. 1, 1909. This classification is still the standard classification of the Interstate Commerce Commission and the American Electric Railway Accountants' Association. While instructions have been modified since that date, the text of the accounts has not been changed. This system is not only the official one of the I. C. C. and the American Association, but it has been generally adopted by all the State commissions having jurisdiction over electric railway carriers' accounts.

At the time the text was prepared it was agreed by those in conference that if any questions were submitted direct to the Interstate Commerce Commission or to the American Association before any final replies were sent they should be jointly considered by both parties in interest. This arrangement has remained in force ever since, and the most harmonious relations have always existed between the Bureau of Accounts of the Interstate Commerce Commission and the Accountants' Association.

Up to the present time 653 communications have been submitted direct to the Interstate Commerce Commission and 112 direct to the Accountants' committee. Some of the inquiries have contained a dozen or more questions. Hardly a week has passed and at certain periods hardly a day without some questions relating to accounting matters being referred to the committee, and it is probably true that no committee of the American Electric Railway Association has been so constantly called upon for its service as has the committee on the standard classification of accounts.

PERSONNEL OF COMMITTEE

There have been but few changes in this committee during the past twenty-

four years. The present committee consists of William F. Ham of Washington, who has been a member of the committee since it was formed in 1897; H. L. Wilson of Boston, who has been a member of the committee since 1898; W. H. Forse, Jr., of Anderson, Ind., who has been a member since 1907; R. N. Wallis of Fitchburg, Mass., and P. S. Young of Newark, N. J., who have been members since 1914.

Other members of the committee have been as follows: C. N. Duffy, 1897-1905 inclusive and 1906-1908 inclusive; J. F. Calderwood, 1897-1905 inclusive; H. J. Davies of Cleveland, 1898-1900 inclusive; W. G. McDole, 1899-1907 inclusive; H. C. McKay, 1904-1905; Frank R. Henry, 1904-1907 inclusive; E. M. White, 1905-1906; W. B. Brockway, 1907-1914; F. E. Smith, 1908-1914.

C. N. Duffy was chairman from 1897 to 1905; Mr. Ham from 1905 to 1911, and Mr. Wilson since 1911.

American Electrolysis Committee Completes Report

THE American committee on electrolysis, made up of representations of nine national organizations, has completed another report. From the nature of the problem it was decided that the entire report must be unanimously agreed upon by all the representatives of all interests. The committee on electrolysis of the American Electric Railway Association has accepted the report as representing a valuable contribution to the written material on the subject of electrolysis. Copies of the report, which goes to press on Aug. 1, will shortly be available to members at \$1 each upon application to the office of the railway association.

The committee was first organized in 1913, and in 1916 it prepared a preliminary report confined exclusively to a statement of facts unanimously agreed upon and drawn up with the idea that it would form the basis of future constructive work. The entrance of the country into the war suspended the work, but with the resumption of peace the committee was reorganized and attacked its problems anew.

The work was subdivided into four parts, each of which was handled by a separate sub-committee; namely: Principles and definitions; design, construction, operation and maintenance; methods of making electrolysis surveys; the study of European practice. In addition to those there was a special research sub-committee organized to co-operate with the Bureau of Standards.

The American Electric Railway Association was represented on the committee by W. J. Harvie, chairman of the American Association committee on electrolysis; G. W. Van Dersee, assistant general manager Milwaukee Electric Railway & Light Company, and L. P. Crecelius, consulting engineer, each of whom served on different sub-committees. V. B. Phillips, consulting engineer, acted as expert adviser to the association's representatives.

News of the Electric Railways

FINANCIAL AND CORPORATE :: TRAFFIC AND TRANSPORTATION
PERSONAL MENTION

"Secret Books" Sought by State

Another move in the fight on the Chicago Surface Lines was made on July 19 when State's Attorney Crowe demanded that the companies' "secret books" be turned over to him. He did not intimate the purpose for this demand, but it was suggested by others that it had been inspired by Mayor Thompson, with whom the state's attorney is allied politically.

The request was in the form of letters to Henry A. Blair and Leonard A. Busby, executives of the companies making up the surface lines. Both sent replies "respectfully declining" to accede to the demand and explaining that there are no "secret books." Attorney James M. Sheehan, for the Chicago Surface Lines, said:

The books of the operating company, the Chicago Surface Lines, show all operating expenses. After they are audited the city gets 55 per cent of the net divisible receipts under the 1907 traction agreement with the city, and the other 45 per cent is split between the subsidiary concerns. Mr. Crowe's demand is merely a scheme to annoy the companies. He apparently wishes to know how the stockholders of the various companies spend their dividend checks.

Mayor Thompson has been trying for several years to get possession of these individual company books and has been refused by the Public Utilities Commission and the courts. The matter was set for a hearing before the new State Commerce Commission on July 27. Recently that body continued until Sept. 13 the hearing on the proposed abolishment of skip stops in Chicago.

Connecticut Company's Outing

The annual outing of the employees of the Connecticut Company was held July 21 at Ocean Beach, New London, Conn. More than 400 gathered at Swift's Pequot Casino for a shore dinner. Music for the occasion was furnished by an employees' band of twenty pieces under the direction of I. A. May, comptroller.

After dinner, addresses were made by Mayor Morgan of New London, and James Hammond, secretary of the New London Chamber of Commerce. Mayor Morgan complimented the Connecticut Company on its efforts to render efficient service and wished the company the best of success in the future. Mr. Hammond said that he had always been an advocate of street railways and could not see why they should not always be a success when represented by such a highminded type of men.

Remarks were also made by President Storrs and Vice-President Punderford of the railway. Mr. Storrs announced that for the present the company would try to raise its standard of efficiency to the highest per cent so

as to make the service the best in the country. Philip Hussey was the oldest employee at the outing. He has been in the service of the railway for fifty years.

The outing was a success and furnished the opportunity for renewing personal acquaintances that are not always possible during working hours. The only complaint seemed to be that the outings were held too infrequently. Fifty-two weeks seemed to be a very long interval.

Mr. Chappelle Returns to New Orleans

C. C. Chappelle, New York, representing the security holders of the New Orleans Railway & Light Company, New Orleans, La., has returned to that city. F. W. Ballard, utility expert, engaged by the city to revalue the property of the railway, is expected in New Orleans shortly. It is anticipated that Mr. Ballard will bring his previous estimate of the value of the property of the company of \$32,000,000, made in 1918, down to date. The arrival of Messrs. Chappelle and Ballard is expected to hasten action on the part of the city in reaching a decision that will give promise of a permanent solution of the city's trolley problem.

It is said that Mr. Chappelle returns to New Orleans clothed with power of attorney from the security holders of the company to negotiate a settlement. He said:

I have returned to New Orleans in the interests of the security holders' committees of the New Orleans Railway & Light Company, whom I represented in the negotiations some weeks ago and whom I continue to represent.

Due to ill health I was unable—in connection with those negotiations—to complete certain investigations in reference to operating and physical conditions of the property.

While the delay is to be regretted, the general exchange among yourselves as to views, methods, means and conditions to be met for the permanent solution of your utility problem should be helpful and progress has been made.

It was my privilege to present and discuss some of the laws of economics and business principles affecting the solution of your public utility problem.

My position then and now is that a permanent solution, can only be accomplished by co-operation of the public and through constructive action by the Commission Council. I can add nothing further to my previous expressions.

Negotiations to Select Neutral Members.—Negotiations are taking place to select a neutral member of the board of arbitration in the wage dispute between the Schenectady (N. Y.) Railway and its employees. The men are now working at 45 cents an hour, which is the company's proposal pending the result of the arbitration proceedings. The rate fixed by the board will be retroactive to May 1.

Ordinance Introduced to Oust Detroit United Railway

The fight between the city of Detroit and the Detroit United Railway was renewed when the ordinance was introduced into the City Council to require and direct the railway to cease operation of its cars upon and over sections of Fort Street and Woodward Avenue where franchises have expired, and remove therefrom all its property, and providing for the time within which it shall be done.

The ordinance was introduced upon the request of Mayor Couzens after the city's offer for the lines in question had been rejected by the company. The ordinance was read twice by title and ordered printed and laid on the table, no further action to be taken for one week. This is the first effort on the part of the Mayor to have the D. U. R. ejected from the streets.

While it has been conceded that there is nothing to prevent the company from dispensing with service on the lines immediately, the Mayor believes that such action will not be taken by the company, since it would interrupt inter-urban service.

According to Joseph S. Goodwin, of the municipal system, the only value that the tracks represent to the people of Detroit is the estimated value that can be placed on them as a means of transportation for the people until such time as the tracks can be entirely rebuilt to carry heavy traffic, or until more advanced means of transportation are provided. The Mayor stated that out of consideration for the public the offer had been made for the line to make the transfer of ownership as easy as possible for the railway patrons.

The Mayor proposes to lay temporary tracks necessary to preserve service. To care for the Woodward Avenue traffic, railway lines will be built by the city for its cars on paralleling streets, one block each side of Woodward Avenue.

Since the recommendation has been handed down by the Utilities Commission as to the proper type of crossing to install where the city tracks cross existing tracks of the Detroit United Railway, work is being pushed with a view to getting the crossings installed so that service can be started on the additional city lines.

W. E. Davis, Cleveland, has been named as the third member and chairman of the board of arbitration, which will endeavor to fix the price that the city will pay for the day-to-day line. Prof. Henry E. Riggs and William H. Maybury are the other members of the board. Professor Riggs will be the company's representative. Mr. Maybury will represent the city.

Wage Cuts in New York

Interborough, Brooklyn Rapid Transit and Brooklyn City Employees Accept Ten per Cent Cut

As a result of recent negotiations between Frank Hedley, president and general manager of the Interborough Rapid Transit Company, and the Brotherhood of Interborough Rapid Transit employees, the men accepted a 10 per cent reduction in wages effective July 24. The new agreement, which will remain in force until June 30, 1922, affects about 15,000 men, who shared in the increase of June, 1920. Its effect upon the company is a saving of about \$2,600,000.

The old and new wage agreements are as follows:

	Cents per Hour	
	Old Rate	New Rate
Motormen.....	86	78
Guards.....	58	53
Laborers.....	48-58	44-53
Mechanical forces.....	65-80	58-72

In its request of July 8 the company placed before the committee of the Brotherhood of Interborough Rapid Transit Employees the fact that a receivership certainly faced the company unless some tangible saving in the revenue could be effected. On receipt of the acceptance of the new working arrangement the management expressed its appreciation of the men's co-operation.

A similar wage reduction for employees of the Brooklyn Rapid Transit Company to become effective Aug. 5, has been announced by L. M. Garrison, receiver of the property. This reduction for old employees' averages substantially 10 per cent, with a greater reduction in rates of pay for some classes of new employees.

For conductors and motormen on the surface lines the following schedule will be in effect:

	Cents per Hour	
	Old Rate	New Rate
Grade A (5th year of service and thereafter).....		60
B (4th year of service).....	67	55
C (3rd year of service).....	62	52
D (2nd year of service).....	59	50
E (2nd six months of service).....	*57	48
F (1st six months of service).....	*57	45

* Same rate of pay prevailed for first year.

Existing schedules are to be changed as soon as practicable so as to provide for all regular runs a minimum of eight hours and forty-five minutes, with a maximum of ten hours and thirty minutes, with the understanding that as many runs be made ten hours as may be found practicable.

Work in excess of ten hours and thirty minutes to be paid for at the rate of time and one-half.

All time allowances as provided for in the former regulations, except such

as may be necessary to maintain a minimum of eight hours and forty-five minutes for regular runs, will be eliminated.

For conductors and trainmen of the rapid transit lines the scale is as shown in the table at the bottom of this page.

Under the old rate conductors on the rapid transit lines for the first six months received 59 cents, next twelve months 60 cents and after eighteen months 62 cents. The guards for the first six months were paid 53 cents, next twelve months 54 cents and after eighteen months 57 cents.

Schedules are to be arranged so that 50 per cent of the swing runs shall be completed within a spread of twelve hours, and the other 50 per cent within a spread of thirteen hours.

A similar reduction in rates of pay and changes in working conditions, effective the same date, will be made and applied to all other classes of hourly-rated employees whose wages were increased in accordance with the receiver's notice of July 16, 1920.

This same general average reduction in rates of pay will also apply to all classes of the clerical and supervisory forces which received the increase authorized by the receiver's notice of July 16, 1920. In cases where any individual or class in the clerical and supervisory forces was increased last year by an amount less than the percentage applying to the hourly-rated employees, the reduction made effective Aug. 5, 1921, will be correspondingly less.

This reduction does not apply to the 800 motormen, signalmen and towermen of the Brooklyn Rapid Transit system who are members of the Brotherhood of Locomotive Engineers. Their agreement does not expire until Jan. 1, but it is reported that they are considering a suggestion by the

company to accept a similar reduction.

H. Hobart Porter, vice-president and general manager of the Brooklyn City Railroad, stated that arrangements similar to those announced by Receiver Garrison as having been agreed to by the employees of the Brooklyn Rapid Transit System would be made with the employees of the Brooklyn City Railroad, the negotiations leading to these arrangements having been carried out jointly by the receiver and the Brooklyn City Railroad.

		Cents per Hour
Conductors.	Grade A (3rd year of service and thereafter).....	55
	B (2nd year of service).....	54
	C (1st year of service).....	53
Trainmen.	Grade A (5th year of service and thereafter).....	51
	B (3rd year of service).....	49
	C (2nd year of service).....	47
	D (2nd six months of service).....	46
	E (1st six months of service).....	45

Montreal Would Cut Men 20 per Cent

An amicable outcome is expected in the negotiations between the Montreal (Can.) Tramways and its employees arising from the company's proposal to put into effect on Aug. 1 a wage reduction of 20 per cent. The majority of the men are showing a conciliatory attitude, and each side has been meeting the wishes of the other in the matter of conferences to discuss the situation. Several of these informal meetings have been held within the past week, but on July 25 matters had not yet reached a stage where a definite result could be announced.

The present rate of wages is as follows: Conductors and motormen—first year, 45 cents an hour; second year, 50 cents an hour; third year and subsequent years, 55 cents an hour. Inspectors, instructors and depot clerks (day), \$175 a month. Depot clerks (night), first year, \$160 a month, thereafter \$170 a month. Track sanders (hill men), 85 cents an hour.

This scale has been in effect since July 1, 1920, and represents an increase of approximately 20 per cent over that in force for the previous year, which in turn was 30 per cent higher than that in force before July 1, 1919. The company's proposal, therefore, will restore the scale approximately to that in effect from July 1, 1919, to July 1, 1920.

The present maximum of 55 cents an hour represents an average increase of 131 per cent over the maximum of 25 cents in force in 1914, although in the case of the younger men the percentage of increase was considerably higher.

In April of this year, J. E. Hutcheson, general manager of the company, notified A. Lacombe, president of the employees' union, that it was the company's intention to terminate the existing agreement on wages and working conditions, which was entered into on Aug. 27 of last year, and was based on the award of a board of conciliation and enquiry appointed by the Dominion Department of Labor. The agreement covered the year from July 1, 1920, to June 30, 1921, and was automatically renewable by default of either party to give at least thirty days' notice of intention to discontinue the same. By agreement, the status quo was continued in July, pending the company's submission of a proposal to the men, and early in the month the union was notified of the proposed 20 per cent reduction. Failing an agreement by negotiation, the issue will probably be submitted to arbitration, and there seems no immediate danger of a strike.

Arbitrators Reduce Pay Scale.—The pay of motormen and conductors in the employ of the Youngstown & Ohio River Railroad, operating an interurban line between East Liverpool and Salem, has been cut 5 cents an hour. The old scale was from 55 to 65 cents an hour. The new award, the result of arbitration, is retroactive to July 1.

Mr. Gadsden on Chamber of Commerce Transportation Committee

The Chamber of Commerce of the United States has just announced its appointments for the ensuing fiscal year of the personnel of two committees dealing with the subject of transportation and communication. Under the departmental organization of the national chamber, an executive committee for the department of transportation and communication has been appointed, the members representing the various divisions of the industry. The committee consists of the following men:

Chairman, Howard Elliott, New York; vice-chairman, Lewis B. Stillwell, New York; utilities—Edwin O. Edgerton, San Francisco; railroads—George A. Post, New York; and Wilmer W. Salmon, Rochester; marine—H. H. Raymond, New York, and J. M. Whitsitt, Charleston; highways—A. J. Brosseau, New York; electric railways—Philip H. Gadsden, Philadelphia; waterways—Douglas Fiske, Minneapolis; port terminals—B. F. Cresson, Jr. New York; communications—John J. Carty, New York; postal—Lucius Teter, Chicago.

The chamber has also appointed a special railroad committee with George A. Post, chairman.

The departmental plan of the chamber with respect to transportation and communication is a recent development of the work of the United States Chamber and this department has been organized under the direction, as manager, of J. Rowland Bibbins, formerly supervising engineer of The Arnold Company, Chicago. The department will carry on the former work of railroad and marine transport with Richard Waterman and N. Sumner Myrick, formerly secretaries of the railroad and marine committees, and this work will be extended into other related fields of transportation. It is expected that highways, waterways and electric railways will occupy immediate attention.

Wage Reduction Proposed in Kentucky

A general reduction in wages of all employees of the South Covington & Cincinnati Street Railway, amounting to approximately 10 cents an hour, has been submitted by the company to members of the railway union at Covington, Ky., for their approval.

Provided the men agree to accept the new wage scale it will go into effect on Aug. 7, when the present agreement expires. If it is rejected, the question will be submitted to an arbitration board for settlement.

The proposed new scale for conductors and motormen on the Green Line fixes 45 cents an hour for the first three months, 48 cents an hour for the next nine months and 50 cents an hour thereafter. Their present scale is 54 cents an hour for the next nine months and 60 cents an hour thereafter.

The new scale for carhouse men and other employees ranges from 30 cents to 51 cents an hour against the present scale of from 45 cents to 62½ cents an hour.

Extra men at present are guaranteed

210 hours or \$105 a month. They are offered a straight salary of \$75 a month under the new scale. The present scale has been in effect since Aug. 7, 1920.

The new scale is equivalent to the reduction in wages recently put into effect after negotiations between employees and officials of the Cincinnati (Ohio) Traction Company.

The men have since rejected the reduction proposal.

Power Hearings at Toledo in August

Announcement has been made at Toledo, Ohio, that the power rate hearing before the Ohio Public Utilities Commission has been set for Aug. 3, 4 and 5. The points at issue will be the valuation of the property of the Toledo Railways & Light Company, used in producing the power; the depreciation on the plant; rate of return on investment; and whether or not a demand charge or a fixed charge shall be made along with a consumption charge.

The Rail-Light has proposed a charge of \$30 a year per kilowatt of demand and 1¼ cents per kilowatt-hour for energy actually used. This is regarded as so excessive by the street railway commissioner that he has made no offer to the company.

So far the company has been paying approximately 2.40 cents per kilowatt-hour for power. Whatever excess there is in this will be refunded to Feb. 1 when a rate is finally established and approved by the commissioner.

Prof. H. E. Riggs, of the University of Michigan, who was engaged to value the properties and assist in the presentation of the case has worked out five valuations on different bases. The Rail-Light wants its rate to be set on basis of a 1919 reproduction valuation of the plant.

It is believed that action by the utilities commission may be final in settling the dispute which has gone since the beginning of operation under the service-at-cost plan. It also may tend to wipe out considerable of the deficit already piled up.

Interurban Cuts Wages

Announcement has been made by the Marion & Bluffton Traction Company, Marion, Ind., of wage cuts effective on Aug. 1 which affect every class of employees. The average reduction will be approximately 12½ per cent, with the range in reductions running from 10 to 15 per cent. Trainmen will have their wages reduced 5 cents an hour while section hands will be cut from 30 cents to 25 cents an hour for a ten-hour day.

In its statement announcing the reduction the company declared that the lower wage scale is in line with a general retrenchment policy. It is alleged that receipts have shown a notable falling off during the past year.

Dayton Strike Settled

The strike of the electric railway employees at Dayton, Ohio, was terminated on July 21, following the signing of an agreement between the Peoples' Street Railway and the Dayton Street Railway and their employees. The walkout occurred on July 6.

Both sides claim victory, and the resumption of service finds both parties to the contest in amicable mood, apparently. The principal point at issue was that of wages. The company offered 45 cents an hour and the men demanded 52 cents. The men formerly received 62 cents, but under the agreement will receive 48, a compromise rate.

The men feel that they gained not a little by the terms, with the inclusion of arbitration and working agreement clauses in the settlement. The company is elated over the settlement in favor of the "open shop."

As a result of the settlement of the controversy and the acceptance on the part of the men of a lower wage, the City Commission of Dayton is expected to reduce the fare from 7 to 5 cents. Steps are being taken toward that end at the present time.

It is anticipated that similar wage and working term agreements will be entered into by the Oakwood Street Railway and the Dayton & Xenia Electric Railway.

Canadian Radial Hearings Concluded

The long drawn-out inquiry into the advisability of the Hydro-Electric Commission of Ontario embarking on a large scheme of radial railway construction and operation terminated on July 2 with the summing up by I. F. Hellmuth, K. C., counsel for the commission. Mr. Hellmuth's argument was distinctly hostile to the undertaking.

In dealing with the financial aspects of the proposition, he referred to the evidence of E. C. Clarkson, chartered accountant, who had shown the large provincial commitments already undertaken and pointed to the danger of straining provincial credit and having to pay higher rates of interest for borrowed money. As a result of their borrowings, the government and the Hydro Commission had forced the interest rate on capital up to more than 6 per cent. Ontario was committed to the policy of public ownership, but it could not force this policy down the throats of United States bankers and financiers who advised the investors.

In consequence it would be difficult to float bonds for publicly-owned hydro radials in the United States. Money could not be raised in England. Investors there, instead of buying Canadian securities, were sending what they already held to Canada for sale. The money, if required, would have to be raised in Ontario.

Testimony at the hearings has been published from time to time in the ELECTRIC RAILWAY JOURNAL extending over a period of months.

Wages Cut on Key Route

By a vote 425 to 201, platform men of the Key Route and traction lines of the San Francisco-Oakland Terminal Railway have voluntarily accepted a reduction in their wages of 6 cents an hour. The new schedule will become effective on Aug. 1.

W. R. Alberger, general manager of the company, in a joint statement with W. J. Moorehead, president of the union, said that investigations were made and statistics of the United States Department of Labor consulted in fixing the rate.

The new wage scale follows:

Traction Line—First three months, 52 cents an hour.

Next nine months, 55 cents an hour.

Second year and thereafter, 59 cents an hour.

Key Route—First three months, 54 cents an hour.

Next nine months, 57 cents an hour.

Second year and thereafter, 61 cents an hour.

The new scale is the result of conferences between the company and the union officials. These conferences were made possible by an agreement made a year ago whereby either side could open negotiations for an adjustment of wages every six months.

Plea Rejected to Set Aside Arbitration Award

A. C. Blinn, vice-president and general manager of the Northern Ohio Traction & Light Company, Akron, Ohio, has refused union pleas to set aside the recent wage arbitration award. Following the decision of the arbitration board, the men appealed to the company to disregard the award.

In a letter to W. B. Fitzgerald, vice-president of the Amalgamated Association, Mr. Blinn reviewed the whole chain of circumstances leading up to arbitration. It was only after a strike of seven days during which the public served by the company was greatly inconvenienced and the company lost in receipts about \$150,000 that the men agreed to accept arbitration. Mr. Blinn dismisses the contention that the wages awarded were not comparable with wages paid on other properties by citing wage scales on the Cleveland interurbans.

On the very important issue of the direct request to ignore the award of the arbitration board Mr. Blinn said:

This award was from 1 to 2 cents an hour lower than the offer the company made before the trainmen went out on strike. Neither the wage offered by the company to prevent a strike, nor the wage requested by the men was involved in the arbitration proceedings. The function of the board of arbitration was to determine a reasonable wage and in rendering its award we must assume that neither the wage offered by the company nor the wage requested by the men had anything to do with the board's judgment as to what was a reasonable wage under all the circumstances; certainly the members of the board were not entitled to consider either.

Inasmuch as both sides solemnly agreed to be bound by the award of the arbitrators the company does not feel that it should be called upon to disregard the

award any more than the trainmen would so feel in the event the board of arbitration has awarded them the wage they requested and the company should now be calling upon the trainmen to disregard the award of the arbitrators and voluntarily reduce their wages. If the trainmen had been awarded the wages they requested, notwithstanding the payment of it might have put the company in bankruptcy, the company would have been held strictly to the award and it would have been subjected to much ridicule by your organization had it suggested that the award be set aside in its favor.

Your request cannot be granted. To do so would make a complete farce of the arbitration proceedings. It would establish a most dangerous precedent by which future arbitrations would to a great extent be affected not only in arbitrations between this company and its employees, but arbitrations for the settlement of labor disputes throughout this territory.

Beaver Valley Wages Reduced

A new wage agreement was concluded by the Beaver Valley Traction Company, New Brighton, Pa., with its trainmen on July 18. The rate of wages for the trainmen in the employ of that company and the Pittsburgh & Beaver Street Railway during the period beginning May 1, 1921, and ending April 30, 1922, both inclusive, follows:

From May 1, 1921, to May 31, 1921:	
First three months.....	54 cents
Next nine months.....	57 cents
After one year.....	63 cents
From June 1 to June 30, 1921:	
First three months.....	49 cents
Next nine months.....	52 cents
After one year.....	58 cents
From July 1 to April 30, 1922:	
First three months.....	44 cents
Next nine months.....	47 cents
After one year.....	53 cents

The 5-cent reduction in June was made effective by reason of an agreement entered into on June 7 and made retroactive as of June 1.

As noted in the ELECTRIC RAILWAY JOURNAL for June 18, W. H. Boyce, general manager of the company, recently asked his trainmen to assume a part of the \$93,000 loss which faces the company for the coming year.

Interurban Men Cut 16 2-3 per Cent

The wage controversy between employees and management of the Rochester & Syracuse Railway, Syracuse, N. Y., was settled on July 24 by a decision of the arbitration board announcing a 16 $\frac{2}{3}$ per cent cut. This reduction brings the wages of platform men from 62 to 52 cents an hour for a ten-hour day. A proportionate reduction also affects substation operators, ticket men, bridge and shop men. Common laborers must submit to a 26 per cent cut.

The Empire State Railway's employees will receive \$4.94 a day or 25 cents less than the Rochester & Syracuse men. They will work on a nine-hour-day basis.

Arrangements are pending for a private arbitration between the employees and management of the Auburn & Syracuse property.

Number of Trainmen Reduced.—Following refusal of members of the union to accept a wage reduction the Wheeling (W. Va.) Traction Company laid off forty men and began operation of one-man cars in order to curtail expenses.

Court Orders Wages Reduced

E. J. Triay, receiver for the Jacksonville (Fla.) Traction Company, has secured an order from Judge R. M. Call of the United States Court for the southern district of Florida, authorizing the reduction of wages of trainmen, 2 cents an hour. The scale starting at 40 cents under the old order, drops now to 38 cents.

The increase in fare to 7 cents has cut travel, according to statistics produced by the receiver and while the advance from 5 to 7 cents was a 40 per cent increase, receipts have advanced only 7 per cent during the twenty-eight weeks of 7-cent fare.

Under these circumstances the receiver appealed to the judge, saying that a further fare increase would not suffice, leaving the reduction of operating expense as the only avenue open. He stated that other departments were accepting reductions similar to those proposed for the trainmen—5 per cent.

Wages of the trainmen have been increased almost 100 per cent since 1914.

East St. Louis Cuts Wages

A threatened strike of motormen and conductors (Amalgamated) of the East St. Louis & Suburban Railway East St. Louis, Ill., has not materialized following the failure of the effort of the men in United States District Court to restrain the company from paying 51 instead of 70 cents an hour on the July payroll.

The employees had declared they would not accept the cut in pay which went into effect on July 1. The Federal Court ruling was handed down on July 23, and on July 25, all of the employees of the company had accepted their pay envelopes.

In his decision, Federal Judge English also denied a motion to dissolve the temporary injunction restraining a board of arbitration from holding hearings in an effort to decide a wage scale for motormen and conductors, the board being composed of William Maffitt Bates, an attorney, as chairman; Hunter B. Keith, representing the union, and C. E. Smith, a consulting engineer, representing the company.

Judge English pointed out the fact that Mr. Smith was forced to resign on account of pressure of other business. The two other members had continued to hold meetings and Judge English in his decision held that without Mr. Smith the board had no authority. In effect, the body ceased to be a board of arbitration.

W. H. Sawyer, president of the company, has offered to have the wage question submitted to a new board, but the men have declined. They are now waiting on the final decision of whether the temporary injunction shall be made permanent. In the meantime the company went back to and is paying the scale which the War Labor Board established and which was in effect until April, 1920.

Financial and Corporate

\$93,500,000 Cut in Capital

Pittsburgh Reorganization May Be Carried Out on This Basis—
Definite Proposal Made

A definite plan for the reorganization of the Pittsburgh Railways was presented to the Council of that city on July 25. The plan was embodied in an agreement proposed to be executed by the city of Pittsburgh, the Philadelphia Company and the Pittsburgh Railways.

The plan contemplates the reorganization of the Pittsburgh Railways or the formation of a new company to take over all the assets of the railway and to be limited to \$62,500,000 in the issuance of stock, bonds or other securities in substitution for securities now outstanding, amounting to \$156,000,000. An annual return of 6 per cent for ten years is allowed on the new capitalization, which is the value of the railways properties fixed by the Public Service Commission.

The city and contiguous municipalities are given a voice in the annual operating expenses and yearly depreciation allowance, under the plan, and a fixed annual charge is agreed upon in lieu of tolls, taxes and street cleaning, and for street repaving for which the company is obligated, the city being authorized to proceed with this work.

The plan is the result of conferences of A. W. Thompson, president of the Philadelphia Company, with Council and Mayor E. V. Babcock.

The agreement that is now proposed containing the provisions as accepted by both sides, was submitted by George N. Monroe, Jr., special assistant city solicitor, and approved by City Solicitor Charles B. Prichard. In an accompanying letter they recommended its execution.

CONTRACT CANNOT BE FLAWLESS

Mr. Monroe in his letter of transmittal said that in this complex matter one could not be expected to prepare a contract that would be above criticism or that would contain every necessary detail. The negotiators were firmly convinced, however, from their study of the problem that the principles of the contract were sound and that its execution would go a long way toward ending the litigation and permitting the reorganization of the company so that it could start anew by properly functioning in the public service.

It was his opinion that the time had come for the company and the city to use every effort to stop litigation and have the property returned to the owners so that they might have an opportunity to reorganize on a sound financial basis. This could be done

only by fixing a fair value on which the securities could be based and by agreeing upon a fixed return beyond which the company could not collect.

He made it plain that the opinion of the negotiators was that the details of the reorganization was a problem between the company and its security holders, their lawyers and financiers. These were private questions of no public concern and the city should not interest itself in these details.

SHOULD INVITE COMMENT ON PLAN

Mr. Monroe recommends that before any steps are taken to adopt or reject the proposed contract, which states the terms the negotiators are willing to recommend for adoption by the respective principals, the contract should receive the widest publicity and constructive criticism should be invited to it. The controlling thought in the preparation of the contract was that the community is entitled above all else to a service at a reasonable fare. This is purely a matter of money and management.

\$5,000,000 FOR BETTERMENTS

A necessary initial step in the reorganization is the raising of \$5,000,000 to be spent in betterments, improvements and rehabilitation of the railway system. The Philadelphia Company controlling the Pittsburgh Railways proposes to assist the new company in borrowing this sum in the Pittsburgh district. The obligation so created will, of course, be added to the proposed capitalization. In this connection it is stipulated that the directors of the new company shall be residents of Pittsburgh.

The rate of fare under the plan is to be regulated by the surplus or deficit in receipts compared to budget requirements and guaranteed return, and either the city or the company is empowered to apply to the Public Service Commission for an increase or reduction in fares as the surplus or deficit warrants.

The execution of the agreement and its approval by the Public Service Commission, with the capitalization of \$62,500,000, will terminate the case in which the city has attacked the valuation of the railway property. This case is now before the Superior Court on appeal.

A. W. Thompson, president of the Philadelphia Company, in commenting on the text of the proposed plan for the reorganization said that if the companies were left to themselves and urged foreclosures and took steps to realize everything possible in their interest from the present situation, chaos in Pittsburgh's street transportation would result. The purpose of the plan now advanced, Mr. Thomp-

son said, was to maintain one system of electric railways on a financial basis that would endure for years to come.

Federal Courts in California Rule on King Tax Bill

An order denying the motion of the Southern Pacific Company and the Atchison, Topeka & Santa Fé Railway for an injunction to suspend operation of the King tax bill was issued on June 30 by the three federal judges hearing the action. The motion included an application to prevent the state from collecting any tax in excess of the present 5½ per cent levy on gross revenues, which tax the King bill raises to 7 per cent. This decision of the court proposes that the railroads should continue to pay the 5½ per cent tax, however, until the case can be tried on its merits.

The opinion, which was written by Justice W. W. Morrow of the United States Circuit Court of Appeals, held that the railroads should attack the King bill purely on constitutional grounds and should not bring in collateral issues directed against the whole tax system. The decision directed the Southern Pacific to pay into the state treasury \$6,125,700 due under the 5½ per cent levy. The King bill would increase this figure to \$8,167,600. The Santa Fé was ordered to pay \$1,833,404 under the 5½ per cent tax. Its annual tax under the King bill will be \$2,444,539.

Interurban Elects New Officers

Isaac Loewenstein, president of the Charleston National Bank, Charleston, W. Va., has been elected president of the Charleston-Dunbar Traction Company, the stock of which he recently purchased. F. M. Staunton, president of the Kanawha Banking & Trust Company, has been elected vice-president; A. H. Hill, treasurer, and E. W. Alexander has been re-elected superintendent. The board of directors is composed of Messrs. Loewenstein and Staunton, F. P. Gross, W. A. MacCorkle and I. N. Smith.

Mr. Hill, the new treasurer of the Charleston-Dunbar Traction Company, is treasurer of the Charleston Interurban Company; Mr. MacCorkle is president, and Mr. Smith is general manager.

At the time the sale of the Charleston-Dunbar Traction Company was announced Mr. Loewenstein said he was making the purchase for other parties, but that he could not at that time make known the names of the parties for whom he was acting.

There has been considerable talk of a consolidation of the two roads, but officials of both roads so far have declined to discuss the matter. The fact that the new officers of the Charleston-Dunbar Traction Company are also officials of the Charleston Interurban Company gives added import to the report that a consolidation is in process.

Second Fare Zone Results in Profitable Operation

The Manhattan & Queens Traction Company, New York City, is now operating on a paying basis according to W. B. Duncan manager for the receivers. This success is due to the second zone fare put into effect many months ago by the Public Service Commission following a strike of the employees for an increase in wages.

The second 5-cent fare zone begins at Grand Street, Elmhurst. Passengers travel from Manhattan to Elmhurst for 5 cents and from that point east to Jamaica another 5-cent fare is collected.

Mr. Duncan said recently that from 1913, when the company started to operate on the Queens Boulevard, until 1916 2½ per cent a year was paid to stockholders. The year following there was no return to investors and in 1918 \$3,000 was cleared above operating expenses. In 1919 the company suffered a deficit of \$9,000 and in 1920 and until the strike of this year there was a deficit of \$19,000. Mr. Duncan said in part:

Wages of employees were raised 128 per cent and the operating expenses were likewise on the increase.

We feel that no one is paying too much for the convenience of a ride on the Queens boulevard trolley. We are willing to concede anything for the benefit of the people if they do not demand to take money away from us. We are willing to meet them halfway.

We cannot reduce our revenue, however, and we will refuse to consider it. The second fare is now placing the company on a paying basis for the first time in many years. We are paying our wages and all other bills.

Eastern Massachusetts Does Better

The trustees of the Eastern Massachusetts Street Railway, Boston, Mass., report for six months ended June 30, 1921, as follows:

	1921	1920
Operating revenue and income.....	\$5,637,858	\$6,679,949
Operating expenses and taxes.....	4,462,613	6,668,555
Gross income....	1,175,244	11,394
Bond interest and rentals.....	800,626	772,050
Net income.....	\$374,618 def	\$760,656

In the six months of 1921 the "cost of service" (\$1,174,875), as defined by Chapter 188 of the Special Acts of 1918, was earned by a slight margin. In the same period of 1920 the company failed to earn the "cost of service" by \$1,368,605.

United Railways Aided

The North American Company, owning large interests in the United Railways, St. Louis, Mo., which is now in receivership, has underwritten \$1,474,000 of bonds for an extension of twenty-six months at 8 per cent, following the rejection of a proposition to issue receiver's certificates in this amount at an interest rate of 10.198 per cent.

The original bond issue of the old Lindell Railway, a constituent line of the United Railways, was made in

1891. It bore 5 per cent interest over a twenty-year period, and there was a renewal for ten years at 4½ per cent. The bonds are due on Aug. 1. When the question of refunding was taken before the Missouri Public Service Commission recently and it was found that receiver's certificates would have to bear a rate of more than 10 per cent, the North American Company stepped in and agreed to the underwriting at 8 per cent.

The application of Receiver Wells to accept this arrangement was approved in Federal Court on July 21.

City Seeks to Operate Line at Present Suspended

The city of New York through Corporation Counsel John C. O'Brien has filed a brief with Federal Judge Edward Garvin in Brooklyn in connection with the city's application for a modification of the order of Judge Chatfield restraining the city from intervening in the foreclosure sale of property of the New York & North Shore Traction Company.

The city protests that the receivers of the railway have refused to operate the lines although they had been fully authorized to do so and that they proposed shortly to sell the property as junk, thereby rendering the city unable to secure its claims to the tracks and wires and preventing municipal operation except at great expense.

In asking for the modification of the order of Judge Chatfield, the city seeks the right to operate the line until the legal questions of ownership are settled "instead of allowing the property, as at present, to rust and rot."

Seattle Expects to Go Behind in 1922

Reductions totaling \$620,321 are announced by Mayor Caldwell of Seattle, Wash., in the cost of operating the tax-supported departments of the city government during the year 1922, as compared with 1921.

Estimates filed by the street railway department showed a reduction in operating expense for next year of \$621,142. The cost of operation and maintenance in 1922 is estimated to be \$4,703,586, where in 1921 it was \$5,334,728. The decrease includes a reduction of \$423,760 in trainmen's wages, effected by rerouting cars, and use of more one-man cars. The estimate also includes a decrease of \$100,000 in the cost of general supplies, a saving of \$35,000 for power and other small economies.

The total cost of the railway for the year 1922, if it paid all debts of interest, payment of principal, is \$6,898,085. This would include the \$833,000 due to the Stone & Webster interest next March, and a \$200,000 depreciation fund. Estimates of the 1922 revenues are in preparation. Superintendent Henderson of the railway expresses the opinion that they will be insufficient to meet the year's expenses.

\$650,000 Loan to Cincinnati Traction Company

Terms of the agreement by which the Cincinnati Street Railway will lend the Cincinnati (Ohio) Traction Company \$650,000 have finally been agreed upon. A notice of this was received by William Jerome Kuertz, director of street railways, Saul Zielonka, city solicitor, and Charles Hornberger, service director, as a committee representing the city administration, from Bayard L. Kilgour, president of the Cincinnati Street Railway. In making the loan, it is expressly stipulated that the Cincinnati Traction Company shall proceed at once with certain improvements and extensions heretofore agreed upon with the director of street railways.

Mr. Kilgour points out in his letter that the action of the railway in making the loan is entirely "voluntary," and that, "it is not the present intention of the Cincinnati Street Railway to make any loans to the Cincinnati Traction Company in the future." He states further that the present loan must be repaid by Jan. 1, 1922.

Officials of the traction company said that as soon as the funds from the Cincinnati Street Railway are made available, no time will be lost in beginning on certain improvements and extensions listed in the company's program.

Employees Asked to Become Shareholders

The Northern Ohio Traction & Light Company, Akron, Ohio, has started a sale of its 7 per cent cumulative preferred stock to its employees and customers. Every employee is urged to become a business partner and a shareholder in the company.

This campaign is being launched to add new capital to the company to enable it to meet the demands of the growing city. The stock is offered at \$95 and accrued dividends for each \$100 share. The dividends are payable every three months. Two plans have been proposed under which the public may acquire stock. One enables the purchaser to secure stock immediately by paying cash. The other provides for time payments of \$10 per share at the time of purchase, \$10 per share for seven months and \$15 per share as final payment. The purchaser has the option of withdrawing all partial payments any time prior to the date of final payment, but in that event the company agrees to pay only 3 per cent on the amounts paid in up to the time of withdrawal.

The Northern Ohio Traction & Light Company comprises 242 miles of track of which 100 miles are city lines in Akron. In addition to its business in Akron the company sells power in twelve adjacent communities. The company states that its stock is backed by the need of service absolutely essential to the life and progress of the community. The company has never passed a preferred dividend.

Ohio Lines Segregated

System Centering at Springfield Broken Up Into Constituents to Facilitate Rehabilitation

Interurban and city properties which have heretofore been operated as a part of the Ohio Electric Railway, Springfield, Ohio, have come under separate management. This change resulted from the cancellation on July 18 of the operating agreements then existing. The formal cancellation of leases will follow by court action. Petitions have already been filed toward this end.

As none of the properties has been paying any interest foreclosure action will probably be taken. Following this the proposed reorganization will be worked out. Several of the branches which are not considered desirable in the reorganization proposition will be abandoned and the tracks taken up.

Under the separation proposition, it is planned to place each property upon its own resources. The names of the lines will be changed, it is stated. This will be especially true covering the interurban lines in the Springfield and Dayton district. The original line in this section was known as the Dayton, Springfield & Urbana Railway.

J. H. McCLURE WILL MANAGE

In this separation of control of interurban and city properties the Indiana, Columbus & Eastern, formerly known as the Dayton, Springfield, Columbus and Lima system, with branches from Dayton to Union City, Ind.; Lima to Defiance and Columbus to Grove City, has come under the active management of J. H. McClure, receiver. He will move his headquarters from Lima to Springfield.

The Ohio Electric Railway proper, as distinguished from the leased properties, consisting of the interurban line from Lima to Toledo, and the local light and railway properties in Lima, has come under the active management of B. J. Jones, receiver for the Ohio Electric Railway. He will move his headquarters from Springfield to Lima. The Indiana, Columbus & Eastern properties will be operated hereafter from Springfield, and Mr. Jones will direct the other properties from Lima.

The interurban properties known as the Columbus, Newark & Zanesville system, extending from Columbus to Zanesville, with the Buckeye Lake and Zanesville city property and light plant, have come under the active management of B. A. Berry, receiver, of Columbus. Mr. Berry was formerly commissioner of securities of Ohio and was recently placed in charge of these properties. These will be operated substantially as at present, in connection with the Indiana, Columbus & Eastern system.

Day & Zimmerman, operating engineers, of Philadelphia, act as heretofore in an advisory capacity, and will

have supervision of the general operations of all the properties. The name of each road will be changed, so as to indicate the extent and character of the separate properties.

Savannah Reorganization Plan Out

A plan for the reorganization of the Savannah (Ga.) Electric Company has been presented by Philip Stockton and George J. Baldwin, the committee under a stockholders' agreement of Dec. 26, 1919. It is proposed to organize a new company, which will be known as the Savannah Electric & Power Company, to acquire all of the properties of the Savannah Electric Company and its subsidiaries.

The property is to be conveyed subject to existing mortgages and the bonds issued under these mortgages are to be assumed by the new company. There would be new bonds to the extent of \$2,500,000. The stock to be issued would consist of \$1,300,000 of debenture stock, series A, 8 per cent cumulative, to be issued to finance the balance of the demand notes and unpaid interest thereon; \$1,000,000 of 6 per cent cumulative stock, cumulative after Oct. 1, 1926, to be issued to the present holders of \$1,000,000 of 6 per cent preferred stock, share for share, without assessment or other costs; and \$2,500,000 of common stock to be issued to the present holders of \$2,500,000 of common stock, share for share, without assessment or other costs.

The new first and refunding bonds and the debenture stock are to be issued only to finance obligations which now have priority over the preferred and common stock and to provide for the construction of the new company, so that the equity of the stockholders will in no way be impaired by the plan.

The committee says that the earnings on the basis of the new capitalization are sufficient to pay all charges and dividends upon the new debenture stock and preferred stock with ample margin.

Stone & Webster have been appointed reorganization managers. The time within which the plan may be declared operative is limited to Sept. 30, 1921.

\$382,065 Profit Earned by P. R. T.

The audit of the board of experts placed on the books of the Philadelphia (Pa.) Rapid Transit Company on behalf of the city has just been completed. It shows that the gross income of the company for the year ended Dec. 31, 1920, was \$39,400,341, out of which the company must pay expenses of one kind or another of \$39,018,276, leaving a profit of only \$382,065.

The revenue from transportation was \$39,301,973, to which was added revenues of other operation making a

total of \$38,807,354 from operation. Deducting operating expenses, leaves a net income of \$9,612,189. Adding to this non-operating income gives a total net income of \$10,205,175. Rentals for leased lines amounted to \$7,366,500, and interest charges, ground rents, amortization charges, etc., amounted to \$9,823,110, leaving the company a profit of \$382,065 for dividend purposes.

The report also gives information concerning the monthly passenger revenues and a statement of the net profit and loss for each of the twelve months, together with pertinent information concerning advances to subsidiary companies during the year.

Financial News Notes

Detroit United Bonds Offered.—Dillon, Read & Company, New York, N. Y., are offering for subscription to yield more than 8 per cent \$4,000,000 of first mortgage collateral 8 per cent sinking fund gold bonds of the Detroit (Mich.) United Railway, maturities Aug. 1, 1922, and Aug. 1, 1941. The total authorized issue of these bonds is \$5,000,000. They are being put out for refunding purposes.

North Carolina Property Sold.—The property, including franchises of the Cumberland Railway & Power Company, Raleigh, N. C., was recently bid in for a committee of bondholders by Herbert L. Jones, president. The public sale took place at Fayetteville on July 2. The price was \$75,000. It is reported that the bondholders will continue the road in operation.

Bond Issue Proposed for Improvements.—A bill introduced in the City Council of Seattle, Wash., and referred to the city utilities and finance committees provides for the issuance and sale of \$1,330,000 of utility railway bonds in order to carry on needed extension and betterment work. The bill provides for the retirement of these bonds in annual payments beginning six years from date and ending twenty years from the date of issuance, with interest thereon at 6 per cent.

Boston Property Pays Interest.—The Eastern Massachusetts Street Railway, Boston, Mass., met the interest on its Series A, B and SA mortgage bonds on July 1. The two preceding semi-annual payments due July, 1920, and January, 1921, were deferred due to the poor financial condition of the company, and are still unpaid. However, improvement in conditions made it possible to meet the payments on July 1. It is reported that every district is now earning the cost of service. This favorable condition is attributed mainly to the introduction of one-man safety cars.

Traffic and Transportation

City Will Move for Delay

The city of Minneapolis, Minn., proposes in its answer to the petition of the Minneapolis Street Railway before the Minnesota Railroad & Warehouse Commission to move for delay in that the city is not prepared to make the contest. Objection will be made to jurisdiction over electric railway fares, on the ground that the law is unconstitutional.

At the hearing of July 15 in the Duluth Street Railway request for an increase in fare for emergency purposes from 5 to 7 cents, J. B. Richards, city attorney, held that no emergency exists and that any change in fare should await the valuation of the company property. The company replied that it is losing money. The Council has rescinded a resolution calling for \$350,000 expenditure for maintenance and \$300,000 for extensions and improvements. A decision is expected by July 30.

The city planning board of St. Paul is making a survey of all lines of the City Railway to determine whether all districts are being served adequately and continuously.

Court Orders Fare Cut in Cincinnati

In a decision handed down by Judge Frank R. Gusweiler, the Cincinnati (Ohio) Traction Company has been ordered to reduce fares one-half a cent to 8 cents on Aug. 1, and to advertise such and to post notice of the reduction in the cars. The company also has been ordered to prescribe rules for carrying into effect the provision of the ordinance reducing the rate of fare for school children to 5 cents.

The validity of the ordinance passed by the City Council in amending the service-at-cost franchise was established by the court in reviewing the case. Judge Gusweiler held that inasmuch as the amended ordinance had been accepted by the company it took the form of a contract binding on both parties. He declared that under the state laws and under the United States Constitution this contract could not be altered or modified by the initiative and referendum section of the state constitution adopted in 1912.

Judge Gusweiler said that the ordinance reducing fares seeks to modify both a previous ordinance and the resolution of the Board of Administration adopted in 1896, the days before the referendum. He states that the city gives the company a consideration by providing that the company shall not be authorized or required to pay into the reserve fund any sum in addition to the initial payment of \$250,000 now in the fund. The court concludes by stating that the city of Cincinnati is

entitled to specific performance of the contract, and therefore orders the company to carry out the provisions of the ordinance.

The citizens' committee, which presented a petition for the referendum, stated that it would probably take some further action in the case.

Emergency Bus Line in Legal Tangle

An order to show cause why an injunction should not be issued against the operation of motor buses on the Grand Concourse, details of which are given in the *ELECTRIC RAILWAY JOURNAL*, July 16, 1921, was served on July 15, on Commissioner Grover Whalen of the Department of Plants and Structures of New York City under whose direction the buses are being operated.

Suit was instituted by Jennie T. Quinn, represented by Alfred T. Davidson, of 2396 Third Avenue. Affidavits supporting the action were signed by Edward A. Maher, Jr., and Leslie Sutherland, president and vice-president of the Third Avenue Railway. Several employees of the company also filed affidavits.

Mr. Whalen said the suit was instituted to put all municipal buses out of commission. If the application should prevail, it would affect every bus line now in operation in the city and would compel people to walk along all the routes abandoned by the electric railways.

Eight-Cent Rate to Continue Indefinitely

By a recent ruling of the State Railway Commission of Nebraska the Lincoln Traction Company will continue indefinitely its 8-cent cash fare. The schedule of rates is 8 cents cash with four tokens for 30 cents within the Lincoln zone. Between outlying points and the city the fare is 10 cents. School children are transported for 5 cents. The company has been operating under a temporary ruling since December, 1920, and this schedule expired on June 30, 1921.

London General Omnibus Plans New Services

According to *Motor Transport* for July, 1921, the London General Omnibus Company plans to open up large country services in the outer circles of Greater London. These new routes will provide facilities between points hitherto without direct means of communication. The routes are through somewhat hilly districts. In consequence a considerable number of single-deck buses of the K type, especially designed for these services, are

in course of construction. The new vehicles will each seat thirty-four passengers. They are expected to overcome the difficulties which have arisen in certain localities, where the existence of bridges over railways of insufficient strength to take the ordinary type of bus, has caused considerable inconvenience.

Case to High Court

Lower Court at Louisville Seeks Answers on Questions of Law from Supreme Court

The Louisville Railway case has been passed by the United States Circuit Court of Appeals to the Supreme Court of the United States. That, in brief, is its decision regarding the appeal of the city of Louisville from the decision of Judge Evans barring interference with the collection of a 7-cent fare by the company.

Holding the case is one which the Circuit Court should not decide, Judge L. E. Knappen announced from the bench that the court would reserve decision until it had certified certain questions of law to the Supreme Court. What these questions are was not made public.

These questions are expected to reach the Supreme Court in time for the October term. In the meantime, the company may continue to collect the 7-cent fare by authority of Judge Evans' injunction.

In the opinion of Churchill Humphrey, attorney for the company, one of the questions that has been passed to the higher court is the construction of Section 3 of the Bill of Rights of the Kentucky Constitution, which says in effect that no corporate franchise shall be granted unless such be subject to alteration, amendment or revocation.

The Supreme Court, it was said, may merely answer the questions certified to it by the Court of Appeals, or it may order sent to it for its perusal the records of the entire case. In the first event, the answers would come back to the Circuit Court, which would then hand down a decision. In the latter case, the decision would probably come down from the higher court.

The city contends, according to counsel, that the franchise, contracts and agreements calling for a 5-cent fare are binding and continuing in force, while the company's contention is that the contracts are purely regulatory and subject to change.

Company officials estimate that if there had been a decision favorable to the city, it would have to refund on rebate slips a maximum of \$142,000. It estimates that it has sold 12,000 strips of tickets a day since March 24. This would mean a refund of \$1,200 a day for 119 days. The company believes, however, that not more than 50 per cent or 60 per cent of the rebate slips have been saved. The company collected a 7-cent fare forty-one days without issuing receipts.

Commission Will Hear Arguments

The California State Railroad Commission set July 26 as the date for hearing arguments of the Los Angeles Railway in support of its application for a rehearing of the rate case which has been before the regulatory body for a long time. The commission recently handed down a decision establishing a 6-cent cash fare, but specified that tokens be sold ten for 50 cents, thus retaining the 5-cent fare for regular riders.

The commission in its decision estimated that one-third of the riders would pay 6 cents cash fare. In the application for a rehearing, the railway contends that this estimate is too high and declares that 20 per cent would be a hopeful estimate.

The valuation of the company's property used in establishing the base rate of profit is as of June 30, 1920. The company contends that improvements made since that time have increased the valuation about \$5,000,000.

Auto Transportation Act Interpreted

In an order granting certificates of necessity and convenience to both the Barker Motor Company and the firm of Porter & Richards for the operation of auto stages between Everett, Stanwood and Mount Vernon, the State Department of Public Works of Washington makes its initial announcement of regulative principles adopted in relation to auto transportation under the laws of 1921, so far as they are involved in the case decided. Both companies were operating over the routes described on Jan. 15, 1921, by which they are automatically entitled to certificates under the act, if operating in good faith.

Protest against the good faith qualification for exclusive rights on the route was made on behalf of the Seattle, Everett and Vernon Stage Lines Company, on the ground that the two operating companies had not complied with the jitney bond requirement of 1915, for the privilege of entering and leaving stations within the limits of cities of the first class. As the attorney-general has held prior compliance with the municipal jitney bond requirement to be a condition of good faith upon stage companies entering first-class cities, it is expected that the department's decision to disregard the requirement as to lines established before the present certificate of necessity act became effective will be the basis of litigation on the part of contesting stage lines. On this point, the Department of Public Works, in its ruling on the Everett-Mount Vernon contest, says:

We are not inclined to hold that failure to procure a bond under the law prior to Jan. 15, 1921, must necessarily taint the operator with bad faith and preclude the issuance of a certificate under Chapter 3 of the session laws of 1921. There is such a diversity of opinion even among lawyers as to whether the requirements of Chapter 57 of the 1915 laws apply to stage companies which merely enter city limits for

the purpose of receiving and discharging passengers. It would seem harsh to hold that every such operator who failed to procure a bond was necessarily acting in bad faith. We hardly believe a layman should be penalized for failure to comply with statutory provisions when lawyers of standing and ability doubt the application of the law to his case.

A wilful and inexcusable violation of the plain statute or ordinance affecting the operation would present a different question.

This latter conclusion is as near as the department undertakes an expression as to whether failure of stage companies to comply with the jitney bond law on routes entering first-class cities will be accepted by the department as a lack of good faith.

Motor Vehicles Must Pay in Illinois

An amendment to the motor vehicle law of Illinois, made effective July 1, 1921, provides that "all vehicles, trailers and semi-trailers used for carrying freight, when used for hire, operating regularly over fixed or definite routes between two or more municipalities, or from a point or points outside of municipalities into a municipality over improved state highways, and with fixed schedules or rates, shall pay an additional license fee of $\frac{1}{2}$ cent per mile . . . for the total mileage traveled over such improved state highways by each vehicle, trailer or semi-trailer in each calendar month."

Furthermore, all similar vehicles used for carrying passengers, when used for hire, and operating regularly on fixed routes over improved state highways, and with fixed rates, must pay "an additional license fee of one-twentieth of 1c. per mile for each passenger seat, multiplied by the total number of miles traveled by such vehicle over the improved highways."

The new public utilities act also provides that no person shall operate any motor vehicle for the carriage of passengers for hire, or for the carriage of freight for hire, unless he shall file with the commission a sworn statement of his ability to pay all damages which may result from any accidents due to the negligent use of the vehicle, or file with the commission security or bond guaranteeing the payment. In case one person operates two or more motor vehicles, he must file proof of his ability to pay damages, or provide a bond, and carry insurance against damages, to the amount of \$10,000 for each motor vehicle.

Maps Prepared to Guide Trainmen

Maps of all lines showing danger points are being prepared by the Los Angeles (Cal.) Railway for the use of trainmen. The maps will indicate fire stations, garage entrances, busy curves and intersections, schools, grades and other points of risk. This plan follows the successful use of line transfer maps which were furnished trainmen when the new coupon transfer was introduced May 1. These maps showed the routes of lines on separate sheets with a red line indicating "in" trip and a blue line showing "out" trip.

Injunction Refused to Connecticut Jitney Men

Judge Keeler of the Superior Court for New Haven County has refused to grant a temporary injunction to the jitney men to restrain the prosecuting officers and chiefs of police in New Haven and Derby from referring complaints and making arrests under the new act regulating buses in that state. The act was attacked for its unconstitutionality on various grounds.

ALL OBJECTIONS DISMISSED

The court dismisses all nine of the objections cited. It holds the new law to be a legitimate exercise of the police power by the General Assembly with reference to a business peculiarly affected by a public interest with ample provision by way of review to insure to any one concern due process of law whereby his constitutional rights may be safeguarded. In disposing of the objection that the legislation takes the plaintiff's property without due process of law, the court holds that clearly no tangible or visible property of the plaintiff was so taken. It says that prior to the enactment of the statute jitney proprietors clearly enjoyed nothing properly called a franchise. They merely followed a calling subject to some degree of special regulation of law. The court further holds as lacking merit the two grounds of objection that the act grants special privileges to certain classes of persons and that it deprives the plaintiff of equal protection of the law. The court held that these objections in effect presented the same questions. The ruling of the court was that an electric street railway had to obtain a certificate of convenience and necessity similar to that acquired by the bus owners to operate.

JITNEY OPERATORS ARRESTED

On orders of City Attorney Sheridan Whitaker of New Haven all jitney drivers on the streets after noon of July 23 were arrested charged with violations of the state jitney law. Even those jitneys which bore "Free Bus" signs were ordered arrested.

Attorneys for the jitney men on July 25 went before the City Court and asked to try but one of those arrested, the others to share alike in the ultimate result. The next step was to plead not guilty and the attorneys filed a demurrer, which the court was asked to overrule so the case could be taken to the Court of Common Pleas, which convenes the first Monday in August. It is planned to follow the same procedure in that court so as to be able to take an appeal to the Supreme Court as soon as possible.

A move to take the case to the Federal court is also going forward. The plan is to move for the fixing of a date for a hearing on an injunction, making the jitney men the plaintiffs and the State of Connecticut the defendant on the ground that it is depriving some of its citizens of private property and their livelihood.

Trolley Bus Installation Proposed at Akron

The officials of the Northern Ohio Traction & Light Company, Akron, Ohio, have agreed to install at least one trolley bus on the West Exchange Street extension as soon as one of the new vehicles is available. The announcement follows a series of conferences between City Councilman Joseph O'Neill and the traction officials. The city councilman proposed to use the new trolley bus on all city car line extensions so as to eliminate the necessity of laying track.

Advocates of the extensions would have the city sell bonds for the purchase of the trolley buses, the principal and interest of which would be guaranteed by the railway. This would give the city a hold on the company in case the municipality should decide to purchase the lines when the present franchises expire in 1924. City officials estimate at present 20 miles of extensions are needed. Trolley buses could perform this service on an investment of \$350,000, it is said.

The traction officials estimate the cost of overhead wires and poles necessary for trolley bus operation would average from \$4,500 to \$7,500 a mile. Railway engineers estimate the cost of track to run from \$45,000 to \$60,000 a mile. Trolley buses are estimated at \$9,000 each. The adoption of the trolley bus will permit the extension of many car lines which under the traction company's present financial status would be impossible.

This is the fourth city in the United States so far which has adopted the trolley bus as an auxiliary to street railway systems. Other cities in their order named are Richmond, New York and Buffalo.

Salt Lake & Utah Granted Fare Increase

The Public Utilities Commission of Utah has issued an order granting increases in fare on the Salt Lake & Utah Railroad, Salt Lake City, Utah, also known as the "Orem line." One-way tickets are to be increased 20 per cent. Round-trip tickets, for which a 20 per cent increase was asked, are permitted to be increased 1.8 per cent of one-way fare. One thousand-mile books are increased from 2¼ cents to 2½ cents a mile. No increase in 500-mile books, commutation tickets or school tickets is allowed.

The application of the railroad company was for authority to increase passenger rates and excess baggage rates in all 20 per cent. The company set up a book value on the property to support the application. The commission stated that it found the income statement indicated so clearly the need for additional revenue that it felt it unnecessary to await the actual physical valuation of the property, it being apparent that the book values showed that the company's revenues were not sufficient. The commission stated that the company had not up to the present

been able to set up a depreciation reserve on its property as a whole. The only class of property that had been depreciated was rolling stock and shop equipment.

Eight-Cent Fare Decreased Traffic Slightly

Notwithstanding the fact that fares have been increased from 5 cents to 8 cents in Portland, Ore., within the past three years, the number of passengers increased the first two years, with a slight falling off in traffic when the 8-cent fare went into effect. The figures are as follows:

Year	Rate	Fares Collected
1917	5-cent fare.....	60,611,072
1918	6-cent fare.....	68,628,602
1919	6-cent fare.....	73,960,478
1920	6-cent fare to June 15 and 8-cent thereafter	71,175,872



Operator's Name Posted.—The Trenton & Mercer County Traction Company, Trenton, N. J., has adopted the plan of posting the name of the operator of the car above his head so that passengers may become acquainted with him. The card reads: "The operator of this car is _____."

New Fare in Effect.—The City Light & Traction Company, Sedalia, Mo., recently put into effect a 6-cent fare for purchasers of tickets and 10 cents for a cash rate. Children may ride for half fare. In promulgating the new schedule the company considered the protection of its regular patrons who by buying tickets will pay the usual rate, 6 cents.

Eight Cents in Montgomery.—By a recent ruling of the Public Service Commission the Montgomery (Ala.) Railway, Light & Power Company has been authorized to put an 8-cent cash fare into effect. Ticket buyers will continue to pay the rate which has been in effect many months. The company through its receiver, Ray Rush-ton, applied to the commission several months ago for a 10-cent fare.

Safety Cars Allowed in Los Angeles.—The Los Angeles (Cal.) Chamber of Commerce has passed a resolution endorsing the continued use of one-man safety cars in Los Angeles "on the grounds that they greatly reduce accidents and practically eliminate those accidents entailing injury." The organization also recommended continued use of the cars to demonstrate more clearly their accident prevention features.

Lower and Higher Fares in Effect.—The Lordship Railway, Bridgeport, Conn., recently announced a reduction in fares from 6 cents to 5 cents from Hollister Avenue to Lordship Beach. However, the trip from Golden Hill

Street to the beach will cost 10 cents in place of the former 6 cents. The railway, which has charged a 6-cent rate for the past two years, was instrumental in developing Lordship Beach.

More Trains to Improve Service.—A revision in the schedule of trains on the Interstate Public Service Company's traction line between Indianapolis and Louisville, whereby the service on the line will be improved and more trains operated, became effective June 15. According to the new schedule, one new limited interurban will be operated each way daily between Indianapolis and Louisville and changes will be made in the number of local trains.

Hearing Scheduled on Indianapolis Fares.—A hearing on rates of fare to be charged by the Indianapolis (Ind.) Street Railway on expiration of the sixty-day test period of 5-cent fare and 2-cent transfers, July 31, will be held by the Public Service Commission. Officials of the railway are expected to put before the commission the losses occasioned by jitney bus competition, which are said to average more than \$1,000 daily, and on which the City Council has delayed taking action pending further developments.

Reducing Fares to Gain Patronage.—The Minneapolis, Northfield & Southern Railway, operating from Minneapolis to Northfield and Faribault, Minn., has tried to spur up its business by ordering a reduction in fares from 3.6 to 2.5 cents per mile. When the road operated before the war on a low price basis it did a large volume of business. The reduction is made possible by the return of this class of intrastate carrier to the jurisdiction of the State Railroad & Warehouse Commission. The Minnesota fare is legally 2 cents per mile.

Safety Committees Hold Meeting.—The June get-together meeting in honor of the Safety Committees of the Union Traction Company of Indiana was held in Anderson on June 6. Besides the usual frivolity which goes with the "great-great-greatest banquet" there were some serious talks by H. A. Nicholl, general manager of the company, and Ross Luellen, safety engineer. Mr. Nicholl reviewed the financial condition of the company, pointing out that the people who have stock in it have not received a penny dividend since 1912. He further stated that no extensive downward revision of wages had been made and that it was the company's intention to maintain the present scale of wages as long as conditions made it possible. He urged strict economy by every employee. Mr. Luellen, safety engineer, brought out the fact that some excellent no-accident records are being made and that a saving of power which means about \$40,000 a year to the company is being accomplished. Other speakers were John W. McCardle, chairman of the Public Service Commission of Indiana, who was the guest of honor, and John F. McClure of Anderson.

Legal Notes

CONNECTICUT—*Injury to Person at Waiting Station.*

A motorman operating a car in a country district was not guilty of wanton misconduct in running down and killing an intending passenger, who was standing 2 ft. from the track, signaling the car, and was struck by the overhang of the steps, for the motorman was entitled to anticipate, for a time at least, that the person killed would withdraw from the danger point. A person waiting at a station is in a different situation from the traveler upon a highway crossing. [Pond vs. Connecticut Company, 111 Atlantic Rep., 621.]

ILLINOIS—*Ordinance of Park Commissioners Granting Rights to Bus Company Held Not Invalid as Occupation License.*

Though a municipality has no inherent power to license any occupation or require the payment of a tax for engaging in it, it has power to impose such conditions for the grant of the use of its streets as it may deem for the best interests of the public, and for such purpose may require a contribution from a public service company, as a motor bus company, and it cannot be held that an ordinance of park commissioners granting to a motor bus company the right to use certain streets, etc., and exacting certain contributions therefor, was an occupation license or passed for revenue purposes, and therefore invalid. [People ex rel. Hoynes, State's Atty., vs. Chicago Motor Bus Co., 129 Northeastern Rep., 114.]

MASSACHUSETTS—*Intending Passenger Hit by Car Overhang on Curve.*

Where it was obvious to an intending passenger that a car would not stop at the usual point on account of a pile of paving stones, the motorman need not warn the passenger that the car would not stop and that she might be struck by the rear overhang of the car. [Fairbanks vs. Boston Elevated Railway, 129 Northeastern Rep., 367.]

MICHIGAN — *Franchise Is Construed Strictly.*

A franchise given to an interurban line with the provision that passengers for a certain fare were entitled to a continuous ride from the township "to Genessee Avenue, in Saginaw," was held to require transportation only to the junction on Genessee Avenue and not along that avenue after it was reached. [Zilwaukee Township vs. Saginaw-Bay City Railway, 181 Northwestern Rep., 37.]

NEW YORK—*Injury to Employee While Riding on a Pass on His Way to Work Held to Be Within Compensation Law.*

Where an employee of a railway company, furnished with a pass entitling

him to ride whenever he chose, was injured in a collision when aboard a train on his way to work, the remedy is not in an action at law, but under the Workmen's Compensation Law, since the injury arose in the course of his employment. [Tallon vs. Interborough Rapid Transit Co., 184 New York Supp., 588.]

NEW YORK—*A Street Railway Can Be Compelled to Raise Its Tracks to Meet Changes in the Street Grade, Though Not Ordered to Do So by Public Service Commission.*

Despite Laws 1880, Chap. 511, the Belt Line Railway Corporation, occupying Fifty-ninth Street in the City of New York can be compelled to raise one of its tracks to meet changes in the contour of the surface caused by repaving, though not ordered to do so by the Public Service Commission. [People ex rel. City of New York vs. Belt Line Railway Corporation, 129 Northeastern Rep., 217.]

NEW YORK—*Pedestrian Crossing Street Held Guilty of Contributory Negligence.*

A pedestrian who before starting to cross a street saw a car more than a block away rapidly approaching, and when he had crossed the first track saw that the car was approximately 29 ft. away, but thinking that he could get across proceeded without increasing his speed and was struck, is guilty of negligence as a matter of law, for he was as much obligated to look out for his safety as was the motorman. [McGuire vs. New York Railways, 128 Northeastern Rep., 905.]

NEW YORK—*Sleighs Need Not Carry Lights.*

A sleigh is not a "vehicle on wheels," within the meaning of Highway Law sec. 329a, providing that every vehicle on wheels shall have attached thereto a light or lights, to be visible from the front and from the rear, etc. [Vadney vs. United Traction Co., 183 New York Supp., 926.]

RHODE ISLAND—*State, Through Commission, Has Authority to Regulate Rates of Public Utilities, Such as Street Railroads.*

The paramount authority of the State to regulate the rates of public utilities, such as street railroads, through the agency of a commission, as the Public Utilities Commission, is well established. [Public Utilities Commission vs. Rhode Island Company, 110 Atlantic Rept., 655.]

WISCONSIN—*Railroad Track Laid Across a Street Is "On" Such Street, Under a Speed Ordinance.*

An ordinance limiting the speed of an interurban electric car upon track on a public street to 15 m.p.h. applies at the crossing to an interurban road which crosses a public street. [Merrill vs. Chicago, No. Shore & Milwaukee R.R., 177 Northwest Rep., 613.]

New Publications

Functions of Engineering Station of University of Illinois

By Charles Russ Richards. Circular No. 9 of the Engineering Experiment Station, University of Illinois, Urbana, Ill.

This bulletin gives details of the kinds of service furnished by the experiment station and lists the co-operative investigations now in progress.

The Engineering Index

Published by the American Society of Mechanical Engineers, New York. 586 pages.

Since 1905 this index has been published annually, up to 1913 by the Engineering Magazine Company, and since that time by the A. S. M. E. Some 700 engineering and allied publications are listed.

Management Engineering—The Journal of Production

Vol. 1 No. 1. Published by the Ronald Press Company, New York.

This is a new monthly publication designed "to serve those who are responsible for the operation of industry." The leading articles all bear on this subject. An interesting feature is that most of the articles carry at their head their numerical classification according to the Dewey system. This classification is not extended to the editorials.

Report on Standardization of Petroleum Specifications

Bulletin No. 5. United States Bureau of Mines, Washington, D. C.

This bulletin supersedes Bulletins 1 to 4 inclusive of the committee appointed by direction of the President of the United States to co-operate with the United States Fuel Administrator.

All the specifications contained in the previous bulletins have been revised and co-ordinated, where necessary, and to them have been added several not previously published. Bulletin 5, therefore contains complete specifications for all petroleum products with full descriptions of the methods of testing employed in the government laboratories.

Pamphlets and Clippings in a Business Library

By Virginia Fairfax. 62 pages; illustrated. *Journal of Electricity and Western Industry*, San Francisco, Cal.

This book is a reprint of a series of articles from the *Journal of Electricity*. The subject matter is the basis of a course of instructions at a library school and is the result of the author's experience in working out a practical method of filing pamphlets and clippings, based on approved principles of library science. The text is divided into five chapters. The points covered are the value of pamphlets and clippings when required for ready reference; the sources and selection of material; the filing equipment needed and the alphabetical subject file.

Personal Mention

Messrs. Bundy and Fast Advanced on the Ohio Electric

J. H. McClure, receiver for the Indiana, Columbus & Eastern Traction Company, on July 15 announced the appointment of F. A. Bundy as superintendent of the Lima Division of the Ohio Electric Railway to succeed C. C. Fast, who has been promoted to general superintendent of transportation, with headquarters at Springfield, Ohio. Mr. Fast's jurisdiction will extend over the property of the Indiana, Columbus & Eastern Traction Company, the Columbus, Newark & Zanesville Electric Railway and the Lima-Toledo Division of the Ohio Electric Railway. These changes were necessitated by the resignation of F. J. Moore as general superintendent of transportation at Springfield. Mr. Bundy was formerly master mechanic for the Ohio Electric Railway at Lima.

"Dan" Smith in the Arena

Enters Mayoralty Contest in Detroit—
Has Expressed Himself in Favor
of Municipal Ownership

Daniel W. Smith, well known to the electric railway industry throughout the country because of his connection with the Peter Smith Heater Company of Detroit, has announced his candidacy for the nomination for the mayor of Detroit. While no platform has yet been announced, Mr. Smith has expressed himself as in favor of municipal ownership when operated on economic lines and he is expected to put up a fight in keeping with his record as a soldier. Mr. Smith's hosts of friends in the industry will be interested in learning that he has jumped into the political arena.

Besides the numerous friends Mr. Smith has in the electric railway industry, he also has thousands of friends and admirers in Detroit where he has lived throughout his entire forty-six years. Former service men in Detroit are actively supporting his candidacy, for he has gained their friendship through his numerous activities in looking after the wants of needy veterans. During the Mexican border trouble in 1916 Mr. Smith was brigadier-general of the Michigan National Guard and saw border service in that capacity. In the World War Mr. Smith was commissioned a captain in the Motor Transport Corps.

Born in Detroit, Dan Smith is the son of Peter Smith, the inventor of the well-known heating appliances, and he is in close touch with conditions in the city of which he is a native. He is also vice-president and general manager of the Sattley Coin Counting Machine Company, treasurer of the

Liberty Foundry and president of the Daniel W. Smith Company.

Mr. Smith has long been interested in and taken an active part in the various military organizations of the state and of the country. In 1892 he enlisted as a private in Company F, Michigan National Guard. Later he was quartermaster sergeant of Company M, 33rd Michigan Infantry and saw active service in Cuba with that organization. On his return in 1899 he was made second lieutenant, Company C, First Michigan Infantry, and later he was successively captain and adjutant of his regiment. In January, 1914, he was made a major and detailed as adjutant general of the First



DANIEL W. SMITH

Brigade, Michigan National Guard. He again saw active service on the Mexican border in 1916. When the United States became involved in the World War he refused a lieutenant-colonelcy because the commission would necessitate his being detailed to Washington in the Department of Purchase and Supplies for the War Department. In order that he might get across he obtained the commission as captain of the Motor Transport Corps and was ordered to France, but the armistice was signed while he was on the seas.

Among the various organizations of which Mr. Smith is a member are: United Spanish War Veterans; American Legion; Veterans of Foreign Wars of the United States; Military Order of the World War; Military Order of Foreign Wars; Detroit Athletic Club; Detroit Boat Club; Detroit Yacht Club; Old Club at St. Clair Flats; Lochmoor Club, and Hunt Club.

Campaign headquarters are being arranged in the Barber Building on the Campus Martius and Monroe Avenue. The campaign is to be conducted purely upon lines of efficiency and economy in city government. His candidacy is bound to appeal to progressive citizens, from whom he expects support.

Mr. Goff Mediator Again

Cleveland Banker and Railway Man
Named for Difficult Post by
President Harding

F. H. Goff, Cleveland, appears again in the rôle of the great pacificator. He has just been designated by President Harding as an official go-between to promote a settlement of outstanding railroad claims against the government. Mr. Goff is president of the Cleveland Trust Company, a director of the Baltimore & Ohio Railroad and a vice-president of the Lake Shore Electric Railway, Cleveland, Ohio.

It might almost be said that to Mr. Goff these positions are an incident. They are when the opportunity arises for him to serve in a public capacity where large interests are at stake. Men like Mr. Goff can make money any time anywhere. Years back during the stormy session at the conferences between Mayor Tom L. Johnson of Cleveland and the late President Andrews of the Cleveland Railway, at which the present service-at-cost plans were laid, Mr. Goff assumed what appeared then to be the suicidal rôle of buffer. He did it at the instance of the late Judge Tayler, after whom the Cleveland franchise grant is named, and he succeeded in accomplishing the seemingly impossible. This was perhaps the first time that he came prominently before the public. He was then a member of the law firm of Estep, Dickey, Carr & Goff.

Those were the days when Mr. Johnson was holding out for a value of \$18,000,000 for the Cleveland Railway lines, the railway was contending for an allowance of \$30,000,000 and Peter Witt, the same Peter who later originated the end-entrance center-exit car which bears his name and who now attends the railway conventions, took an active part in all the negotiations.

Peter was, so to speak, the *enfant terrible* of the proceedings. Into them Mr. Goff was precipitated. After the warring factions at the hearings had tired of hurling names at one another, Mr. Goff would make one of his polite little speeches by way of throwing oil on the troubled waters, with the result that success crowned the efforts of the negotiations.

All this may sound like ancient history, but it fixed the place of Mr. Goff in public service so firmly that his is one of the first names to be mentioned in Ohio whenever a problem arises which calls for the exercise of unusual patience, skill and foresight in reconciling interests that appear to be divergent.

As was said before, the profession of banking may be only an incident to Mr. Goff, but then it is an incident that does preclude him from accepting all the honors that the public seeks to thrust on the man. After all, in his capacity as banker Mr. Goff is really serving the public continuously by conserving the funds of the countless depositors whose funds are en-

trusted to the institution of which he is the head. And he has done so well in the rôle of banker that the Cleveland Trust Company has become one of the two or three largest financial institutions in that rapidly growing community.

Lewis H. Lee to Handle Publicity of Atlanta Railway

Lewis H. Lee, of New York, arrived in Atlanta recently to take charge of the public relations department of the Georgia Railway & Power Company, replacing Charles Towne, who has returned to the New York office of the publicity and public relations organization of Ivy L. Lee.

Lewis Lee is a brother of Ivy Lee, whose publicity organization he has been associated with for two years. During that time he handled the public relations work of the Pennsylvania Railroad and the American Association of Railway Executives. Prior to his connection with his brother's concern he was with George L. Dyer, Inc., a New York advertising firm of national repute, of which another brother, J. W. Lee, Jr., has just been made president.

Mr. Lee's going to Atlanta will be a source of great pleasure to the Atlantans who remember him as a youth and to the hundreds of friends of his father, Rev. Dr. Lee, who was one of the foremost figures in the Southern Methodist church. Lewis Lee was a student at the Boys' High School in Atlanta and after his family moved to the Middle West completed his preparatory education and graduated at Dartmouth with the class of 1918. During the war he was a junior lieutenant in the naval flying corps and was awarded the naval cross for sinking a submarine during his service "overseas."

The Lee organization has recently been employed to handle the publicity and public relations angles of the Georgia Railway & Power Company, and it is to superintend the local details of that work that Mr. Lee goes to that city. The organization formed by Ivy Lee is probably the greatest of its kind in the world. Its services have for years been sought by the largest corporations of the country. The public relations of the John D. Rockefeller interests have for some time been in the hands of the concern and many large Eastern corporations and interests are dependent on the widely known organization for counsel in matters of that sort.

Operating Staff for Boise Company Appointed

The Boise (Idaho) Street Car Company, formerly the Boise Railway Company, which some time ago was sold to S. F. Watts, whose intention it was to improve and restore the property, now has for its operating personnel W. E. Pierce, president; L. H. Cox, first vice-president; J. L. Eberly, treasurer, and F. A. Wingard, general manager and superintendent.

Frank L. Dame, President

North American Company Elects an Experienced Operator and Financier as Its Head

Frank L. Dame was elected president and Edwin Gruhl was elected vice-president of the North American Company, New York, at a recent meeting of the board of directors. Vice-president Gruhl has also been appointed general manager. Harrison Williams, who, with Mr. Dame, Clarence Dillon, George T. Miller, and Edward H. Wells, was made a director in June, 1920, is chairman of the board and chairman of the executive committee. The company has had no head with the title of president since the resignation of James D. Mortimer, on Nov. 1, 1920.

Mr. Dame, by training and experience an engineer, is a man who has exerted a very marked influence on utility development through his par-



F. L. DAME

ticipation, at first in charge of construction of many properties in the Northwest, then as a manager and finally through his connection with several of the largest utility holding companies.

Mr. Dame began his business career in the testing room of the Westinghouse Electric & Manufacturing Company in Pittsburgh. After a very short training his first construction assignment was at Newburgh, N. Y., and in December, 1889, he was sent to Portland, Ore., as the engineer of that office of the Westinghouse Company. A year later financial depression caused the closing of this office, as well as some others, and Mr. Dame entered the public utility operating field as general superintendent of the Vancouver (B. C.) Railway & Light Company. The end of 1891 found him again located in Portland as engineer of the light department of the Northwest Houston Electric Company. In the following two years he was also active in street railway construction and with the replacement of equipment in several Oregon and Washington cities. This was the beginning of an association of twenty-one years with the General Electric Company, during

part of which time he was the operating head of various utility properties in the Northwest, including the Seattle Consolidated Street Railway and the Tacoma Railway & Power Company. This period covered reconstruction development, management and financing of various utilities, and also many official connections with corporations not enumerated.

In 1903 Mr. Dame went to Schenectady as engineer for the committee on local companies of the General Electric Company, which was in charge of all public utility properties then controlled by it. In the following year he was also made engineer of the newly formed Electric Securities Corporation, a subsidiary of the General Electric Company. In 1909 he was chosen vice-president of the Electric Bond & Share Company, a position which he relinquished in the latter part of 1912 to take a long-needed rest.

However, in 1913 Mr. Dame again took up active work when he joined the organization of Harrison Williams, New York. Since then he has served as an officer and director of nearly all of the companies in which Harrison Williams has a controlling interest, including the Central States Electric Corporation, of which he is president; the Cleveland Electric Illuminating Company, of which he is vice-president, and the Republic Railway & Light Company.

Eustace J. Knight has succeeded Edward J. Doyle as secretary of the American Public Service Company, Chicago. Mr. Knight's former position as assistant secretary of the company has been filled by R. E. McKee. Mr. Knight has also been appointed secretary and assistant treasurer of the Middle West Utilities Company, Chicago, an office which likewise had been held by Mr. Doyle. R. E. McKee has been made assistant secretary and E. K. Davis has been appointed auditor.

E. R. Butler has been appointed trainmaster of the southern division of the Interstate Public Service Company railway lines known as the Indianapolis & Louisville Traction Railway, succeeding R. B. Kent, resigned. Mr. Butler entered the employ of the Indianapolis, Columbus & Southern Traction Company as a conductor in 1908, thereafter serving as conductor, motorman and dispatcher. He was appointed trainmaster of the latter company in July, 1919, and on May 1, 1920, was given leave of absence from this company and appointed trainmaster of the Louisville & Northern Railway & Lighting Company and the Louisville & Southern Indiana Traction Company, which have since been taken over by the Interstate Public Service Company. In his new position Mr. Butler will have charge of the operation from Seymour, Ind., to Louisville, Ky., including the city and suburban lines in Jeffersonville and New Albany.

Manufactures and the Markets

DISCUSSIONS OF MARKET AND TRADE CONDITIONS FOR THE
MANUFACTURER, SALESMAN AND PURCHASING AGENT

ROLLING STOCK PURCHASES

BUSINESS ANNOUNCEMENTS

Shipments of Cement Now Exceed Production

Stocks on Hand as of June 30 Above Normal, but Much Less than in Previous Two Months

The approximate production of finished portland cement in the United States during the first half of 1921, according to the Geological Survey, was 42,468,000 bbl. This amount represents about 94 per cent of the quantity made in the corresponding period of 1920.

The year 1921 began with mills producing at a moderate rate and shipments considerably less than production, but month by month both production and shipments of finished cement increased at a rapid rate, shipments exceeding production in May and June. Production in June was slightly greater than in June, 1920, and also a little above the average for that month during the last five years. The shipments in June of more than 10,500,000 bbl. were larger than those of any preceding June.

Stocks of finished portland cement on hand as of June 30, 1921, amounted to 11,150,000 bbl., compared with 10,300,000 bbl. on Jan. 31. The level of surplus stocks reported on June 30 of this year is slightly above normal, though it is less than the April 30 total of 12,600,000 bbl. On June 30, 1920, stocks of cement in the country totaled 9,000,000 bbl., and on Dec. 31, 1920, 8,941,046 bbl.

Coal Production Below 1920

Statistics of the Geological Survey of the Department of the Interior show that in point of production of soft coal the year up to July 16, 1921, was, in round numbers, 23,000,000 tons behind 1920, 67,000,000 tons behind 1919 and about 91,000,000 tons behind the war years. The average production per working day, which declined from 1,267,000 tons in the week ended July 2 to 1,237,000 tons in the week of July 9, dropped still further to 1,227,000 tons for the week ended July 16. This is a decrease of about 4 per cent in two weeks.

The current rate of production, however, is still far above consumption. Public utilities apparently exhibit no anxiety over their coal needs in the coming winter for they continue to hold off on buying. Meanwhile the margin of surplus cars available is not great, due to the large number of bad-order cars. If even a moderate revival of business takes place this fall, it is stated, the limit of cars available would soon be reached.

Prices of bituminous coal, the spot

index of *Coal Age* shows, have remained stationary for the last two weeks and are now fixed at an almost irreducible minimum by production costs.

Cedar Pole Stocks Are Good

Producers Expect Good Demand by Next Spring and Are Going Ahead With Production

A survey of the cedar pole market finds generally slack conditions of buying, though by no means a pessimistic outlook on the part of producers. The first half of the year has been pretty quiet in this line, with prospects that the fall will show some improvement. Some producers, however, do not look for an active market before next spring. There is much work being held in abeyance that should result in pole buying, it is stated, and on the expectation that by next spring sales should be brisk pole producers intend to go right ahead and produce a normal quantity this fall and winter.

There have been some inquiries and orders from central stations but up to this time electric railways have shown little or no interest. A large producer of Southern white cedar poles reports that though April and May were quiet months, June sales showed up better. One of the factors cutting demand for cedar poles has been the increased competition from local chestnut poles which make their appeal on the ground of lower cost. Existing high freight rates on pole shipments from the West serve to maintain this advantage but producers are hopeful of relief being afforded there before long.

Competition in the pole market is keen right now, with good stocks held at distribution points and immediate shipments generally made. Prices have not changed since three months ago on Western red cedar poles, at which time a cut of 15 to 22 per cent was made. Northern white cedar poles have not been reduced, it is stated, and in the opinion of a prominent producer are not very likely to be reduced because of their increasing scarcity. Current quotations on Western red cedar poles are as follows: f.o.b. New York, 30-ft. 7-in. top, \$9.55; 35-ft. 8-in. top, \$16.10; 40-ft. 8-in. top, \$19.15, and the same poles f.o.b. Chicago, \$8.30; \$13.90, and \$16.30 respectively.

Railway Supplies for Japan

A commission merchant from Japan who is in the United States desires to purchase railway supplies. Further information may be had by referring to No. 35,189, Bureau of Foreign and Domestic Commerce, Washington, D. C.

W. P. Wire Operation at 50 per Cent Capacity

General Demand Slightly Better With Prompt Shipments and Stocks that Are Still too Large

Central station extensions are not making very noticeable inroads on jobbers', distributors' and manufacturers' stocks of weather-proof wire. There is some central station buying in the Chicago territory, the southeastern states find sales holding up pretty well on Nos. 6, 8, 10 and 12 and the St. Louis district is finding a slightly increased demand for weather-proof wire in sizes Nos. 6 and 8. There some of the jobbers are buying to keep their stocks on an even level. New England reports show a decided change for the better as the number of building permits and of contracts for wiring old houses is increasing favorably, calling for line extensions. New York territory is not noticeable in its purchasing.

Still there has been considerable residence building in the Northwest, southern California, the Intermountain districts, the Southeast, in some parts of the New York territory and in parts of New England, and this should encourage sales of weather-proof for street extensions outside of congested city districts. But electric railway buying and central-station buying as a whole have been so quiet the weather-proof wire mills are running at a rate of about 50 per cent only. Shipments naturally are good and stocks are still too high for mill comfort. Bare copper wire is quoted at 14 $\frac{1}{4}$ -14 $\frac{1}{2}$ cents bare at the mill, up-river fine para rubber at 15 $\frac{1}{2}$ cents, first latex crepe at 14 $\frac{3}{4}$ cents and spot cotton in New York at 12 cents.

Weatherproof wire can be purchased at a relatively low rate, about a 15 $\frac{1}{2}$ cent base ruling for No. 6.

Paris-Lyons-Mediterranean Company Will Electrify

The Paris-Lyons-Mediterranean Company proposes to electrify all its lines, starting with that from Lyons to Marseilles, which bore a traffic of 14,000,000 tons of freight per kilometer in 1913. This line, according to the "Fortnightly Survey of French Economic Conditions," New York City, compiled by the French commission in the United States, serves both directly and indirectly Modena, Grenoble, St. Etienne, Geneva, Roanne and the lines from Tarascon to Certe and Grenoble to Marseilles. So inadequate are the facilities of this last line at present that much of the traffic has to be diverted via Valence.

The electrification of the Lyons-Marseilles line will require 200,000 kw., of which 150,000 kw. must be supplied by the Alps-Rhône region. The power stations to be built along the Rhône will be able to furnish this power, and plans are being made accordingly. The P. L. M. Company also intends to construct a power plant itself which will be located at Mondargon.

It further proposes to develop the power resources of the Bessorthe River. The upper basin would permit the construction of a reservoir of 15,000,000 cu.m. capacity. The fall of 1,100 m. would make available, once the reservoir is constructed, 10,000 kw., an important portion of the power needed by the company in this neighborhood.

The Government Railway Administration had already electrified a section of line in this region in 1911. In the same year it decided to extend its electrified line another 35 km. from Mure in Dauphiné to Gap in Haute Provence. If the saving in coal on the government's line from Mure to Gap be taken as basis of comparison, the electrification of the P. L. M.'s Lyons-Marseilles line should mean an annual coal saving of 5,000,000 tons.

\$8,161,000 Spent for Electric Locomotives in 1919

Bureau of Census Production Figures for Certain Materials Used by Traction Companies

In the preliminary statement of the 1920 census of manufacturers with reference to the manufacturing of electrical machinery and apparatus, just issued by the Bureau of the Census, Department of Commerce, several items appear which may be of interest to traction companies. Comparative figures also are given for 1914 and 1909.

	1919	1914	1909
Electric locomotives.....	\$8,161,000	\$3,721,000
Railway switches, signals and attachments.....	4,467,000	6,394,000	5,377,843
Insulators.....	6,504,000	—	not specified—
Lightning arresters, choke coils, reactors and other protective devices.....	2,353,000	1,189,000	940,171
Pole-line hardware	9,379,000	—	not specified—

Rails, Ties, Fish Plates, Tie Plates, etc., Increase Over 1919 Figures

In its tables of detailed statistics of rolled iron and steel produced in the United States in 1920, the *Iron Age* has listed a few products of interest to traction companies. There were 2,604,116 gross tons of steel rails produced in 1920, but in 1919 there were 2,203,843 tons produced here. Production of steel railroad ties in 1920 was the highest since 1916, the respective figures for 1916, 1917, 1918, 1919 and 1920 being 34,311 gross tons, 9,103 tons, 6,438 tons, 16,645 tons and 26,310 tons.

Angle splice bars in 1919 were produced to the extent of 111,169 gross tons, steel and iron combined, while in 1920 this figure jumped up to 175,278 tons; tie plates increased from 205,210 tons in 1919 to 263,635 tons in 1920; fish plates in 1919 amounted to 11,850 tons, and in 1920 they came to 16,603 tons; other rail joints in 1919 amounted to 49,854 tons and in 1920 increased to 71,236 tons. The output of spikes, bolts, nuts and similar fastenings is not included.

Rolling Stock

The New York, New Haven & Hartford Railroad, New Haven, Conn., which placed an order for eight 60-ft. steel motor cars and fourteen trailers of the same type with the Osgood-Bradley Car Company about two months ago, will receive these cars in the fall of 1921, it is stated. The cost of the motor cars is about \$70,000 each and the trailers about \$35,000 each. The cars are similar to those now in use on the New Haven's electrified division.

Track and Roadway

St. Petersburg (Fla.) Municipal Railway has deferred its construction work. Efforts to sell \$65,000 of municipal bonds for the building of two loops to relieve congestion on the downtown divisions have failed. Should further efforts fail citizens have pledged to take the issue at practically par.

Public Service Railway, Newark, N. J., is improving the grade on Haddon Avenue, Camden, for a distance of 1700 ft. and is installing new rails and ties. The company will also lay a new roadbed from Camden to Collingswood.

Trenton & Mercer County Traction Corporation, Trenton, N. J., has been ordered by the City Commission to improve the roadbed on certain streets in Trenton. This will include new tracks on Olden, Hamilton and Pennington Avenues.

Oklahoma Railway, Oklahoma City, Okla., has petitioned the city for a three months' extension in which to complete the laying of tracks between McNabb and Lincoln Parks. The work was to be finished by Dec. 31. The railway's reason for not finishing the work on time appears to be the hardship of construction in the winter and the desire to rebuild other lines in need of repair, including the tracks on Main Street west of Hudson.

Seattle (Wash.) Municipal Railways, may be forced to make an extension on Beacon Avenue which will cost about \$100,000. The City Council recently voted to add this extension to the eight proposed railway betterments.

Milwaukee Electric Railway & Light Company, Milwaukee, Wis., was recently before the Railroad Commission as a result of the petition of the City Council ordering double tracking of the North Avenue line from Forty-fifth Street to Lisbon Avenue, a distance of about two blocks. The commission at the same time considered the petition of the City Council for an extension of the Thirty-fifth Street line of the company on Center Street between Sherman Boulevard and Fifty-first Street, a distance of about a half a mile. The case was taken under advisement.

Power Houses, Shops and Buildings

Pacific Electric Railway, Los Angeles, Cal., has abandoned its project of moving its carhouse at Fifth and American Avenues, Long Beach, to the west end terminal of the lines. Mr. Titcomb said that all arrangements had been completed for the transfer until the new city charter was adopted which placed restrictions on the erection of carhouses and installation of switching facilities on and around Morgan Avenue.

Professional Note

J. M. Pneuman, for the past five years commercial engineer in the railway department of the Westinghouse Electric & Manufacturing Company, is now acting as a consultant on equipment maintenance matters. He is giving special attention to equipment maintenance problems, or assisting the management to establish proper maintenance practices, and is taking care of this work on a retainer basis, dividing his time among the several companies in Ohio by which he is at present engaged. Mr. Pneuman is well qualified through long

experience to advise in these matters and in more general engineering studies, particularly as applied to the smaller companies. From 1902 to 1906 Mr. Pneuman worked as an inspector on the elevated lines of the Brooklyn Rapid Transit Company and attended night school at Pratt Institute during this time. From 1906 to 1910 he was employed in the factory of the Westinghouse Electric & Manufacturing Company. During the following year he was foreman of maintenance of locomotives at the Stamford, Conn., shops of the New York, New Haven & Hartford Railroad. In 1912 he became master mechanic of the Annapolis Short Line at Annapolis, Md., which was then operated by Allen & Peck, Inc. Leaving this position in 1914, he became chief engineer of the Buffalo, Lockport & Rochester Railway, continuing in this position until he went with the Westinghouse Company again in 1916, this time in the commercial engineering department.

Trade Notes

A. F. Zacher has resigned, effective at once, as district manager of the Buffalo office of the Economy Fuse & Manufacturing Company, Chicago, Ill.

John D. Nicklis, manager of the supply department in charge of mill supplies, Manning, Maxwell & Moore, Inc., 119 West Fortieth Street, New York City, has been appointed manager of supplies and purchases in charge of centralized purchasing at the home office.

Topping Brothers, 122 Chambers Street, New York City, jobbers of railway track supplies and heavy hardware, have appointed Spencer Reed Company, 1265 Boylston Street, Boston, its representative in the New England territory. Frank F. Spencer for several years represented Joseph T. Ryerson & Son, manufacturers of machine tools, iron and steel products, etc.

The International Register Company, Chicago, Ill. through its sales agent, the Electric Service Supplies Company, has leased 112 International portable hand registers to the Third Avenue Railway Company, New York City. These registers are attached to the fare box and used as an additional check on fares. About 250 of them were also placed with the Public Service Railway Company, Newark, N. J., earlier this year, for use on its safety cars.

Handlon-Buck Manufacturing Company, St. Louis, Mo., manufacturer and dealer in electric and steam railway supplies, announces the election of new officers at a recent meeting of the board of directors. A. H. Handlon, Jr., formerly vice-president and manager, becomes president and treasurer; E. R. Handlon, secretary, has been made vice-president; E. W. Handlon, formerly vice-president and treasurer, retains the office of vice-president; and R. D. Teasdale has been elected secretary. The death of A. H. Handlon, president of the company, as announced in the June 25 issue, left a vacancy in the executive personnel.

New Advertising Literature

Belt Conveyors.—The Link-Belt Company 910 South Michigan Avenue, Chicago, has issued a new book, No. 215, on belt conveyors in which it describes the "Unitroll" and "Multiroll" idlers. The company has also issued a new steel chain data book, No. 475.

Water-Cooling Apparatus.—The Binks Spray Equipment Company, 3114 Carroll Avenue, Chicago is distributing a small circular describing its "Spra-Rite" cooling pond equipment for steam and ammonia condensers.

Brazing Torch.—The Production Engineering Corporation, 40 Sudbury Street, Boston, is distributing a circular covering the "Bantam" electric-gas brazing torch, recently developed by the company.

National Board of Fire Underwriters, 207 East Ohio Street, Chicago has issued a fifty-two-page booklet on its "Organization, Purpose and Methods." A description of the services rendered, together with the working method of the organization and numerous illustrations of testing methods and the various labels used, are given.