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JAMES H. MCGRAW, President.

HUGH M. WILSON, 1st Vice-President. A. E. CLIFFORD, 2d Vice-President.

CURTIS E. WHITTLESEY, Secretary and Treasurer.

TELEPHONE CALL: 4700 BRYANT. CABLE ADDRESS: STRYJOURN, NEW YORK.

HENRY W. BLAKE, Editor.

L. E. GOULD, Western Editor.

Associate Editors:

RODNEY HITT, FREDERIC NICHOLAS, WALTER JACKSON.

News Editors:

G. J. MACMURRAY, FRANK J. ARMEIT.

CHICAGO OFFICE.....1570 Old Colony Building

CLEVELAND OFFICE.....1021 Schofield Building

PHILADELPHIA OFFICE.....Real Estate Trust Building

EUROPEAN OFFICE....Hastings House, Norfolk St., Strand, London, Eng.

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### Prompt Settlement of Claims

One page of the annual report of the Interborough Rapid Transit Company of New York for the last fiscal year, an abstract of which is published elsewhere in this issue, is devoted to a statement in reference to the results of the policy which has been adopted in the settlement of claims for accidents and damages. The total disbursements for the year in settlement of all claims, suits and judgments were equal to 0.62 per cent of the gross operating revenue. The expense of the legal and claim departments amounted to an additional 0.38 per cent, making a total of 1 per cent for the year. This percentage appears very low in comparison with the showing of the average street railway company. No comparison of this nature, however, is exactly fair because of the advantage held by the subway and elevated lines, which operate on other than street levels. However, the speed at which the trains are operated and the unparalleled congestion of the territory served contribute a hazard to operation which is not experienced in the same degree by any other company in the country. Notwithstanding these manifest differences in conditions, attention should be called to the attitude with which the company now meets all claims of this nature. Mr. Shonts, the president, attributes the favorable results of the cases tried in court to the policy of the company of settling claims outside of court unless the company considers them to be either fraudulent or exorbitant. Prompt settlement of just claims and avoidance of prolonged litigation wherever possible tend to prevent the dangerous accumulation of liabilities on account of claims of this character, and are policies which may be adopted by smaller companies with satisfactory results.

### The Atlantic City Program

A study of the programs arranged for the Atlantic City conventions of the different electric railway associations shows some changes from those of last year. With the exception of Monday, the opening day, the sessions of the Accountants, Engineering and Transportation & Traffic Associations will be held during the mornings of convention week, while those of the American Association will be held on the afternoons of Tuesday, Wednesday and Thursday. This arrangement was adopted primarily to permit any delegates who wished to attend all of the meetings of the American Association to do so and yet be present at the sessions of any one of the affiliated associations which they desired to attend. Incidentally the new plan gives, we believe, a better distribution of the time available for the sessions of the Engineering Association than last year, when there were three afternoon meetings. Under the old

plan Thursday was the only day which was set aside by the engineers for the inspection of exhibits, whereas now every afternoon is available for that purpose. The Engineering Association hopes by confining its meetings to one long session each day to accomplish really more work than by the former arrangement of two sessions. Another feature of the program this year with each of the affiliated associations, except the Claim Agents, is the marked preponderance on the programs of committee reports over individual papers. Thus the Accountants have scheduled for convention week two formal papers, two addresses or informal talks and the reports of six committees, outside of the nominating committee and other committees appointed at the convention. Last year the program of the association contained six papers, one address and three committee reports. The convention of the Engineering Association will be made up this year, as last, entirely of committee reports, of which there are eleven this year as compared with nine last year. The Transportation & Traffic Association proposes to consider this year one formal paper and the reports of nine working committees, while last year the program of the association listed four papers and the reports of seven working committees. The Claim Agents have always held to the plan of papers rather than of committee reports, but expect this year to have eight instead of seven papers presented for their consideration.

#### The Meeting of the Governors

The first general meeting of the State executives, since the early history of the country at least, was called by President Roosevelt to consider the subject of the conservation of our national resources. But the governors seem to have become infected with the desire to form an association which is now so general among the different trades and industries, and the meeting at Spring Lake this week was the second since that called in Washington. If an association of State governors will tend to make more uniform many of the diverse State laws on subjects of national importance, it will be of benefit to the country at large. A good beginning might be made, for instance, in the inheritance tax laws, under which at present every State which can base the shadow of a claim to any portion of the property of a testator exacts its full percentage. In effecting any reforms of this kind it might be said that the duty of enacting legislation in most States is placed by their constitutions upon the legislatures, but the tendency of the times seems to be for the chief executives to assist very largely in this work. The important part taken by the States at present in shaping the destinies of public utility corporations is shown by the reservation of an entire day to a discussion of this subject. Ten years ago such a topic would naturally have been considered only in a conference of mayors. But municipal control in these matters in most cases has gradually been absorbed by the State, and comparatively little authority outside of that connected with the police power is now left to the city rulers in matters relating to the public utility companies of their own community. The date at which this issue went to press precluded an account of the meeting on Friday, at which the State control of public utilities was considered, but a report is published of the meeting on employers' liability.

#### THE MANUFACTURER AND THE RAILWAY MAN

Several reasons have been advanced to explain the fact that the electric railway convention exhibit is larger and more elaborate than that conducted at the convention of any of the other national technical associations. The cause is certainly not the extent of the industry, because in capitalization the electric railways of the country are greatly exceeded by the steam railroads and in number of companies by both the steam railroads and the electric lighting companies. Nor is it because of a greater purchasing power, because the expenditures of the steam railroads in their car and motive power departments alone must be greater than those of the electric railways for mechanical equipment. Still a third reason, the theory that the electric railway industry or the art is growing more rapidly than any other, is hardly tenable.

The explanation in our opinion is the close relation which has always existed in the electric railway industry between the users and the manufacturers. Ever since the beginning of electric traction all of the motors, transformers, generators and prime movers and most of the cars and trucks required by the electric railways have been built in outside manufacturing establishments. Few, if any, electric railway companies have followed the example of many steam railroads and built the greater part of their equipment in their own shops. Even in the smaller parts of the equipment, such as registers, heaters, overhead appliances, etc., the electric railway companies have looked to others to supply their needs. Thus the electric railway industry—perhaps more than any other—has been the means of developing a large corps of outside experts, connected for the most part with manufacturing companies, who have been devoting themselves under the stress of business competition to improving some phase or phases of the electric railway transportation problem.

We do not consider this situation to be in any way discreditable to the engineers connected with the railway companies themselves. In fact, we are sure that as individuals and as a body they would be the last to attempt to ignore the benefits which they have received and are constantly receiving from the engineering and inventive talent possessed by the manufacturers. Undoubtedly many improvements in apparatus have been originated by railway engineers. But as a rule their services have been most valuable, so far as the design and manufacture of electric railway apparatus is concerned, in determining the requirements of the apparatus needed. The details of the design and manufacture of apparatus required have then been left to be worked out by the builders. This, to our mind, has been a most favorable condition, and one which tends far more to economy of production and efficiency of product than if each company attempted to manufacture its own supplies, to the same extent, for instance, as do the steam railroads.

One practical effect of this situation is that the relations between the manufacturers and the electric railways are quite different from those which usually exist between a buyer and a seller. The latter does not merely produce a staple article which he tries to make as cheaply as possible and then to sell as dearly as possible. He is an expert in departments of his customers' business, which he often un-

derstands as well as the latter and sometimes better, because he gives his entire attention to that one subject. Hence not only his products but also his advice is often sought by the railway company, and properly so, even in the establishment of standards of apparatus for the entire industry.

This condition explains one fact which has often caused surprise among those manufacturers who are unacquainted with the electric railway field. They cannot understand why some exhibitors who have gone to great expense in making a display at a convention should be satisfied with their efforts when the close of the convention has resulted in few if any contracts. They do not realize that an electric railway exhibit is not like the Stock Exchange, where men gather simply to buy and sell. Instead, it is more a meeting place of the user and the designer. The essential difference between these two relations is illustrated by the fact that prices, although often quoted, do not form the main topic of conversation between exhibitor and delegate and actual orders are still rarer. The purpose which most manufacturers have in attending a convention is to learn the point of view of the railway men and to show and explain to them such new apparatus as the manufacturers have made during the year.

The conclusions to be drawn from this condition of affairs are numerous. One is that whomever else manufacturers send to a convention they should include among their representatives their engineers and chief designers. Such a policy would be helpful to these men because it would enable them to learn from the users just what they want. It would also be of great assistance to the railway delegates to talk their problems over directly with these men.

A second conclusion is that railway men should make more use of the expert knowledge of the manufacturers on special subjects, both at the convention and at other times. If, for instance, the engineers of the manufacturers should generally attend the conventions as already suggested we believe that their participation in the discussions upon mechanical subjects could properly be sought to a greater extent than it is. We assume, of course, that their remarks would be free from commercialism, but the privileges of the association have not been abused by manufacturers to any extent in this way and there is no reason to fear that they will be in the future.

A third suggestion is that in such advertising literature as the manufacturers prepare for the convention—in fact, for all purposes—they lay stress upon the engineering merits of their appliances. They need not be afraid that any good technical points which they may make will be overlooked. A catalog—or an advertisement—which presents merely bald claims is about as interesting to a railway engineer or manager as a convention exhibit would be which was made up of boxed apparatus. Preferably such advertising literature should be prepared by the best engineer or sales-engineer of the company, one who really knows the troubles of the railway man and the way in which the device or apparatus for sale will overcome them. Sales arguments prepared in this way will accomplish a thousand times more good than glittering generalities, even when expressed in the choicest language.

#### MINOR CONVENIENCES IN THE SHOP

There is always room for the utilization of special labor-saving devices in the maintenance of car equipment. As the amount of work handled in a given shop approaches the maximum the importance of the minor conveniences is magnified. Improved shop lighting, for example, has a direct effect upon the volume of work which can be turned out in a day, and any means of securing better illumination should receive close attention. It is safe to say that good light saves more labor than any tool or appliance, with the possible exception of power-driven tools. Some day an enterprising efficiency engineer will make a stop-watch test of the proportion of time spent on a given job in hunting for supplies, tools and fittings when working on the under side of a car, and the results will be interesting and significant. In this connection it is worth noting that in one shop the working conditions on the under side of the cars were improved several hundred per cent by the simple expedient of placing an arc headlight in a position where the particular piece of apparatus under repair was exposed to the penetrating rays of the lamp. The speed with which troublesome boltheads, holes and fittings could be located by the maintenance force was a revelation.

It is usually a simple matter to install a track in a storeroom by which material needed in the shop or on the outside can be economically handled on small trucks in place of the usual method of wheeling barrows through the shop to the nearest open track. Perhaps nowhere do small motor-driven hoists offer a better opportunity for saving time than in handling heavy material in bulk from the floor of the storeroom to the mezzanine floor or second story. Systematic carding of all storage bins according to an index number, title or even the maker's number of the parts contained in the bins saves time and money in the long run. Another shop convenience that deserves consideration is the location of a sub-storage division containing fuses, trolley ropes, lamps and other small supplies near the section of the shop or carhouse devoted to inspection and adjustments of equipment.

Lack of adequate facilities for the storage of tools which constantly are being used results in the loss of a large amount of time during a year's operation of a shop. There is little doubt that the storage of tools near the work on which they are used is a paying proposition in all busy shops. As cars enter the building the kind of repair work to be handled varies widely, and the number and variety of tools required tends to increase. There is seldom time available in which to return tools to a central point, and the practice of leaving them on the floor between pits is not to be commended. Some shops have met these conditions by providing racks and boxes along the walls nearest the working area in which are kept enough inexpensive wrenches, jacks and pinch bars to save practically all extra walking to obtain tools needed in ordinary car repairs. An inventory of shop equipment will disclose many tools which could be provided in duplicate at several points in the shop at a trifling expense when manufactured by the company blacksmith. The fact that they were near at hand would save a good many dollars a year in the time of the skilled mechanics and inspectors who would use them.

# Power Station and Transmission Line of the Hoosac Tunnel

The Principal Features of Interest in This Station Are the Use of Forced and Induced Draft in the Boilers, the Coal Handling Machinery, Condensing Water Supply and the Electric Switching Apparatus.

The catenary construction, locomotive repair shops and operating features of the electrified Hoosac Tunnel of the Boston & Maine Railroad were described in the *ELECTRIC RAILWAY JOURNAL* of July 1, 1911. The power station at Zylonite, which supplies the electrical energy for the operation of trains, and the transmission line 2.4 miles long,

Conn., were capable of being adapted with some changes to the conditions existing at Zylonite. The preliminary engineering study and designing, therefore, were materially lessened. The mechanical equipment of the Zylonite station in the more important details is a duplication of that in the Waterbury station, but the electrical equipment and switch-



Hoosac Tunnel Power Station—Exterior View Showing Coal Conveyor and Outgoing Transmission Line

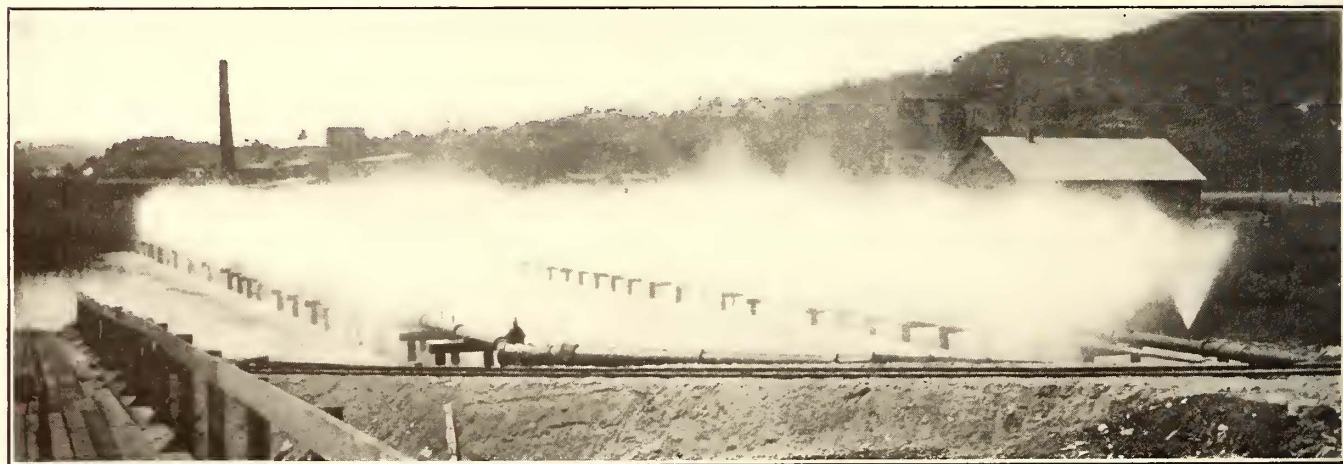
which extends to the west portal of the tunnel, will be described in this article.

The decision to electrify the Hoosac Tunnel was made late in the summer of 1910 and on May 27, 1911, regular operation with electric locomotives was commenced. Every part of the construction work was rushed and the power station building itself was completed in less than sixty days.

ing gear were designed especially for service in this station.

#### POWER STATION SITE

The site selected for the power station is in the town of Zylonite, 2 miles south of North Adams, Mass., on land owned by the Berkshire Street Railway, which is controlled by New Haven and Boston & Maine interests. The Berkshire Street Railway has built on this piece of land

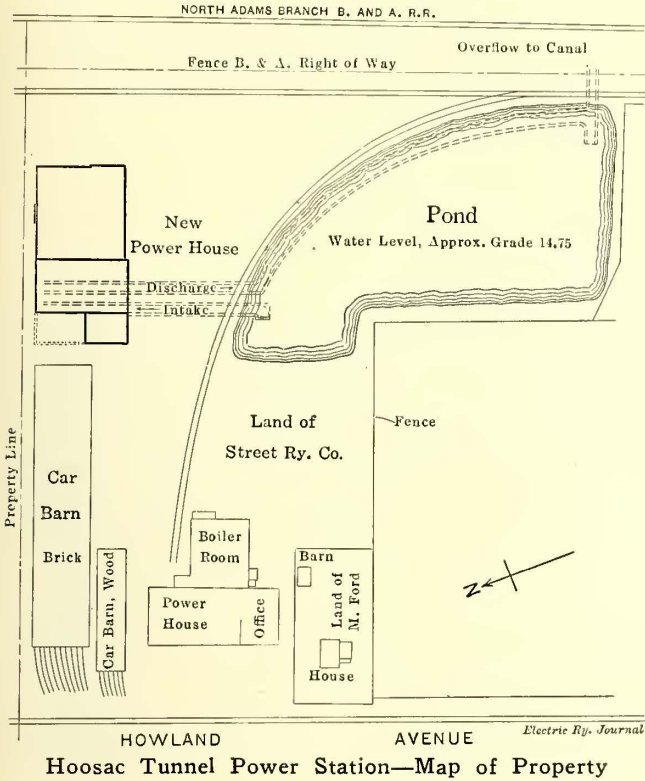


Hoosac Tunnel Power Station—Spray Cooling System in Operation

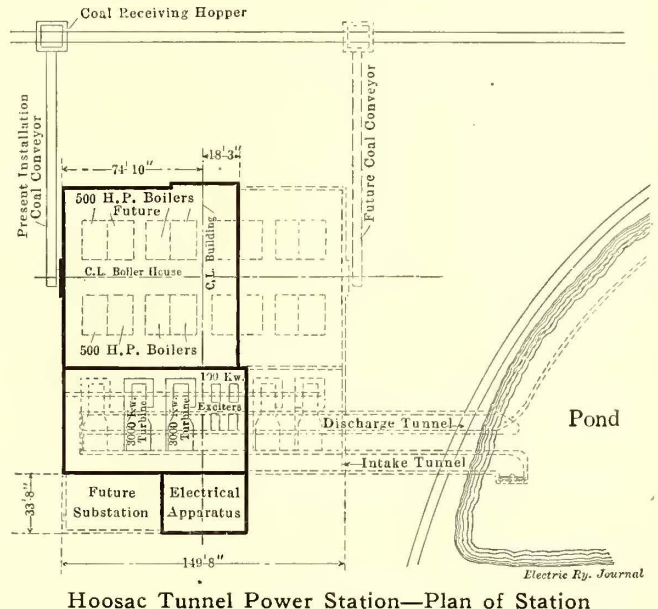
Steam was raised in the boilers in a little over three months from the time of breaking ground for the foundations, and the turbo-generators were in operation within four months. The construction and equipment of the power station were facilitated by the fact that the plans for a power station recently built by the Connecticut Company at Waterbury,

two carhouses and a power station with a total capacity of about 1500 kw. Part of the land is occupied by a small pond, from which the street railway power station is supplied with condensing water and feed water. The North Adams branch of the Boston & Albany Railroad runs along the east side of this tract of land and the new power station

for the Hoosac Tunnel was built in the northeast corner, adjoining the railroad right-of-way. A switching track for coal supply cars was built between the railroad and the power station building.

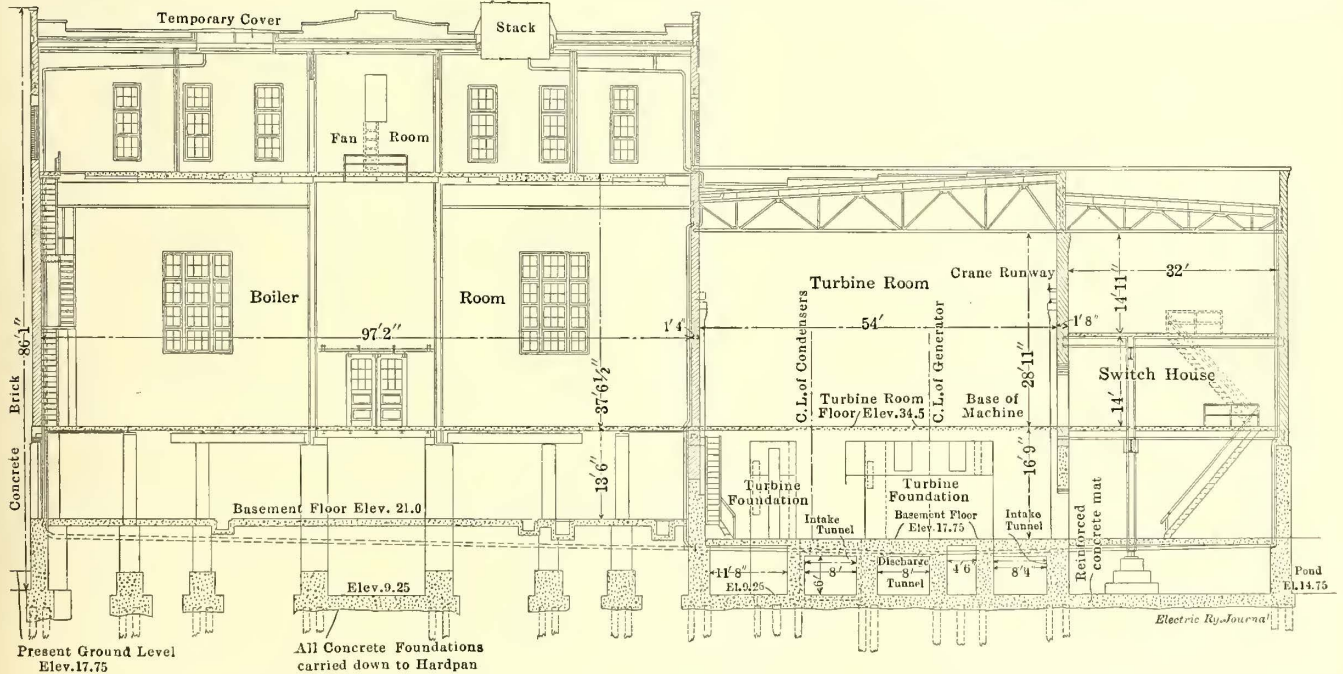


with brick walls on concrete foundations, structural steel framework and roof trusses and reinforced concrete floors and roof. On account of the gravity system of supplying condensing water from the pond adjoining the power station, the building, including the basement floor, is entirely above the ground level. The turbine and boiler room floors are 21 ft. 9 in. above the ground. The total height of the boiler room section from the ground to the top of the roof parapets is 83 ft. 7 in. The turbine room has clear headroom under the roof trusses of 28 ft. 11 in. The

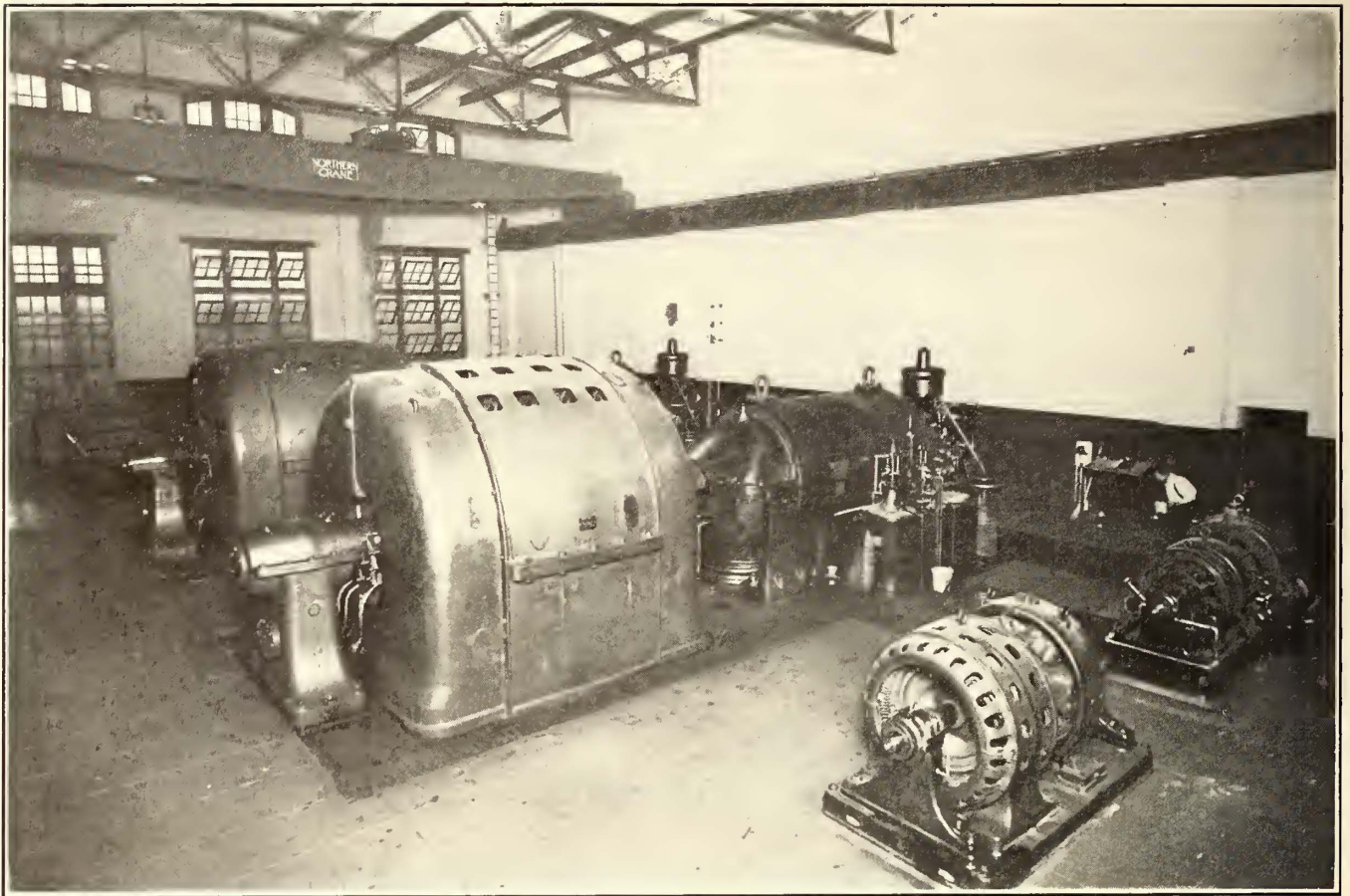


**BUILDING**  
The power station was designed for an ultimate capacity of 15,000 kw in turbo-generators and 8000 hp of boilers, but only a part of the building was erected to house the initial equipment of two 3000-kw turbo-generators and four 500-hp boilers. The ultimate size of the building

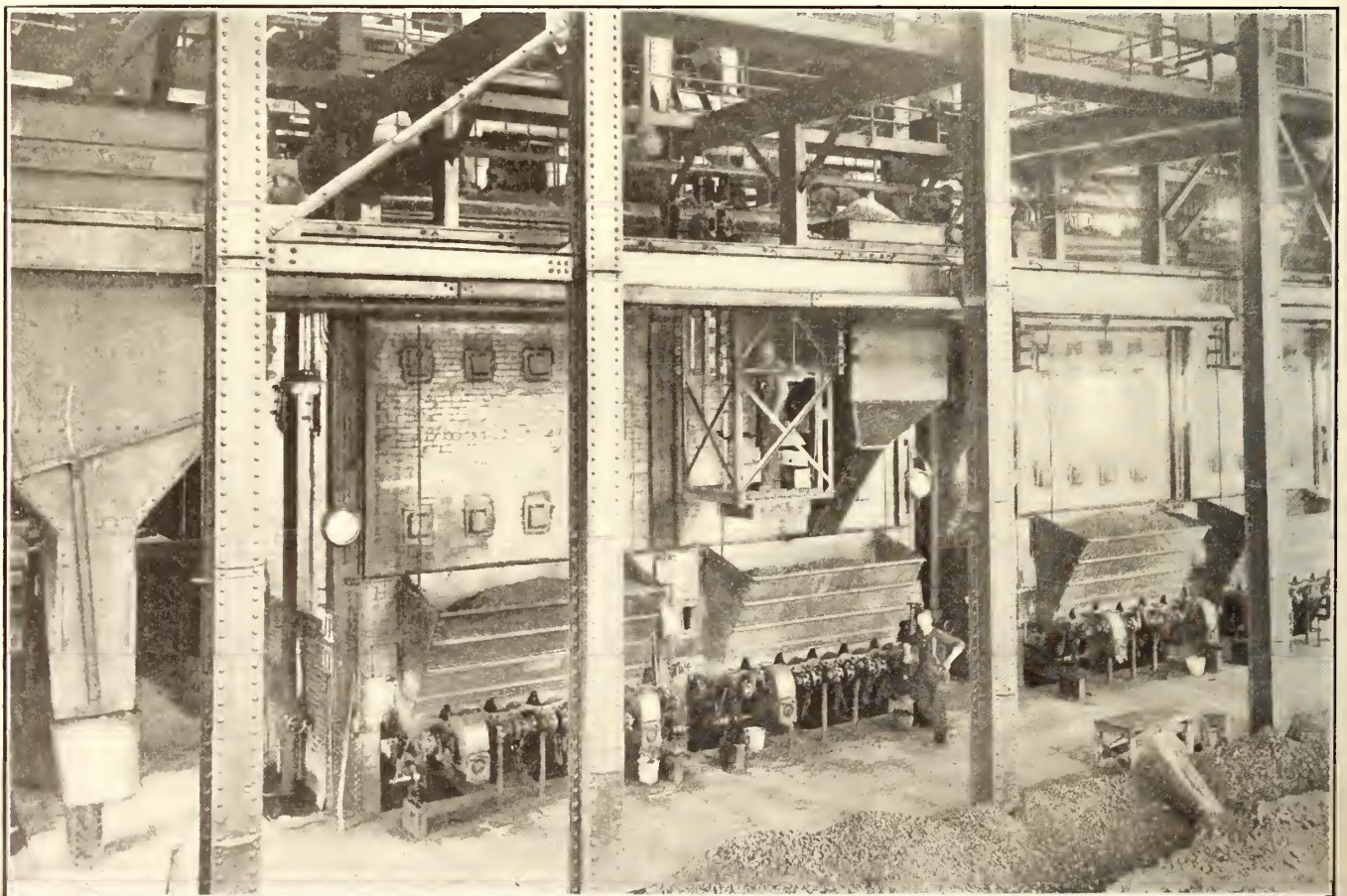
present building will accommodate without further enlargement three 3000-kw turbo-generators, ten 500-hp boilers, and four exciter units with the necessary auxiliary apparatus.



**HOOSAC TUNNEL POWER STATION—SECTION THROUGH BOILER ROOM, TURBINE ROOM AND SWITCH HOUSE**  
will be 149 ft. 8 in. x 152 ft. 6 in., with an addition 97 ft. 8 in. x 33 ft. 8 in. on the west end to be used as a switch house and possibly as a future substation for the Berkshire Street Railway lines. The size of the building now in use is 83 ft. 1 in. x 152 ft. 6 in., with an addition for the switch house 33 ft. 8 in. x 45 ft. 8 in. It is built the east end of the building. It is separated from the turbine room by a brick wall 16 in. thick, which is carried up above the roof of the turbine room to the same height as the other outside walls surrounding the boiler room. The headroom in the boiler room under the fan room floor above is 37 ft. 6½ in. Four Bigelow & Hornsby water

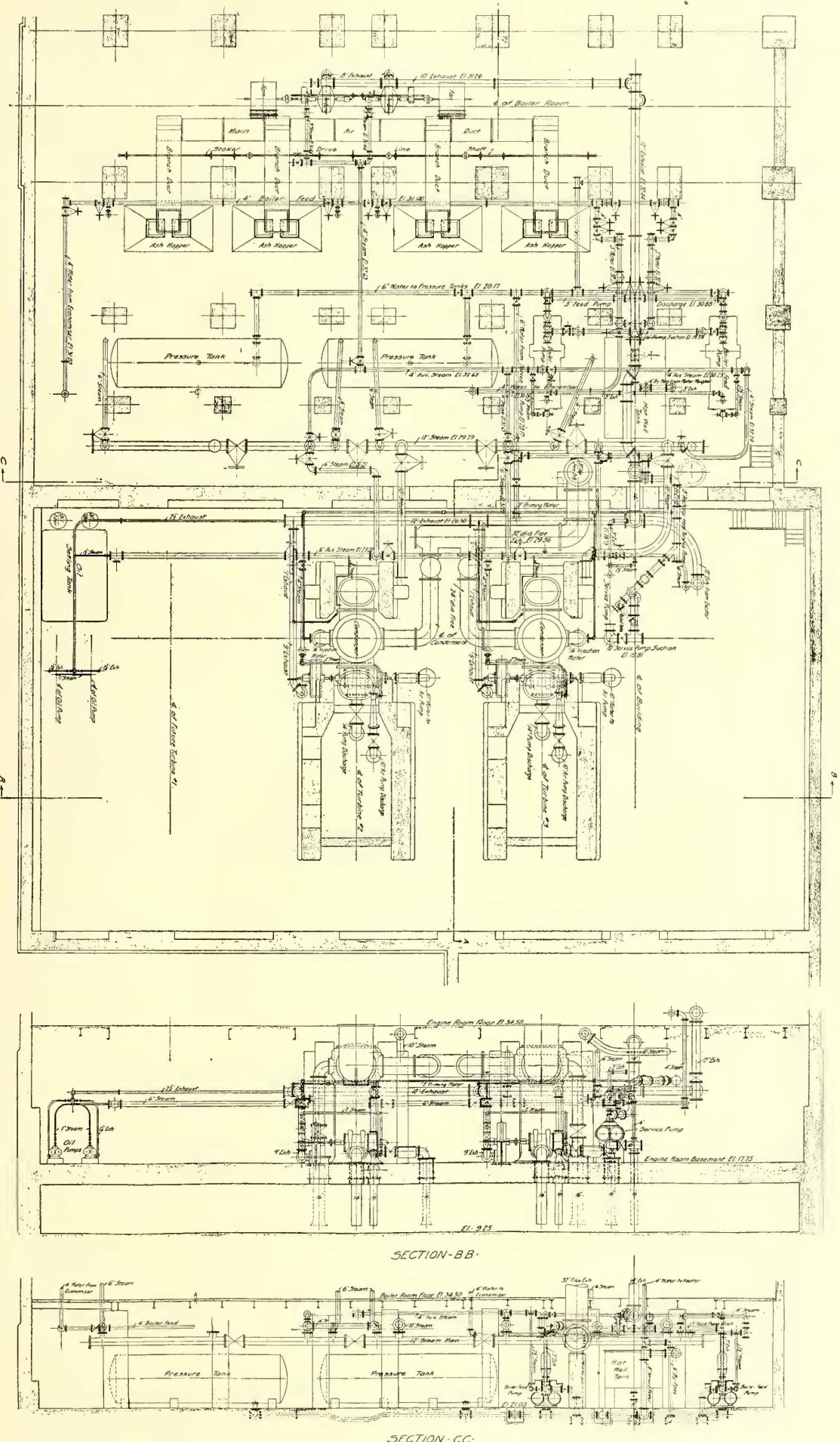


Hoosac Tunnel Power Station—Turbine Room



Hoosac Tunnel Power Station—Coal-Handling Traveler in Boiler Room

Hoosac Tunnel Power Station—Plan and Sectional Elevations of Piping



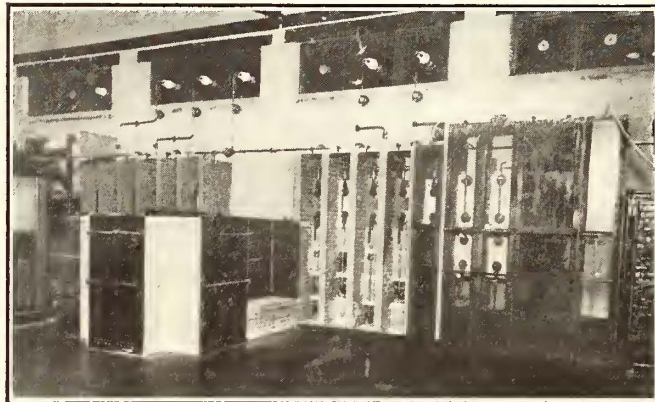
tube boilers are installed in two batteries adjoining the partition wall next to the turbine room. When additional boilers are required they will be placed on the opposite side of a central firing aisle 12 ft. wide. The boilers are equipped with Taylor automatic under-feed stokers and

into the ash pits under the boiler grates. The induced draft fans are placed in a fan room on the floor above the boiler room. Two American Blower Company's steel fans, driven by Harrisburg reciprocating engines, are installed for the four boilers now in use. An engine and blower are held in reserve. A duplicate equipment of two engines and blowers will be put in when additional boilers are connected to the second stack.

COAL AND ASH HANDLING

Coal is delivered in hopper-bottomed cars, which are dumped over a receiving hopper in the side track adjoining the power station. From this hopper it is fed to a bucket conveyor which elevates it to the top of a storage bin built along the north wall of the boiler room. As the coal is delivered from this conveyor it passes through a crusher before dropping down to the storage bin. Suspended from the roof of the boiler room above the center of the firing aisle is an I-beam trolley track, which carries an electrically-driven traveling coal hopper, designed to weigh the coal as it is handled. This hopper is run under the storage bin and filled and then travels back and forth in front of the boilers delivering coal to the stokers through a spout. It is operated by an attendant who rides in a cage hung from the trolley carriage. The coal-handling apparatus was furnished by the Bergen Point Iron Works.

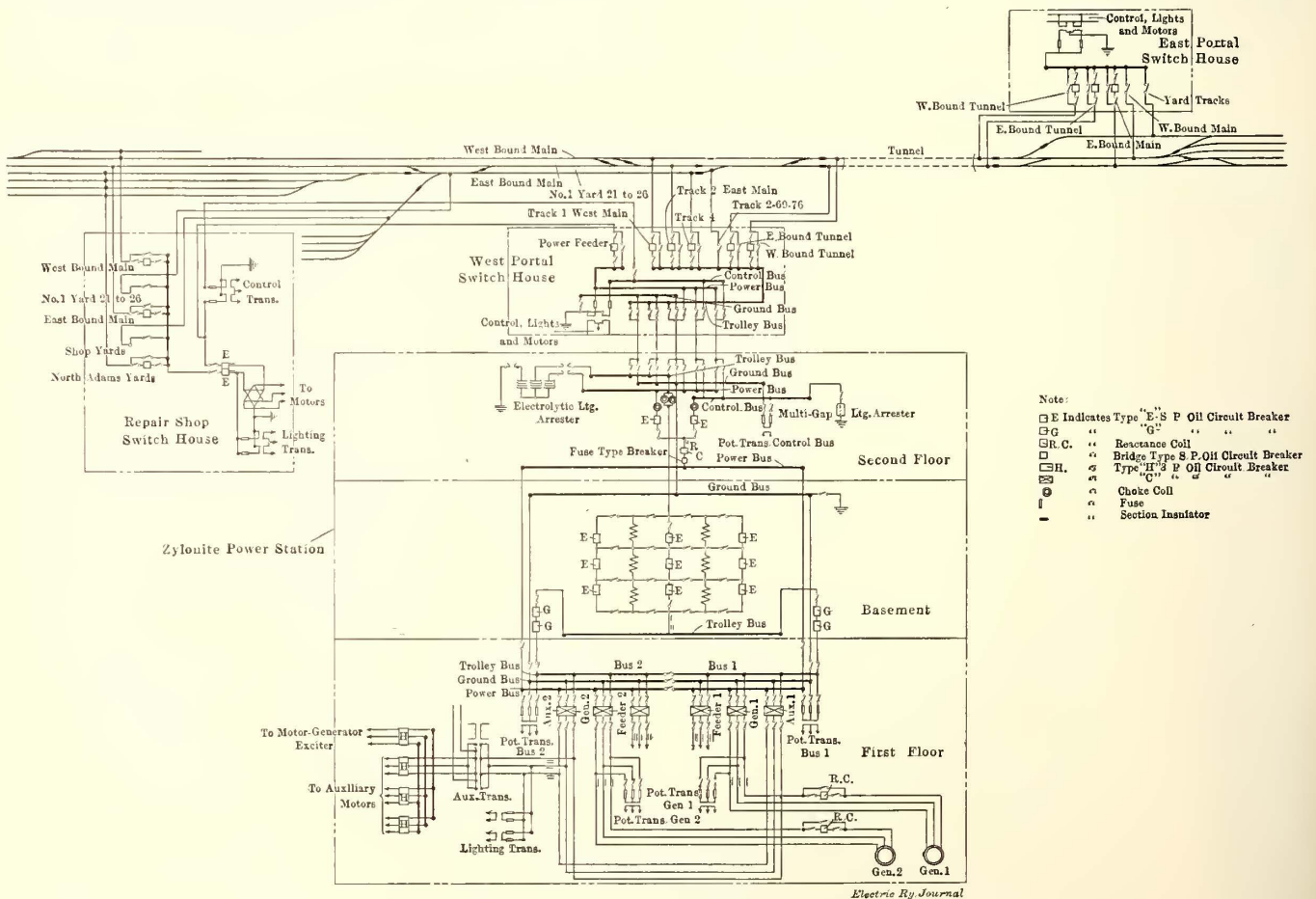
The boiler ash pits have hoppers which are emptied into a small dump car running on a narrow-gage track on the basement floor. This track leads out through the north wall to a dumping platform, where the contents of the ash cars may be dumped into railroad cars standing on a track below. The ash cars are moved by hand.



Hoosac Tunnel Power Station—Lightning Arresters and Disconnecting Switches

Foster superheaters. Green economizers have been installed in the smoke flues to heat the feed water.

A combined forced draft and induced draft system is used in the boilers and the smoke is exhausted through a steel stack 10 ft. in diameter. A single stack is used for the four boilers at present installed, and an opening has



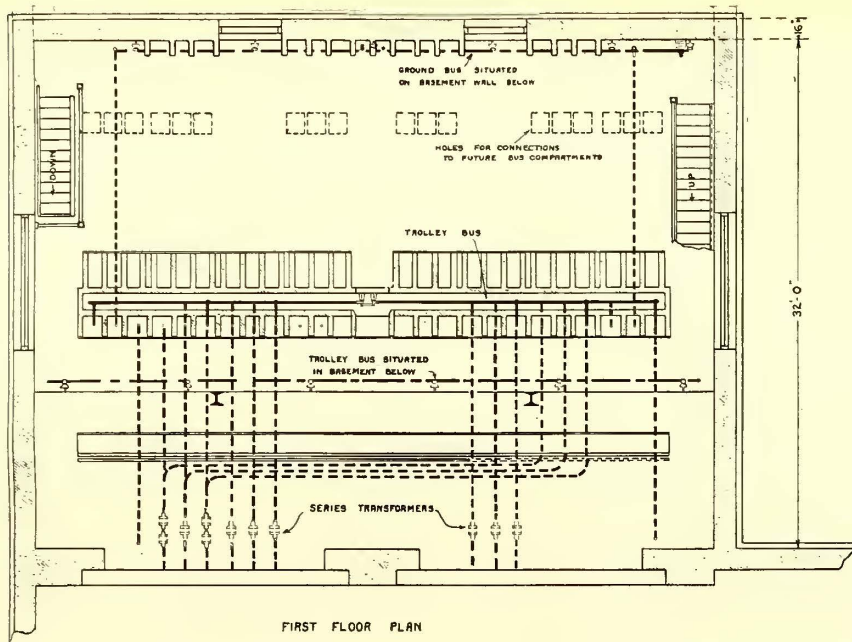
Hoosac Tunnel Power Station—Diagram of Electric Switching Apparatus

been left in the roof for another stack of the same size to be connected to future boilers to be installed on the east side of the firing aisle. The forced draft apparatus is located in the basement under the firing aisle. Two 100-hp Kerr turbines, driving Sturtevant blowers, force air

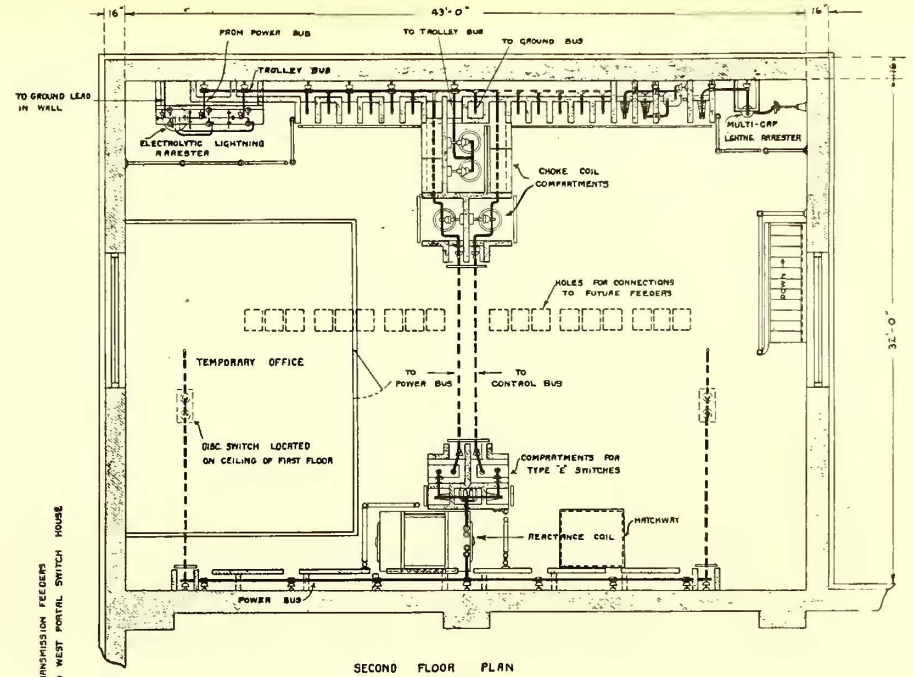
BOILER ROOM PIPING AND AUXILIARY APPARATUS

The water weigher and feed-water heater are placed on the boiler room floor. All other boiler room auxiliary apparatus is placed in the basement under the boiler room, and all of the main and auxiliary steam and exhaust piping

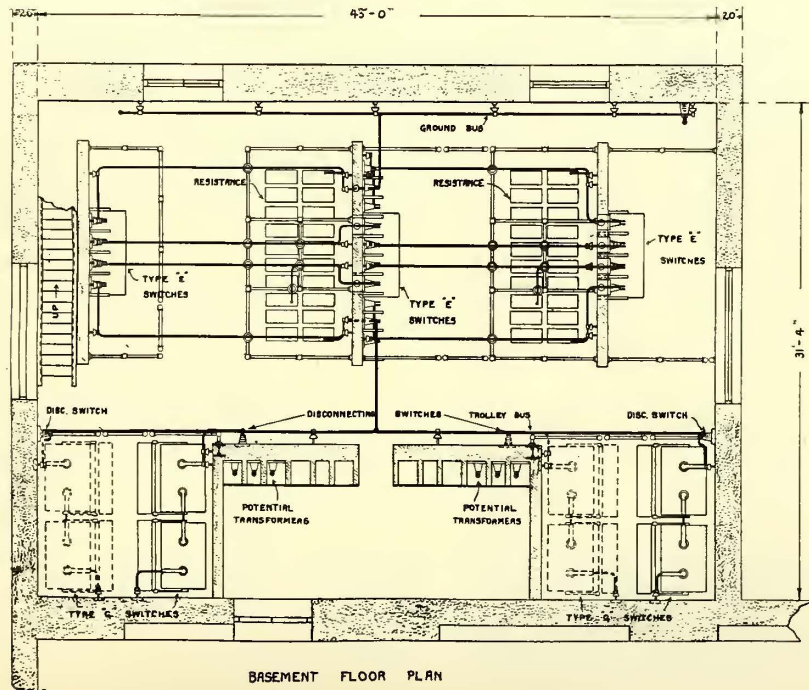




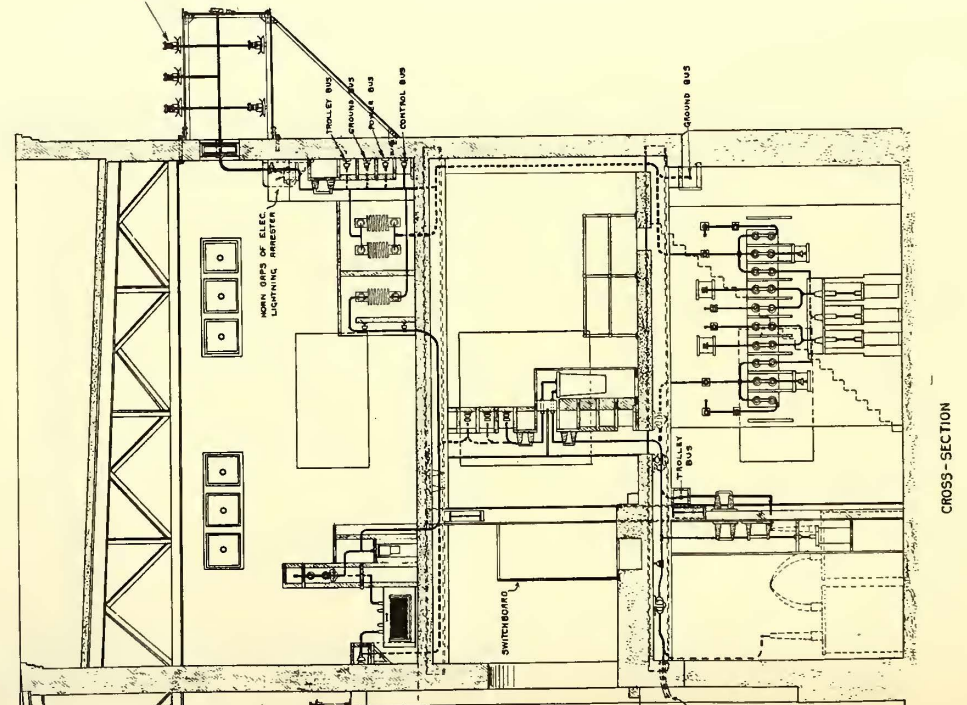
FIRST FLOOR PLAN



SECOND FLOOR PLAN



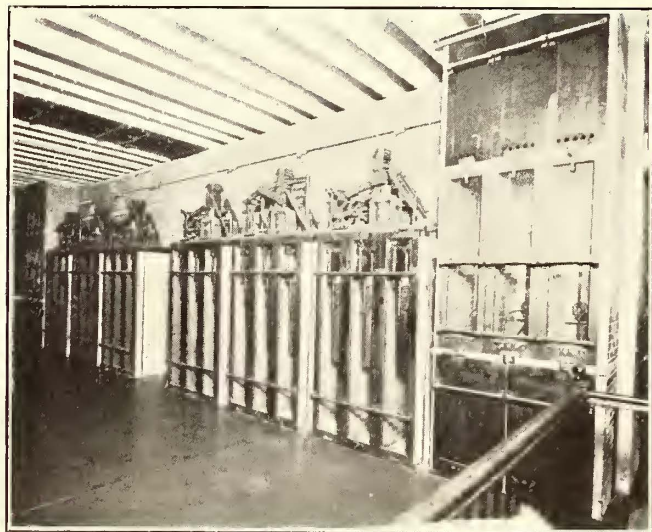
BASEMENT FLOOR PLAN



CROSS-SECTION

Hoosac Tunnel Power Station—Floor Plans and Cross-Section of Switch House

is also run under the floor. Two Worthington boiler feed pumps discharge into one end of a 4-in. boiler feed line and either pump may be by-passed to a 4-in. line connected to the economizers, which in turn are connected to the far end of the boiler feed line. The feed pump suction



Hoosac Tunnel Power Station—Main Circuit Breakers in Switch House

may be taken direct from a 6-in. supply connected to a service pump under the turbine room or from a hot-water tank located between the two pumps. All of the steam-driven auxiliaries exhaust into a Hoppes feed-water heater having a rated capacity of 4000 hp. Provision is also



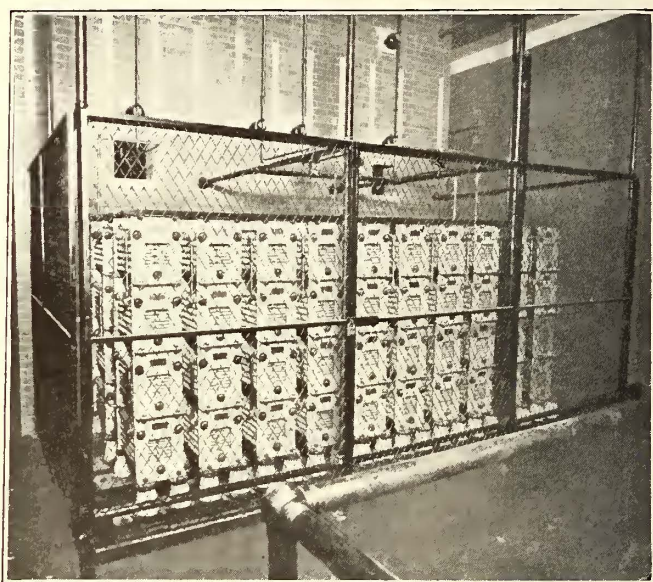
Hoosac Tunnel Power Station—Operating Switch Board

made for a supply of feed water from the city mains in case of emergency. All feed water is weighed by a Wilcox water weigher before passing through the feed pumps. The service pump which supplies water for all miscel-

aneous purposes was furnished by the Platt Iron Works. It has an 8-in. discharge and a 10-in. suction pipe which extends down into the condenser intake flume. The main steam pipe connections from the boilers are attached to a 12-in. loop which is carried down under the boiler room floor at each end of the room and is continued under the floor parallel to the partition wall between the turbine and boiler rooms. From this header all the main and auxiliary live-steam lines are taken off under the floor. The turbine connections are 10 in. in diameter. Each of the two turbines has a free exhaust connection 24 in. in diameter, and both of these connections discharge into an exhaust pipe 32 in. in diameter which leads up through the roof.

#### TURBINE ROOM

The turbine room contains two three-phase Westinghouse turbo-generators rated at 3000-kw single-phase. These



Hoosac Tunnel Power Station—Short-Circuit Resistance

machines deliver three-phase, 11,000-volt, 25-cycle alternating current, but only single-phase is used for the trolley feeders. The other two phases provide for a supply of three-phase current for the operation of motors in the power station and in the repair shops, and also a single-phase control circuit for the operation of the switching apparatus in the three switch houses along the track. On the south side of the turbine room are two 100-kw exciter units, both of Westinghouse manufacture. One unit is driven by a turbine and the other by an induction motor. The turbine room is spanned by a 30-ton hand-operated traveling crane made by the Northern Engineering Works.

#### CONDENSING WATER

The supply of condensing water is obtained from a pond holding about 2,250,000 gal. of water. The normal level of the pond is 19.75 ft. below the turbine room floor and 3 ft. below the basement floor. This permits of a gravity supply to the condensers through concrete intake and discharge flumes, 6 ft. x 8 ft. in cross-section, which are built under the basement floor. As will be seen from the accompanying map of the power station site, the pond is long and narrow, and the intake tunnel extends into the water at the end of the pond nearest the power station. It enters the building along the west wall, passes around the north wall and then back directly under the condensers. The discharge tunnel is built between and parallel to the two legs of the intake tunnel. After it leaves the building it is continued under the surface of the ground to the pond, and thence between sheet piling to the far end of the pond. Thus the discharge water must traverse the entire length of the pond before again entering the intake

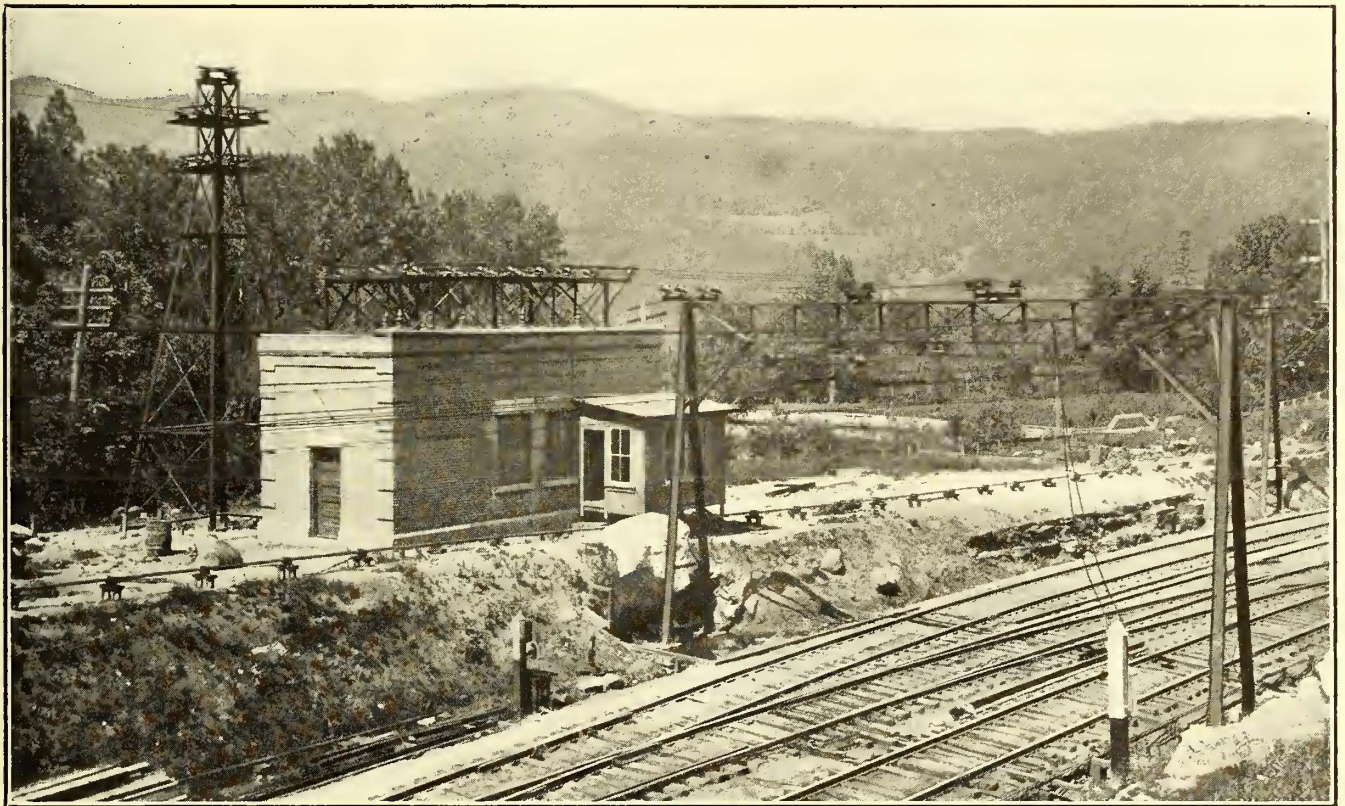
tunnel. The space between the return branch of the intake tunnel and the boiler room partition wall is utilized as a water storage reservoir. It will hold between 35,000 and 40,000 gal. of water for an emergency supply.

The pond is fed by twelve artesian wells driven on the property. These wells have a total flow of about 1500 gal. per minute, at a temperature of about 50 deg. As the pond also supplies condensing water for about 1200 hp of engines in the station of the Berkshire Street Railway and contains only a comparatively small volume of water, it was thought desirable to supplement the cooling effect of the continuous supply of well water by installing a spray cooling system. A motor-driven turbine pump, with a capacity of 6000 gal. per minute, and a steam-driven reciprocating pump, with a capacity of 4000 gal. per minute, are provided for circulating the water through the spray piping. These pumps draw water from the discharge tunnel at a point between the building and the entrance of the discharge tunnel to the pond, and force the water

condenser are mounted on the same shaft and are driven by a steam turbine. In order to provide means for re-establishing the vacuum in case it is lost while the turbine is in operation without shutting down the machine, a supply of priming water is provided by a 2000-gal. electrically driven pump. This pump draws water from the intake tunnel and discharges it through a 6-in. pipe which enters the top of the condenser. The vacuum can be re-established by this means under full-load conditions. For starting up the condensers while the turbine is at rest the supply of priming water is furnished through a 2-in. pipe connected to the service pump. Under these conditions it is necessary to completely fill the condenser with steam before starting the circulating pump and then admit the water from the service pump connection.

#### SWITCHING ARRANGEMENT

The switch house which adjoins the turbine room on the west side has three floors. On the basement floor are located the main oil switches for the trolley phase of the



Hoosac Tunnel Power Station—West Portal Switch House and Feeding-in Bridge

through a system of pipes and spray nozzles which are suspended above the surface of the pond. Each of the turbines requires about 4000 gal. of condensing water per minute, so that either pump has a capacity sufficient to spray all of the condensing water from one turbine. The spray cooling system ordinarily is not required, but it has proved effective in lowering the temperature of the pond water in warm weather when the full load on both stations is being utilized.

#### CONDENSERS

The turbines exhaust into Westinghouse-Le Blanc jet condensers, which are mounted on the basement floor immediately over the return leg of the intake tunnel. A 16-in. intake pipe extends down into the intake tunnel, and as the lift from the intake tunnel to the top of the condenser is only about 12 ft., the water is raised by the suction of the condensed steam and the action of the discharge pump. The discharge pump and air pump of each

generators and the resistances and oil switches used to cushion the effect of a short circuit. The first floor is open through to the turbine room and contains the control switchboard, main busbars, generator buses and disconnecting switches for the generators, auxiliary power circuits and blank panels for future transmission line circuits. The lightning arresters and disconnecting line switches are mounted on the second floor. The two generators are three-phase machines with one-phase grounded after passing through the switching gear but before leaving the building. They are connected to a trolley bus, ground bus and power bus on the first floor through suitable oil switches. A reactance coil is inserted in the trolley phase of the generators to reduce the effect of short circuits on the generators. Each of the generators is connected to separate sections of the three buses on the first floor, but these sections may be connected at the center by hand-operated switches. The auxiliary connections are made to

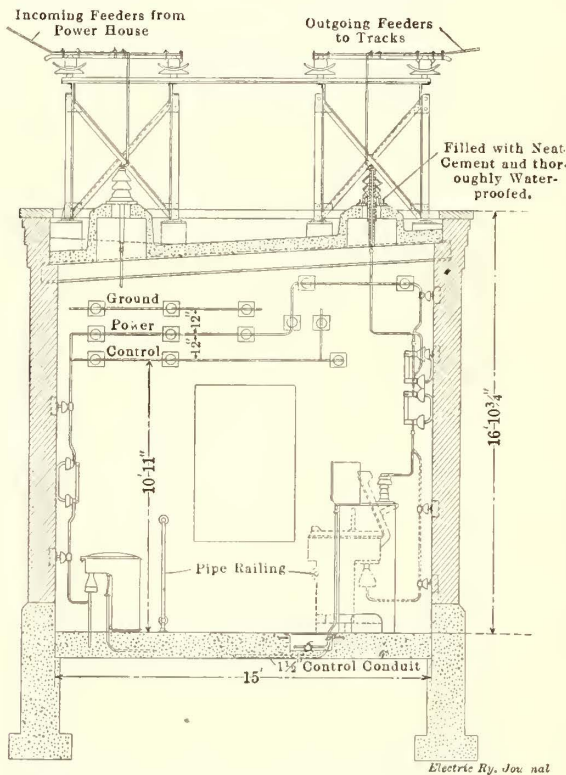
each section of the buses by a loop from which the auxiliary transformer connections are taken off. The lighting transformers supply current for station lighting at 110 volts and the power transformers supply current at 440 volts for the station motors.

The trolley bus on the first floor is connected at each end to a trolley bus in the basement, to which connections are made to the group of switches and resistances used for cushioning short-circuit surges. These switches and resistances are installed in duplicate, but only one set is used, the other set being held in reserve. The resistance is divided into three parts, and each part is successively connected in series with the trolley by the opening of an oil switch. Four current-limit relays are mounted on the control switchboard. These relays are operated by current supplied from a series transformer in the trolley circuit. When a short circuit occurs of sufficient magnitude to cause an excessive rise of current in the circuit, the first relay acts and opens one of the three oil switches, which in turn cuts into the trolley circuit the first section of

On the second floor of the switch house are four buses from which the transmission line wires are taken off. The trolley bus and the ground bus are connected to the corresponding buses in the basement, while the power and control circuit buses are connected to the main power bus on the first floor. The power and trolley buses are connected to three sets of electrolytic lightning arresters arranged so that each circuit has two sets of arresters and horn gaps in series. The control bus is connected to a multigap lightning arrester. Hand-operated disconnecting switches are provided so that any one of the transmission wires can be connected to any desired busbar when an emergency arises.

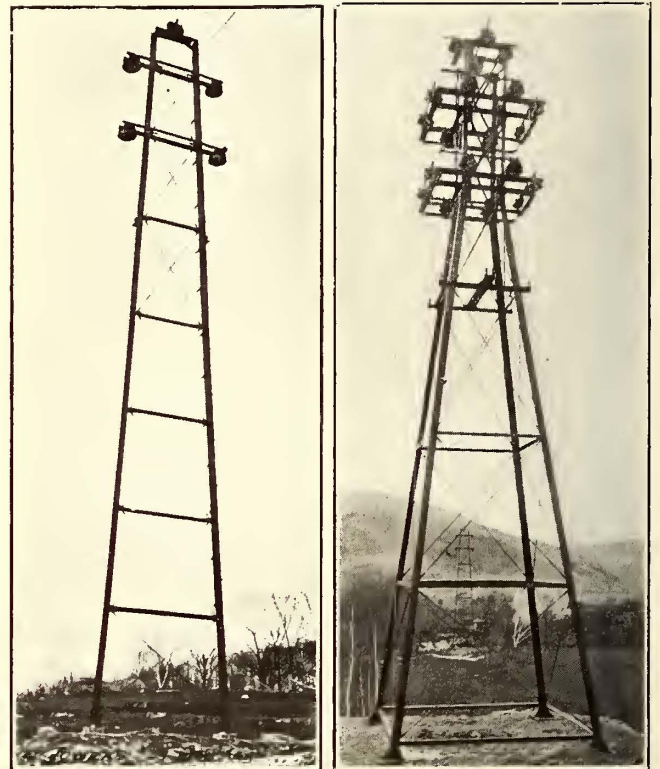
TRANSMISSION LINES

The transmission line wires are carried out through the west wall of the switch house just under the roof. A terminal strain tower is built near the corner of the power station building, and from this point the transmission line



Hoosac Tunnel Power Station—Section Through West Portal Switch House

resistance. At the same time connections are made on the first relay whereby the operating current from the series transformer is passed through the second relay. When the second relay operates it cuts in the second section of resistance and also transfers the operating current to the third relay. The third relay cuts in the last section of resistance and transfers the operating current to the fourth relay, which controls the main circuit breaker. The effect of this arrangement is greatly to reduce the amount of current flowing at the instant that the main circuit breaker opens. An interval of about four seconds is required to cut in all the resistance and open the main circuit breaker. Entire dependence is not placed upon the operation of the relays and cutting in of the resistance, as the main circuit breakers have a time-limit device which is set for five seconds, and if the short circuit continues for that length of time they will open regardless of the operation of the relays and resistance switches. This plan is substantially the same method which has been developed as a result of experience and is now being successfully used for limiting the effects of short circuits at the Cos Cob power station of the New Haven Railroad.



Hoosac Tunnel Power Station—Intermediate and Corner Towers of Transmission Line

extends to a switching house near the west portal of the tunnel, a distance of 2.42 miles. Four angles are turned by this line, which runs across country over the foothills of the Hoosac Mountains. The corner strain towers and terminal towers have four legs formed of heavy steel angles braced with diagonal rods and horizontal angle braces on all four sides. The legs of the towers are anchored to concrete foundations. The intermediate towers used for supporting the transmission line are of the A-frame flexible type. The average span between towers is 400 ft. The transmission line consists of five wires; two of these are No. 0000 cables for the trolley circuits, and a third, No. 0000 wire, is placed on top of the poles for the ground return circuit. The power and control circuits consist of two No. 2 wires. The insulators on the corner and terminal towers are supported on steel angle cross-arms by pins, but on the intermediate towers they are suspended from twin cross-arms. The insulators are of the same size and type as those used for supporting the catenary cables from the trolley bridges over the tracks. The transmission line towers were built by the Archbold-Brady Company, Syracuse, N. Y.

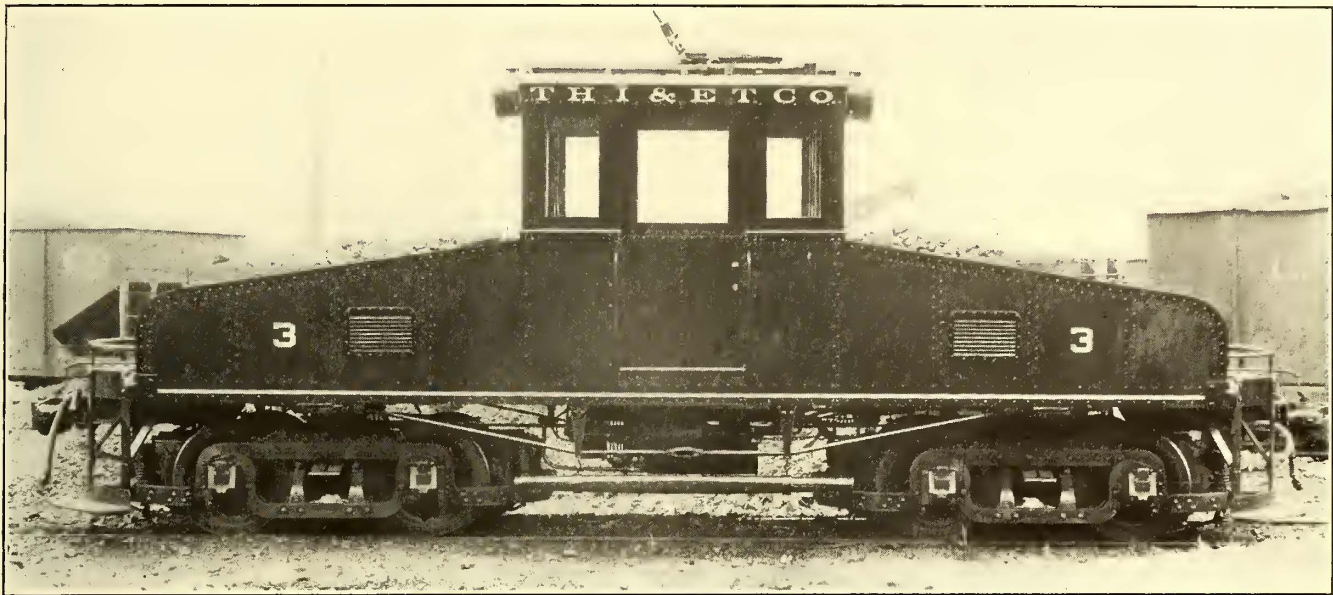
SWITCH HOUSES

The transmission line terminates at a switch house 17 ft. 8 in. x 23 ft. near the west portal of the tunnel. From this point the trolley sections are fed directly through six feeders taken off of the trolley bus. The power and control circuits are continued through this switch house and along the railroad right-of-way to the switch house adjoining the repair shop in North Adams. In the repair shop switch house a 60-kw transformer is connected to the trolley phase, the control circuit and the power circuit in such a way as to supply three-phase current at 440 volts for the shop motors. A third switch house has been built near the east portal of the tunnel for the purpose of installing suitable

Putnam, of New York, were the consulting and supervising engineers for the work. The general contractors for the installation of the transmission lines and the erection of the power house building and switch house buildings were F. T. Ley & Company, Inc., Springfield, Mass.

SWITCHING LOCOMOTIVE BUILT BY TERRE HAUTE, INDIANAPOLIS & EASTERN

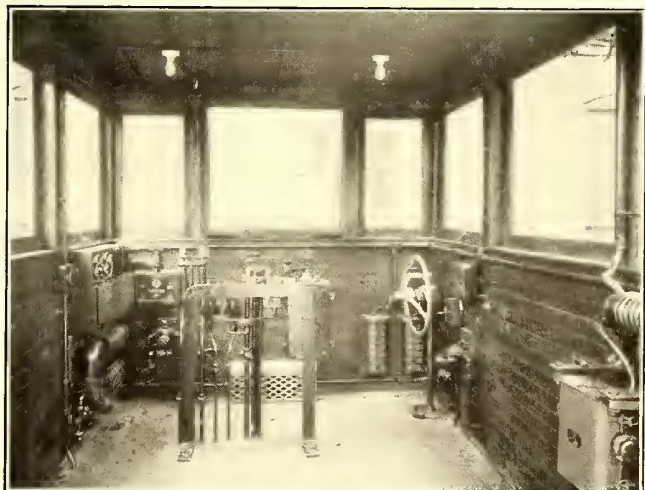
A 30-ton, 240-hp electric switching locomotive has just been built by the Terre Haute, Indianapolis & Eastern Traction Company for handling coal and cinders to and



Side View of Terre Haute, Indianapolis & Eastern Switching Locomotive

sectionalizing switches for controlling the track sections east of the tunnel. All of these switch houses are one-story brick buildings. The incoming transmission lines and feeder connections are supported on insulators carried on a framework of light steel angles, and the entrances of the

from the large new turbine station which this company is now completing on West Tenth Street in Indianapolis. The coal-handling plant at this station includes a steel-and-concrete trestle, which is connected with nearby steam tracks so that coal may be discharged into a hopper at the



End and Interior Views of Terre Haute, Indianapolis and Eastern Switching Locomotive

wires are through the roof by means of insulated waterproof bushings.

This power house was designed under the general direction of E. H. McHenry, vice-president in charge of engineering of the New York, New Haven & Hudson River Railroad. The general scheme of the electrical equipment was developed in the office of W. S. Murray, electrical engineer of the New Haven. L. B. Stilwell and H. S.

side of the boiler house. Underneath the trestle is storage space for 10,000 tons of coal, which can be raised to the hopper economically by grab buckets. The new locomotive is designed to shift steam railroad coal cars to and from this trestle. It was designed and built under the supervision of L. M. Clark, master mechanic. Accompanying engravings show the interior and exterior appearance of this new locomotive.

The controlling dimensions of the locomotive are as follows:

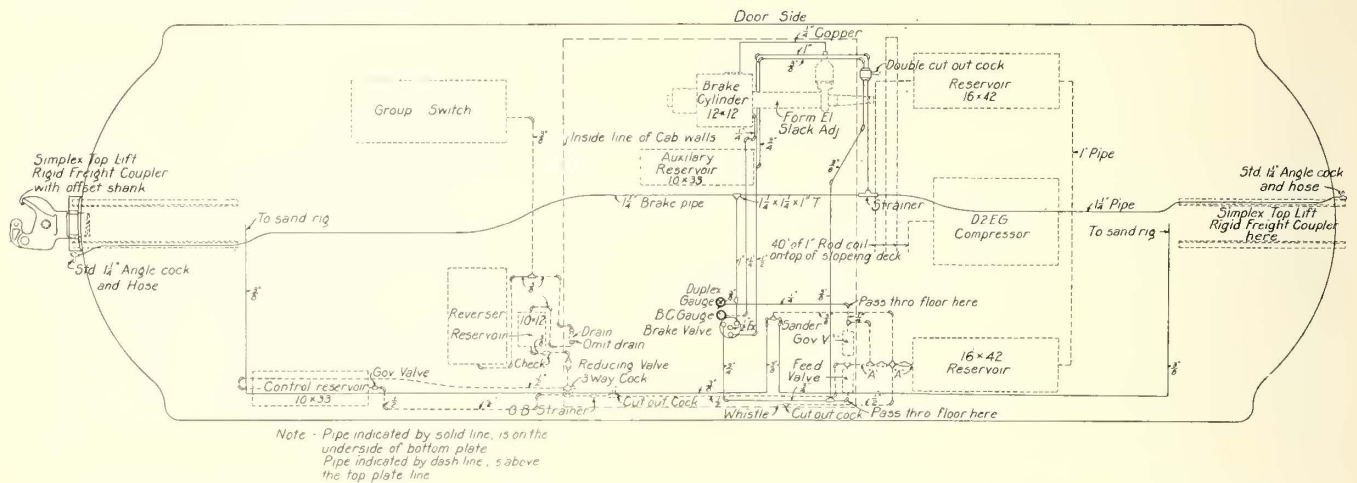
Length over buffers.....	30 ft.	0 in.
Length over cab.....	7 ft.	8 in.
Width over sheathing.....	9 ft.	6 in.
Width over all (grab-handles).....	10 ft.	0 in.
Height, trolley base to rail.....	12 ft.	3 1/2 in.
Height, undersill to rail.....	3 ft.	7 in.
Bolster centers.....	17 ft.	6 in.
Total wheel base.....	22 ft.	4 in.
Rigid wheel base.....	4 ft.	10 in.

The locomotive body, which is of all-steel construction, is carried on eight through sills. The side sills are channel section and the intermediate sills are I-section. All eight sills are 7 in. high and weigh 20 lb. to the running foot. They are covered above and below by 1/4-in. steel plate, thus forming a very rigid all-steel underframe structure with continuous members between bumpers. The superstructure is framed of 4-in. x 4-in. tees and angles, weighing 10.9 lb. to the foot. It is sheathed with 1/4-in. plate.

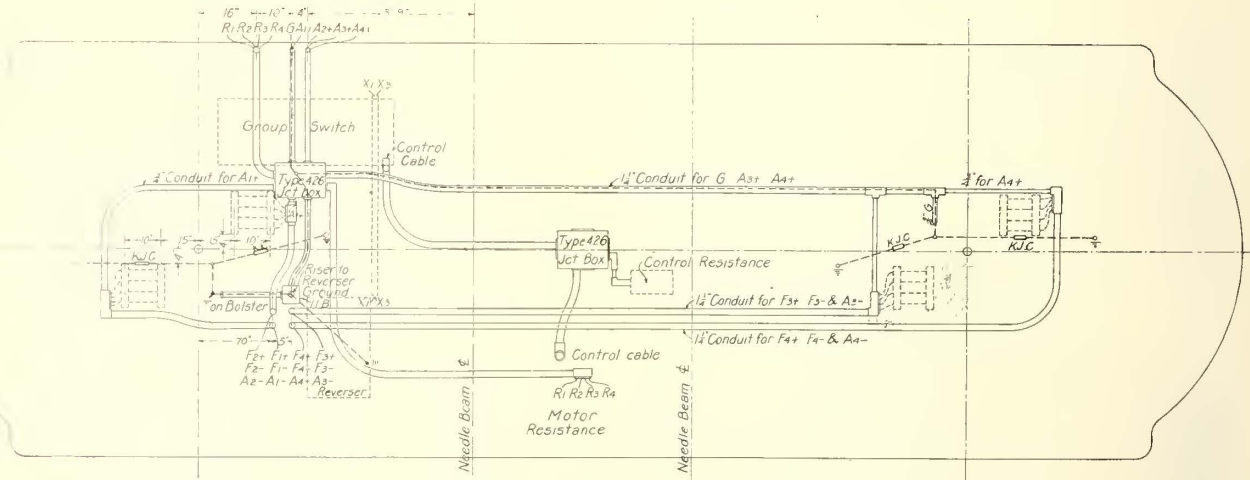
gear ratio of 16-71 and Westinghouse H. L. control; Westinghouse AMM air brakes with D 2-E G compressor and a 12-in. x 12-in. brake cylinder were installed. The couplers are of the rigid M. C. B. Simplex type, with offset shanks. Other special equipment includes General Electric luminous arc headlights, pneumatic sanders, Consolidated electric heaters, U. S. No. 10 trolley bases and Emery automatic brake-system lubricators. The locomotive complete weighs 60,880 lb. Accompanying line engravings show the arrangement of the brake and control air piping and the electrical conduit.

### MEETING OF THE COMMITTEE ON STANDARDS

A meeting of the committee on standards of the American Electric Railway Association was held at the Association Headquarters, New York City, on Sept. 13. Those



Plan Showing Brake and Control Air Piping of Terre Haute, Indianapolis & Eastern Switching Locomotive



Plan Showing Conduit under Floor of Terre Haute, Indianapolis & Eastern Switching Locomotive

The body consists of a central cab over the middle of the underframe and two sloping decks which inclose the auxiliary equipment. Twelve-inch by eighteen-inch ventilators, two on each side, are provided to assure a circulation of air under the closed decks. The interior of the body is lined with wood up to the window rail. The steel roof has no lining.

The body is carried on two "Standard" 0-50 trucks with 34-in. solid steel wheels. The body bolsters are 10-in. M. C. B. type. The wheels are mounted on axles conforming to the American Electric Railway Association standards. The axles are 5 in. in diameter by 7 ft. 1/4 in. in length, and have 4 1/4-in. x 8-in. journals. The motive-power equipment includes four Westinghouse 93 A-2 motors with

present were: Paul Winsor, chairman; Milan V. Ayres, Martin Schrieber, Charles Hewitt, L. P. Creelius, F. G. Simmons, J. H. Hanna and H. H. Adams. The committee considered the various matters referred to it for action by last year's convention, which included the matter of rolled-steel wheels of light design for one wear, proposed standards for rolled-steel wheels, gage for mounting steel and chilled wheels, standard taper for pinions, specifications for wrought-iron bars and specifications for open-hearth steel rails. Recommendations were made in regard to these matters for submission to the coming convention. The proposed rules of procedure for the adoption of standards, which will be acted upon at the convention, were then explained by Chairman Winsor.

# Conference of Governors of States

An Account Is Published of the Meeting on Wednesday, Sept. 13, When the Subject Discussed Was Employers' Liability and Workingmen's Compensation.

The third conference of governors of States was held at Spring Lake, Sept. 12 to 16, and two subjects were considered that have an interest to electric-railway companies. One of these dealt with workmen's compensation for injuries. The other subject was public-service regulation. An abstract of the discussion of the first-mentioned topic is given below, and a report will appear next week of the discussion on public-service regulation.

The conference convened on Tuesday, Sept. 12, at 11:30 a. m., Governor Francis E. McGovern (Wisconsin) being elected temporary chairman. Governor Wilson (New Jersey), in extending a welcome, expressed gratification that a meeting so important should take place in New Jersey. He stated that his conception of these conferences was that they were for the benefit of the States themselves and for those responsible for the State government, the purpose being to discuss those fundamental economic problems and social complexities which constitute the difficulties of American life and government. Governor Carey (Wyoming) responded to Governor Wilson's address of welcome. A committee of organization was then appointed, consisting of Governors Willson (Kentucky), Norris (Montana) and Bass (New Hampshire). There were nineteen governors present at the opening session.

The subjects discussed at the meeting on Tuesday, Sept. 12, were "Possibilities of the Governors' Conference" and "Strengthening the Power of the Executive." On the first subject there was an address by Governor Augustus E. Willson of Kentucky. The second subject was considered by Governor Edwin L. Norris of Montana and Governor Emmet O'Neal of Alabama.

The meeting on Wednesday, Sept. 13, was devoted entirely to a discussion of "Employers' Liability and Workingmen's Compensation." There were two addresses on this topic, one by Governor M. E. Hay of Washington and the other by Governor Eugene N. Foss of Massachusetts.

#### PAPER BY GOVERNOR HAY OF WASHINGTON

Governor M. E. Hay of Washington presented a paper giving details of a workmen's compensation act passed this year by the Legislature of his State. In introducing the paper Governor Hay denounced indemnity, casualty and liability companies as "fungoid social parasites." Out of the \$600,000 collected from the employers of the State of Washington in 1909, only \$100,000, he said, ever reached the injured workman or his family, \$500,000 thus being withdrawn from the avenues of commerce and industry and transferred to the army of officers, agents, adjusters and stockholders of liability companies. He denounced the system of technical defense in indemnity suits which has grown up and been distorted by court precedent to the point where the recovery of damages becomes a mere question of skilled lawyers, sympathetic juries and luck. When Oregon abolished its technical defenses the indemnity companies raised the rates 400 per cent.

Governor Hay said that when the industrial conditions in Washington had become intolerable the Tacoma Chamber of Commerce called a meeting of the leading manufacturers and labor men of the State to discuss employers' liability and workmen's compensation for injury, and invited the Governor to preside during the conference. At this meeting, he said, it was apparent that employers and employees were united on the need of prompt, courageous remedial legislation as a means not only of providing for the widows, orphans and dependents of injured or deceased workmen, then largely a charge on society, but to bring together labor and capital, which, he said, the iniquitous methods of the

casualty companies had driven further and further apart. As a result of this movement a commission of ten members was appointed to draft a workmen's compensation bill, which, with some amendment, was passed by the Legislature during the present year.

The new law applies only to extra-hazardous occupations, which are classified under forty-seven heads. One of these classes includes the construction of electric light and power plants, telegraph and telephone systems and electric railways. Three other classes cover respectively the operation of electric light and power plants, of street railways and of telegraph and telephone systems. The Governor in his address cited as a notable example of the spirit in which employers are accepting the act the cases of the Seattle, Tacoma, Bellingham and Everett street railway, lighting, power, telephone and telegraph companies, which are not only voluntarily segregating their pay rolls into hazardous and non-hazardous classes, but are taking advantage of the "elective-adoption" feature of the law, whereby the employer and employees may jointly agree to place themselves under the provisions of the act, even though their work is not hazardous in any degree.

The fund for the payment of compensation is obtained by assessing the employer a sum equal to a definite percentage of his total pay roll for a year. The percentages are different for each of the forty-seven classes, and each class of industry is assessed for the accidents occurring in that class and for no other. The rates are subject to readjustment depending upon the number of accidents and need for compensation of injured workmen. The first assessments are levied on the pay rolls of October, November and December of this year, and no further assessments will be made on any class, unless the accidents occurring in that class deplete its fund to a point when it is necessary to call for more money.

Injured workmen, their families or dependents are paid certain sums out of the fund, and cannot recover by law except where the injury is caused by intent of the employer, in which case the workman or his family may recover not only the sum due under the act, but may sue for any demand in excess of this sum. Where a workman is injured because an employer has neglected to observe the safeguards required by law or by the regulations of the department the employer must pay 50 per cent more than the fixed amounts. Where the workman injures himself intentionally he receives no benefit. No part of the premium can be deducted from the wages of the workman, the violation of this section by the employer being made a gross misdemeanor, punishable by one year in the county jail or a fine of \$1,000, or both. The State provides for the administration of the law, and for this purpose sets aside \$150,000, so that none of the money in the general fund is used for the expenses of the commission. The act enables the commission to raise the rate of a particular industry or firm which conducts its business in a notably careless or negligent manner, thus tending to compel a closer observance of factory laws and assist the work of the labor commissioner in the inspection of mills and manufacturing plants.

Governor Hay said that the wisdom of the classification of industries is already seen in a certain class pride, many industries making a concerted effort to hold their casualties down and thus lower the net cost of carrying insurance. The lumbermen, for example, are considering a system of private inspection to guard against negligence and accidents in their own class, thus preparing for a satisfactory annual adjustment, such as is provided for by law, and a possible

reduction of their rate by the next Legislature to be elected.

The schedule of payments for various injuries is as follows: First, in case of death, the expenses of burial, \$75. Payment to widow or invalid widower of \$20 per month while unmarried, or \$240 in a lump sum on remarriage of widow. For each surviving child under sixteen, \$5 per month, the whole monthly payment being limited to \$35. If no widow or widower survives, \$10 a month to each child under sixteen, the same rule applying to children who become orphans by death of the surviving parent, with a monthly limit of \$35. Dependents get 50 per cent of the average monthly support formerly received from the deceased workman, limited to \$20 per month. The parents of deceased unmarried workmen receive \$20 per month up to the time the deceased would have been twenty-one years old. When totally disabled, which disability is specifically defined in the act, the payment is \$20 a month if unmarried; if supporting a wife or invalid husband \$25, or if the husband is not an invalid \$15; for each child under sixteen an additional \$5 a month up to a total of \$35. In case of death of the totally disabled workman the widow or widower receives \$20 a month until death or remarriage and \$5 per month additional for each child under sixteen; orphaned children receive \$10 a month. When partially disabled as defined in the act a workman receives a certain cash lump sum up to \$500. The parents of an injured workman under twenty-one and unmarried also receive 10 per cent of the amount awarded the injured minor. If the injured workman resides or moves out of the state the commission may lump the monthly payments into one sum not to exceed \$4,000, as based on the American mortality table.

PAPER BY GOVERNOR FOSS OF MASSACHUSETTS

Governor Foss said that workingmen's compensation is essentially a business subject, and as such it ought to be brought to a uniform level throughout the United States. In his inaugural message he urged on the Massachusetts Legislature immediate and equitable legislation on the subject, setting forth that the criterion of such a law must be definite, certain and speedy adjustment of all claims, so that they may be discounted alike by capital and by labor, and that the results of such a law should not be measured merely by financial considerations, but by the better relations which will be brought about between the employer and employees. He also urged that it was not sufficient to say in answer that Massachusetts had a just law, giving compensation to an injured workman at once and without the necessity of a lawsuit. Referring to the desirability of uniformity of state legislation on the subject, he said that at present the award of compensation for industrial injury might be acceptable to the highest court in Massachusetts and yet be declared unconstitutional in New York State. While, he said, we like to think of our States and our country as the home of popular rights, yet in this matter of simple justice to workmen it is painful to realize that almost all of the rest of the industrial world has abandoned the old principles of employers' liability in favor of the broader and more liberal spirit of workmen's compensation.

The federal government five years ago applied the principle of automatic compensation for injuries to workmen in its employ on the Philippine Islands, and three years ago this was followed by a similar law protecting all workmen working in government arsenals, navy yards, fortifications and other hazardous employment under federal jurisdiction. Later, protection was extended to federal employees working in the Panama Canal zone, and legislation is now pending which will include a still larger number of men and women employed by the federal government.

Governor Foss then took up the discussion of the recent Massachusetts law on the subject, which, he said, had been sanctioned by the Supreme Court as constitutional. The law will not go into full effect until July, 1912, thus giving employers an opportunity to study its provisions and to meet them. As originally drafted the bill eliminated the

private insurance companies and substituted a state insurance association, the purpose being to do away with the great loss both to employers and employees through the large profits made by these companies. This could not, however, be achieved, the insurance companies being strong enough in the Legislature to defeat the provision. The law as it stands permits a corporation to insure itself against accident casualty in any of the established liability companies or in a specially created state association. The act establishes a mutual liability insurance company, which has fifteen directors appointed by the Governor. Any employer may become a subscriber, and each subscriber is entitled to one vote, with another vote for each additional 500 employees, up to twenty votes. It is not, however, of fundamental consequence in the act how the employer shall insure himself, provided always that he makes suitable provision for the payment in full of all compensation which may be due from him to his injured workmen.

The law does away with the defenses of negligence on the part of the injured employee or fellow employee and with the assumption that he assumed the risk of injury as a condition of employment. The schedule of compensation provided is as follows: For two weeks after an injury a workman is entitled only to receive medical and hospital services; in case of death the dependents, if any, are to receive a sum equal to one-half of his weekly wages, extending over 300 weeks, the maximum being \$3,000, the compensation being less when there are only partial dependents; in case of total incapacity the payment is up to a maximum of \$3,000, figured at one-half of the average wages for 500 weeks; in the case of partial incapacity a similar schedule holds, with a maximum of 300 weeks. For certain specified serious injuries, as, for example, the loss of both eyes or both hands, an additional compensation up to \$1,000 is paid. There is no compensation if the injury results from the workman's seriously wilful misconduct; and if the injury results from the seriously wilful misconduct of the employer the nominal compensation is arbitrarily doubled. An employee has no right under the act to recover damages by common law unless he gives the employer notice in writing that he claims such a right, and even in this case the claim may be subsequently waived. A wife living with her husband, a husband living with a wife, a child or children under eighteen years of age or older, if physically or mentally incapacitated, are presumed to be totally dependent upon the injured party. If an injured employee refuses to submit to a physical examination by a physician or surgeon the right to compensation is suspended. No employee can waive his rights to compensation or enter into an agreement to that effect, and no payment made under the act is assignable, subject to attachment or liable in any way for debt.

For the administration of the act the Governor appoints an industrial accident board of three members, maintained by the commonwealth. Claims for compensation, if agreed upon by the employer and employees, are filed with this board, and if approved by it the agreement becomes enforceable as equivalent to a decree of the Superior Court. In cases where the employer and the injured employee fail to agree the board calls for a committee of arbitration of three members, one a member of the board and two named respectively by the injured workman and by the employer or the association which represents the latter. This committee investigates the case and its decision is enforceable as equivalent to a decree of the Superior Court. If, however, the findings of the committee are not satisfactory to both parties, then the board itself must pass upon the case. If a case brought before the board is found not to rest upon reasonable grounds the whole cost of the proceedings is assessed upon the party who brought or defended the action.

Governor Foss laid stress upon the fact that the Massachusetts law provides for payment of claims to relatives who are non-residents. In twenty-two States such relatives



are compelled to enter suit for the purpose of establishing their claim, with the result that many employees actually prefer to hire foreign workmen for the reason that if these men are killed the non-resident families cannot readily make an appeal for compensation. The attitude of the Massachusetts Supreme Court has been clear and fearless on this point.

Governor Foss referred to the past system of workmen's compensation as vicious for a number of reasons. An industrial accident, for example, instantly lines up the employer and employee as parties in a lawsuit, from which it is difficult to keep out a spirit of hostility. At present only one-half or less of the amount of money paid out by employers for compensation gets to the injured employee. For instance, 327 firms in New York State spent \$192,538 in 1907 on account of accidents, legal expenses, etc., of which the injured workman received only \$104,642. The casualty insurance companies during the years 1906 to 1908 took in premiums to the amount of \$23,000,000 and disbursed in payment to injured men and their families only about \$8,500,000. In the latter case there was thus a direct loss to the employer and to the employees and a tax on the industry of about \$15,000,000 in three years through nine insurance companies.

The latter part of Governor Foss's paper was devoted to a discussion of the legality, ethics and economics of workmen's compensation laws. The conclusions were that such compensation was fully justified in the basic industrial law of costs; that it had excellent claims to recognition as a proper exercise of the general peace power of the State, which cuts through a good many personal rights in order to establish and maintain in general life, safety and order; that in its broad working such compensation would not increase but only distribute the total burden of payment for injuries and deaths, and that the only obstacle which impedes the establishment of workmen's compensation laws in all States uniformly is that an employer in any one industry can successfully oppose the imposition of any sort of tax which some neighboring industry does not share.

#### DISCUSSION.

Governor McGovern (Wisconsin) said that Wisconsin has now a law in operation similar to that of Massachusetts. It is, like that law, voluntary. The employers have shown a willingness to come within the operations of the law, as have the employees also. There is one important difference between the law in Wisconsin and that in Massachusetts. Wisconsin has by its industrial commission law conferred upon the Industrial Commission not only the administration of the compensation act, but the investigation of all conflicts between employers and employees. This whole matter of the legal relation, so far as the public is concerned, between the employer and employee has been turned over to the Industrial Commission. This commission has also within its jurisdiction free employment bureaus, factory inspection, truancy and the standardization of safety devices. He considered it as making for economy and efficient administration of the law to confer upon the same commission which determines industrial disputes the authority to inspect the factories, mines, etc., where these disputes arise, so that there may be uniformity in these matters throughout the State.

Governor Wilson (New Jersey) said that New Jersey has passed a law similar to the act already described by Governor Foss. The real difficulty, however, was that under the constitutional limits of the State of New Jersey the Legislature has no right to pass compulsory measures of this character. Hence the New Jersey law was not compulsory. What most interested him, therefore, was the discussion of this constitutional difficulty. The New Jersey act is divided mainly into two parts. The first part abolishes the common-law defenses. The second provides a scheme of compensation similar to that under the Massachusetts law. But, after all, he said, the trouble was with the indemnity

companies. They had raised their rates in New Jersey in some cases 1000 per cent. He believed these companies to be singularly unwise and to be adopting an attitude which would ultimately compel the establishment of a system of State insurance. Without a system of State insurance it might happen that employers in a small way of business or small corporations would not be able to pay the indemnities, and the security afforded by the law would be extended only to those whose employers were solvent. New Jersey had therefore not protected all classes of workmen until it could be certain that claims of this sort should be paid whatever the circumstances. He could not say that all employers in the State had been inclined to meet the law halfway. Some had determined to test its validity.

Governor Hadley (Missouri) referred to the fact that the New York workmen's compensation act had been declared unconstitutional by the Court of Appeals of that State. He called the attention of the conference to the report of the law committee of the Civic Federation, which was in answer to the decision of the Court of Appeals. The argument was there made that the common law was not a "straitjacket"; that it was elastic and could be made to conform to meet particular classes of problems. He stated that of \$95,000,000 contributed by the employers of the country to the indemnity companies only \$40,000,000 had reached the pockets of the injured workmen. He also pointed out a fact which has been recognized for some time, that the lives lost and injuries sustained annually by workmen in the pursuit of their occupations exceed the number of killed and wounded in modern warfare between nations.

Governor Stubbs (Kansas) submitted an analysis of the Kansas law, quite different from the laws of Massachusetts or Washington. The act is voluntary in character and applies to hazardous industries, such as railways, mining, gas, explosive works, etc. Application of the act is made only to employers of more than fifteen persons. Employers might elect not to come within the provision of the act by written notice before the injury. Where the injury is caused by the individual negligence of the employer he has the right of choice between existing remedies and the compensation provided for in the act. The workman of a sub-contractor may recover indemnity from the principal, who may in turn recover from the sub-contractor. The employers are not liable for compensation to the employee if the latter was drunk or if the injury was caused by a violation of the statutory regulation for injuries caused by the employee, or for any injury which did not disable him for at least two weeks from earning his wages. Governor Stubbs believed that the charge for workmen killed and injured in the interests of society should be borne by the respective classes of society. If a railroad has to pay for its plant, its machinery, it should, on the same principle, be made to pay for the life of the engineer killed in the railroad service.

Governor Harmon (Ohio) said that the feature in which the Ohio law differed from the other compensation laws was that the law made no classifications, but left the classification to the commission appointed to administer the law. It was thought that the commission could from the results of its investigations make a better classification than could the General Assembly. It seemed to be the general desire in Ohio to make the law a success, and there had been no threat of interfering with its operation except from the indemnity companies.

#### PROGRAM FOR LATER MEETINGS.

On Thursday, Sept. 14, the two subjects discussed were "The Inheritance Tax and State Comity" and "The Right of the State to Fix Intrastate Traffic Rates." On Friday, Sept. 15, the program arranged for a consideration of "State Control of Public Utilities." There were to be addresses by Governor McGovern, of Wisconsin, and Governor Carroll, of Iowa. On Sept. 16 the subject for consideration was "Problems of Prison Labor."

## HEARING ON TRANSFERS IN NEW YORK

The hearing on transfers in the Borough of Manhattan, New York, was continued on Sept. 13, 1911, before Commissioners Eustis, McCarroll, Willcox and Maltbie, of the Public Service Commission of the First District, being confined to testimony in regard to the Third Avenue Railroad and the other companies of which F. W. Whitridge is receiver. John Flint, of West & Flint, testified as to the receipts from passengers and the number of transfers received by the Third Avenue Railroad and other companies before and after the receivership. He offered in evidence the following statement of revenue and transfer passengers carried by the Third Avenue Railroad, including the Kingsbridge line, for the ten years ended June 30, 1911:

Year ended	Number of Passengers Carried		
	Revenue.	Transfer.	Total.
June 30			
1902.....	45,818,161	7,080,312	52,898,473
1903.....	45,512,271	6,573,424	52,085,695
1904.....	46,123,799	11,880,289	58,004,088
1905.....	46,867,961	15,019,314	61,887,275
1906.....	47,909,290	15,652,526	63,561,816
1907.....	44,175,860	16,911,787	61,087,647
1908.....	43,163,510	15,706,950	58,870,460
1909.....	45,115,175	5,772,237	50,887,412
1910.....	48,678,914	7,523,165	56,202,079
1911.....	50,728,964	8,804,784	59,533,748

W. D. Guthrie, of counsel for the Third Avenue Railroad, and counsel for the commission agreed for convenience to accept statements of franchises owned and other specified data from the case of the reorganization of the Third Avenue Railroad, which was heard some time ago before the commission.

Edward A. Maher, general manager of the Third Avenue Railroad, said that the companies of which Mr. Whitridge acted as receiver were operated separately. He described briefly the routes of the properties. They are principally north and south lines. Mr. Maher said that the Third Avenue Railroad operated underneath an elevated railroad and was paralleled on the west by the Lexington Avenue and the Madison Avenue lines of the Metropolitan Street Railway and on the east by the Second Avenue Railroad, the First Avenue Railroad and the Second Avenue elevated line of the Interborough Rapid Transit Company. The Third Avenue Railroad would also have to compete with the proposed subway on Lexington Avenue. The Forty-second Street, Manhattanville & St. Nicholas Avenue Railroad was paralleled largely on the west side by the subway. Mr. Maher presented a statement showing points at which transfers are issued between the Third Avenue Railroad and lines of other companies. There were nine points at which transfers were being given by the company at the suggestion of the court because of the joint use of tracks.

The Third Avenue Railroad furnished the equipment for the Twenty-eighth and Twenty-ninth Streets Crosstown Railroad and operated that property under a verbal agreement with the receiver, Joseph Mayer, which provided for transfers between the two lines. This agreement could be terminated at any time. A plan of reorganization for the Twenty-eighth & Twenty-ninth Streets Crosstown Railroad was pending before the commission and the company had applied for leave to extend its lines to the Pennsylvania station at Thirty-third Street and Seventh Avenue. The future of the Twenty-eighth & Twenty-ninth Streets Crosstown Railroad depended largely on whether the company secured this franchise. The cross-town line now served as a feeder to the Third Avenue Railroad. On the Third Avenue Railroad a passenger could ride 15 miles for 5 cents; on the Forty-second Street, Manhattanville & St. Nicholas Avenue Railway a passenger could ride direct or by transfer 10½ miles; on the Dry Dock, East Broadway & Battery Railroad, which operates from the plaza in Brooklyn over the Williamsburg Bridge, a passenger could ride by transfer 15 miles.

Mr. Maher presented a statement prepared by him to

show the schedule which would be required if transfers were restored at the points at which transfers were issued previous to 1908. This statement was based on the increase in population in New York, the probable increase in passengers and the probable increase in transfers judged by the record previous to abolition of transfers. He also testified in regard to the increase in the cost of living in New York, the increase in the wages of employees and the increase in the cost of material and supplies. Mr. Maher estimated the present purchasing power of the 5 cents paid by a passenger for a ride to be only 80 per cent as great as it was a decade ago.

On Sept. 14 Mr. Flint was called again and explained exhibits which counsel for the company had entered as part of the evidence.

Mr. Maher explained a reciprocal power arrangement which the Third Avenue Railroad had with the Metropolitan Street Railway. He presented a table to show the expenditure made for betterments to cars since Mr. Whitridge had been receiver of the company. He described the system of transfers in use on the Union Railway in the Bronx, stating that the interests which control the Union Railway, the New York City Interborough Railway and several less important lines hoped eventually to consolidate the properties. The officers of the Third Avenue Railroad had gone over the transfer order of the commission with a view to complying with the directions contained therein calling for the restoration of transfers and had conferred with the officers of the Metropolitan Street Railway and the Second Avenue Railroad. The subject of the division of fares had been left open in the discussion, it being felt that this was a matter which could be determined only by the results shown in operation. It appeared that the length of haul was the proper basis for the division of fares. Mr. Maher suggested that if the ride began with a long haul, succeeded by a short and then a long haul, the first company should receive 4 cents, the second 2½ cents and the third 3½ cents, but if the long haul was in the middle, then the first company, which took the passenger for only a short distance, should receive 3 cents, the long-haul company 4½ cents and the third the remaining 2½ cents.

The hearing will be continued on Sept. 19, 1911.

## REINFORCING POLES ON THE INDIANA UNION TRACTION LINES

The overhead department of the Indiana Union Traction Company, Anderson, Ind., this year is reinforcing about 1600 of its trolley poles. Last year about 700 poles were reinforced and during the late fall of 1909 similar work was done on 250 to 300 poles. The work is in charge of G. H. Kelsay, superintendent of power, who has supplied the following details with regard to the method used in carrying out the work.

An excavation to a depth of 24 in. to 28 in. is first made around the pole. The rot around its base is then shaved off, and a thorough application of creosote is given the pole from the bottom up to a height of 3 ft. or 4 ft. above the ground. For installing the concrete reinforcement thirty-six forms, 48 in. long and ranging in diameter from 18 in. to 24 in., are used. These are constructed of black sheet iron and are made in semi-circular halves. Semi-circular bands are riveted to the iron to hold the forms in shape, the edges of the forms being hinged together, thus permitting easy handling and assuring that halves of the same size are kept together. With thirty-six forms four men can be kept busy concreting.

A form of the size most nearly conforming to the size of the pole is laid around it, and inside this form is placed wire reinforcement consisting of 46-in. twelve-bar heavy wire fence, with No. 7 top and bottom wires, No. 9 intermediate horizontal wires and No. 9 vertical wires spaced

3 in. apart. This fencing is cut in lengths sufficient to encircle the pole and be embedded in the concrete just inside the forms. The form is then filled with concrete consisting of one part cement to five parts gravel and sand. The top is sloped off slightly to assist in shedding water from the top of the concrete and around the pole. The form is removed from the pole after about twenty-four to thirty-six hours. After the forms have been removed the dirt is tamped in around the concrete and the pole is coated with a heavy paint or pitch compound around the top of the concrete to eliminate as nearly as possible the entrance of moisture between the concrete form and the pole.

The reinforcement is being applied to 30-ft. and 40-ft. poles, although the latter size poles are thought to be good for a considerable length of time. The 30-ft. poles, however, are believed to be near the maximum limit of their life without some form of protection and therefore reinforcement, as described, has been applied.

### REDUCTION OF NOISE BY NOVEL TRACK CONSTRUCTION

The elevated railways of Chicago operate a very large proportion of their trains around the Union Elevated Loop, which encircles the greater portion of the congested business district of Chicago. This loop has 2 miles of double track and during the hour of maximum train service handles about 150 trains, each of four or five cars. The trains of the Northwestern and Oak Park elevated roads use the outer track and operate in a clockwise direction; the trains of the Metropolitan and South Side elevated roads run counterclockwise on the inner loop track. Every train stops at eleven passenger stations and on account of the short headway and the interlockers at three corners of the loop a considerable number of additional stops are necessary. Thus the track structure has to withstand very severe operating conditions.

The rails on the Union Elevated Loop, except those at the curves, which are of manganese steel, are now being relaid and a special arrangement of ties and wedging is being installed with a view to reducing the noise. As now laid the rails are carried on tieplates and these rest on 6-in. x 8-in. x 8-ft. sawed ties, which are hook-bolted to the top flanges of the longitudinal girders of the elevated structure. The ties are held to the correct spacing by one 6-in. x 6-in. inside guard rail and one 6-in. x 9-in. outside guard rail for each running rail. The guard rails are bolted to the ties.

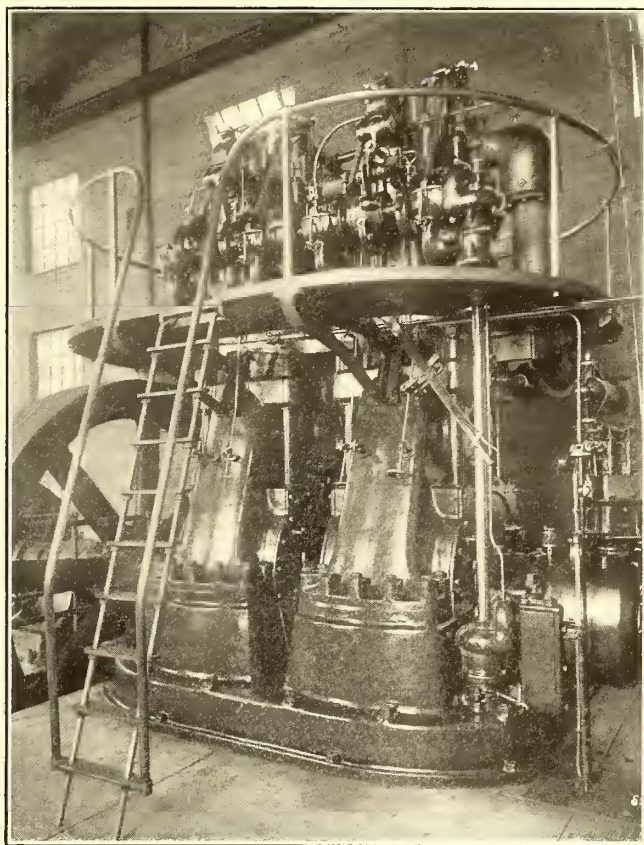
The present reconstruction plan includes renewal of the rails on the Wabash Avenue and Van Buren Street sides of the loop, thus covering 2 miles of track. The new rails are 90-lb. standard section in 60-ft. lengths joined by six-hole angle bars and electrically connected by bonds extending around the joints. At intervals of 200 ft. to 300 ft. the rails are being bonded to the steel elevated structure. Other changes in the method of laying the rails include the omission of tieplates, the spacing of ties 3 in. apart and the blocking of the opening between ties under the running and guard rails with wooden wedges. The omission of the tie plates and the use of 60-ft. rails in place of 30-ft. rails are expected to reduce the noise considerably. The spacing of ties only 3 in. apart and the insertion of wedges between the ties are designed to reduce tie-cutting and provide a solid wooden base underneath the rails, thus eliminating a portion of the noise. Screw spikes are being used. The wedges being used are 6 in. wide, 2 in. thick at one end and 1 in. at the other. They are placed on edge and their lower sides will rest on the tops of the longitudinal steel girders; the upper sides of the wedges will bear against the bottoms of the track rails and the inner and outer guard rails. Thus when a pair of wedges is driven home between two adjacent ties the wedges will not only

rigidly block the ties in the desired position, but will give the rail a bearing surface over its full length. The placing of these wedges between ties and under the guard rails will serve with the ties and guard rails to form a trough surrounding the running rail on three sides. Later, if it is found desirable, this trough will be filled to the level of the head of the rail with some mastic compound designed to reduce the noise.

The major portion of this renewal work is being done between 9 p. m. and 5:30 a. m., as between these hours the minimum average headway between trains on each track is 90 seconds. The work is first being done on the outer track on Wabash Avenue. This particular section of track lies between two cross-overs and all trains are being run by the work on the inner track.

### NEW CRUDE-OIL ENGINE

The Atlas Engine Works, Indianapolis, builders of steam engines and gasoline motors, have recently brought out a crude-oil engine of the Diesel type, which is built in vertical units with two, three or four cylinders and respectively of 300, 450 and 600 brake hp. The theoretical economy of



Crude-Oil Engine—Side View

the crude-oil engine is well known, but the Atlas works are prepared to guarantee that if the consumption of oil by one of their engines in directly connected electric service exceeds 12 gal. per 100 kw-hours at the switchboard, when the average load for the running period is not less than one-half full rated capacity at standard speed, they will pay a cash forfeit equal to five times the average cost of the excess fuel used during the year. They state that with oil at 2 cents per gallon the cost for fuel at full load should not exceed 2.1 mills per kw-hour. The thermal efficiency of the Atlas oil engine is estimated at 37½ per cent, its mechanical efficiency at 80 per cent and its total efficiency, based on brake horse-power developed at full load, at 30 per cent. Each brake horse-power, therefore,

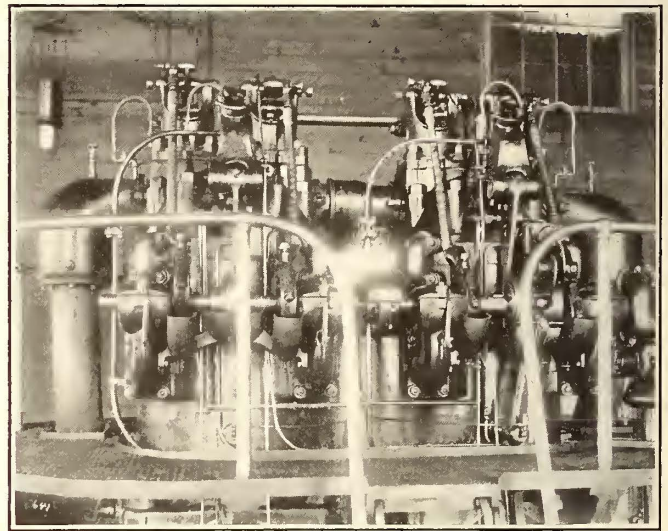
requires 8483 b.t.u., and as each pound of fuel oil contains about 19,000 b.t.u., and as there are about 7.3 lb. of oil per gallon, there should be a consumption of about 61.65 gal. of oil per ten-hour day for 100 brake hp. For purposes of comparison it might be said that the thermodynamic efficiency of a simple non-condensing engine with boilers has been estimated at about 6 per cent, of the compound condensing engine at 9 per cent and of triple-expansion engines or steam turbine, units in large sizes with economical equipment, at from 17 per cent to 20 per cent.

The Atlas oil engine works on the four-stroke cycle. On the first downward stroke of the piston pure air only, not an explosive mixture, is drawn into the cylinder. On the first upward stroke this air is compressed into a small clearance space between the piston and the cylinder head. No combustible mixture exists in the cylinder during this stroke, and premature ignition or back firing is impossible. The compression of the air to 500 lb. pressure raises its temperature to about 1000 deg. Fahr., sufficient to ignite the small amount of a finely divided spray of oil, which is thoroughly mixed with a jet of air at about 900 lb. pressure, and is gradually introduced into the cylinder. About 1/2 cu. in. of oil is burned in each 21-in. x 30-in. cylinder during each working stroke, the exact quantity being regulated in proportion to the load by a single pump, the delivery of which is directly controlled by a governor. As will be seen, no ignition device is required. After the fuel valve closes the gases work expansively and the terminal pressure is but slightly in excess of that of the atmosphere. At the end of each working stroke the exhaust valve opens and the products of combustion are expelled on the second upward stroke, thus completing the cycle.

To start the engine compressed air at about 900 lb. pressure is used. This air is stored in a series of bottle reservoirs, shown in one of the engravings. The manipulation of a starting lever opens a valve which admits sufficient air from one section of the bottles to drive the piston of one cylinder during the first few revolutions. The heat

The governor is driven directly from the main shaft and is so graduated that less than 1/2 cu. in. of fuel oil is injected on any working stroke when full load is on and less amounts are used to suit momentary load conditions. The fuel injection pump is of the two-stage type. The speed can be controlled closely.

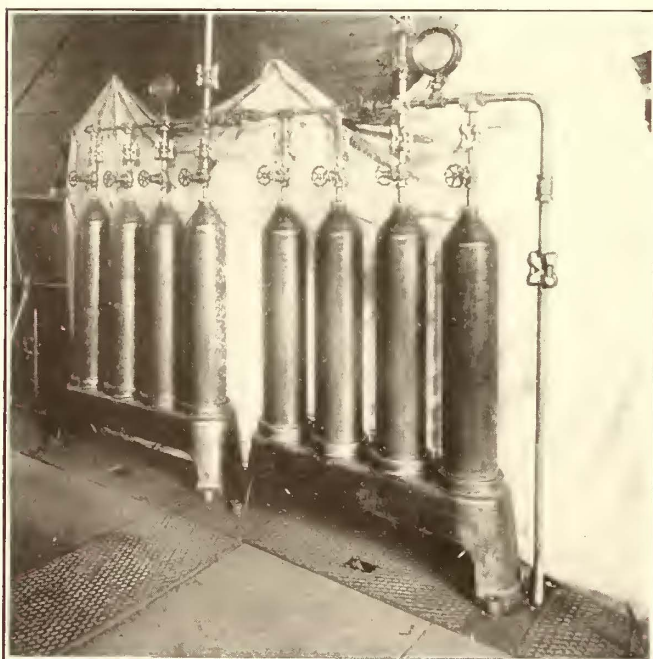
A regards maintenance, a two-cylinder 300-hp engine



Crude-Oil Engine—Showing Cylinder

was run continuously for one month and then run for a second month with a shut-down from Saturday midnight until Sunday midnight each week to determine whether the economy of the engine or its ability to start quickly would be affected if the parts were allowed to cool off and contract. No effect was noticed in these particulars and no adjustments were required other than those which any ordinary operator could effect. The piston, cylinder and valve mechanism were in as good a condition as at the beginning and there was no perceptible wear on any of the bearing surfaces, and no repairs were required.

During June of this year C. E. Sargent, consulting engineer, Chicago, made a series of tests of a two-cylinder Atlas engine directly connected to a 175-kw generator. The engine cylinders were 20-in. diameter by 30-in. stroke and the speed of the unit was 175 r.p.m. The compressed air for the injection and starting was furnished by a three-stage compressor, driven by a 25-hp motor. An analysis of the oil used showed that it had 19,149 b.t.u. per pound. Seven runs in all were made. The variation in speed between the lightest load and 25 per cent overload did not exceed 2 per cent. The results of four of the tests follow:



Crude-Oil Engine—Compressed-Air Storage Bottles

generated by the compression of air in the other cylinder or cylinders meanwhile ignites the oil that has been injected. Then the starting lever is thrown out of commission; this closes the air valve, and the cams operating the fuel-admission valves come into play simultaneously. The engine is ready for full load in less than a minute after the initial movement of the starting lever.

SUMMARY OF TESTS OF 300-HP. ATLAS ENGINE BY MR. C. F. SARGENT.

Date of run.....	6-21-11.	6-20-11.	6-21-11.	6-21-11.
Duration of test in hours.....	1.	3.	2.5	1.
Load in kw-hours by switch-board meter.....	67.	132.	200.4	249.
Kw to compressor by watt-meter.....	24.75	23.6	29.6	31.
Net e. h. p.....	64.44	152.62	238.22	301.91
Transmission losses to compressor, 23.6 per cent.....	5.84	5.5	6.98	7.31
Net kw used by compressor..	18.91	18.1	22.62	23.69
B.h.p. used by compressor....	25.32	24.25	30.31	31.74
Net kw delivered to line.....	48.09	113.9	177.78	225.31
Net e.h.p.....	64.44	152.62	238.22	301.91
Generator efficiency per cent, manufacturers' rating.....	87.	89.	91.	91.
Net b.h.p.....	74.	171.4	261.7	331.7
Revolutions of engine per minute.....	174.7	173.13	172.9	171.
Fuel oil used, pounds per hour	50.	81.	120.4	167.
Pounds oil per kw-hour.....	1.04	.71	.68	.74
Gal. oil per 100 kw-hour.....	14.22	9.73	9.27	10.15
Pounds of oil per b.h.p.-hour	.67	.472	.46	.505
Gal. of oil per 100 b.h.p.-hours	9.18	6.47	6.3	6.9
B.t.u. per b.h.p.-hour.....	12,829	9038.	8808.	9632.
Thermal efficiency of engine, 2545 b.t.u. per b.h.p.....	19.8	28.15	28.9	26.4
Fuel cost of 100 kw-hours in cents, oil at 2 cents per gal.	28.44	19.46	18.54	20.3

# News of Electric Railways

## Petition for Limited Ordinance Pending Final Settlement in Toledo

Fourteen prominent residents of Toledo, Ohio, have petitioned the City Council to pass an ordinance for a limited period to secure street railway service under a permanent status pending a final settlement of the differences between the company and the city. The petitioners propose a fare of seven tickets for 25 cents on routes on which franchises have expired. Charles S. Ashley, who was largely instrumental in preparing the petition, states that at the present time the company is carrying about 100,000 revenue passengers per day, and estimates that 65,000 of these passengers now pay 5 cents, while the remainder secure the lower fare by the purchase of tickets. He has presented the following statement:

65,000 passengers at 5 cents.....	\$3,250
35,000 passengers at 4 1-6 cents.....	1,458
Total .....	\$4,708
100,000 passengers at the rate of seven for 25 cents.....	3,571
Daily gain to Toledo.....	\$1,137

The petition presented for the consideration of the Council follows:

"We, the undersigned citizens of Toledo, respectfully petition your honorable body to pass an ordinance requiring the Railways & Light Company to sell seven tickets for a quarter until the further action of the Council. We respectfully suggest that to save all legal question the ordinance be made to apply only to those streets where the franchises have expired, and that if accepted in writing by the company within three days of its taking legal effect, it shall be in lieu of the street rental provided by a former ordinance; the intention being that the rate provided shall continue for sufficient time for further negotiations looking to a more permanent settlement."

## Trains from New York to the Atlantic City Convention

The Pennsylvania Railroad will run a special train, or special parlor cars if there is not a sufficient number of persons to justify a train, from New York to Atlantic City, on Saturday, Oct. 7, 1911, leaving New York from Pennsylvania Station, Seventh Avenue and Thirty-second Street, at 3:04 p. m.

The Central Railroad of New Jersey will arrange to provide special Pullman cars on all of its New York-Atlantic City trains, leaving New York on Oct. 7-10, inclusive, for the benefit of those attending the convention. If a sufficient number advise of their intention to use any one train, a special train composed exclusively of Pullman parlor cars will be operated for their accommodation.

The first-class one-way rate between New York and Atlantic City is \$3.25, and the six months' excursion rate \$5, but both companies will sell excursion tickets, good going Oct. 6-10, and returning to reach original starting point not later than Oct. 16, for \$4.90. Tickets via Pennsylvania Railroad will be available for stop-off at Philadelphia within limit, at pleasure of the holder.

## Questions of Paving and Operation in Kansas City

Ford Harvey, who is receiver of the Metropolitan Street Railway, Kansas City, Mo., with R. J. Dunham, returned to Kansas City recently after an absence of some time. Pressed for a statement in regard to the affairs of the company, more particularly the matter of paving and the question of the operation of cars of the company over the intercity viaduct, to which reference has been made previously in the ELECTRIC RAILWAY JOURNAL, Mr. Harvey said:

"Since my return I have talked at length with John M. Egan, president of the company, and with certain of the city officials, but I have had no opportunity to confer with Mr. Dunham. I understand the principal issues under discussion at present are the maintenance of paving and track, the car service and the inter-city viaduct.

"With respect to the paving, I feel that where the paving

to be maintained or renewed by the company is not in perfect or good condition, and the city is paving that part of the street between the 18-in. line and the curbstone, the receivers of the company should arrange promptly to do their work. I am informed there are conditions on certain streets where the proposed new paving will require the raising or changing of the grades of the streets, in which tracks have previously been laid in accordance with the city's established grade, and that the change will necessitate very extensive expenditures by the receivers. Under the latter conditions the matter presents itself to me as a question of equity and responsibility, on which the court will probably have to determine. As to track conditions, I have just had submitted a complete report which covers the same in detail on every block in the city, with which I will familiarize myself fully as soon as possible. There have been some large expenditures in this direction within the past two years, and I can say these expenditures have not been curtailed up to the present time during the receivership.

"In regard to the car service, generally speaking, I have felt that car service in Kansas City compares favorably with that in other cities, but this is frankly stated as an impression rather than a conclusion. This is a question also that requires very careful study before attempting to interfere with the ideas of those who have had much greater experience in the handling of such affairs. The company's reports indicate they are handling on an average 350,000 a day; the business must be considered in its entirety.

"About the intercity viaduct, I was absent when this came up and it has been handled entirely by Mr. Dunham and Mr. Hagerman. As far as I can see, the company considered it was paying too much and the intercity viaduct not enough. The public is familiar with the situation."

## Opinion on Jurisdiction of Ohio Commission

Timothy S. Hogan, Attorney General of Ohio, has rendered an opinion to the Public Service Commission of Ohio in which he holds that the jurisdiction of the commission in regard to extensions of street railway lines extends only to the operation or service on such lines, and that the commission is not empowered to compel street railways to extend their lines to reach new traffic or create new traffic. Mr. Hogan concludes his opinion in part as follows:

"It would appear at first glance that the act referred to, known as House Bill 325, would confer upon the Public Service Commission of Ohio power to order extensions to street railways. Your jurisdiction in my judgment is subject to limitations. I do not think that the act referred to requires the addition of a new line for the accommodation of what might be termed people outside the range of the original line. The Legislature unquestionably would have no power to order any street railway or railroad to extend its lines so as to reach out for new traffic, either freight or passenger. It has only the right to see that the street railway or railroad shall afford proper facilities between its terminal points.

"I have come to the conclusion that the jurisdiction of your commission goes only so far as relates to the operation or rendering of services by said public utility, and not to compelling said utility to extend its railroad to reach a new traffic or accommodating a new traffic. Section 30 provides that your commission has the right to compel utilities to make any additions thereto in order to promote the convenience or welfare of the public or of employees, or in order to secure adequate services or facilities. It seems clear that this means additions to the then existing system or utility, but not extensions. In other words, the jurisdiction of your commission is limited to repairs or improvements to the plant or equipment of any public utility, or additions in connection thereto, all reasonably necessary to execute what could fairly be expected of public utility in the light of its charter and according to the principles of House Bill 325.

"In short, your jurisdiction is ample to compel any public utility to execute the purposes fairly declared by its own charter, but you are without jurisdiction to order any street railway to extend its line into new territory to accommodate an additional public. My holding, in conclusion, is that the Public Service Commission of Ohio is without jurisdiction to order the things petitioned for by the citizens referred to in your communication."

**Bion J. Arnold to Report on San Francisco Traffic.**—The Supervisors of San Francisco voted unanimously on Sept. 5, 1911, to retain Bion J. Arnold to study transit conditions in that city and report to them.

**Experiment on St. Joseph Valley Railway.**—The St. Joseph Valley Railway, La Grange, Ind., one of the first roads in the United States to place a gasoline-electric car in operation, has recently received another of these cars and has added it to the equipment already in service.

**Los Angeles Assessments Reduced.**—The State Board of Equalization of California has directed that assessments made by City Assessor Mallard of Los Angeles on the franchises of the Los Angeles Railway Corporation be reduced from \$11,164,100 to \$6,095,743; the Los Angeles Pacific Company, from \$2,684,150 to \$1,600,000; Los Angeles & Redondo Railway, from \$1,509,825 to \$1,000,000.

**Bond Issue Authorized for San Francisco Municipal Railroad.**—The clerk of the Board of Supervisors of San Francisco, Cal., has been directed to advertise the sale of \$400,000 of municipal bonds in order to provide funds for erecting a power station and carhouse for the Geary Street, Park & Ocean Railroad, which the city is equipping for municipal operation. The Board of Public Works has been authorized to spend not more than \$350,000 for cars.

**Connecticut Public Utility Commission Organizes.**—The Railroad Commission of Connecticut passed out of existence on Sept. 9, 1911, when the members composing it organized as the Public Utility Commission under the law recently passed by the General Assembly. After being sworn Richard T. Higgins, Winchester, was chosen as chairman. The other members are John H. Hale, Glastonbury, and Theodore B. Ford, New Haven. The Public Utility Commission is composed of two Democrats and one Republican.

**Track Elevation in Chicago.**—The Chicago & Oak Park Elevated Railroad, Chicago, Ill., has formally accepted the terms of the ordinance of the Oak Park Board regarding the elevation of tracks through the village. The ordinance providing for the elevation of the tracks of the road from Austin Avenue to Harlem Avenue, in Oak Park, was passed several months ago, and on Aug. 3, 1911, the company was given until Sept. 8, 1911, to accept. By the terms of the ordinance the company is given forty days in which to start the improvement.

**Massachusetts Commissioner Investigates European Systems.**—George W. Bishop, a member of the Massachusetts Railroad Commission, returned to Boston on Sept. 13, 1911, after an extended tour of Europe, during which he inspected various railway systems. The principal matters upon which he secured detailed information were electrification, wheelguards and fenders. The result of his investigations will be transmitted through the board to the next Legislature. Mr. Bishop's itinerary included Liverpool, London, Glasgow, Edinburgh, Newcastle and Paris. The Massachusetts Legislature has asked for information on the subject of fenders and wheelguards and the Railroad Commission proposes to give the matter further consideration before preparing its report.

**Pittsburgh Subway Ordinance Drafted.**—A new subway ordinance has been prepared by a special committee of City Council of Pittsburgh and will be submitted to the public service committee of that body. The measure is similar to the ordinance originally presented by the Pittsburgh Subway Company. The bill provides that any company may bid for the franchise, but before the franchise becomes effective the company obtaining the right must furnish Council with a plan of the subway, showing the location of stations and routes specified, together with a statement of the company's financial responsibility. If the plans

and financial backing of the company do not meet with the approval of Council the franchise is to be null and void. Supervision of the construction of the subway is to be in the hands of a board of engineers, but it is proposed that the City Council shall retain authority over the board.

**The Chicago Electrification Committee.**—The Chicago Association of Commerce committee of investigation on smoke abatement and electrification of railway terminals is established at work. The committee is organized under the auspices of the Chicago Association of Commerce to investigate the practicability of electrification of the railroad terminals of Chicago, particularly with reference to smoke abatement. The committee is made up of business men, including a number of steam-railroad officials, and its chairman is Jesse Holdom, a lawyer and former judge. The railroads are defraying all the expenses of making the investigation, and the chief engineer retained by the committee is Horace G. Burt, former president of the Union Pacific Railroad and an engineer by profession. Assisting him are Louis H. Evans, terminal engineer; Hugh Pattison, electrical engineer, and Theodore H. Curtis, mechanical engineer. Mr. Evans was recently chief engineer of the Chicago Junction Railway; Mr. Pattison was connected with the electrification of the Pennsylvania Terminal, New York, and Mr. Curtis was superintendent of motive power and machinery for the Louisville & Nashville Railroad.

**Personnel of Buffalo, Lockport & Rochester Railway.**—Instead of naming a general manager to succeed J. M. Campbell with the Buffalo, Lockport & Rochester Railway, the management of the property has been turned over to the several departments that have charge of the various other roads in the Bebee system except that the Rochester men whose names appear in the following list are attached to the Buffalo, Lockport & Rochester Railway only: Transportation—J. H. Cain, Rochester, general superintendent. Maintenance of way and structures—T. H. Mather, Syracuse, chief engineer; W. A. Steckel, Syracuse, roadmaster; W. H. Snow, Rochester, superintendent of track. Maintenance of equipment—R. A. Dyer, Jr., Auburn, mechanical and electrical engineer; H. C. Prather, Rochester, superintendent of motive power. Traffic department—H. J. Clark, Syracuse, general traffic manager; L. J. Hoenig, Rochester, general passenger agent; A. J. Littlejohn, Syracuse, assistant to general traffic manager. Auditing department—W. W. Foster, Syracuse, assistant treasurer and general auditor; D. C. MacKenzie, Rochester, chief clerk. Legal department—William Nottingham, Syracuse, general counsel; H. C. Beatty, Skaneateles, secretary of the company; L. J. Hoenig, Rochester, claim agent. Tax department—H. D. Brewster, Syracuse, tax agent.

**A Statement of Policy.**—In the annual report of the Interborough Rapid Transit Company, New York, N. Y., an abstract of which is presented elsewhere in this issue, the company included a long explanatory statement of its negotiations for subway and elevated extensions with the city officials of New York, and gave its reasons for refusing both the subway and elevated extension propositions. In concluding its statement the company referred to its policy of betterments as follows: "Although all efforts upon the part of your company to procure the construction of new subways and elevated lines have been rejected by the public authorities, your company will still continue to carry out its policy of improving the service and of adding facilities to the present system to make it equal, as far as possible, to the ever-increasing traffic. The extent to which this policy has been carried on in the past will appear from the fact that during the last two years your company has paid out more than \$8,000,000 for improvements, or \$2,000,000 in excess of the amount paid out in dividends to stockholders during the same period. For the purpose of making travel in the subway as comfortable as possible under existing conditions, experimental fans were installed in fifty subway cars. Their use demonstrated that considerable relief could be afforded in this manner and that passengers could be made more comfortable. In consequence, authority was given to install fans in all of the express cars, a total of 3000 fans, this being the maximum number which could be installed during the summer, the cost of this installation amounting to approximately \$104,000."

# Financial and Corporate

## New York Stock and Money Markets

September 13, 1911.

Trading this week has shown the same irregularity prevalent during the August decline. Prices have fluctuated widely, in many cases dropping to new low quotations for the year, followed by abrupt recovery. This was the condition in to-day's market, and stocks offered little resistance to bearish operations. The irregularity is due in a large measure to disturbing conditions abroad, and while it is expected that present negotiations will result in peaceful settlement of the Moroccan dispute, the influence of conditions on foreign exchanges is disturbing. There is still a large amount of funds available at present prices. Quotations to-day were: Call, 2¼ @ 2½ per cent; ninety days, 3½ per cent.

### Other Markets

On Monday Chicago Railways, Series 1, sold three points under former quotations, and on Tuesday there were losses in nearly every active issue. Prices to-day were somewhat firmer, and a few slight gains were made.

Philadelphia Rapid Transit sold close to 22 on Monday, making a sudden recovery to 23 later in the day and closing at 22½. The market in Philadelphia is dull, and the list is showing a downward tendency.

Similar irregularity prevails on the Boston market, and in to-day's market there was a general falling off in prices.

There has been little activity on the Baltimore Exchange, and price changes have been unimportant.

American Light & Traction Company (common).....	a300	Sept. 6.	American Light & Traction Company (preferred).....	a106½	Sept. 13.
American Railways Company.....	44¼		American Railways Company.....	44	
Aurora, Elgin & Chicago Railroad (common).....	a43		Aurora, Elgin & Chicago Railroad (preferred).....	a43½	
Aurora, Elgin & Chicago Railroad (preferred).....	a87		Boston Elevated Railway.....	a127½	
Boston Elevated Railway.....	a127½		Boston Suburban Electric Companies (common).....	a18	
Boston Suburban Electric Companies (common).....	a18		Boston Suburban Electric Companies (preferred).....	a80	
Boston Suburban Electric Companies (preferred).....	a80		Boston & Worcester Electric Companies (common).....	a13	
Boston & Worcester Electric Companies (common).....	a13		Boston & Worcester Electric Companies (preferred).....	a56	
Boston & Worcester Electric Companies (preferred).....	a56		Brooklyn Rapid Transit Company.....	76¾	
Brooklyn Rapid Transit Company.....	76¾		Brooklyn Rapid Transit Company, 1st ref. conv. 4s.....	83¾	
Brooklyn Rapid Transit Company, 1st ref. conv. 4s.....	83¾		Capital Traction Company, Washington.....	a131	
Capital Traction Company, Washington.....	a131		Chicago City Railway.....	a190	
Chicago City Railway.....	a190		Chicago & Oak Park Elevated Railroad (common).....	a3	
Chicago & Oak Park Elevated Railroad (common).....	a3		Chicago & Oak Park Elevated Railroad (preferred).....	a5	
Chicago & Oak Park Elevated Railroad (preferred).....	a5		Chicago Railways, ptcptg., ctf. 1.....	a97	
Chicago Railways, ptcptg., ctf. 1.....	a97		Chicago Railways, ptcptg., ctf. 2.....	30¼	
Chicago Railways, ptcptg., ctf. 2.....	30¼		Chicago Railways, ptcptg., ctf. 3.....	a11	
Chicago Railways, ptcptg., ctf. 3.....	a11		Chicago Railways, ptcptg., ctf. 4.....	a7	
Chicago Railways, ptcptg., ctf. 4.....	a7		Cincinnati Street Railway.....	*130	
Cincinnati Street Railway.....	*130		Columbus Railway (common).....	*82	
Columbus Railway (common).....	*82		Cleveland Railway.....	a100¼	
Cleveland Railway.....	a100¼		Columbus Railway (preferred).....	*95	
Columbus Railway (preferred).....	*95		Consolidated Traction of New Jersey.....	a76	
Consolidated Traction of New Jersey.....	a76		Consolidated Traction of N. J., 5 per cent bonds.....	a105	
Consolidated Traction of N. J., 5 per cent bonds.....	a105		Dayton Street Railway (common).....	a25	
Dayton Street Railway (common).....	a25		Dayton Street Railway (preferred).....	a101	
Dayton Street Railway (preferred).....	a101		Detroit United Railway.....	a70	
Detroit United Railway.....	a70		General Electric Company.....	149	
General Electric Company.....	149		Georgia Railway & Electric Company (common).....	a161	
Georgia Railway & Electric Company (common).....	a161		Georgia Railway & Electric Company (preferred).....	92	
Georgia Railway & Electric Company (preferred).....	92		Interborough Metropolitan Company (common).....	16	
Interborough Metropolitan Company (common).....	16		Interborough Metropolitan Company (preferred).....	45½	
Interborough Metropolitan Company (preferred).....	45½		Interborough Metropolitan Company (4½s).....	80½	
Interborough Metropolitan Company (4½s).....	80½		Kansas City Railway & Light Company (common).....	a19	
Kansas City Railway & Light Company (common).....	a19		Kansas City Railway & Light Company (preferred).....	a44	
Kansas City Railway & Light Company (preferred).....	a44		Manhattan Railway.....	a136¼	
Manhattan Railway.....	a136¼		Massachusetts Electric Companies (common).....	a19	
Massachusetts Electric Companies (common).....	a19		Massachusetts Electric Companies (preferred).....	a86½	
Massachusetts Electric Companies (preferred).....	a86½		Metropolitan West Side, Chicago (common).....	*27	
Metropolitan West Side, Chicago (common).....	*27		Metropolitan West Side, Chicago (preferred).....	*75	
Metropolitan West Side, Chicago (preferred).....	*75		Metropolitan Street Railway, New York.....	15	
Metropolitan Street Railway, New York.....	15		Milwaukee Electric Railway & Light (preferred).....	*110	
Milwaukee Electric Railway & Light (preferred).....	*110		North American Company.....	70	
North American Company.....	70		Northern Ohio Light & Traction Company.....	*50½	
Northern Ohio Light & Traction Company.....	*50½		Northwestern Elevated Railway (common).....	*30	
Northwestern Elevated Railway (common).....	*30		Northwestern Elevated Railway (preferred).....	*70	
Northwestern Elevated Railway (preferred).....	*70		Philadelphia Company, Pittsburgh (common).....	51	
Philadelphia Company, Pittsburgh (common).....	51		Philadelphia Company, Pittsburgh (preferred).....	42½	
Philadelphia Company, Pittsburgh (preferred).....	42½		Philadelphia Rapid Transit Company.....	23	
Philadelphia Rapid Transit Company.....	23		Philadelphia Traction Company.....	85½	
Philadelphia Traction Company.....	85½		Public Service Corporation, 5% col. notes (1913).....	a94	
Public Service Corporation, 5% col. notes (1913).....	a94		Public Service Corporation, cfs.....	a106½	
Public Service Corporation, cfs.....	a106½		Seattle Electric Company (common).....	a110	
Seattle Electric Company (common).....	a110		Seattle Electric Company (preferred).....	103	
Seattle Electric Company (preferred).....	103		South Side Elevated Railroad (Chicago).....	95¼	
South Side Elevated Railroad (Chicago).....	95¼		Third Avenue Railroad, New York.....	8¼	
Third Avenue Railroad, New York.....	8¼		Toledo Railways & Light Company.....	a6½	
Toledo Railways & Light Company.....	a6½		Twin City Rapid Transit, Minneapolis (common).....	a108½	
Twin City Rapid Transit, Minneapolis (common).....	a108½		Union Traction Company, Philadelphia.....	51	
Union Traction Company, Philadelphia.....	51		United Rys. & Electric Company (Baltimore).....	a18	
United Rys. & Electric Company (Baltimore).....	a18		United Rys. Inv. Co. (common).....	a35	
United Rys. Inv. Co. (common).....	a35		United Rys. Inv. Co. (preferred).....	a65	
United Rys. Inv. Co. (preferred).....	a65		Washington Ry. & Electric Company (common).....	a45	
Washington Ry. & Electric Company (common).....	a45		Washington Ry. & Electric Company (preferred).....	a90	
Washington Ry. & Electric Company (preferred).....	a90		West End Street Railway, Boston (common).....	88	
West End Street Railway, Boston (common).....	88		West End Street Railway, Boston (preferred).....	100	
West End Street Railway, Boston (preferred).....	100		Westinghouse Elec. & Mfg. Co. (common).....	66½	
Westinghouse Elec. & Mfg. Co. (common).....	66½		Westinghouse Elec. & Mfg. Co. (1st pref.).....	a120	
Westinghouse Elec. & Mfg. Co. (1st pref.).....	a120				

a Asked. \*List sale.

## ANNUAL REPORT

### Annual Report Interborough Rapid Transit Company

Operations of the Interborough Rapid Transit Company of New York for the year ended June 30, 1911, showed the following results as compared with 1909 and 1910:

Year Ended June 30,	1909.	1910.	1911.
Gross operating revenue.....	\$26,524,394	\$28,987,648	\$29,767,352
Operating expenses.....	10,747,443	11,013,143	12,368,982
Net operating revenue.....	\$15,776,951	\$17,974,505	\$17,398,370
Taxes.....	1,799,807	1,750,422	1,925,090
Income from operation.....	\$13,977,144	\$16,224,083	\$15,473,280
Non-operating income.....	1,001,775	411,024	339,915
Gross income.....	\$14,978,919	\$16,635,107	\$15,813,195
Interest on bonds and three-year gold notes, rentals, sinking fund and amortization charges (including Manhattan guarantee).....	10,389,096	10,552,960	10,673,158
Net corporate income.....	\$4,589,823	\$6,082,147	\$5,140,037
Dividends.....	3,150,000	3,150,000	3,150,000
Surplus.....	\$1,439,823	\$2,932,147	\$1,990,037
Per cent expenses to earnings.....	40.52	37.99	41.55
Passengers carried.....	514,680,342	562,788,395	578,154,088

The annual report contains a long statement by T. P. Shonts, the president, in which he says in part:

The results for the years 1910 and 1911 are stated in conformity with the rules of the uniform system of accounting adopted by the New York Public Service Commission, First District, and effective on July 1, 1909; those for 1909 are stated as nearly in accordance therewith as possible.

"Gross operating revenue for the year ended June 30, 1911, as compared with the previous year, increased \$779,704 or 2.69 per cent, the result of a gain on the subway division of \$420,700 or 3.02 per cent, and on the Manhattan Railway division of \$359,003 or 2.38 per cent.

"Operating expenses increased \$1,355,838 or 12.31 per cent, the result of an increase on the subway division of \$1,173,203 or 24.66 per cent, and on the Manhattan Railway division of \$182,635 or 2.92 per cent. This increase was largely due to the extraordinary expenditures resulting from changes in subway equipment, made necessary in connection with the operation of ten-car express and six-car local trains, amounting to approximately \$770,000 during the year. The enlarged train service and the increase in wages of employees in the transportation departments of both divisions account for an additional \$373,000.

"Net operating revenue decreased \$576,134 or 3.20 per cent, the result of a loss in the subway division of \$752,502 or 8.20 per cent, and a gain on the Manhattan Railway division of \$176,368 or 2 per cent.

"The total amount of taxes increased \$174,668 or 9.98 per cent, the result of an increase on the subway division of \$43,157 or 19.16 per cent, and on the Manhattan Railway division of \$131,510 or 8.62 per cent. This increase in subway division taxes is substantially the amount of the federal tax for the year; the increase in the taxes of the Manhattan Railway division is due to the federal tax and an increase in the real estate and special franchise assessments.

"Income from operation decreased \$750,803 or 4.63 per cent, the result of a loss on the subway division of \$795,660 or 8.89 per cent, and a gain on the Manhattan Railway division of \$44,857 or 0.61 per cent.

"Non-operating income decreased \$71,108 or 17.30 per cent, the result of a decrease on the subway division of \$64,803 or 16.81 per cent, and on the Manhattan Railway division of \$6,305 or 24.59 per cent. This decrease in non-operating income is principally due to the sale of the securities formerly constituting the Manhattan guarantee fund and the application of the proceeds thereof to the purchase of additional subway equipment.

"Gross income decreased \$821,912 or 4.94 per cent, the result of a loss on the subway division of \$860,464 or 9.21 per cent, and a gain on the Manhattan Railway division of \$38,552 or 0.52 per cent.

"Total income deductions increased \$120,198 or 1.14 per cent, the result of an increase on the subway division of \$120,295 or 2.56 per cent, and a decrease on the Manhattan Railway division of \$97.

"The net corporate income decreased \$942,110 or 15.49 per cent, the result of a loss on the subway division of

\$980,760 or 21.13 per cent, and a gain on the Manhattan Railway division of \$38,649 or 2.68 per cent.

"The surplus over dividends of 9 per cent on the capital stock was \$1,990,036 as compared with \$2,932,147 in the preceding year, a decrease of \$942,110 or 32.13 per cent.

"The percentage of operating expenses to gross operating revenue was 41.55 per cent as compared with 37.99 per cent last year, an increase of 3.56 per cent, the result of an increase on the subway division of 7.17 per cent, and on the Manhattan Railway division of 0.21 per cent.

"The total number of passengers carried was 578,154,088, as compared with 562,788,395 in the previous year, an increase of 15,365,693 or 2.73 per cent, the result of a gain on the subway division of 7,742,681 or 2.88 per cent, and on the Manhattan Railway division of 7,623,012 or 2.59 per cent.

"Every precaution and safeguard against fire has been rigorously enforced during the year. Your insurance rate has not been increased by the general advances in rates during the past year, owing to the fact that the insurance on all your properties was previously arranged under long-term contracts at a time when lower rates prevailed.

"The equipment of all subway express service cars with electrical synchronizing brake control added to the present type of pneumatic brakes and the substitution of new brake cylinders, as well as the installation of new drawbars and draft rigging so as to make them adaptable to the operation of ten-car express trains, have been completed. One hundred and nineteen of the local cars have also been equipped with these electrical brakes.

"The installation of the automatic coasting recorder, referred to in last year's report, on the cars of the Manhattan Elevated Railway division has not only resulted in the saving of power amounting to many times its cost, but has caused a more uniform handling of trains in and out of stations, effecting a saving in time and wear and tear on the machinery. It is now being installed on the cars of the subway division, where it has already proved its efficiency.

"For the purpose of obtaining additional safety in the operation of trains in the subway, all danger signals located at curves and other danger points on the local tracks are being equipped with automatic stops. This installation will be made at an expense of approximately \$50,000.

"The airbrake emergency valves in the elevated railway motor cars which were equipped with two separate pull ropes on the inside and one on the outside of each car and the trailer cars with one pull rope at each end, causing considerable loss of time in the operation of the valves when quick action was required, were equipped with emergency cord running the entire length of the car and out onto the platform, so that in cases of emergency the brakes could be applied from any point in the car. This change was made at a cost of \$20,000.

"All of the Manhattan Railway division and subway cars were equipped with improved fire extinguishers.

"Collapsible shoes were installed on all center side doors in subway cars. This device consists of a mechanical cushion attached to the edge of the door and causes the door to rebound the instant it comes in contact with any obstruction, however slight. After the obstruction has been removed the door closes automatically.

"There was an increase in the general law expenses of your company for the year ended June 30, 1911, of \$39,384, due principally to the amount paid associate counsel during 1911 for services rendered prior to that year in connection with Manhattan Railway Company franchise tax cases for the years 1906, 1907 and 1908; in the matter of allowances against the special franchise tax on account of the payment of 5 per cent tax on the Ninth Avenue elevated line net earnings and in connection with the proceedings to review the assessment for the tax on real estate of the Manhattan Railway Company. This increase was partially offset by a decrease in payments for accidents and damages, making the net increase in general expenses for the year \$28,403.

"The claims of the Rapid Transit Subway Construction Company (all of the stock of which is owned by your company) against the city of New York, growing out of construction contract No. 1, aggregating over \$6,000,000, and the counterclaims of the city of New York, aggregating over \$3,000,000, were adjusted at an informal conference between counsel for the company and counsel for the city, held at Saratoga on Aug. 16-24, 1910, and the net sum due

the company from the city was agreed to be fixed at \$2,260,354. This adjustment was approved by the directors of the company and by the Public Service Commission, and formally passed by the comptroller of the city. The matter is still held up in the comptroller's office, but it is hoped that favorable action will be taken in time to provide for the compromise payment in the next issue of municipal bonds.

"Aside from the improvements included in this report for the fiscal year ended June 30, 1911, your directors have, since that date, authorized the installation of center side doors in all of the subway cars comprising the local service at an expense of \$530,500. This will complete the side-door equipment for the subway. We have also equipped 800 cars with 32-cp tungsten lamps in place of the 16-cp carbon lamps formerly in use. While these lamps give a much more brilliant light, they have only recently been perfected to better withstand vibration, and their installation is therefore more or less in the nature of an experiment.

"These and other improvements are in line with our policy of anticipating the necessities of the traveling public in so far as the limitations of the subway will permit. Undue congestion during the rush hours cannot, of course, be avoided, but constant efforts are being made to reduce the inconvenience and discomforts arising therefrom. The use of courtesy and consideration on the part of employees in their intercourse with passengers is a matter of great importance and to insure this a separate complaint bureau has been established, where criticisms and suggestions from the public are welcomed and receive prompt attention. Your management has also endeavored to add to the comfort of employees and to obtain a more pleasing effect by the substitution of white duck uniforms during the hot weather for the heavier blue uniforms previously used. These uniforms are furnished to the men without cost and the laundry expense is also assumed by your company.

"Claims, suits and judgments met in 1911 aggregated \$184,070, a decrease of \$30,508 or 14.3 per cent as compared with the previous year. Expenses in connection therewith amounted to \$114,971, an increase of \$8,029 or 7.5 per cent as compared with the fiscal year 1910. Mr. Shonts adds:

"During the year 111 personal injury actions were tried, resulting in verdicts aggregating \$17,130. Of this amount \$6,000 will be paid by the city of New York under the contract for lowering the Second Avenue elevated tracks for the Manhattan bridge approach. This leaves \$11,130 against the company compared with \$27,372 last year. The plaintiffs were unsuccessful in over two-thirds of the cases tried, and the average verdict recovered was \$330 less than last year.

"The company was obliged to pay only \$9,015 in judgments during the year and only \$1,622 in judgments are pending on appeal, against \$19,998 on appeal at the close of the last fiscal year.

"The company voluntarily settled 1620 claims without waiting for a suit to be brought, and compromised 180 suits before trial, and it is believed that this liberal policy, which has now been followed for several years, is one of the reasons for the favorable results of the cases tried. It is becoming pretty well understood in this community that this company will not permit a claim against it to go to trial unless it is either fraudulent or exorbitant.

"There has not been any increase in the volume of litigation out of proportion to the increase in the number of passengers carried. The passengers increased 15,365,693, but there were only thirteen more actions in the Supreme Court, although, as last year, there was an increase in the number of petty actions in the lower courts.

"The disbursements in payment of claims, suits and judgments amounted to 0.62 per cent and the expenses of the legal and claim departments were 0.38 per cent of the gross operating revenue, an aggregate of 1 per cent for the year and a decrease of \$22,569.

"The appeal in the stockholders' action to enjoin the company and its directors from paying the federal excise tax on corporations imposed under the authority of the act of Congress passed in August, 1909, was, with the similar cases brought to test the constitutionality of that act, re-argued before the United States Supreme Court in January of this year. The court apparently did not consider that the peculiar conditions under which this company operates the municipally owned subway were sufficient to distinguish



its case from others before the court, for the tax was upheld on the same broad general grounds as were assigned in the other test cases. The decision means an additional tax burden upon this company of approximately \$61,000 a year.

"Last fall the New York Court of Appeals made its decision in the appeal involving the question as to the right of the comptroller of the State of New York to assess this company for the State franchise tax measured by a percentage upon subway earnings and upon dividends paid in excess of 4 per cent. The effect of the decision is somewhat different from that forecast by the decision of the Appellate Division of the Supreme Court, referred to in the last annual report, since the Court of Appeals held that the company had been wrongfully assessed with respect to its subway earnings under a section which related only to street surface or elevated railroad companies. The court did not decide finally that the company was not subject to any general franchise tax on its corporate existence with respect to its subway earnings, but left that matter for later determination. The practical effect of the decision means a cancellation and credit to the company of taxes already paid to the amount of \$134,933 and a saving in future of between \$50,000 and \$60,000 a year.

"In another test case, involving the question as to the taxable status of power house, substation sites, buildings and machinery, the New York Court of Appeals has recently decided that the exemption from taxation given to the subway operator by the provisions of the rapid transit act is not broad enough to include the power house and substation sites and buildings, but that the machinery is not taxable. The decision with respect to the buildings was not contemplated and has necessitated the paying of taxes

to 130 per cent of all future profits in excess of the average profits for the last two years.

"Although all efforts upon the part of your company to procure the construction of new subways and elevated lines have been rejected by the public authorities, your company will still continue to carry out its policy of improving the service and of adding facilities to the present system to make it equal, as far as possible, to the ever-increasing traffic. The extent to which this policy has been carried on in the past will appear from the fact that during the last two years your company has paid out over \$8,000,000 for improvements, or \$2,000,000 in excess of the amount paid out in dividends to stockholders during the same period. The time has doubtless come when these stockholders are entitled to some increased distribution. Notwithstanding these large expenditures it is manifest that the present system of itself cannot through improvement of service and facilities alone provide for the constantly increasing stream of travel on the island of Manhattan. The only practical relief seems to be in carrying out the original policy of completing the subway H, making through trunk lines upon both the east and west side. Toward the construction and operation of these natural extensions this company should always stand ready to co-operate with the public authorities to the best of its ability and to the limit of its financial resources."

Reports of New York City Companies for Quarter

The accompanying statement showing the principal figures of operation of the large street railway companies in Brooklyn and Manhattan, for the quarter ended March

Company.	Total Revenue, Car Miles.	Number of Fare Passengers.	Revenue from Transportation.	Total St. Ry. Operating Revenue.	Total Operating Expenses.	Street Railway Taxes.	Total Gross Income.	Total Deductions.	Net Corporate Income.
Hudson and Manhattan..	1,845,355	14,245,912	\$712,295.60	\$758,327.16	\$318,150.54	*\$45,902.11	\$611,835.20	\$630,783.65	†\$18,948.45
Interborough Rapid Transit—									
Subway Division.....	15,157,032	76,807,734	3,838,779.74	3,980,311.83	1,576,581.79	74,359.16	.....	.....	.....
Elevated Division.....	17,009,614	75,423,586	3,776,287.89	3,855,894.67	1,663,673.18	395,371.89	4,203,433.54	2,652,431.11	1,551,002.43
B'klyn Rapid Tran. Co.'s..	19,411,791	99,575,561	4,982,239.94	5,142,746.18	3,402,312.62	317,760.18	1,528,055.67	1,571,148.21	†43,092.54
Metropolitan St. Receivers.	9,268,572	61,993,702	3,068,523.51	3,194,142.66	2,104,918.40	329,508.53	812,159.84	651,249.16	160,910.68
Third Ave., Receiver.....	1,579,711	11,304,114	565,205.70	841,261.72	417,050.78	66,959.02	357,251.92	97,552.61	259,699.31
Union, Receiver.....	2,266,183	9,320,190	467,106.53	487,081.84	393,613.33	24,941.09	68,715.23	52,943.53	15,771.70
Coney Island and B'klyn..	1,266,826	6,010,787	291,864.74	294,164.99	203,511.19	22,207.36	76,933.66	81,564.77	†4,631.11
Total .....	75,205,369	388,297,792	\$19,367,722.37	\$20,292,730.53	\$11,675,490.52	\$1,369,510.82	\$7,761,234.65	\$6,053,893.48	\$1,707,341.17

\*On capital employed in operation. †Deficit. ‡Includes income from other sources.

which have accrued since the opening of the subway, amounting to about \$475,000. The decision means an increase in future taxes amounting to approximately \$60,000 a year.

"After the city authorities rejected the subway overtures of this company they prepared and submitted to this company, without further conferences with this company, two certificates, one for building certain elevated extensions in the Bronx and one for completing the third track upon the elevated lines. An examination of these certificates, however, has shown that it is impossible for this company or the Manhattan Railway to accept them. Practically all the objectionable features to the third-tracking certificates have been retained, and other objectionable features have been added. The company under the terms of the certificates now tendered cannot treat the necessary expense of financing as a part of cost, and the cost of financing would thus fall as a total loss upon the company in the event that the city, under the recapture provision, should take back the new lines after ten years. The equipment likewise might be taken over at an obsolescent valuation, thus entailing a tremendous loss upon the company in that regard. The company is likewise asked to leave to the Public Service Commission the power to prescribe service and facilities and to reduce the 5-cent fare if, in its discretion, it deems that rate unreasonable. Such deferred maintenance charges as the commission might hold to exist may be required to be taken up. In these franchises the company is asked to pay in effect one-half of all increased future profits, not only from property covered by the new franchises but from the old elevated system as well, and at the end of twenty-five years, if the certificates be renewed, the company is required to pay as a minimum a sum equal

to 31, 1911, has been prepared from the summary of the reports made public by the Public Service Commission of the First District of New York. Included in the grand total are the returns of all companies reporting, including a number whose detail figures are not given in the table published herewith.

**Binghamton (N. Y.) Railway.**—The directors of the Binghamton Railway have declared an annual dividend of 3 per cent on the \$978,649 of stock, payable on Sept. 15, 1911. This dividend compares with 2½ per cent paid from 1906 to 1910.

**Chicago & Oak Park Elevated Railway, Chicago, Ill.**—W. A. Fox, treasurer of the Commonwealth-Edison Company, has been elected a director of the Chicago & Oak Park Elevated Railway to succeed Redmond D. Stephen, resigned.

**Duluth-Superior Traction Company, Duluth, Minn.**—F. H. Deacon, Toronto, has been elected a director of the Duluth-Superior Traction Company to succeed Rodolphe Forget, Montreal, resigned.

**Evansville (Ind.) Railways.**—The Illinois Central Railway has leased its line between Henderson, Ky., and Evansville, Ind., to the Evansville, Henderson & Owensboro Railway, which is controlled by the Evansville Railways. This line is to be electrified and connected at Evansville with the Evansville Railways and at Henderson with the lines of the Henderson Traction Company, which are now operated by the interests in control of the Evansville Railways.

**Fargo & Moorhead Street Railway, Fargo, N. D.**—H. M. Bylesby & Company, Chicago, Ill., are reported to have

purchased the property of the Fargo & Moorhead Street Railway.

**Northwestern Elevated Railroad, Chicago, Ill.**—The Northwestern Elevated Railroad has filed a new mortgage for \$25,000,000 to the Illinois Trust & Savings Bank, Chicago, as trustee. The bonds will be used as collateral for the three-year 5 per cent notes of the Chicago Elevated Railways.

**Pacific Electric Railway, Los Angeles, Cal.**—The Pacific Electric Railway has been incorporated in California with an authorized capital stock of \$100,000,000, divided into 1,000,000 shares of a par value of \$100 each, to merge the interurban lines of the following subsidiaries of the Southern Pacific Company: Pacific Electric Railway, Los Angeles-Pacific Company, Los Angeles & Redondo Railway, Los Angeles Interurban Railway, Riverside & Arlington Railway, San Bernardino Valley Traction Company, Redlands Central Railway and San Bernardino Interurban Railway. The incorporators of the company are: William F. Herrin, R. C. Gillis, W. C. Martin, Epes Randolph and Paul Shoup.

**San Francisco, Vallejo & Napa Valley Railway, Napa, Cal.**—The property of the San Francisco, Vallejo & Napa Valley Railway will be sold under foreclosure on Oct. 30, 1911, at San Francisco as a result of an action brought against the company by the Mercantile Trust Company, San Francisco, Cal., on account of default by the railway in the payment of interest due in June, 1911, on its bonds.

**Wilmington (Del.) City Railway.**—The Wilmington City Railway, the property of which is leased to the Wilmington & Philadelphia Traction Company and the entire capital stock of which is owned by the Wilmington & Chester Traction Company, has sold to a syndicate headed by Scott & Company, Wilmington, Del., bankers, an issue of \$600,000 of 5 per cent bonds, maturing in 1951, in order to refund the \$600,000 of first mortgage 4 per cent bonds due on Sept. 1, 1911.

#### Dividends Declared

Cleveland (Ohio) Railway, quarterly, 1½ per cent.  
Duluth-Superior Traction Company, Duluth, Minn., quarterly, 1 per cent, preferred; quarterly, 1¼ per cent, common.  
El Paso (Tex.) Electric Company, 2½ per cent, common.  
Frankford & Southwark Passenger Railway, Philadelphia, Pa., \$4.50.  
Galveston-Houston Electric Company, Galveston, Tex., 3 per cent, preferred; 1½ per cent, common.  
Houghton County Traction Company, Houghton, Mich., 3 per cent, preferred; 2½ per cent, common.  
Philadelphia (Pa.) Traction Company, \$2.  
St. Joseph Railway, Light, Heat & Power Company, St. Joseph, Mo., quarterly, 1¼ per cent, preferred.  
Tri-City Railway & Light Company, Davenport, Ia., quarterly, 1½ per cent, preferred.  
Twin City Rapid Transit Company, Minneapolis, Minn., quarterly, 1¾ per cent, preferred; quarterly, 1½ per cent, common.  
United Traction & Electric Company, Providence, R. I., quarterly, 1¼ per cent.

#### MONTHLY ELECTRIC RAILWAY EARNINGS

##### AURORA, ELGIN & CHICAGO RAILROAD.

Period.	Gross Revenue.	Operating Expenses.	Net Revenue.	Fixed Charges.	Net Income.
1 m., July, '11.....	\$186,271	\$91,538	\$94,733	\$36,475	\$58,258
1 " " ".....	182,387	87,612	94,775	32,569	62,206

##### LAKE SHORE ELECTRIC RAILWAY.

1 m., July, '11.....	\$135,300	\$61,984	\$73,316	\$34,772	\$38,545
1 " " ".....	132,032	60,084	71,948	34,751	37,197
1 " " ".....	693,386	375,113	318,773	242,775	75,998
7 " " ".....	658,759	358,782	299,978	243,362	56,616

##### CLEVELAND, PAINESVILLE & EASTERN RAILROAD.

1 m., July, '11.....	\$41,297	\$19,577	\$21,720	\$8,113	\$13,608
1 " " ".....	41,990	17,990	23,890	8,252	15,639
7 " " ".....	205,015	111,533	93,481	51,029	36,452
7 " " ".....	195,459	101,828	93,632	56,328	37,304

##### NORTHERN OHIO TRACTION & LIGHT COMPANY.

1 m., July, '11.....	\$278,431	\$141,003	\$137,428	\$44,321	\$93,108
1 " " ".....	262,020	131,938	130,082	43,357	86,725
7 " " ".....	1,501,107	838,026	663,081	310,428	352,653
7 " " ".....	1,349,355	756,168	593,187	303,274	289,914

## Traffic and Transportation

### Essay Awards in St. Louis

The United Railways, St. Louis, Mo., has awarded the prizes in the essay contest which it started some time ago among its employees. The subject of the essay was "The Safe and Pleasant Transportation of Passengers and the Prevention of Accidents," and the length of the essay was limited to 500 words. Ten prizes were awarded to motormen and ten to conductors. The first prize in each case was \$100, the second \$50, the third \$25, the fourth \$15, and six additional prizes of \$10 each. About 300 essays were submitted by motormen and 200 by conductors. The officers of the company acted as judges of the contest, the papers being read by a number of officials, including those in the claim department. The trainmen displayed great interest in the contest, and at the public meeting at which the names of the winners of the prizes were announced there was a large attendance of employees. The first prize for motormen was awarded to Jacob Ruehl, who has been in the service of the company seven years. Mr. Ruehl's essay follows in part:

"The motorman should represent the company in a quiet, dignified, businesslike manner. He should keep himself neat and clean, and he must not drink. He should answer all questions politely and briefly, but should not allow anything to distract his attention from his work. He should report for duty in time to read carefully all bulletins, and to examine the apparatus and signs on car. He should start and stop the car gently and without jerking and conveniently for passengers at authorized stopping places. Be obliging and cheerful about opening the front door. The front door must not be opened until car is stopped, and car should not be started until all passengers are off.

"Run slowly over track crossings, and do not dispute as to right of way. At steam railroad crossings do not cross until signaled by the conductor or other competent authority, and even then the motorman should satisfy himself that all is clear. Run carefully where vision is obscured. If car is blockaded in fog, have the following car flagged. Approaching vehicles in track, sound gong, but do not antagonize teamsters by constant ringing. Do not quarrel with teamsters. When passing vehicles, watch for children who might dart suddenly across the street. When passing school houses and children playing on street, sound gong and run slowly. When passing cars, sound gong to warn people who might be crossing behind the car, and run slowly where the car is stopped. It is a safe rule not to run down grade faster than a car will run up grade. Never back a car without proper signal from conductor, and then be sure he is on the rear end."

The first prize for conductors was awarded to Emil Glarman, who has been in the service of the company fifteen years. Mr. Glarman's essay follows in part:

"In street railroading the wares are street car rides. The passengers are our patrons and we should make their rides so pleasant that each passenger will wish to ride with us again. To do this it is necessary for the conductor to be neat and tidy in appearance and to be a total abstainer from the use of alcoholic liquors. In his intercourse with passengers he should be polite and obliging, but must not allow his attention to be distracted from his duties. He should keep himself informed regarding streets, parks, hotels, places of amusement, etc., that he may be able to answer questions regarding these places. He should call out important streets and transfer points, and notify passengers who have requested to be let off at these points.

"He should use tact in his dealings with passengers and in no case is tact more necessary than in issuing and receiving transfers. He should be careful to register his fares as soon as collected and avoid disputes over change. Do not give the starting signal until satisfied that no one is getting on or off the car. Assist children, aged people, etc., and watch carefully intoxicated persons, as they are apt to fall.

"In taking car out in the morning inspect your end of the car to see that signs are properly placed and that everything is in order and clean. In turning in at night report any defects observed in the car. Make careful reports of any accident and report any information which may come

to you regarding other accidents in which the company is interested. Keep a passageway open on the platform so that passengers may enter and leave the car comfortably."

#### New Express Rates in Illinois

A general reduction in express rates, applying to all shipments within Illinois and ranging from 10 per cent to 25 per cent, has been ordered by the Illinois Railroad & Warehouse Commission to take effect on Oct. 1, 1911. The reductions were promulgated by the commission in "Express Tariff No. 2." The tariff prescribes a new schedule of rates per 100 lb., according to distance, and also a new system of "graduate scales," applying on shipments of less than 100 lb. weight. The most important single reduction is in the rate for 100-lb. shipments for distances up to 30 miles, which is placed at 40 cents. The express companies have been charging 50 cents. This covers the Chicago suburban district. The reductions in the graduate scales, however, cover practically all kinds of shipments.

By Sept. 15 the companies are ordered to submit for approval a form of receipt for charges paid, by Sept. 25 to establish through routes and joint rates and classifications, and by Oct. 1 to file with the commission a certified copy of all contracts or agreements with other express companies and with railroads. A time is to be fixed later for a further hearing on the subjects of a general classification of express matter, the joint through rates, receipts, and other related topics. The schedule of merchandise 100-lb. rates ranges from 40 cents for 30 miles or less up to \$2 for 500 miles. Between 30 and 60 miles the rate is 50 cents and between 90 miles and 120 miles it is 60 cents. These rates are not comparable with the present charges because the rates are not now consistently based on distance. In a statement accompanying the schedule the commissioners, O. F. Berry, B. A. Eckhart and J. A. Willoughby, say in part:

"The commission realizes the magnitude of this business and realizes that it is impossible by the issuance of one schedule of rates to accomplish all that should be accomplished along express lines. But in this, as in all other matters of progression, the first step must be taken. We put this schedule into operation in the hope that it will be accepted by the companies and given a fair trial not only by the companies but by the public in general.

"There are a number of other matters of importance that will receive early attention and consideration by this commission. The question of classification, through rates, the operation of the several express companies with each other, the schedule of rates governing two or more express companies, the district or territory in which each company shall deliver goods, etc., are all matters for further consideration. The commission desires all of the information it can obtain upon this subject and the assistance of all persons who are interested in bringing about a proper adjustment of express matters, rates, classification and routes."

#### Pay-Within Cars in Milwaukee

Following the plan which it adopted just before the first pay-as-you-enter cars were placed in operation in Milwaukee, the Milwaukee Electric Railway & Light Company recently exhibited at three different points in that city for the benefit of its patrons the first of its pay-within cars. At the same time the company advertised the proposed new service in the daily papers, showing a picture of one of the cars with a passenger in the act of boarding and another alighting. In this advertisement the company said that it was rebuilding 300 of its city cars and "changing them to an improved type of pay-as-you-enter car, in order that the public may be provided with more up-to-date equipment and better service." This was followed by a statement giving the locations at which the cars would be stationed for three days so that the public might become familiar with them. In addition the company, in its advertisement, said:

"The public is invited to inspect these cars, as they embody the latest ideas in the city car construction, the car being entirely closed when in motion. These cars have no inside doors—thus greatly facilitating the movements of passengers.

"The co-operation of the public in the operation of these cars is respectfully asked, and passengers are requested to please observe the following, which have proved helpful to our patrons in their use of the first type of pay-as-you-enter cars."

Then followed the usual rules requesting passengers to have their fares ready, etc.

The daily papers aided the company greatly in its campaign of publicity by carrying news articles illustrating the cars and pointing out wherein they differ in detail from the cars placed in service previously.

**Baltimore Company Commended.**—William A. House, president of the United Railways & Electric Company, Baltimore, Md., has received a letter from the agents for the North German Lloyd Steamship Company, expressing the thanks of the company for the excellent car service to Locust Point which the United Railways & Electric Company furnished during the tourist season. Especial reference was made to the sailing of the *Friedrich der Grosse* on June 28, 1911, when it is stated more than 3000 persons visited the North German Lloyd pier.

**Freight and Express Service Between Rochester and Syracuse.**—The Rochester, Syracuse & Eastern Railroad has made a contract with the Wells-Fargo Express Company for the transportation of its express and freight over the entire line from Rochester to Syracuse, N. Y. This service is already in operation. This gives the Wells-Fargo Express Company entrance into a new territory, it never before having had access to Syracuse and Central New York. The railroad company has also inaugurated an express service of its own between these points.

**Superintendent of Investigation and Adjustments.**—Departments called the "department of investigation and adjustments" have been substituted by the Puget Sound Electric Railway, the Pacific Traction Company and the Tacoma Railway & Power Company, Tacoma, Wash., for their claim departments, and the former claim agent is now referred to as the "superintendent of investigation and adjustments." It was thought best to eliminate the words "claim agent" and "claim department" on account of the mental suggestion conveyed to the average person that a claim should be entered against the company.

**Rochester, Syracuse & Eastern Railroad Completes Signal Installation.**—The Rochester, Syracuse & Eastern Railroad has completed the installation of the Union Switch & Signal Company's automatic electric block signals on the west end of its line between Macedon and Rochester. The road, which is 86 miles long, is entirely double tracked. The phenomenal increase in traffic has made necessary the close operation of trains, and as the schedules are exceedingly fast, the signals will provide an additional safeguard. Private right-of-way is used entirely between cities and villages, and more than 60 m.p.h. is frequently made on much of the private right-of-way by the sixteen limited runs.

**Transfers in Seattle.**—The Seattle, Renton & Southern Railway, Seattle, Wash., has appealed to the United States Supreme Court from the decision of the State Supreme Court to the effect that transfers shall be exchanged with the Seattle Electric Company upon a basis of 50 per cent., contending that such an exchange is unfair to the company and should be made upon a mileage basis. W. R. Crawford, manager of the Seattle, Renton & Southern Railway, was sentenced on Sept. 8, 1911, to serve thirty days for violating the Public Service Commission's ruling prohibiting more than a 5-cent fare without transfer privilege within the corporate limits of Seattle. Mr. Crawford was released by the Superior Court on a bond. The question of transfers in Seattle was referred to in the *ELECTRIC RAILWAY JOURNAL* of Sept. 2, 1911, page 408.

**Long Island Railroad's Tunnel Traffic.**—The Long Island Railroad has completed its first year's operations of trains to and from New York city by means of the Pennsylvania Railroad's four East River tunnels. The company during the year handled about 6,000,000 passengers at the Pennsylvania station and operated 87,600 trains with a total of about 400,000 cars. The growth of this traffic obliged the company to double the capacity of the waiting room used by passengers of the Long Island Railroad. Ralph Peters,

president of the company, is quoted as stating that if the city authorities had provided a subway on Seventh Avenue, New York, to connect with the Pennsylvania Railroad station, the Long Island Railroad would have carried at least 15,000,000 passengers and the present overcrowded condition at the Flatbush Avenue terminal in Brooklyn would have been relieved.

**Electric Bells at Dangerous Railroad Crossing Insufficient.**—In an opinion prepared by W. J. Wood, chairman, the Indiana Railroad Commission has desired the application of the Vandalia Railroad to be released from the terms of an ordinance of the Council of Lyons requiring the company to maintain a watchman at the Broad Street crossing in that town. The company contended that the electric bells installed at the crossing and the reduced speed of trains afforded sufficient protection. The commission held that the General Assembly has made it the primal duty of local authorities to govern the operation of trains and cars at railroad crossings, and the commission has issued a special order requiring the company to maintain a watchman at the Broad Street crossing in Lyons. Asked if the same ruling would apply to crossings of interurban railroads where danger exists, Chairman Wood said the commission would not prejudge a case, but he believed the same ruling would apply to interurban railways since the statute covers the operation of trains and cars at railroad crossings of all kinds in towns and cities.

**St. Louis Terminal Electric Sign.**—The Illinois Traction System, H. E. Chubbuck, vice-president executive, Peoria, Ill., will install a large electric flashing sign above its new St. Louis terminal passenger station. The sign will be about 25 ft. wide by 60 ft. high, with lettering large enough to be read from a distance of six or eight blocks down Twelfth Street, an important St. Louis thoroughfare. The sign will be illuminated by about 2000 5-watt tungsten lamps. It is planned to reproduce on the sign a large interurban passenger car and a block-signal post and blade showing the signal in operation and conveying the impression of a moving car. The sequence of the flash features will be such that the signal blade, approximately 10 ft. long, will "clear"; then a gong or whistle will sound, a large electric headlight will flash from the front of the car, the wheels apparently will revolve and the track pass under them to the rear. The sign will cost about \$2,500, and will be a permanent advertising feature. It will be operated from dusk until midnight. The sign will be constructed with an angle-iron framework, including 3-in. x 3-in. uprights and 1½-in. x 1-in. cross braces. The flasher will be inclosed in a metal house on the roof of the terminal passenger station. The sign, when completed, will be the largest flashing sign in St. Louis.

**Interchange Order Vacated in Oregon.**—In accordance with the ruling of the United States Circuit Court, made in July, the Railroad Commission of Oregon has vacated its order providing for a physical connection between the United Railways and the Southern Pacific Railroad, near the Jefferson Street Depot in Portland, and the interchange of traffic. Judge Wolverton, of the Circuit Court, held that Section 27 of the Railroad Commission Law, which provides for the interchange of traffic between connecting lines, was invalid, being so broad in its terms as necessarily to include interstate traffic. A demurrer of the Railroad Commission to the bill of complaint of the Southern Pacific Company was then overruled by Judge Wolverton, who continued the temporary injunction against the enforcement of the order. Clyde B. Aitchison, chairman of the Railroad Commission, issued a statement in which he said: "Ever since the orders of the commission were made the Railroad Commission has urged the shippers to present the same complaint to the Interstate Commerce Commission that they presented to us. Since the amendment to the Interstate Commerce Commission Act, approved June 18, 1910, the United Railways has had a right to petition the Interstate Commerce Commission to enforce a connection and interchange of traffic for interstate shipments if needed. The commission will not appeal from the order of Judge Wolverton, but instead will ask the Legislature to amend Section 27 so that the objection raised by him will be clearly met and the intent of the section to apply only to purely State traffic will be clearly manifest."

## Personal Mention

**Mr. B. G. Hutchins** has resigned as first vice-president of the Chicago (Ill.) Railways. Mr. Hutchins has been elected vice-president of the National Bank of Commerce of New York.

**Mr. John D. Garretson**, for a number of years auditor of the Oakland Traction and the San Francisco, Oakland & San José Railway (Key Route), has been transferred to San Francisco, as auditor of the United Properties Company.

**Mr. W. A. Fox**, treasurer of Commonwealth-Edison Company, Chicago, Ill., has been elected a director and vice-president of the Chicago & Oak Park Elevated Railroad, Chicago, Ill., to succeed Mr. Redmond D. Stephens.

**Mr. James Walker** has been appointed a member of the engineering staff of the electrification commission of the Chicago Association of Commerce. Until recently Mr. Walker was chief engineer of the Metropolitan West Side Elevated Railway.

**Mr. H. D. Murdock**, who resigned recently as superintendent of the Indianapolis & Louisville Traction Company, Scottsburg, Ind., as noted in the *ELECTRIC RAILWAY JOURNAL* of Aug. 5, 1911, has become connected with the Westinghouse Electric & Manufacturing Company, East Pittsburgh.

**Mr. D. B. Butler**, formerly manager of the Albuquerque Gas & Electric Company, has been appointed manager of the Trinidad Electric Transmission, Railway & Gas Company, owned by the Federal Light & Traction Company, which also controls the Albuquerque Company.

**Mr. W. M. Moran**, who has been associated with Townsend & Reed, Chicago, Ill., and Indianapolis, Ind., as electrical and operating engineer, has been appointed superintendent of the Jersey Central Traction Company, with headquarters at Keyport, N. J. Mr. Moran entered upon his new duties on Sept. 1, 1911.

**Mr. E. Smith**, Canal Dover, Ohio, has been appointed general manager of the Toledo, Fostoria & Findlay Railway, Fostoria, Ohio, to succeed Mr. F. W. Adams, whose resignation as vice-president and general manager of the company was announced in the *ELECTRIC RAILWAY JOURNAL* of Aug. 19, 1911. Mr. Smith has been connected with the Reeves Manufacturing Company for some years.

**Mr. B. W. Fernald**, auditor of the Tonopah & Tidewater Railroad, has been appointed auditor of the Oakland Traction Company, San Francisco, Oakland & San José Railway, East Shore & Suburban Railway and California Railway, to succeed Mr. John D. Garretson, who has become auditor of the United Properties Company, San Francisco, Cal. He will continue to act as auditor of the Tonopah & Tidewater Railroad.

**Mr. J. M. Campbell**, general manager of the Buffalo, Lockport & Rochester Railroad, Rochester, N. Y., since it was taken over by the Bebee syndicate in January, 1911, has resigned and Mr. Campbell's duties have been taken in hand by the general officers in the various departments of the Bebee system. Mr. Campbell was one of the receivers of the road and when it was taken over by the Bebee syndicate he was appointed general manager. He will hereafter devote his entire attention to various other enterprises in which he is interested.

**Mr. F. R. Newman** has resigned as general manager and purchasing agent of the Southern Cambria Railway, Johnstown, Pa. Mr. Newman served from 1895 to 1899 as motorman, conductor, street aid and inspector on various lines in New England. In 1900 he was appointed superintendent of transportation of the Citizens' Electric Street Railway, Newburyport, Mass., and in 1901 was given full charge of operation under the general manager. In 1902 he was appointed superintendent of the railway department of the San Juan Light & Transit Company, San Juan, Porto Rico. He was appointed general superintendent of the York (Pa.) Railways in 1906 with jurisdiction over 16 miles of city railway, 66 miles of interurban railway and the electric light and heat departments of the company. In 1910 Mr. Newman was made general manager of the Southern Cambria Railway, a 1200-volt direct-current line under construction, of which 12 miles have been completed and placed in service under his direction.

## Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (\*) indicates a project not previously reported.

### RECENT INCORPORATIONS.

**\*Pacific Electric Railway, Los Angeles, Cal.**—Incorporated in California to merge the interurban lines of the following subsidiaries of the Southern Pacific Company: Pacific Electric Railway, Los Angeles-Pacific Company, Los Angeles & Redondo Railway, Los Angeles Interurban Railway, Riverside & Arlington Railway, San Bernardino Valley Traction Company, Redlands Central Railway and the San Bernardino Interurban Railway. Capital stock authorized, \$100,000,000; divided into 1,000,000 shares of a par value of \$100 each. Incorporators: William F. Herrin, San Francisco; R. C. Gillis, Los Angeles; W. C. Martin, San Francisco; Epes Randolph, Tucson, and Paul Shoup, Los Angeles.

**\*San José Terminal Railway, San José, Cal.**—Application for a charter has been made in California by this company to build a 12-mile electric railway between San José and Alviso. The company plans to operate a line of steamers from Alviso to San Francisco in conjunction with the interurban railway from San José. Capital stock, \$2,500,000; \$1,500,000 common stock and \$1,000,000 preferred stock. Directors: M. J. Gardner, Stockton; H. H. McClosky, San Francisco; Hugh Center and Valentine Koch, of San José; and John A. Mehling, San José, has been chosen treasurer.

**\*Norwalk & New Canaan Street Railway, Norwalk, Conn.**—Application for a charter has been made in Connecticut by this company to build an electric railway between Norwalk and New Canaan.

**\*American Traction & Power Company, Wilmington, Del.**—Incorporated in Delaware to build electric railways and power plants in the Southern States. Capital stock, \$50,000. Officers: H. C. Brubaker, Indianapolis, Ind., president; P. P. Dew, Blacksburg, S. C., treasurer; G. E. Bruce, Indianapolis, secretary, and W. A. Calhoun, Buffalo, N. Y., chief engineer.

**\*La Salle County Electric Railroad, Ottawa, Ill.**—Application for a charter has been made in Illinois by this company to build an electric railway between Ottawa and Mendota, a distance of 26 miles. Construction will be begun this fall. Capital stock, \$500,000. Officers: G. H. Dodge, president; Boyd Weaver, secretary; O. D. Weaver, Jr., treasurer; Fred S. Abraham, chief counsel; Edward Horseman, director, all of Chicago.

**\*Olympic Electric Railway, Port Angeles, Wash.**—Application for a charter will be made by this company in Washington to build an electric railway from Lake Crescent, through Port Angeles to Oak Bay, from which point a fast ferry service will be established to Seattle. Capital stock, \$2,500,000. Among the board of directors are: T. T. Aldwell, J. A. Adams, A. H. Henderson, B. J. Bugge, Wood Beal, William Bishop, M. J. Carrigan, J. P. Christianson, W. F. Delabarre, W. A. Doelle, Frank P. Fisher, C. J. Farmer.

### FRANCHISES.

**Van Buren, Ark.**—The Ft. Smith Light & Traction Company, Ft. Smith, has asked the City Council for a franchise in Van Buren.

**\*Los Angeles, Cal.**—The Board of Public Utilities has been asked to consider the application of W. H. Workman for a franchise on Soto Street, in Los Angeles, from the southern city limits to Alhambra Street, and on Alhambra Street to Mission Road.

**Santa Ana, Cal.**—The Pacific Electric Railway has asked the City Council for a franchise to use electricity on the steam road tracks on East Second Street in Santa Ana from Bush Street to the S. P. reservation.

**Hartford, Conn.**—The Senate has approved the amendment of the Connecticut Company's charter so as to provide for important extensions in Hartford. One proposed extension is through Washington Street and Farmington Avenue, and the other is an extension of Chestnut Street through Kelsey Street.

**Macon, Ga.**—The Macon Railway & Light Company has asked the City Council for a franchise to build a double track line on Hardeman Avenue in Macon.

**Savannah, Ga.**—The Savannah Electric Company has asked the City Council for a franchise to extend its tracks in Savannah.

**East St. Louis, Ill.**—The Southern Railway has received a franchise from the City Council of East St. Louis to use the municipal free bridge.

**Oak Park, Ill.**—The Chicago & Oak Park Elevated Railroad has formally accepted the terms of the ordinance of the Oak Park Board regarding the elevation of tracks through Oak Park.

**Tama, Ia.**—The Tama & Toledo Electric Railway, Toledo, has asked the Council for a franchise in Tama.

**Louisville, Ky.**—The Board of Public Works of Louisville will sell at public auction on Sept. 22 a franchise for a street railway on Sixth Street south of Hill for a mile in Louisville. The franchise will be purchased by the Louisville Railway, which will extend its Sixth Street line to the plant of B. F. Avery & Sons. [E. R. J., Aug. 26, '11.]

**Hagerstown, Md.**—The Hagerstown & Clearspring Electric Railway has applied to the County Commissioners for a right-of-way over the county road, from Hagerstown to the Pennsylvania State line. The company also proposes to construct a railway from Hagerstown to Maugansville, Middleburg, Greencastle and Mercersburg. [E. R. J., May 20, '11.]

**Medford, Mass.**—The Boston Elevated Railway, Boston, has asked the City Council for a franchise to relay its tracks on Main Street from Medford Square to the Somerville city line at Winter Hill.

**Peabody, Mass.**—The Boston & Eastern Railway has asked the Selectmen for a franchise in Peabody. [E. R. J., Sept. 9, '11.]

**Wakefield, Mass.**—The Bay State Street Railway has received a franchise from the Board of Railroad Commissioners to change the site of its tracks on Albion Street in Wakefield.

**Dearborn, Mo.**—The Kansas City, Clay County & St. Joseph Railway, Kansas City, has received a franchise from the City Council for a right-of-way through Dearborn. George S. Beardsley, Kansas City, is interested. [E. R. J., July 29, '11.]

**Liberty, Mo.**—The Kansas City, Clay County & St. Joseph Railway, Kansas City, has received a franchise from the City Council in Liberty. The company will soon ask the County Court of Clay County and the City Council of Excelsior Springs for franchises. Grading has been begun at Harlem. The line will extend from Kansas City to St. Joseph, with a branch from Harlem to Excelsior Springs via Liberty, Dearborn and Faucett. The right-of-way between Harlem, Dearborn and Faucett has been contracted for and the announcement of the final route from Faucett to St. Joseph will be given within a short time. C. F. Enright is interested. [E. R. J., July 29, '11.]

**McMinnville, Ore.**—The Portland & West Coast Railroad & Navigation Company, Portland, has received a franchise from the Common Council for a right-of-way over E Street and part of St. John's Street in McMinnville. The line will first be operated by steam until the company's power house at Blaine has been completed. This is part of a plan to build an electric railway between McMinnville and Bay City via Willamina, Grand Ronde, Tillamook, Sheridan and Pacific City. W. H. Fitzgerald is interested. [E. R. J., Aug. 19, '11.]

**\*Scranton, Pa.**—P. F. Cusick, representing the Ridge Row Railway, Scranton, has asked the City Council for a franchise in Scranton.

**\*Dallas, Tex.**—John T. Witt, Dallas, has asked the City Commissioners for a twenty-five-year franchise to build an electric railway on Elm Street from Market Street west to the Dallas city limits. It is expected to continue this line through West Dallas, northward to Denton or southward to Cleburne or Corsicana. Financial arrangements have been made to build this line westward from Dallas, and construction will be begun as soon as the franchise is granted.

## TRACK AND ROADWAY

**Birmingham & Edgewood Electric Railway, Birmingham, Ala.**—This company has let the contract to Howard N. Bowder, Birmingham, Ala., to extend its Edgewood line from its present terminus to the Edgewood Country Club, at Birmingham.

**Mobile (Ala.) West Shore Traction Company.**—Preliminary arrangements have been made for the construction of the company's proposed electric railway to connect Mobile, Alabama Port, Coden, Bayou la Batre and Pascagoula, Miss. H. Austell, Mobile, president. [E. R. J., Aug. 12, '11.]

**British Columbia Electric Railway, Vancouver, B. C.**—Plans are being considered by this company for the construction of an extension to Blaine.

**Pacific Electric Railway, Los Angeles, Cal.**—This company's extension between Glendale and Burbank was placed in operation on Sept. 6.

**\*San José, Cal.**—C. A. Nonas, San José, is promoting an electric railway from San José to the Almaden quicksilver mines.

**\*Denver & Crown Hill Railroad, Denver, Col.**—This company placed in operation on Sept. 10 its 1½-mile electric railway in Denver from Twenty-ninth Avenue and Sheridan Boulevard to Crown Hill Cemetery. Capital stock, \$50,000. Officers: George Olinger, president; J. P. Havlick, vice-president; Paul Forman, secretary; Frank Beeler, treasurer, and Vernon Davis, general manager.

**Baltimore & Washington Transit Company, Washington, D. C.**—This company has placed in operation its line between Fourteenth Street and Kennedy Street and Takoma Park.

**Albany, Ga.**—Jesse & Earnest, general agents of the Dixie Pecan Orchards Company, 206 South La Salle Street, Chicago, Ill., advise that a company will be incorporated soon to begin construction about Jan. 1, 1911, on a 30-mile loop electric railway to connect Albany, Pecan City and Hardaway and Albany. [E. R. J., July 22, '11.]

**Atlanta (Ga.) Northeastern Railroad.**—Work will be begun at once by this company on its projected 47-mile line between Atlanta, Roswell, Creighton, Alpharetta and Cumming. The company's charter has been changed so that the line will extend from Midway Church to Creighton. The capital stock has been increased from \$50,000 to \$1,200,000. J. L. Jones, Atlanta, secretary. [E. R. J., April 22, '11.]

**Middle Georgia Railway, Jackson, Ga.**—W. F. Smith, Jackson, reports that gasoline motor cars will be used by this railway. [E. R. J., July 29, '11.]

**Nampa & Caldwell Electric Railway, Nampa, Idaho.**—Contracts will soon be awarded by this company to build its 10-mile electric railway between Caldwell and Nampa. W. E. Pierce, Boise, promoter. [E. R. J., July 15, '11.]

**Evansville, Henderson & Owensboro Traction Company, Evansville, Ind.**—This company advises that it has not yet organized but that it expects to begin the construction of its 10-mile electric railway between Evansville and Henderson within sixty days. The company will rent power and will operate four cars. Capital stock authorized, \$250,000; capital stock issued, \$150,000. W. A. Carson, general manager. [E. R. J., Aug. 26, '11.]

**Wabash & Rochester Electric Railway, Wabash, Ind.**—This company has about 40 per cent of its line graded, right-of-way secured and ready for bridging and ties. It expects to complete its financing during the winter and in the spring will be in the market for construction supplies. [E. R. J., March 12, '09.]

**Covington, Big Bone & Carrollton Traction Company, Covington, Ky.**—It is reported that this company is arranging a bond issue to enable it to begin construction. This is part of a plan to build a 22-mile electric railway between Covington and Big Bone. M. J. Crouch is interested. [E. R. J., Nov. 5, '10.]

**Southwestern Kentucky Electric Railway, Light & Power Company, Hickman, Ky.**—This company, which proposes to construct a line from Paducah, Ky., west to the Mississippi River, is stated to be associated with the American Traction & Power Company, Indianapolis. Arrangements have been made to secure the rights-of-way from Paducah

to Mayfield owned by the Paducah Southern Railroad. C. W. Williams and W. A. Calhoun, Buffalo, are in charge of the engineering work, and will make the necessary surveys. Edward F. Weaton is in charge of organization work. [E. R. J., Sept. 9, '11.]

**Maysville Street Railroad & Transfer Company, Maysville, Ky.**—R. M. Wallingford & Son have been awarded the contract for filling the ravine between Carmel Street and Dieterich's Grove, in Maysville, thus eliminating the wood trestle that is now in use by this company. Improvements all along the line are being made, and about \$70,000 will be spent, including the new carhouses and the new cars for the line.

**New Orleans Railway & Light Company, New Orleans, La.**—This company's extension in St. Bernard to the plant of the American Sugar Refinery at Chalmette has been placed in operation.

**Springfield (Mass.) Street Railway.**—The Board of Railroad Commissioners has approved this company's East Street extension to Victoria Park, in Springfield.

**Detroit (Mich.) United Railway.**—This company began work on the Hamilton Boulevard line, in Detroit, on Sept. 11. This line will extend from Holden Avenue to the city limits. The company will soon begin to rebuild its tracks on Portage Street, in Kalamazoo.

**Omaha & Western Iowa Traction Company, Omaha, Neb.**—Surveys have been completed by this company on its projected 100-mile electric railway from Omaha to Council Bluffs, Honey Creek, and up the east side of the Missouri Valley, through Iowa to Sioux City. K. B. Ward, Omaha, chief engineer. [E. R. J., Dec. 10, '10.]

**Trenton (N. J.) Street Railway.**—This company has just completed 1 mile of double track on Broad Street, 1 mile of double track on State Street and 1 mile of double track on Hamilton Avenue, in Trenton. The company recently purchased 5000 new ties, 900 Atlas joints and renewed 7 miles of trolley wire.

**Schenectady (N. Y.) Railway.**—This company has begun work on the new track on Nott Terrace, in Schenectady. The rails weigh 95 lb. Steel ties are being used.

**North Carolina Traction Company, Danbury, N. C.**—This company will immediately proceed with the construction of its extension in Rock Hill. Storage battery cars will be operated.

**Cincinnati (Ohio) Traction Company.**—Work will be begun within the next few weeks on this company's extension to Bond Hill. The line will be single track and extend from Reading Road to Paddock Road, to the Baltimore & Ohio Railroad tracks in Bond Hill.

**Fremont, Ohio.**—Grading is nearly completed for an electric railway to connect Tiffin, Fremont, Columbus, Marion and Ballville. A company will soon be organized. A. H. Jackson, Fremont, will be made president, and A. S. Close, seventh floor, Spitzer Building, Toledo, secretary and general manager. [E. R. J., Aug. 5, '11.]

**\*Middletown, Ohio.**—Robert Wilson and associates plan to construct an electric railway in Middletown and will ask for a franchise within a short time.

**Coos Bay & Eastern Electric Railway, Mansfield, Ore.**—Surveys are being made by this company from Marshfield to Roseburg, via Myrtle. Taggart Aston, Marshfield, chief engineer. [E. R. J., Oct. 9, '09.]

**Oregon Electric Railway, Portland, Ore.**—Contracts have been let for the rails for this company's extension from Salem to Albany. Orders were issued to rush the work. Guthrie & McDougal, who have the contract for the construction of the roadbed, have arranged to establish offices in Portland.

**Southern Cambria Railway, Johnstown, Pa.**—This company advises that it has placed a contract with the Cambria Steel Company for rails for 11 miles of new track on its extension from Johnstown to Ebensburg.

**Lancaster & York Furnace Street Railway, Millersville, Pa.**—During the next few weeks this company will place contracts to replace a long wood bridge with a steel structure.

**Beaver Valley Traction Company, New Brighton, Pa.**—This company will build 1 mile of new track.

**Pittsburgh (Pa.) Railways.**—Plans are being considered by this company for a belt line connecting and encircling the downtown districts of Pittsburgh and the North Side.

**Frankford, Tacony & Holmesburg Street Railway, Tacony, Pa.**—This company will relay 1 mile of track with 80-lb. 7-in. girder rails. The contract for the rails has been awarded to the Pennsylvania Steel Company.

**Greenville, Spartanburg & Anderson Railway, Greenville, S. C.**—Contracts will be awarded by this company to build lines to connect Riverside and the Orr villages and for a line to connect the present Belton line with the Murray property on which the company's freight yards are to be built. Grading will be begun as soon as the contracts are awarded. W. S. Lee, Charlotte, vice-president.

**Sioux Falls (S. D.) Traction Company.**—This company has completed its Main Avenue extension in Sioux City.

**Jonesboro, Tenn.**—The city of Jonesboro is reported to have voted \$25,000 of bonds in aid of the proposed electric railway from Jonesboro to Johnson City. Work is expected to begin about Jan. 1. A company is now being organized to construct this line. W. P. Shipley, secretary, Jonesboro Board of Trade. [E. R. J., Feb. 25, 1911.]

**Houston (Tex.) Electric Railway.**—Before the end of the year this company intends to relay that portion of Washington Avenue between the Southern Pacific Railway's crossing and the Houston Heights Boulevard, replacing the present construction with 70-lb. rail on concrete foundation and brick pavement. The Brunner line, from the junction of Washington Avenue and the Houston Heights Boulevard to the end of the line, will be rebuilt and the present 45-lb. rail will be replaced with 70-lb. rail and ballasted with gravel. Later the San Felipe line will be reconstructed, the construction to be similar to the Brunner line. It is also planned to double track the Louisiana lines from Dallas and Louisiana to Bagby and Tuam. The Woodland Heights line also will be double tracked from Dart to the Missouri, Kansas & Texas Railway tracks.

**Elkins (W. Va.) Electric Railway.**—This company is extending its tracks in Elkins, but will not let contracts for any of the work.

**Milwaukee Western Electric Railway, Milwaukee, Wis.**—This company advises that it will award a contract within a few days for grading, but will not enter into any further contracts until it has completed its financial arrangements for building extensions.

#### SHOPS AND BUILDINGS

**San José Terminal Railway, San José, Cal.**—This company is considering plans to build a terminal station at Alviso.

**Ft. Wayne & Northern Indiana Traction Company, Ft. Wayne, Ind.**—This company has decided to postpone the erection of its proposed new car houses on Spy Run Avenue for a year or more in order to give first attention to the work of rebuilding streets in Ft. Wayne over which its cars pass.

**Bay State Street Railway, Boston, Mass.**—This company's carhouse at Neponset has been enlarged to take care of the recently established electric express service. A new freight house has been built at Quincy and others will be erected at various points as system develops.

**Morris County Traction Company, Morristown, N. J.**—The new repair shops and carhouse of this company will be completed and ready for occupancy about Sept. 15.

**Niagara Gorge Railroad, Niagara Falls, N. Y.**—This company advises that it may build a new carhouse at Niagara in the near future.

**Scioto Valley Traction Company, Columbus, Ohio.**—This company has awarded the contract to Gartner & Reichle, Chillicothe, for the construction of its new passenger and freight station on East Main Street, in Chillicothe. The cost is estimated to be about \$25,000.

**Oregon Electric Railway, Portland, Ore.**—It is reported that this company has purchased two blocks of land in Portland on which it will build a terminal depot.

**Beaver Valley Traction Company, New Brighton, Pa.**—This company has let a contract to the Anderson & Cook Company, Beaver, to construct an addition to its repair

shop in Rochester. The cost is estimated to be about \$8,000.

**Galveston-Houston Electric Railway, Galveston, Tex.**—This company has completed its passenger station in Galveston and one has been constructed at the foot of Texas Avenue, in Houston.

**Seattle-Tacoma Short Line, Seattle, Wash.**—Work has been begun by this company on the construction of a new depot at Puyallup.

#### POWER HOUSES AND SUBSTATIONS

**Birmingham Railway, Light & Power Company, Birmingham, Ala.**—This company has awarded a contract for one 6250-kva Allis-Chalmers horizontal steam turbine, which will be installed in its main power station. Contract has been placed for jet condensing equipment to be operated in conjunction with the turbine, and also with two 3000-kw General Electric turbines. This condensing equipment is manufactured by the Westinghouse Machine Company. Contract has also been awarded to Henry R. Worthington, New York, for three cooling towers, which will be operated in conjunction with the condensing apparatus. The cooling towers will be in the square of ground adjoining the power station. The company has also let a contract to the Westinghouse Electric & Manufacturing Company for one 1000-kw rotary converter to be used in the railway service.

**Oakland (Cal.) Traction Company.**—Ralph D. Mershon, New York, is investigating the electric-generating plants and electrical equipment of this company, a subsidiary corporation of the United Properties Company. An increase in the capacity of these plants will be necessary to provide for the projected extensions of the Key Route and Oakland Traction lines.

**Winona Interurban Railway, Winona Lake, Ind.**—The substation of the Winona Interurban Railway, near Milford, Ind., was badly damaged by an accident which occurred at the plant recently.

**Kentucky Traction & Terminal Company, Lexington, Ky.**—This company has let a contract for the erection of its power house, the equipment for which was purchased several weeks ago to the Combs Lumber Company, Lexington. The Pittsburgh Bridge & Iron Company was given the contract for the erection of the structural iron work on the building.

**Trenton (N. J.) Street Railway.**—This company is planning to install a 750-kw turbine in its power house in Trenton.

**Lancaster & York Furnace Street Railway, Millersville, Pa.**—This company advises that during the next few weeks it will purchase a turbine or direct-connected unit of 500 kw, 25 cycles, three-phase, for its power plant in Millersville.

**Beaver Valley Traction Company, New Brighton, Pa.**—This company advises that it expects soon to purchase a compound 150-cu. ft. Westinghouse air compressor and two Liberty turbines.

**Jackson Railway & Light Company, Jackson, Tenn.**—This company advises that during the next few weeks it will purchase one second-hand 500-kw turbo-generator, 2200 volts, 60 cycle, three-phase, 150 lb. steam pressure, 3600 r.p.m., for its power house in Jackson.

**Lakeview Traction Company, Memphis, Tenn.**—This company has let contracts for the machinery for its power house, and will begin operations in a few weeks. The amount expended in the equipment of the plant is \$60,000. The company has decided to use alternating instead of direct current. A suburban line from Memphis to Lakeview is to be operated.

**Galveston-Houston Electric Railway, Galveston, Tex.**—This company's main power station at Clear Creek has been completed at a cost of \$275,000, and the company has installed two 1500-kw generators and three 520-hp boilers. The three substations are located at La Marque, South Houston and at League City and are completed.

**Elkins (W. Va.) Electric Railway.**—This company advises that it will build a new power house in Elkins this fall. The company will not award any contracts for the work.

# Manufactures & Supplies

## ROLLING STOCK

Lewiston, Augusta & Waterville Street Railway, Lewiston, Maine, is in the market for a snow plow.

Cincinnati (Ohio) Traction Company has ordered ninety Brill 39-E trucks from The J. G. Brill Company.

Hull (Que.) Electric Company expects to purchase six double-truck, semi-convertible pay-as-you-enter cars.

Moncton Tramways, Electric & Gas Company, Moncton, N. B., has ordered one snow sweeper from The J. G. Brill Company.

Auburn & Syracuse Electric Railroad, Syracuse, N. Y., has ordered two 20-ft. motor-car bodies from the G. C. Kuhlman Company.

Montreal (Que.) Street Railway has ordered seventy Brill 27-GE-2 trucks without wheels and axles from The J. G. Brill Company.

Brooklyn (N. Y.) Rapid Transit Company has ordered twenty Brill 39-E trucks without wheels and axles from The J. G. Brill Company.

Ontario & San Antonio Heights Railway, Ontario, Cal., has ordered six Brill 39-E trucks, through Pierson, Roeding & Company, from The J. G. Brill Company.

Peninsular Railway, San Jose, Cal., has ordered seven 42-ft. 8-in. California type car bodies from the American Car Company, through Pierson, Roeding & Company.

Warren (Pa.) Street Railway has ordered five double equipments of No. 307 motors with type K-36-F control from the Westinghouse Electric & Manufacturing Company.

Muskegon Traction Company, Muskegon, Mich., has ordered one quadruple No. 307 motor equipment with K-35-D control from the Westinghouse Electric & Manufacturing Company.

Sapulpa (Okla.) Interurban Railway has ordered one double equipment of 101-B-2 motors with type K-10-A control from the Westinghouse Electric & Manufacturing Company.

Boston (Mass.) Elevated Railway has ordered fifty additional quadruple motor equipments of No. 306 motors with type HL control, from the Westinghouse Electric & Manufacturing Company.

Shamokin & Edgewood Street Railway, Shamokin, Pa., is in the market for several second-hand side-dump cars, one second-hand double-truck car and one second-hand single-truck car body.

Columbia Gas & Electric Company, Columbia, S. C., has ordered six double-motor equipments with No. 306 motors and type K-36-F control from the Westinghouse Electric & Manufacturing Company.

Jacksonville (Fla.) Traction Company, noted in the ELECTRIC RAILWAY JOURNAL of Aug. 19, 1911, as having ordered ten double-truck, straight-sided, single-end cars from the St. Louis Car Company, has specified the following details for these cars:

Length of body...29 ft. 6½ in.	Destination signs....Hunter
Over vestibule...41 ft.	Fare boxes.....Johnson
Width over all... 8 ft. 4 in.	Headlights .....U.S.
Sill to trolley base. 6 ft. 3¼ in.	Motors.....2 G E-219
Body .....	Registers .....International
Air brakes.....G E	Seats.....H. & W.
Control.....G E K-36	Seating material.....rattan
Couplers .....	Trolley retrievers...Knutson
Curtain fixtures...Cur. S. Co.	Trucks.....Standard O-36
Curtain material..Cur. S. Co.	

## TRADE NOTES

Chicago Pneumatic Tool Company, Chicago, Ill., has appointed Luther H. Bryan to act as its representative at Birmingham, Ala.

Johnson Fare Box Company, New York, N. Y., has moved its office from 1 Madison Avenue to 239 Fourth Avenue, New York.

Galt Car & Coach Company, Galt, Ont., is erecting an ad-

dition to its plant, 60 ft. x 200 ft., and proposes to install additional sawmill equipment.

Pennsylvania Equipment Company, Philadelphia, Pa., is in the market for a turbo-generator of 300 kw to 400 kw, 250 volts, 150 lb. steam, 26-in. to 28-in. vacuum, in one or two units.

Baldwin Locomotive Works, Philadelphia, Pa., have moved their office in Portland, Ore., from the Couch Building to the Spalding Building. The company plans to build an extension, 500 ft. long, to its plant at Eddystone, Pa. The addition will be made to the present erection shop.

General Equipment Company, New York, N. Y., has appointed Frederick M. Nellis Western representative, with headquarters in Chicago. Mr. Nellis was formerly New England representative of the Westinghouse Air Brake Company and the Westinghouse Traction Brake Company.

Peter Smith Heater Company, Detroit, Mich., reports the receipt of an order from the Louisville (Ky.) Railway for the installation of hot-air heating apparatus on 200 cars which are now in use, and on the thirty new cars which are now being built for the Louisville Railway by the Cincinnati Car Company.

Best Manufacturing Company, Pittsburgh, Pa., has appointed Benjamin T. Delafield to handle its line of valves, fittings, flanges, pipe bends, fabricated pipe and other power-plant material in the St. Louis and Kansas City territory, with headquarters in Kansas City, Mo. Mr. Delafield formerly represented the Lunkenheimer Company in the same territory.

Mesta Machine Company, Pittsburgh, Pa., has received an order from the Sistersville Electric Light & Power Company, Sistersville, W. Va., for one 20-in. by 24-in. twin tandem, horizontal, double-acting, four-cycle gas engine. The engine will operate with natural gas and is rated at 1000 b.hp, being arranged for direct connection to a 650-kw, 60-cycle, 2300-volt railway generator.

The J. G. Brill Company, Philadelphia, Pa., reports the receipt of the following orders for export: E. G. Long Company, New York, N. Y., thirty-two Brill 27-M-C-B-1 trucks, without wheels and axles, and twenty Brill 27-GE-1 trucks; Manuel Caragol & Son, New York, N. Y., one Brill 21-E truck without wheels; W. R. Grace & Company, New York, N. Y., three 18-ft. closed motor car bodies mounted on Brill 21-E trucks; Noyes Brothers, Wellington, N. Z., for the Wellington Tramways, twelve Brill No. 22 trucks without wheels and axles.

## ADVERTISING LITERATURE

General Electric Company, Schenectady, N. Y., has issued Bulletin No. 4878, describing the uses and properties of its cloth pinions.

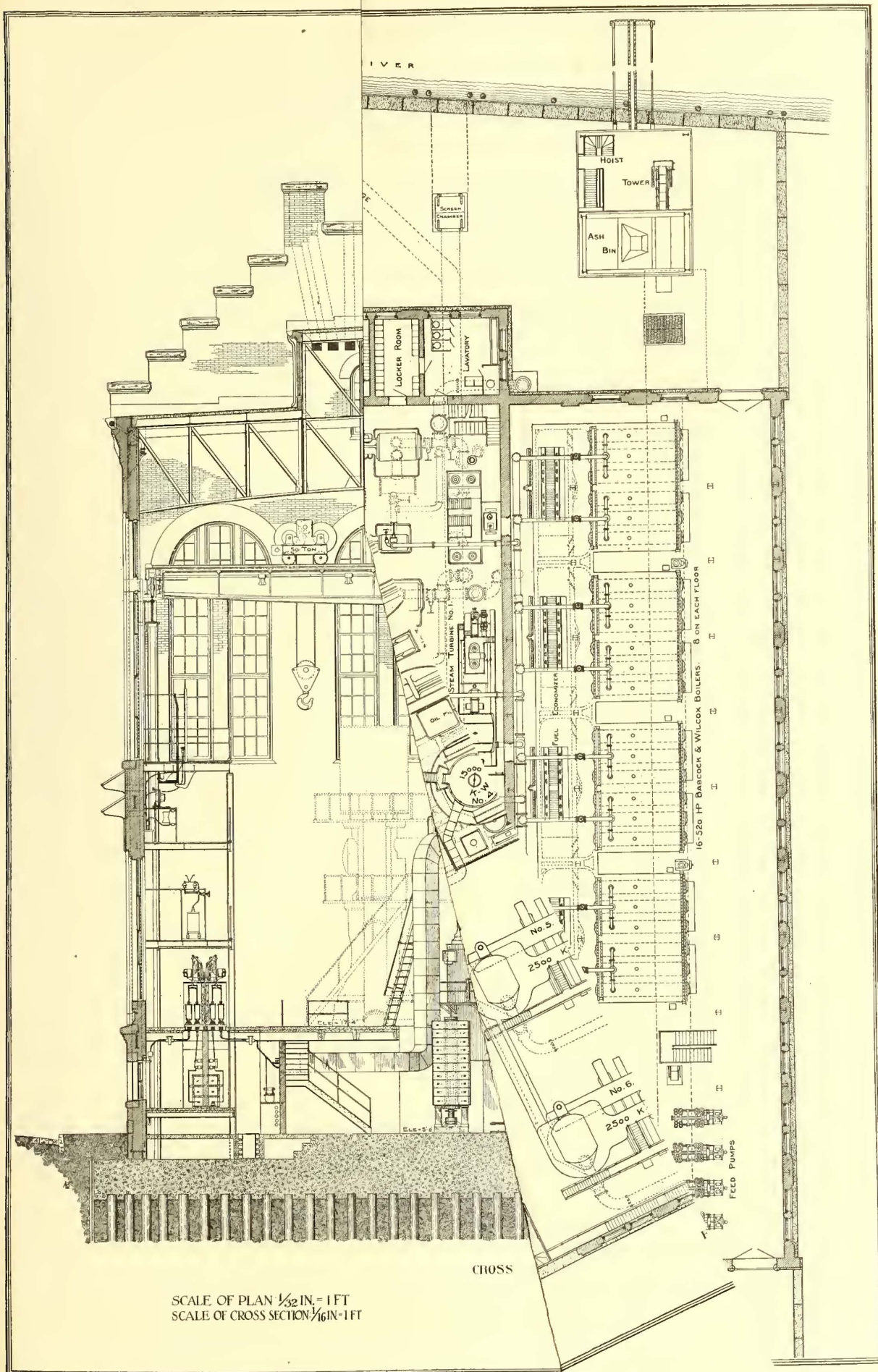
MacGovern, Archer & Company, New York, N. Y., have issued the September list of second-hand electrical and steam machinery, power-house equipment, cars, etc., which the company has on hand in readiness for immediate shipment.

Sterling Varnish Company, Pittsburgh, Pa., has issued a folder discussing the improvement of linseed oil and its effect on paint. In the manufacture of Sterling iron enamel paints the company uses Sterling raw refined linseed oil, which is the product of a new process used in purifying ordinary oil.

D. & W. Fuse Company, Providence, R. I., has issued Circular No. 201, which describes its magnetic chucks. These chucks are built for stationary or rotary duty and all parts are readily interchangeable. Deltabeston wire is used to wind the magnets, and they can withstand temperatures as high as 400 deg. Fahr. without destruction.

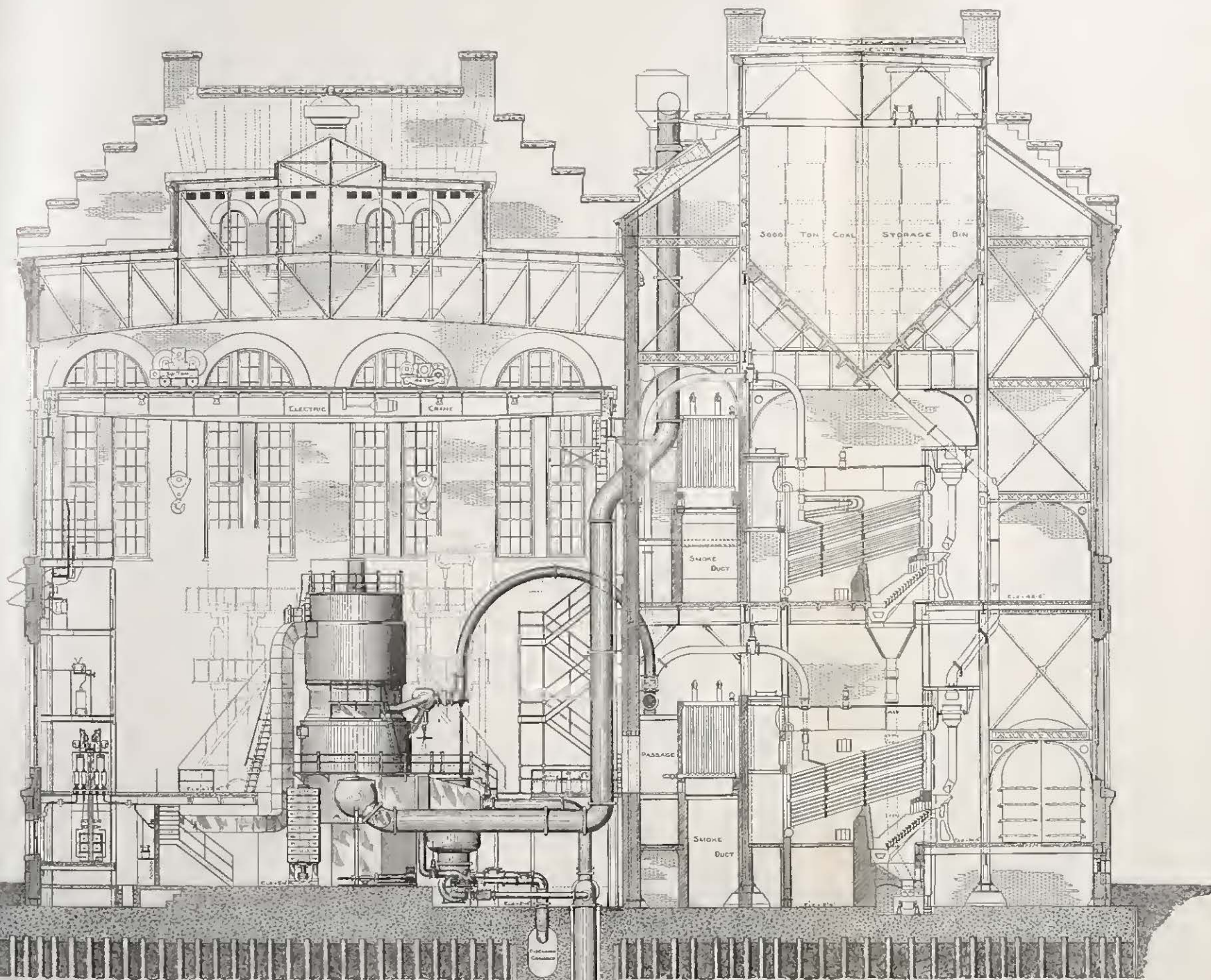
Frog, Switch & Manufacturing Company, Carlisle, Pa., has issued its 1911 catalog, in which is illustrated a complete line of T-rail frogs, switches, crossings, etc., which the company manufactures. Particular attention is called to the company's full display of manganese hard-center construction. The catalog contains 150 pages, and is divided into sections, as follows: Stiff frogs, spring frogs, manganese frogs, switches, switch stands, crossings, manganese crossings, solid manganese crossings and turnouts and special work for electric railways.





SCALE OF PLAN  $\frac{1}{32}$  IN. = 1 FT  
SCALE OF CROSS SECTION  $\frac{1}{16}$  IN. = 1 FT



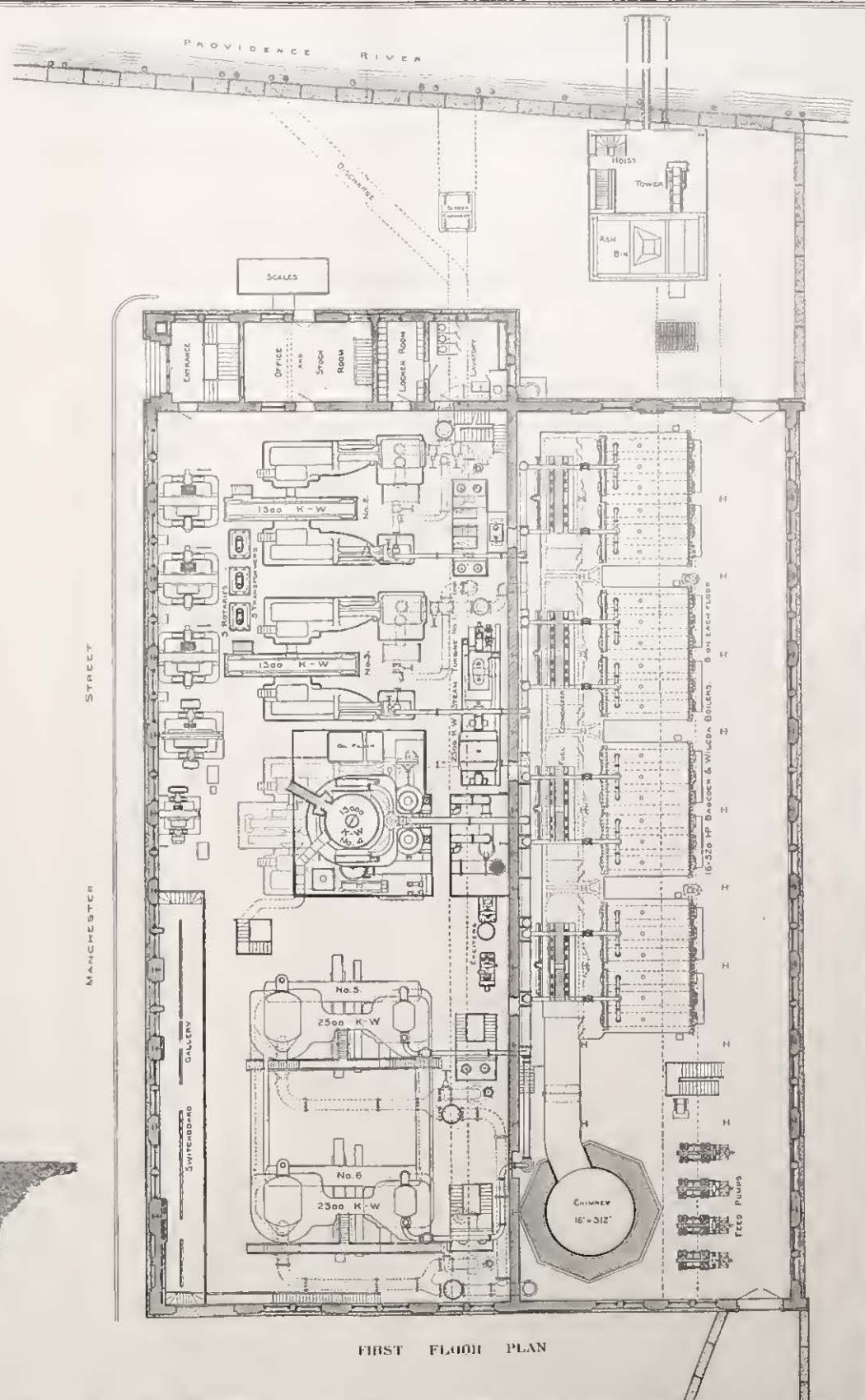


CROSS SECTION

SCALE OF PLAN 1/32 IN. = 1 FT  
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MANCHESTER STREET POWER STATION  
 SHOWING 15000 K.W. TURBINE.  
**The Rhode Island Company**  
 PROVIDENCE, R. I.  
 August, 1911

M. H. Gronodon, CIVIL ENGINEER



FIRST FLOOR PLAN

