ELECTRIC INTERURBAN BETWEEN COLUMBUS AND ZANESVILLE

In the articles describing the Appleyard system of roads in Ohio, published in the STREET RAILWAY JOURNAL of May 16 and May 23, reference was made to the connecting lines controlled by Tucker, Anthony & Company, of Boston, the plans being worked out by the two interests for operating through trains between Cincinnati, Cleveland, Pittsburg and Toledo were explained, and a map was presented showing the proposed system. As was intimated at the time the chief efforts of Tucker, Anthony & Company are being directed toward the completion of a through line between Columbus and Cleveland. At present the most important property in this group is the Columbus, Buckeye Lake & Newark Traction Company, which, by reason of an extension to Zanesville, is soon to be known as the Columbus, Newark & Zanesville Traction Company. The line has been in operation between Columbus and Newark for about fifteen months, and it undoubtedly places in the hands of its owners the key to the most desirable route east from Columbus, as it forms the logical entrance to Columbus for lines building to the northeast. The Ohio River & Western Railway, an Appleyard property extending from Zanesville to Wheeling, will secure connection with the capital city over this line.

REVERSE CURVE ON C., B. L. & N. RAILWAY, WHERE IT PASSES CANAL ON ONE SIDE AND THE STEAM LINE AND HIGHWAY ON THE OTHER

THE ROUTE

Between Columbus and Hebron, 29 miles, the line follows the old National Pike, a military road built by the national government before this section of the country was settled, and over which the company has twenty-five-year franchises from the counties traversed. This highway is also followed by the Columbus, London & Springfield Railway between Columbus and Springfield. The trolley is built at the side of the highway, but because of this it should not be considered in the same class as ordinary pike roads, since the highway is nearly 100 ft. wide and the railway is separated from the wagon road by a ditch. It is, moreover, practically fenced in on one side by the company's pole line, the other side having already been occupied by the long-distance lines of a telephone company. This portion of the line is almost a perfect tangent, and the few grades met are long and hardly noticeable, as the country is very flat. Between Hebron and Newark, a distance of 9 miles, the line traverses the berme bank of the Ohio & Erie Canal, under a lease from the State. There are, of course, no grades on this section of the road, but the meanderings of the canal introduce nineteen curves in the 9 miles. Only a few of these are severe enough to necessitate the use of guard rails, and in every case they can be taken at a good rate of speed. This portion of the route provides rather unique scenery, and at one point, side by side, are exemplified four ages or methods of transportation, namely, the National Pike, the old and abandoned canal, the steam railway and the up-to-date electric railway. A view of this interesting feature is presented herewith.

The road under construction from Newark to Zanesville is on private right of way, ranging from 50 ft. to 75 ft. in width, the greater portion being cross-country route. The line parallels the Licking River, and at one point there is a tunnel nearly 400 ft. long, which was built to avoid several bad curves. In Newark the syndicate operates 8 miles of city lines with a suburban line to the neighboring town of Granville, 7 miles. These constitute the Newark & Granville Railway, which was purchased by the syndicate several months ago, and is operated by the interurban management. From Hebron to Buckeye Lake, 2½ miles away, there is a cross-country spur line, while between Etna and Pataskala, 2¼ miles, a private right of way has been secured and a spur line will be built at once. When completed, as outlined, the system will include 64 miles of main line, 12 miles of spur lines and 8 miles of city lines, a total of 84 miles, not including sidings.

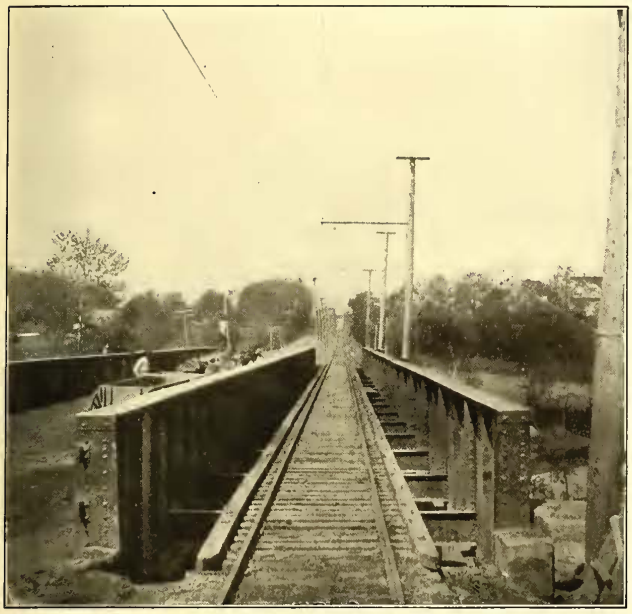
The company built its own entrance into Columbus by way of Mound Street as far as the interurban loop, and all cars operate to the Union Passenger Station on Gay Street. The city portion of the line is leased to the Central Market Street Railway, which furnishes city service. All of these features, as well as the type of construction used on the city line, were described in the article on the Appleyard system in the May 16 issue of this paper.

The Newark & Granville Railway has recently been rebuilt with 9-in. 90-lb. girder for the city lines, and 70-lb. T-rails for the suburban, and new overhead construction throughout. The interurban system is designed for high speed, with 70-lb. rails in 30-ft. lengths, laid on 6-in. x 8-in. x 8-ft. oak ties. American Steel & Wire protected bonds are used on a portion of the system and General Electric flexible bonds on the balance. They are used in connection with standard six-bolt, 30-in. fish-plates. Sidings are 400 ft. long, and are 5 miles apart. They have spring switches, low-stand targets and frogs of steam railway pattern. On the present line there are six steel bridges, from 20 ft. to 156 ft. in length, seventy tile and iron culverts, varying from 6 ins. to 3 ft. in diameter, and three concrete arch culverts of 6-ft. span, as well as drainage tile under all highway and driveway crossings. There are several large pile trestles, and at Alum Creek, near the Columbus city limits, there is one 800-ft. trestle and steel bridge, forming an overhead crossing over two steam roads as well as crossing the

stream. Six inches of gravel is placed under the ties and filled up even with the tops on the interurban line, while the paving used in cities is vitrified brick in thick concrete base and grouted with cement.

OVERHEAD WORK

Poles are 35 ft. tall, and spaced 100 ft. apart; a portion of them are red cedar and the balance chestnut. There are two cross-arms, the upper for the high-tension wires and the lower for the direct-current feeders. There are also two sets of small side brackets for the telephone system and block signal system. Brackets 9 ft. long, of 1½-in. pipe, and provided with guy wires, are employed, and a single trolley wire of the 0000 grooved pattern is used. Between Hebron and Columbus there are two 0000 copper feeders, and between Hebron and Newark two 0000 copper and two 330,000 circ. mil aluminum feeders, the latter supplying the Newark & Granville system. At the Newark city limits the feeders divide; the city system is supplied by one 0 and one 0000 copper feeders, while the Granville suburban line is supplied by three feeders arranged as follows: One 330,000 circ. mil aluminum, 4 miles; one 0000 copper, 6 miles, and one 0 copper, 7 miles. The high-tension wires are of No. 4 B. & S. gage. Two of these are attached to the ends of the upper cross-arm, while the third is mounted on a saddle-pin at the top of the pole. This pin is of iron, with a wooden tip, and it is attached to the pole by three lag screws on each side. No. 2 triple petticoat Provo-type insulators are used for securing the high-tension wires.



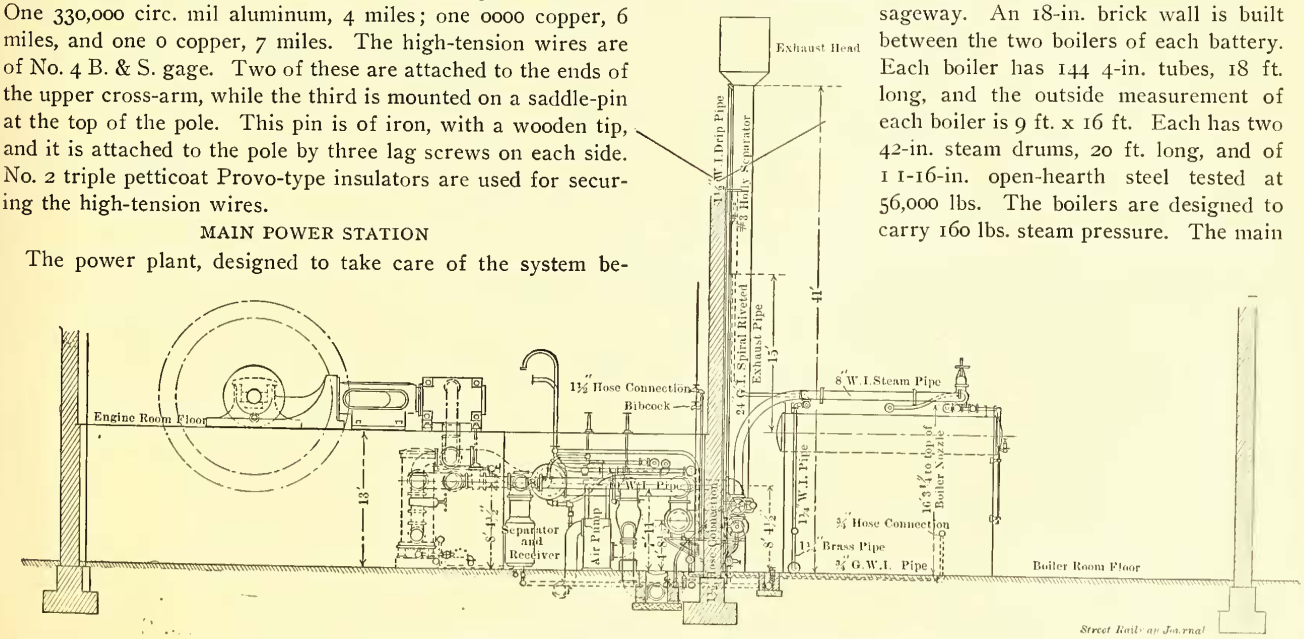
BIG WALNUT BRIDGE ON C., B. L. & N.

HEBRON POWER HOUSE, C., B. L. & N.

MAIN POWER STATION

The power plant, designed to take care of the system between Columbus and Zanesville, is located at the village of Hebron, within a short distance of the bank of the canal from which water is obtained. A constant supply of good water is always assured, since the location is only about 2 miles from Licking reservoir, better known as Buckeye Lake, which feeds a greater portion of the canal system. This location was selected also because of its proximity to the pipe lines from neighboring natural gas fields, from which the plant derives its chief fuel supply.

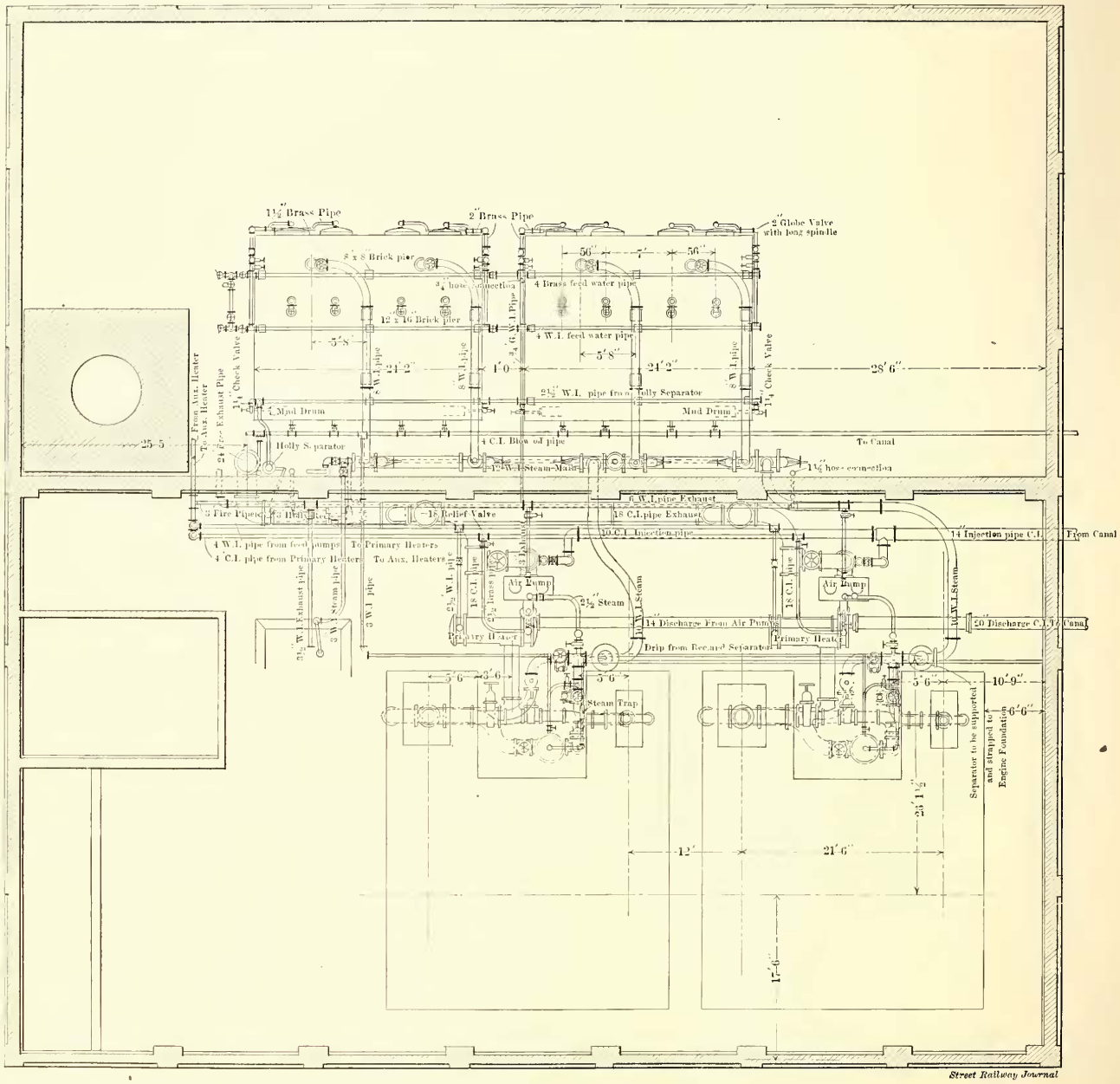
The building is a large brick structure of unusually attractive design. It is divided into two wings, the engine room, 61 ft. x 112 ft., and the boiler room, 50 ft. x 112 ft. At the side of the boiler room there are coal bunkers, 22 ft. x 112 ft., having a capacity of 1000 tons. There is a steel I-beam trestle for dump-bottom coal cars. The roofs are iron truss with slate, and there is a stack 150 ft. 6 ins. tall, with 7-ft. flue. It is constructed of radial brick and rests on a square base within the boiler room. The boiler equipment consists of four 300-hp Babcock & Wilcox boilers, arranged in two batteries, separated by a passageway. An 18-in. brick wall is built between the two boilers of each battery. Each boiler has 144 4-in. tubes, 18 ft. long, and the outside measurement of each boiler is 9 ft. x 16 ft. Each has two 42-in. steam drums, 20 ft. long, and of 1 1-16-in. open-hearth steel tested at 56,000 lbs. The boilers are designed to carry 160 lbs. steam pressure. The main



CROSS SECTION, SHOWING PIPING IN HEBRON POWER PLANT

steam header is 12 ins. in diameter, and the connections have 2-in. flanges. A Walworth valve, having an 18-in. gate, separates the two sets of boilers, and each boiler is also fitted with a separate valve, so that any of the four may be cut out. There are also separate valves on the tops of the boilers.

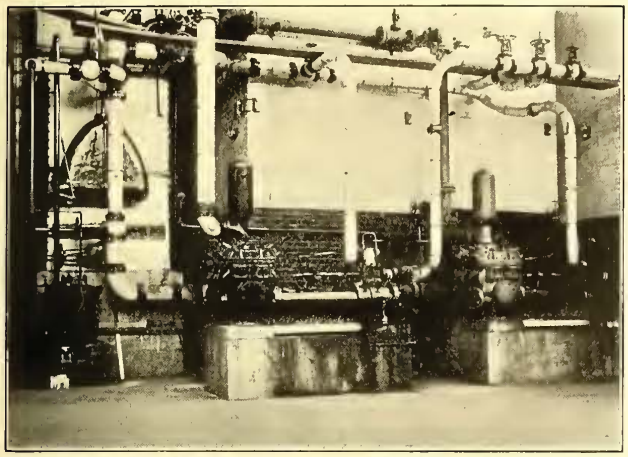
As already intimated, natural gas is used for fuel supply. This is received through a 4-in. pipe, tapped from an 8-in. main, supplying the city of Newark, and passing a short distance from the power station. The pressure in the main line varies from 80 lbs. to 140 lbs., necessitating equalizing and reduction. A regulator house has been erected a short distance from the plant, containing two sets of reducing regulators, the first of which cuts the pressure down as low as 20 lbs., while the second, or low-pressure regulator, reduces the pressure to the desired number of ounces. In the boiler room is located a steam gas regulator, which governs the flow into the burners. There is a lever provided with weights similar to the balance on a scale, and this is set according to the steam pressure desired in the boilers. Connected with the steam regulator outfit are two meters, each carrying half the load. Readings are taken every morning by the gas company. The gas burners are a modification of the Klein type, furnished by Tate, Jones & Company, of Pittsburg. There are three sets of burners for each boiler, two at the sides and one above. The center burner is 14 ins. above the grate inside the center door, and throws its flames through the center towards the rear of the boiler. The side burners are set at the same height at each side, so that the flames incline towards the center of the flues. Only three of the four boilers are equipped for gas, the other being held in reserve for the speedy use of coal. It is claimed that it is not necessary to remove the burners if it is necessary to burn coal, but they can be taken out in two hours if it is desirable to do so.



PIPING PLANT OF HEBRON POWER STATION

The plant is supplied with recording watt-meters, and a careful record is being kept of cost of generating current, but by reason of recently discovered discrepancies in the instruments the management deemed it inadvisable at this time to go into a detailed statement relative to the efficiency and the economy derived through the use of gas. It is known, however, that there is a saving of from one-fourth to one-third, compared with Sunday Creek run of mine coal, at $2.20 per ton.

which has been used on certain occasions. The engineer of the plant stated that during several days' continuous tests an average of 35 ft. of gas was consumed per electrical horse-power. J. R. Harrigan, general manager of the company, states that the present cost of power is estimated at 0.5 cents per kilowatt-hour. From an informant, other than the company itself, it is understood that gas is purchased at the low rate of 8 cents per 1000 ft.



FEED-WATER PUMPS AND COCHRANE HEATER AND PURIFIER IN BOILER ROOM

In the boiler room there is a Cochrane open heater and purifier, also two Blake double-feed water pumps. The engine room floor is 10 ft. above that of the boiler room, and in the auxiliary room below and extending up through the floor are two Blake vertical twin condenser pumps. These are designed to run at 27-in. vacuum. There is a primary heater in the exhaust line and the feed water passes through this first and then through the Cochrane heater, enabling the water to be put into the boilers at 206 degs. The exhaust line is 18 ins. in diameter, and in the line is an atmospheric valve.

THE ENGINE ROOM

There are two engines of the Hamilton-Corliss cross-compound type; the high-pressure cylinders being 26 ins. in diameter, and the low pressure 50 ins., with a stroke of 48 ins. There is a reducing valve in the main steam line connected with the low-pressure cylinder, so that in case it is desired to run the low-pressure side of an engine independent of the high-pressure side the latter may be cut off from the main steam line. A fire system has been provided throughout the plant in which the feed-water pumps may turn their full pressure into fighting fire.

Directly connected to the engine shafts are 800-kw General Electric generators. They are of the three-phase, revolving field type, operating at 94 r. p. m., and wound for 13,200 volts, the pressure selected for the transmission lines. This system makes it unnecessary to step-up the current in the station. Attached to the fields are the engine fly-wheels, which are 18 ft. in diameter, and have a web 18 ins. deep and 20 ins. wide; the total weight being 100,000 lbs. Current for excitation of generator fields is supplied by two 35-kw, 125-volt exciter sets; one of them driven by a small General Electric marine engine, and the other by an induction motor. The engine-driven set is used in starting, and is shut down when the generators are up to voltage and the motor-driven exciter is started.

There is a sub-station outfit in the main station. Two 300-kw rotary converters adjoin the exciter sets at one end of the building and the floor below these is open, affording good ventilation. To the rear of the converters is the station switchboard, and back of these are the oil switches, transformers and lightning arrester gallery.

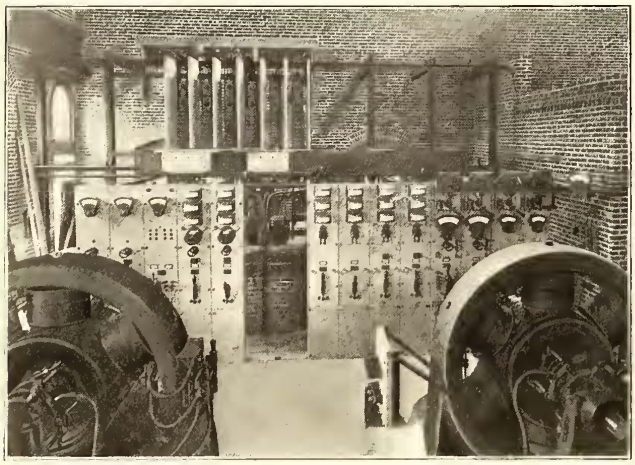
GENERATING SETS IN MAIN POWER HOUSE AT HEBRON

There are two rows of oil switches of the General Electric hand-operated, single-pole, form K-type, the three single-pole switches for one circuit being controlled by one handle. These are in brick concrete and soapstone cells. Current from the generators is carried to the generator switches by triple-conductor, paper-insulated lead-covered cables. The three phases are separated in terminal heads and current passes through the generator oil switches, and from there to the station bus-bar, located above and between the two rows of oil switches.

GENERAL VIEW OF ENGINE ROOM IN HEBRON POWER HOUSE

High-tension oil switches of the same type are also used between the bus-bars and the transformer banks for the rotaries in the station. There are three 120-kw transformers

for each rotary. Current is reduced in the transformers to 370 volts for the rotaries. There is a reactive coil in front of each bank of transformers, which adds to the compounding and assists in hand regulation of voltage. The transformers are cooled by fans driven by 1-hp 350-volt induction motors. In line with modern practice the whole basement under transformers, blowers, reactive coils, etc., has been walled off for an air-blast chamber, thus giving a convenient place to work on wiring, etc., that enters the bases of transformers.



ROTARIES AND SWITCHBOARDS IN HEBRON POWER HOUSE

The lightning arresters for the outgoing lines are suspended on an iron frame and isolated by means of barriers.

SWITCHBOARD

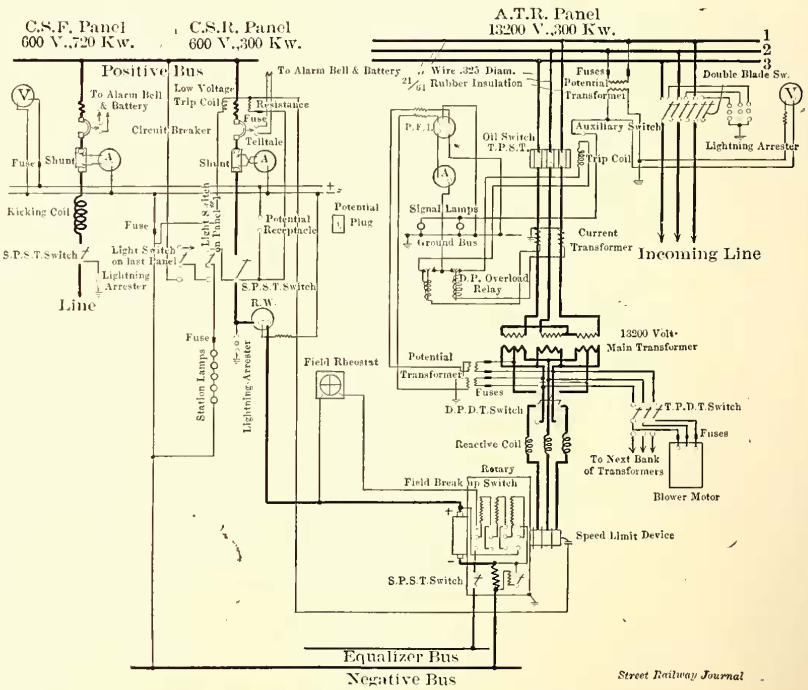
The station switchboard is of blue Vermont marble, and has fifteen panels, arranged as follows from left to right: Two exciter panels, one exciter feeder or field panel, two generator panels, two spaces for future panels, two outgoing transmission line panels, two 13,200-volt alternating-current panels, two direct-current converter panels and two for direct-current feeders. On each generator panel there is a power factor indicator, an ammeter, a voltmeter and a recording wattmeter. The two outgoing line panels have three ammeters each. The direct-current converter panels have automatic circuit breakers and ammeters, also recording wattmeters. Current transformers for ammeters on the board and potential transformers for the volt meters are located above the oil switches; the former are connected in series with the line and the line and the latter are connected across the line.

There has recently been installed in the station a gravity system of oil-feed which is saving the work of one man. Another valuable device is a Christensen air compressor outfit, which is used in blowing out the bearings of all machinery. One corner of the room is partitioned off for an office for the engineer. It is neatly furnished and provided with connection from the line telephone system. A person visiting the station cannot fail to be impressed with the extreme cleanliness pervading the entire place, made possible by the use of gas as fuel. The walls of both engine room and boiler room are painted white. When the station is in operation lighting current is taken from the railway circuit, and when it is closed down current is taken from the 125-volt steam exciter. A 58-ft. crane has been installed. It spans the entire engine room, and comprises a 15-ton hand-power crane and a 3-ton auxiliary hoist. The outfit weighs 36,000 lbs., and was furnished by the Whiting Foundry & Engine Company, of Chicago. The power station was designed by Sheaf & Jastaad, of Boston.

THE SUB-STATIONS

At the present time but one sub-station is in operation. This is located at Hibernia, half-way between Hebron and Columbus. The equipment of this station consists of two 300-kw rotaries, six 120-kw air-cooled transformers, arranged in two banks, together with the necessary oil switches, circuit breakers and switchboard. The sub-station feeds directly to the center of Columbus on one side and half-way to Hebron in the other direction. While the Hibernia station is theoretically a terminal station for this system, it is equipped with outgoing high-tension lines which connect with the Columbus sub-station of the Columbus, London & Springfield Railway. As outlined in the description of the power equipment of the system published in the May 23 issue of the Street Railway Journal, the power houses of the two systems may be operated in parallel through the compensating transformer equipment in the Columbus sub-station.

At present the rotary equipment in the main station supplies between Hebron and Newark, the Newark city system and the Newark & Granville line. To provide for the extension now under construction to Zanesville, there will be two additional sub-stations. One of these is under construction in connection with the car houses at Newark, plans for which are presented on another page, while the locations of the other two have not been fully decided upon. The equipment of these will be similar to that of the Hibernia sub-station, except that they will have two three-phase air-cooled transformers instead of six single-phase. Additional current for the extension will be provided by a new unit, consisting of a 1500-kw General Electric generator, directly connected to a 2500-hp Hamilton-Corliss engine. This will necessitate the extension of the building southward, but there is space at present for the additional oil switches, switchboard, lightning arresters and other auxiliary equipment that will be required. All machines will be run in parallel.



SWITCHBOARD WIRING FOR SUB-STATION

CAR HOUSE AND REPAIR SHOPS

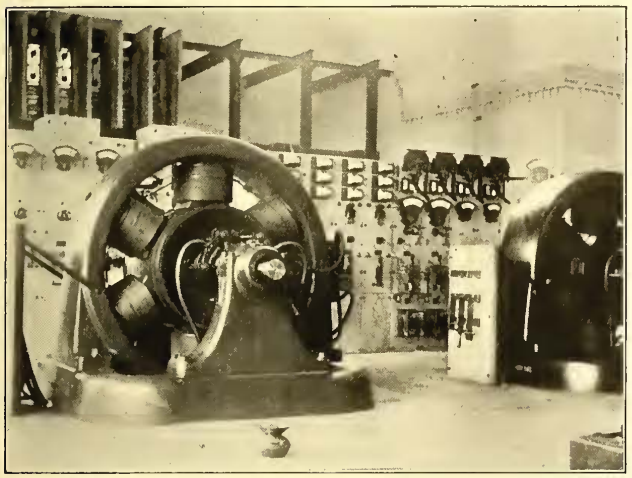
At Newark are being erected the car house, shops and rotary station mentioned. The structure is of brick with sandstone trimmings. It is divided into two parts by a brick fire-wall.

Each half is 60 ft. from wall to wall, and contains working pits, wash room, repair shops, etc. There are ten tracks, with capacity more than sufficient to hold all the cars on the system. The roof consists of steel trusses covered with corrugated iron on purlines. An annex, as shown, contains the offices, men's lounging room, boiler room and sub-station.

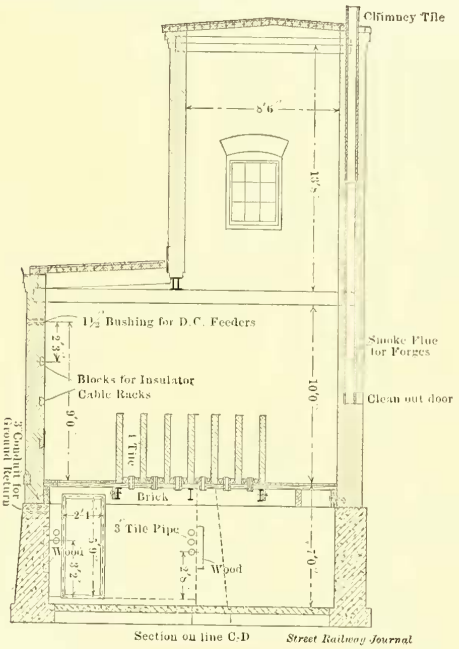
Plans for this structure were prepared by E. H. Kitfield, of Boston, from whom the accompanying diagrams were procured.

CAR EQUIPMENT

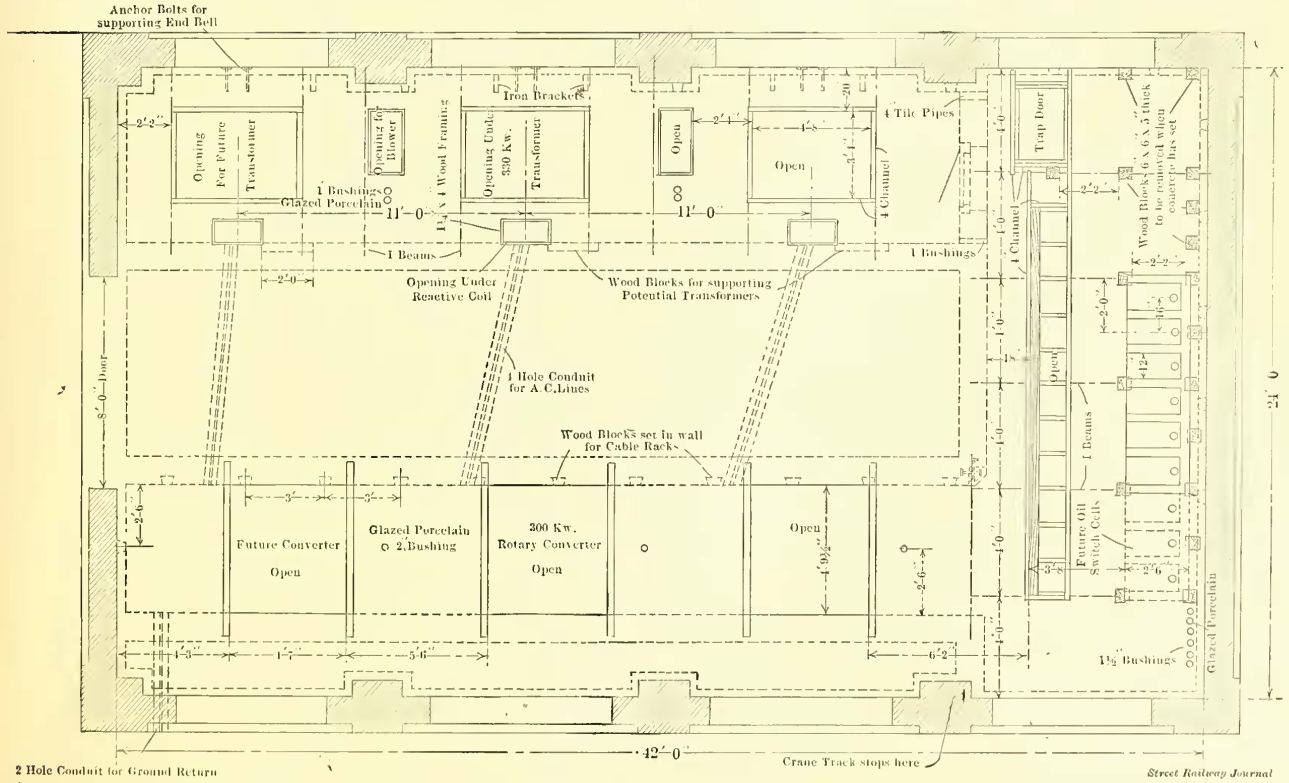
The rolling stock for the present Columbus-Newark line consists of four 62-ft. and four 50-ft. Barney & Smith cars. The former seat sixty-two people, and have baggage compartments in addition to smokers, while the latter seat fifty people. They are finished in dark mahogany, and each has a water-cooler and closet. They are equipped with four General Electric No. 73 motors, mounted on Barney & Smith type-J trucks, center nose suspension. M. C. B. journals and 33-in. wheels with Chrome steel tires are employed. The longer cars weigh about 75,000 lbs. Four of these cars are used on hourly headway, and they make the 37 miles in 1 hour and 50 minutes. The company will shortly institute limited service between these points, and for this purpose has a 62-ft. Barney & Smith parlor car with chair seats, which will make the run in 1 hour and 20 minutes. For express service there are two 60-ft. Barney & Smith express cars equipped with four General Electric No. 57 motors. The summer traffic on this line is very heavy, and for this service there are five 62-ft. semi-convertible cars, built by the Jewett Car Company. They have center aisles and slat seats, and are equipped with Peckham M. C. B. No. 32 trucks and two General Electric No. 73 motors. The Newark & Granville line has a 50-ft. combination passenger and baggage car, built by the



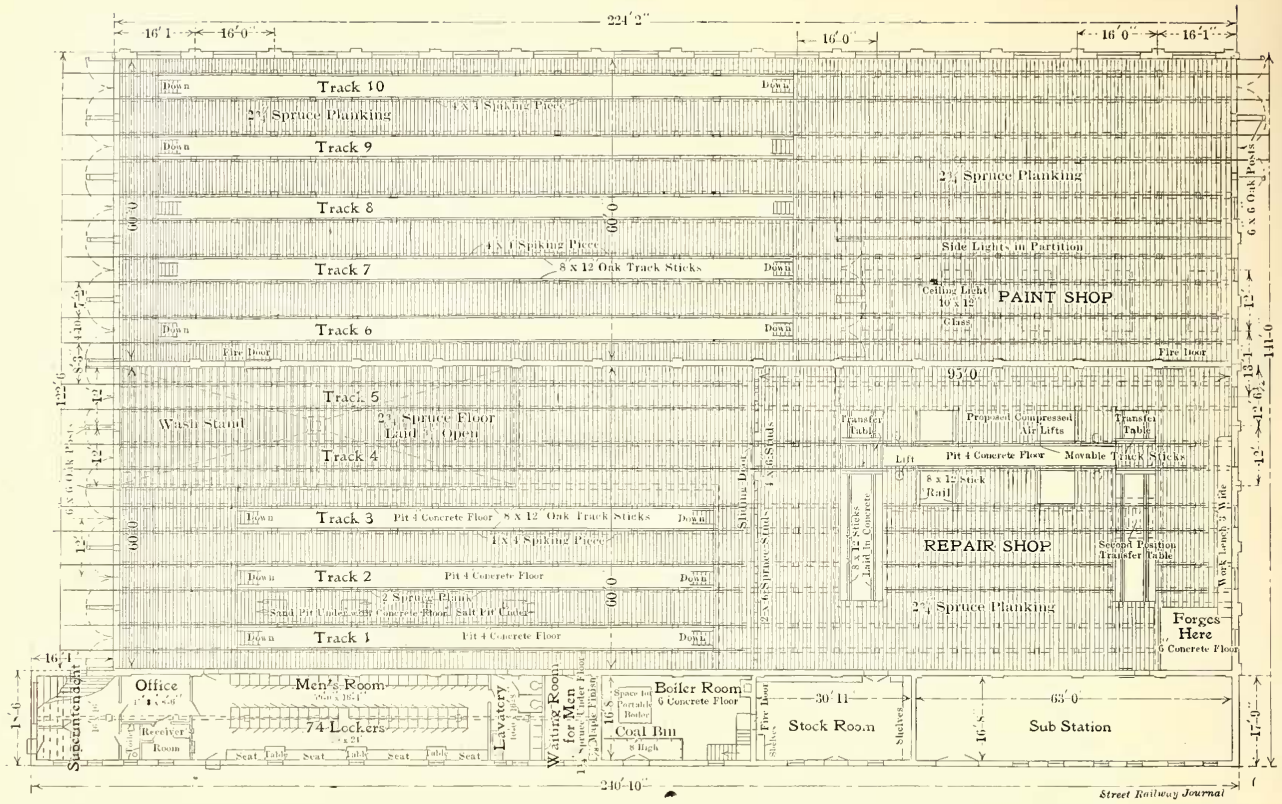
ROTARY CONVERTERS, SWITCHBOARD AND HIGH-TENSION SWITCHES



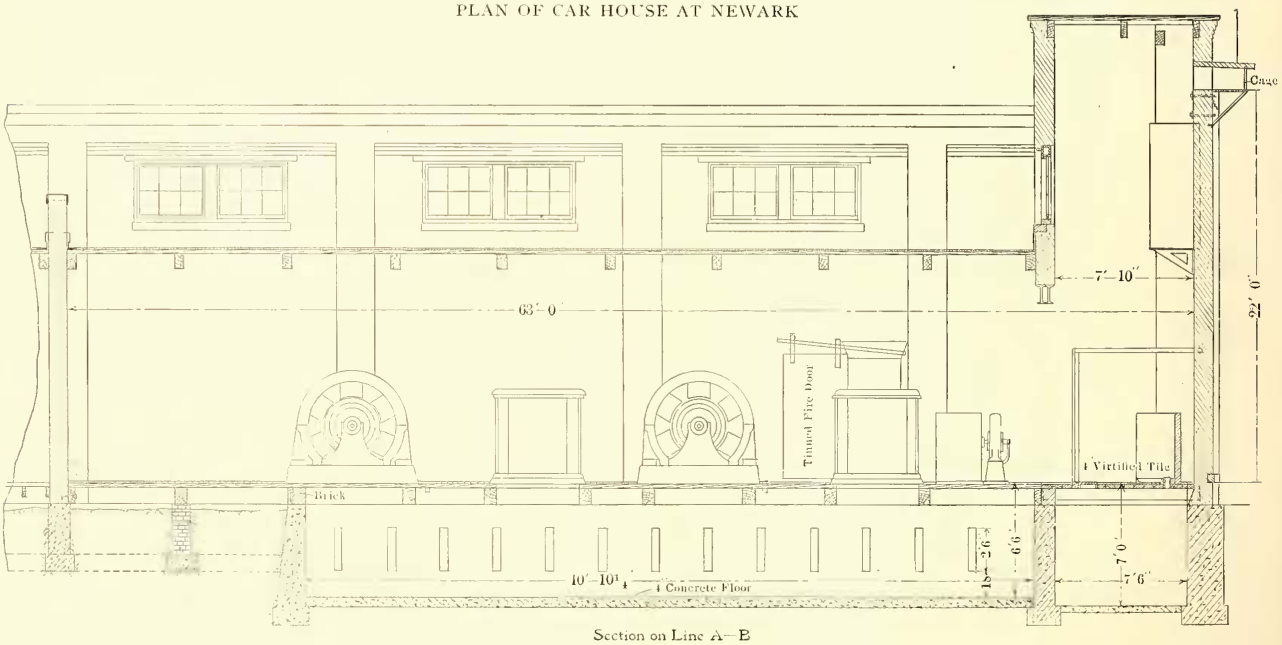
SECTION OF SUB-STATION IN CAR HOUSE



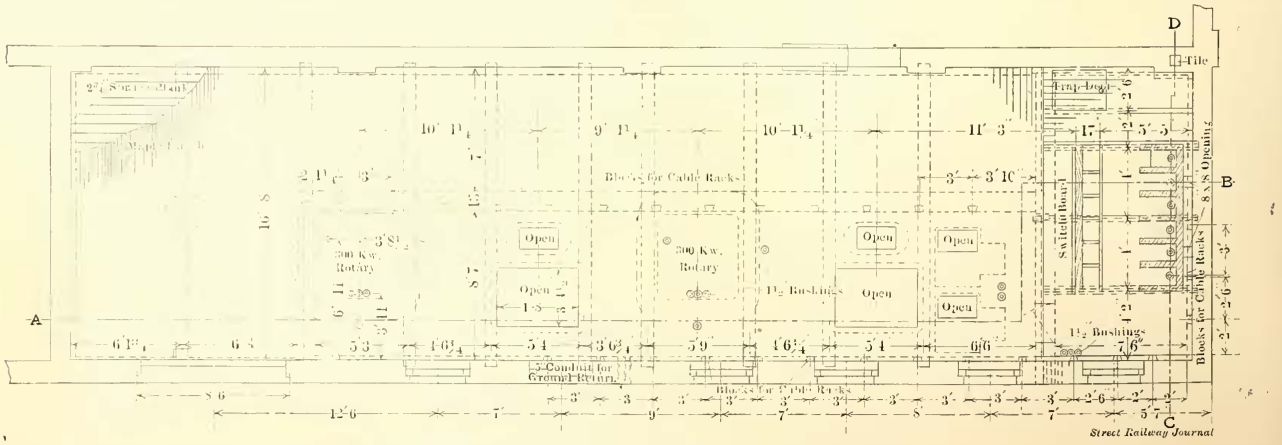
PLAN OF SUB-STATION



PLAN OF CAR HOUSE AT NEWARK

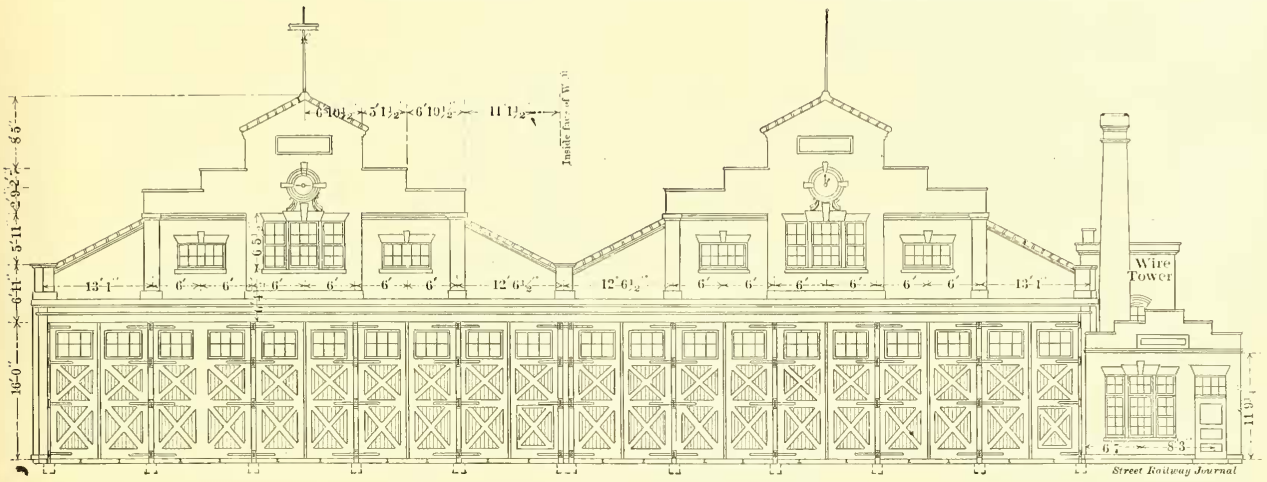


Section on Line A—B



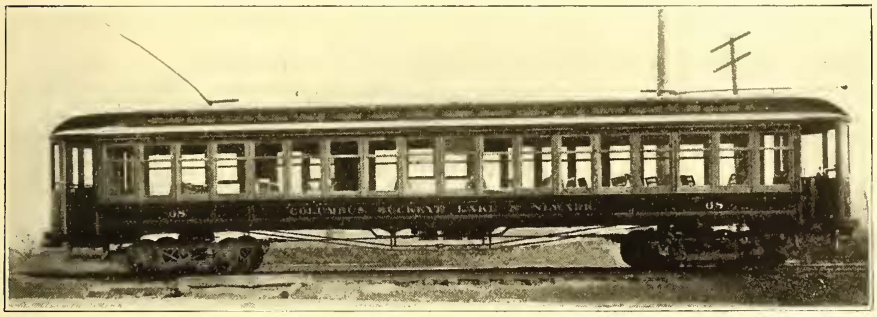
PLAN AND SECTION OF SUB-STATION IN CAR HOUSE

Jewett Car Company. It has Peckham trucks and four General Electric No. 57 motors. For the Newark city service there are six very handsome 34-ft. double-truck cars, built by the Jewett Car Company. They are finished in oak and are equipped with



FRONT ELEVATION OF C., N. & Z. CAR HOUSE

Peckham trucks and two General Electric No. 67 motors. There are also ten single-truck open cars and two fifteen-bench open excursion cars. To provide for possible third-rail operation when the through systems are connected up, all trucks on interurban cars are provided with lugs for third-rail shoes.

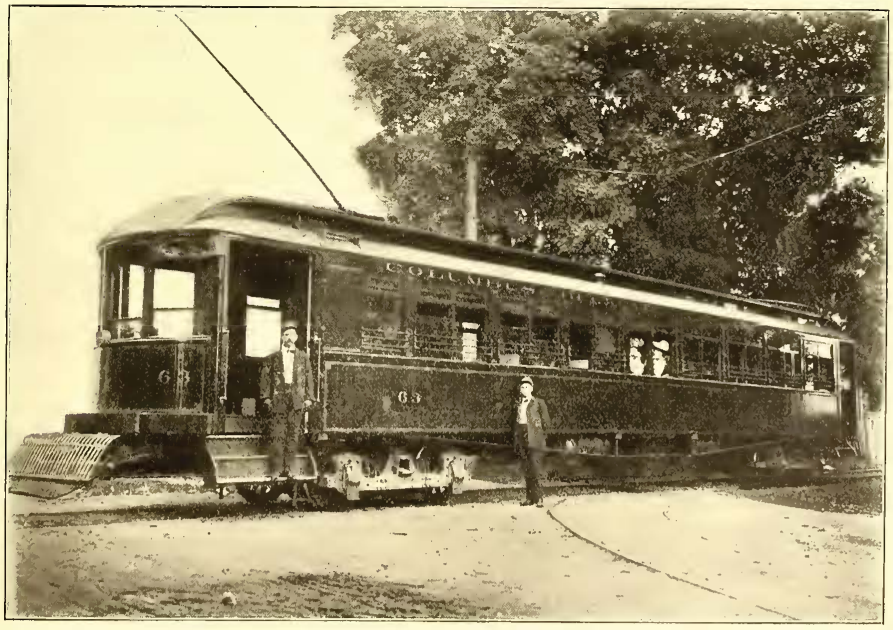


SEMI-CONVERTIBLE CAR

The interurban cars all have Christensen air brakes, Nichols-Lintern air sanders, Knutson trolley retrievers, Wagenhals arc headlights and are operated by the General Electric multiple-control system. The management of the road is thoroughly convinced as to the advantages of the "dead man's" handle, and has stringent rules against "plugging" the device. This is the result of a recent incident in which a car was making a high rate of speed along the canal bank, when some one threw a stone which struck the motorman in the head, knocking him insensible. A few seconds later the car came to a stop at a curve, which could not have been taken at high speed.

DESPATCHING SYSTEM

The system is covered by the United States Signal Company's block system of red and white lights, but train despatching is done by telephone from the despatcher's office at Hebron, where a ten-drop switchboard is installed. Each division has a separate circuit, and telephones have been placed in all the offices and sub-stations along the line. The booths are provided with switches so that the telephone is cut out when the door is shut. The despatcher does not employ the usual train sheet, but has a board with pegs, showing the movements of cars. When orders are given from the despatcher's station they are written in triplicate or quintuplicate (on heavy days cars are run double headers), and copies are given to conductors and motormen. An order taken on the line is received by the conductor, who writes it in duplicate on a pad in the booth, the despatcher at the same time making a copy in his station. The conductor then repeats the order back to the despatcher, who, if order is correct, will say "complete," adding the time of the order. The conductor notes the time and hands one copy to the



62-FT. PASSENGER CAR

motorman. The fact that the time is indicated on the order is the motorman's assurance that it has been repeated and is complete. This system was devised by C. W. Hoisington, trainmaster, formerly despatcher for the Rock Island Railway at Chicago. While the method takes a trifle more time than some other systems it has been found to be very safe and satisfactory, as demonstrated by the fact that the road has never had an accident caused by misunderstanding of orders. In addition to

BUCKEYE LAKE, SHOWING BOAT LANDING

the use of standard steam colored signals for day and colored lamps for night, all cars are provided with "fugees" for use during foggy weather or on dark nights. These are manufactured by the Consolidated Fireworks Company, of Chicago, and they burn for 15 minutes after being dropped from the car. A red light is a signal to stop, and a green light a warning that the car is not making standard time.

THE TERRITORY

The present road draws from a population of about 250,000, including Columbus, and the extension to Zanesville will bring about 50,000 more into the company's territory. Newark, the operating headquarters of the road, is the seat of Licking County, one of the banner agricultural counties of Ohio. The city has a population of about 22,000, and within the last few years has made remarkable strides as a manufacturing city as well as a distributing center. It has five prosperous banks, a stove works that employes 500 men, glass plants giving work to

PICNIC GROUND AT BUCKEYE LAKE PARK

several hundred more, and is the home of the Jewett Car Company. Although the Pennsylvania and the Baltimore & Ohio operate between Columbus and Newark, the frequent service, high speed, comfortable cars and low rates of the electric line have taken from the steam road the majority of the business, including the better class of traveling men, who, in other localities, seldom take an electric car when they can catch a train. Zanesville has 35,000 inhabitants, and is a prosperous manufacturing city. The electric road will undoubtedly capture the great majority of the passenger business between Zanesville, Newark and Columbus, since only a branch steam line, with infrequent service, connects them. Granville is a college town of 1500. There is no direct steam route between Granville and Columbus, and the electric road furnishes the most desirable service. The farming country along the national pike in this district is noted as being among the best in the State. It was settled very early, and the people are prosperous as a rule. The towns along this route are:

Reynoldsburg, 400.
Wagram, 150.
Etna, 350.
Kirkersville, 300.
Hebron, 650.

The steam lines to Columbus do not come within 3 miles to 5 miles of these towns, and the electric road carries practically all the business, both passenger and freight. The rates of fare on the present line are shown in the accompanying table:

STATIONS	A. M.		Fare	* Round Trip	Miles from Columbus
Lv. Columbus	6.00	Thereafter	---	---	---
Capital University	6.25	every hour	5c	10c	4.2
Doneys	6.30	until 10 p.m.	10c	20c	6.9
					11.1
Reynoldsburg	6.40	Running	15c	25c	
Wagram	6.50	time between	20c	35c	14.9
Etna	7.00	Columbus	25c	45c	17.3
Kirkersville	7.15	and	35c	60c	21.9
*Hebron	7.30	Newark	45c	75c	27.6
Ar. Newark	7.50	1.50	60c	$1.00	36.9

In Newark the company gives fifteen-minute service over 8 miles of road, connecting all parts of the city. The local cars,

HOTEL AT BUCKEYE LAKE

together with the Newark & Granville car, connect with the interurbans in front of the company's waiting room facing the public square. City tickets are sold at the rate of six for 25 cents. These are also good on the Granville line, the fare being 15 cents one way or 25 cents round-trip. In the city of Columbus the company handles the local traffic, as it is obliged to do so, and sells seven tickets for 25 cents, but the Central Market Street Railway, which operates over the same tracks, takes up the greater portion of this business, since it sells eight tickets for 25 cents; of course, the tickets are not interchangeable. The company sells round-trip tickets only at ticket offices, which are maintained in all towns. The interurban cars have no fare registers, and duplex cash fare tickets are used. In connection with all the Columbus interurbans the company sells mileage books, which are transferable and afford a rate of 1¼ cents per mile.

PLEASURE RESORTS

As a route for pleasure and summer traffic few roads enjoy the advantages of the Columbus, Buckeye Lake & Newark. Picturesque scenery and quaint villages mark the line, and there are a large number of pleasure resorts worthy of more than passing mention.

The road affords the only direct route between Columbus

and Buckeye Lake and the shortest route between Newark, Zanesville and this resort, which has long been one of the most popular pleasure points in Ohio. The lake is owned by the State, and it is set aside as a public park. It is a beautiful artificial body of water, 7 miles long, with an average width of 2 miles. It is stocked with fish of many kinds, and in the fall it is famous as a duck hunting ground, and a number of sporting clubs have houses on its shores. There are camp grounds and cottages thickly distributed around the entire lake and on the numerous islands. The company has taken advantage of these opportunities and has spent thousands of dollars in improving the resort. It has purchased 95 acres of land adjoining its terminal, and has erected a summer hotel, a large dancing pavilion, dining hall, bath house, boat house, laughing gallery, figure-eight roller coaster and merry-go-round. Two 40-ft. naptha launches make regular trips around the lake, and rowboats, bathing suits and fishing tackle are supplied. No admission is charged to the grounds. The resort is operated on a percentage basis by W. C. Wells. No liquors are sold or allowed on the ground, and every effort is made to exclude undesirable people.

GOV. NASH AND STAFF AT STATE ENCAMPMENT ON NEWARK & GRANVILLE LINE

The company is further planning to establish summer towns along the lake. Three miles of lake front has been leased, and it is the intention to lay out streets and give ten-year leases to parties who will erect cottages. It is the plan to divide the tract into communities for Columbus, Newark and Zanesville people; no lease to be made without the consent of the cottagers in the respective communities. In this way each city will be represented by a summer town of its own.

Idlewilde Park, located at the junction of the main line and the Newark & Granville line, 3 miles from Newark, has recently been acquired under a five-year lease. This is second only to Buckeye Lake as a pleasure resort for this district. Formerly the Licking County Fair Grounds, it has been greatly improved during the last few months. There is an artificial lake of 50 acres, and overlooking this a large casino and summer theater has been erected. This is provided with 1500 opera chairs, a stage, 56 ft. x 56 ft., and is decorated after the Japanese fashion. The manager is a member of the Association of Vaudeville Managers, and is in the Burke circuit of attractions, which includes parks at Boston, Cincinnati, Philadelphia, Erie, Toledo and other places. High-class vaudeville will be given for forty weeks each year. One of the chief attractions of the park is a huge artificial mound, three-quarters of a mile in circumferance, erected by the mound builders. Inside the mound a half-mile trotting track and a baseball diamond have been constructed, together with a large grandstand. The park supports a baseball team, and three professional games a week are scheduled. A summer trotting meet is also held. A hotel, bowl-alley, shooting gallery, boating and numerous other features are among the attractions. This is also a temperance resort.

BRIGADE REVIEW ON THE PARADE GROUND

GENERAL VIEW OF STATE ENCAMPMENT

Still another source of great revenue for this road is the Ohio State Encampment Grounds, constituting one of the most famous prehistoric works to be found in America. It consists of a circular fort, containing 20 acres, connected with another mound, octagonal in form, having eight openings with a protecting wall in front and containing 80 acres. The tract of 150 acres is owned by the State, and the entire State militia, comprising infantry, artillery and cavalry, make their annual encampment here from May until October. The presence of hundreds of troops with drills, parades, martial music

HOLIDAY SCENE DURING STATE ENCAMPMENT ON NEWARK & GRANVILLE LINE

and receptions attract thousands of visitors. Several views of the State Encampment Grounds, the brigade review and Governor Nash's headquarters are presented, together with a view

PREHISTORIC MOUNDS

showing the dense throngs that are attracted by this display. The encampment is reached by the Newark city cars and the Newark & Granville line, which run within a short distance of Idlewilde Park. Typical views of Buckeye Lake, showing some of the characteristics of this beautiful resort, are also presented. This park is particularly adapted for picnics and family gatherings, and its location is exceptionally favorable for attracting this class of visitors. During the season the lines leading to the parks are very well patronized.

EXPRESS

The package express business is now being developed by this company, and the cars for this service make two round-trips each day. Goods are delivered from the interurban union station in Columbus and from the company's freight station at Newark. The standard steam classification is used, and the table in use is shown herewith. The rates average about 15 per cent less than express charges:

RATE-BASING SHEET
To Be Used In Connection With Classification.

Stations From / To	Columbus	Capital University	Crumms	Reynoldsburg	Wagram	Etna	Parkinsons	Kirkersville	Luray	Hebron	Buckeye Lake	Tailor's Bridge	Armstrongs	Newark
Columbus	0	1	1	1	1	1	1	2	2	2	2	2	2	2
*Capital University	1	0	1	1	1	1	1	2	2	2	2	2	2	2
*Crumms	1	1	0	1	1	1	1	2	2	2	2	2	2	2
*Reynoldsburg	1	1	1	0	1	1	1	1	2	2	2	2	2	2
*Wagram	1	1	1	1	0	1	1	1	1	2	2	2	2	2
*Etna	1	1	1	1	1	0	1	1	1	1	2	2	2	2
*Parkinsons	1	1	1	1	1	1	0	1	1	1	1	2	2	2
*Kirkersville	2	2	2	2	2	2	1	0	1	1	1	1	1	1
*Luray	2	2	2	2	2	2	1	1	0	1	1	1	1	1
Hebron	2	2	2	2	2	2	1	1	1	0	1	1	1	1
*Buckeye Lake	2	2	2	2	2	2	1	1	1	1	0	1	1	1
*Taylor's Bridge	2	2	2	2	2	2	1	1	1	1	1	0	1	1
*Armstrongs	2	2	2	2	2	2	1	1	1	1	1	1	0	1
Newark	2	2	2	2	2	2	1	1	1	1	1	1	1	0

*Prepaid

Rate Basis	Classes—Rates in Cents Per 100 Lbs.					
	1st	2d	3d	4th	5th	6th
1	10	9½	9	8½	8	7
2	12½	12	11½	11	10½	10

ORGANIZATION

The Columbus, Buckeye Lake & Newark Traction Company has an authorized capital stock of $1,500,000, with $1,000,000 issued. The funded debt is $1,500,000, of which $1,125,000 was issued to build the original 40 miles of road. The balance sheet, dated Dec. 31, 1902, indicated that the investment was $2,634,927. No financial statement has yet been issued, for the reason that the road was opened for business last spring, but under

SCENE IN IDLEWILD PARK

conditions which gave no criterion of the earning value of the property. The road was operated for several months with direct current at a three-hour headway, which was afterward shortened to a two-hour headway, but the system practically did not get into full operation until late last fall. Another feature which has militated against a good showing from an operating standpoint is the fact that a great deal of little work had to be done to get the road into first-class condition; all of which tended to increase the operating cost.

The officers are: S. Reed Anthony, president; Arthur E. Appleyard, vice-president; Frank W. Merrick, secretary; Chauncy Eldridge, treasurer; J. R. Harrigan, general manager, and A. M. Frazee, superintendent of motive power. The entire work of construction was in charge of the Great Northern Construction Company, of Boston, of which A. E. Appleyard is president, and C. A. Alderman, chief engineer.

CAR ATTENDANCE IN THE SOUTH

The discussion of the "Jim Crow" laws in Southern States as applied to street railway companies has brought out some interesting information about operating practice in that section which illustrates the difficulties under which some of the companies labor. In one city where the negro population comprises about one-half the total population, the street railway company estimates that only 25 per cent of the patronage comes from the blacks, and most of this traffic is confined to an hour in the morning and an hour in the evening when they are going to work and returning to their homes. At these hours the whites do not ride at all if they can help it, so that the entire service is at the disposal of the colored element. This is the result of a tacit agreement, and its recognition by both whites and blacks has prevented any violent conflict. The company has done much toward removing any cause for complaint by taking extra precautions to have its cars in first-class condition at all times. At the end of every trip the cars are run into the car house and cleansed thoroughly. They are washed down, inside and outside, and compressed air is used for clearing all crevices and corners where dust and dirt might accumulate. After the runs devoted to negro traffic disinfectants are used and special precautions are taken. The cars are painted frequently, so that they present a very attractive appearance at all times.

These precautions make it necessary for the company to spend considerable money in the course of a year, and keep more cars on hand than might be necessary otherwise, but it has prevented any serious trouble over the race question, and the entire community is satisfied. The wisdom of this policy is therefore shown in the results attained.