

GREATER ATLANTA - THE CITY BEAUTIFUL
ELECTRIFICATION OF STEAM RAILWAYS IN AND OUT OF ATLANTA

A Thesis

Submitted for the Degree of

MASTER OF SCIENCE

by

Ralph P. Black

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University of the South
Sewanee, Tennessee.

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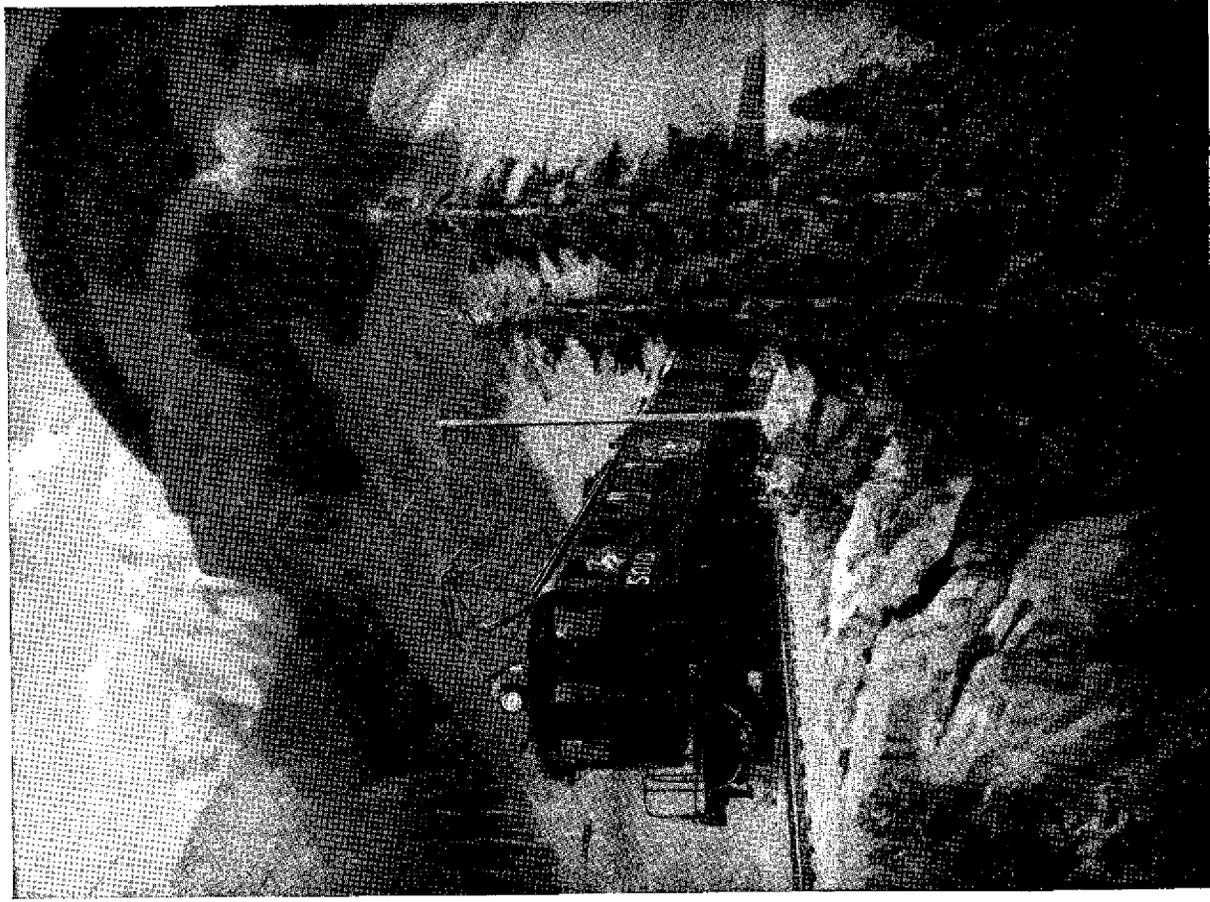
GREATER ATLANTA - THE CITY BEAUTIFUL
ELECTRIFICATION OF STEAM RAILWAYS IN AND OUT OF ATLANTA.

Atlanta of the future,- my dreams of it are those of a superb garden city, making it a place of beauty and a wonderful location for business and one in which to live.

Cleanliness being next to godliness, the first important improvement to be considered is Smoke Abatement. Our city is the hub from which 14 railway lines radiate, and over these lines more than 1000 train units operate daily. Would it not be a supreme satisfaction to every citizen to have these trains pulled by electric locomotives. This would eliminate eighty per cent of the smoke nuisance. Yes, let us electrify all steam railways in and about Atlanta,- what a clean city we would have!

Electrify all railways within a zone of 40 miles in diameter, with the present terminal station as its center. The Southern Railway would then cut off steam engines from its eastern trains at Norcross; those from Chattanooga and Birmingham, at Austell. The Central of Georgia would transfer to electric motive power at Jonesboro; the Georgia Railway, at Conyers; the Atlanta and West Point, at Fairburn; the N.C. & St. L. and its allied lines, at Marietta,- and so on.

Now, with this supreme task completed, consider the great civic improvements that could be accomplished. The fundamentals of city planning are; first, Home; second, Business; third, Recreation. Therefore, with steam loco-



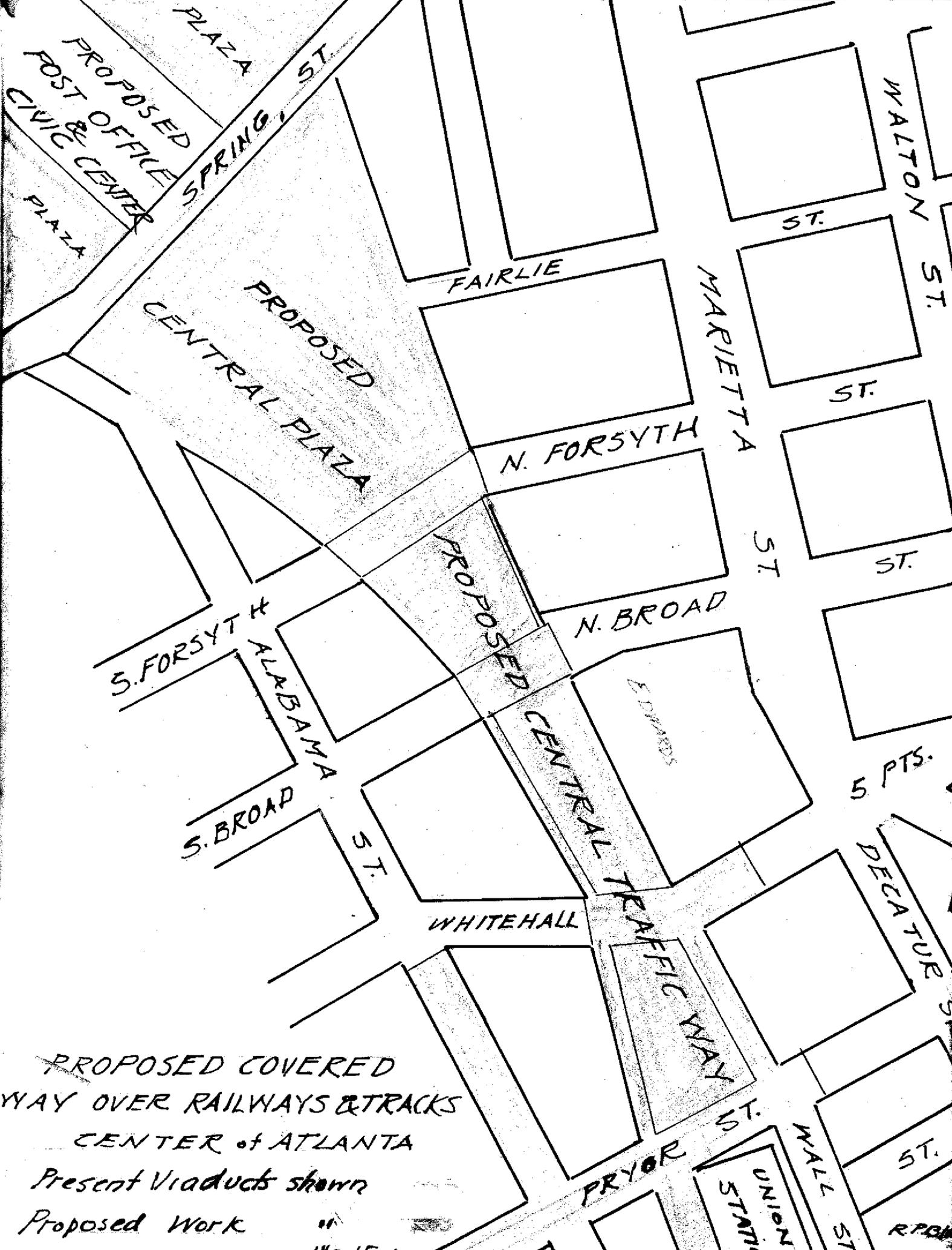
The Cascades Yield to a New Conqueror

motives eliminated, we can then best design and plan our city to suit these important objectives. The movement of traffic through a community is the first important consideration. This, in short, can be compared to the flow of large streams of water. Proper channels, pools for storage, and outlets for diversion must be provided. There will be gained, by electrification of the railways, the great space over the tracks, which, by means of concrete slabs, can be made into boulevards for the flow, storage, and diversion of auto traffic.

In addition to providing space, with this covered way, into which traffic from Central Avenue to Spring Street and other entrances may come, a beautiful civic center can be designed, with its Post Office and public buildings built over the tracks at the large triangular plat adjacent to the Spring Street viaduct. All of this will fit in admirably with the viaduct improvements now under way, which show a future street under Alabama Street viaduct and through tunnels to connect all the local railway terminals together.

Contrast the New York Grand Central Terminal of today with that of 1906, before electricity had replaced steam. The air rights over the railway tracks have become most valuable, huge buildings have been erected, adjacent property has greatly increased in value and an office center has been created in what is now the center of New York City's business activities.

Electrification completed,- let us dream of our Garden City. Visualize the present and the new parks, with their golf courses, lakes, swimming pools and play grounds connected by scenic boulevards. They should be routed so as to carry



PROPOSED COVERED
 WAY OVER RAILWAYS & TRACKS
 CENTER of ATLANTA
 Present Viaducts shown
 Proposed Work

1" = 150'

one past all country clubs, colleges, and main schools. The proposed Kennesaw Mountain National Park and the Stone Mountain Memorial would be the major places of interest. The projected power dam across the Chattahoochee River at the water works pumping station should be constructed, thereby forming a large lake affording added recreation facilities and beautiful home sites, about which one of the main boulevards could wind.

Being particularly interested in Georgia School of Technology, I often think how this great institution is hid out from her people. Now it has no approach, thereby being inconspicuous to our eyes and to those of our visitors. How easily this could be overcome by a minor stroke of City Planning,- the laying out of a 200 foot mall from Grant Field to the proposed civic center over the railway tracks near Spring Street. Picture this broad street with Tech's new gymnasium built at its end at North Avenue. Stand at Grant Field and North Avenue: it takes very little imagination to visualize this fine civic improvement. Thanks to the progressiveness shown by a body of wise citizens, the city is now at work on a 70 foot boulevard on this location.

Undoubtedly, you are now sufficiently interested to question how the steam railways can be electrified to advantage, financially and otherwise. First, we will say, form a stock company to control all railway properties within the zone of 40 miles in diameter, Atlanta its center. This company can operate successfully on a car wheelage charge, based on mileage traversed of all railway trains and cars coming into



Apr 14-1929

**To the Right—
BIRD'S-EYE
VIEW OF
ATLANTA'S
NEW VIADUCTS.**

The Central avenue span, in the foreground, is already carrying a part of Atlanta's through traffic, and the Pryor street crossing will be opened tomorrow to aid in relieving the downtown congestion.

and going out of Atlanta. The charge for service rendered railways at the same mileage cost, now borne by railways for steam power, will pay an equitable return on the operation with electric locomotives and on the new capital needed. The net cost of electrification will vary from \$18,000 to \$30,000 per route mile, including cost of new locomotives and substations. In addition thereto, this corporation will be granted certain realties of the railways and the air rights above all tracks, with which Atlanta can build its new civic center and the corporation can construct hotels and office buildings with ample space, upon slab construction left for the new traffic lanes.

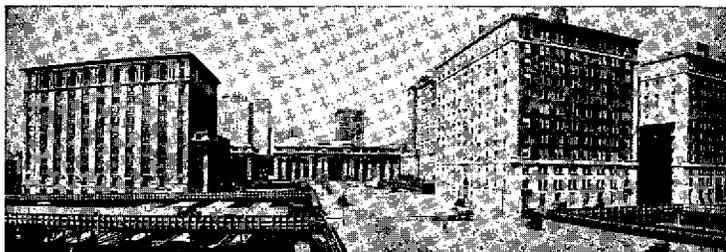
This alone will mean a very large future income, which is well illustrated by the work done by the New York Central and Pennsylvania Railways in New York and Chicago. The property rights for building the Roosevelt Hotel over the New York Central tracks at New York sold for \$100,000 per front footage. At the time of construction, it was the highest value put on any realty transaction in the world. This hotel, like many of the other buildings, is supported upon columns built between the railway tracks.

Power is now for sale at our doors and if not of sufficient quantity, plants can be constructed on already determined sites nearby: on the Chattahoochee River between Bull Sluice and West Point at three locations; on the Etowah River near Cartersville; or at Carters Quarters on the Coosawatee. Water power generated close to Atlanta can be sold to the operating company at a rate equal, if not less than, that now paid by railways that are already using electric locomotives for a suc-



SMOKE CONDITIONS AS THEY EXISTED AT THE GRAND CENTRAL
TERMINAL, NEW YORK CITY, IN 1906

BEFORE



GRAND CENTRAL TERMINAL, LOOKING FROM 48TH STREET, SHOWING
THE RESULTS OF ELECTRIFICATION

AFTER.

cessful and economical operation.

The possibilities of operating income and the savings with its many advantages to the railway company is best exhibited by an abstract taken from the Engineering report on the electrification of one of the country's largest railways. The Chicago, Milwaukee and St. Paul railway, on its 646 miles of track electrified during 1915 and 1916, showed a savings of more than \$19,000,000 for the first eight years. Fifty-nine electric locomotives did the work of one-hundred sixty-seven steam engines, and the returns on the investment amounted to eighty-three and six-tenths per cent on the first cost of \$22,990,254.60. Cost of maintenance is twenty-five per cent for steam as against six per cent for electric locomotives for each year. Current was bought on the divisions for 75 and 83 cents per kilowatt hour. If two-thirds of the coal used by the one-hundred sixty-seven steam engines were burnt to generate power at steam plants, this power would do, with the fifty-nine electric engines, the equivalent amount of work.

Mr. A. H. Armstrong, engineer for the General Electric Company, summarizes that the fundamental reason for considering any railroad electrification center is the relative performance of the steam and electric locomotive. Its adoption may relate to track congestion, grade revision, tunnel operation, smoke abatement, bad water conditions, heavier trains, higher speeds, or other conditions reflecting the limitations of the steam locomotive.

It is now high time that Atlanta began a systematic study leading to a great city and community plan for the proper development of itself and the many miles of surrounding country.

Downtown Viaduct System Is Complete

OPENING OF THE PRYOR STREET VIADUCT MONDAY will mark completion of the system of bridges eliminating grade crossing on all major thoroughfares of central Atlanta. The Central avenue and Pryor street twin viaducts and their elaborate system of approaches and interconnecting bridges (as shown in black on this map) are the last links required for the connecting of northern and southern sections of the city over the railroad tracks. Older bridges (shown by shaded sections of the streets on which they are located) were already located on Washington, Whitehall, Broad, Forsyth, Spring, Mitchell, Nelson and Peters streets.



Due to our geographical location, which is similar to that of New York, Chicago, Kansas City and Detroit, Atlanta is destined to be the greatest financial and industrial center of the Southeast, and for this reason, its growth will be steady and far reaching. We must develop, then, for a population of double our size, and, by great eras of construction of civic centers, boulevards, parks for recreation, and highways, give our people a better place in which to live and the city an opportunity to grow along sane, wise plans to a great metropolis. Chicago is now spending \$188,000,000 on her city planning.

Napoleon stands out as one of the greatest builders of the world, and, with his acts of building bridges, highways, and the bold work of the present city plan of Paris, he can be classified as the pioneer of the present community and city beautiful ideas. Paris, with her many museums, parks, avenues - as exemplified by the Champ Elysees, can, in part, be a pattern to follow in developing Atlanta into a more beautiful place; one that will be hard to equal, for no other city east of the Rockies has such a high location in the foothills of nearby mountains.

Fulton County is now doing excellent work in building the North Boulevard and other main arteries for traffic, but let one ride over them and see how haphazard has been the work of previous years. When traced to scale on a county map, the roads built in former years resemble rabbit tracks, - ways that have no relation to each other, and are not a part of a primary highway traffic system to bring folk quickly into the city, as they should be. Atlanta is now beginning an era of construction,



ATLANTA'S NEW VIADUCTS TO OPEN TOMORROW—Aerial photograph of the Pryor street and Central avenue viaducts, which will be formally opened tomorrow. The bridges, approaches, etc., cost about \$2,400,000, and took nearly 18 months to construct. The picture also shows marked development in the area as a result of the projects. Many of the buildings are being razed and others are being constructed. This is especially noticeable in the foreground. Six of the seven bridges spanning the railway tracks which pass through the heart of the city are shown. Spring street only is omitted. Reading from left to right in the picture are seen the Forsyth, Broad, Whitehall, Pryor, Central avenue and Washington street bridges. The photo is by J. T. Holloway, Associated Press staff photographer, from a plane piloted by Beeler Blevins, well-known pilot operating from Candler field, Atlanta's airport.

April 14 1929

~~but~~ would it not be much better to know beforehand where the best location of a civic center should be, and then to build it there, instead of wrangling politically as to its location and finally setting it off to itself without fitting it into a well-designed city plan.

The American Society of Civil Engineers, through its City Planning Division, is doing wonderful work, and would gladly lend its help by furnishing reports on the many great schemes built or proposed. The Georgia Section of this Society, with headquarters in Atlanta, will cooperate and assist in the designing of any civic improvements.

Mr. W. O. O'Brien of the General Electric Company, Atlanta, furnished interesting reports and data which greatly assisted in the above article.

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Mr. F. C. Snow,
Professor of Civil Engineering,
Ga. School of Technology,
Atlanta, Ga.

I am herewith submitting a thesis for part credit on my work at Georgia Tech for the past two years, for the fulfillment of the necessary requirements for the M. S. degree.

I may add that this thesis was published with illustrations, and slightly abbreviated, in the October 1927 issue of the CITY BUILDER, published by the Atlanta Chamber of Commerce.

With kindest regards, I am,

Office of R. P. Black, Engineer,
Atlanta, Georgia.

April 15, 1929.