THIRTY-YEAR REVIEW *of the* GENERAL ELECTRIC COMPANY

1892-1922

GENERAL ELECTRIC COMPANY
SCHENECTADY, NEW YORK

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Schenectady, N. Y., July 16, 1923

To the Stockholders of the General Electric Company

The retirement of Charles A. Coffin from active leadership of the General Electric Company is a fitting occasion to review its growth, accomplishments, and contribution to human well being, during the thirty years of his remarkable service.

Throughout that long period Mr. Coffin has guided the Company along ever broadening paths of usefulness, with a constantly increasing unity of purpose, and to a generally recognized leadership in the electrical industry.

Because of this essential unity throughout its widely scattered organization, the Company commands the loyalty and enthusiastic co-operation of its entire personnel, and stands out conspicuously as a constructive, vital force in the application of electrical art to the complex daily needs of an ever widening community.

An outstanding feature of the Company's history has been its success in the fields of scientific research, engineering development, and manufacture. For this, it is in a high degree indebted to the technical accomplishments and inspiring leadership of E. W. Rice, Jr.

THE MEASURE OF GENERAL ELECTRIC GROWTH

The real measure of your Company's growth is its prestige in matters scientific and mechanical, but a significant commentary on its development can be partly presented in the specific form of figures.

The Company, created in 1892, was the successor of those sturdy pioneers of the electrical industry, the Edison General Electric Company and the Thomson-Houston Electric Company.

On January 1, 1893, the outstanding capital stock of General Electric was approximately $35,000,000. On January 1, 1923, it was approximately $184,000,000. In thirty years the Company's annual sales increased from about $12,000,000 to $243,000,000. (See Chart No. 1.)

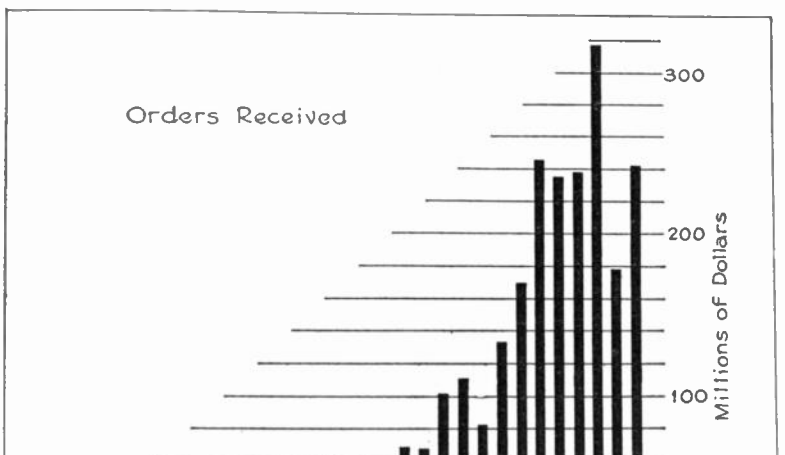


CHART NO. 1

The value of its manufacturing plants has increased from approximately $4,000,000 to $167,000,000, and the square feet of factory floor space from 400,000 to over 25,000,000 (on December 31, 1922). The number of employees has grown from 4000 to over 74,000.

In the United States the Company has manufacturing plants in 40 cities, and sales offices or distributors in 87 cities. A list of factories and offices is printed on pages 32 to 34.

The export business of the General Electric Company, once the function of its Foreign Department, justified the creation of a new corporation, the International General Electric Company, Inc., which now handles its entire foreign activities. Up to the present time, GE products to the aggregate value of $300,000,000 have been carried to all parts of the civilized world, outside of the United States.

The General Electric Company has exerted marked influence upon electrical science and art, and its contributions to the wonderful progress the world has made in these thirty years have been many and noteworthy.

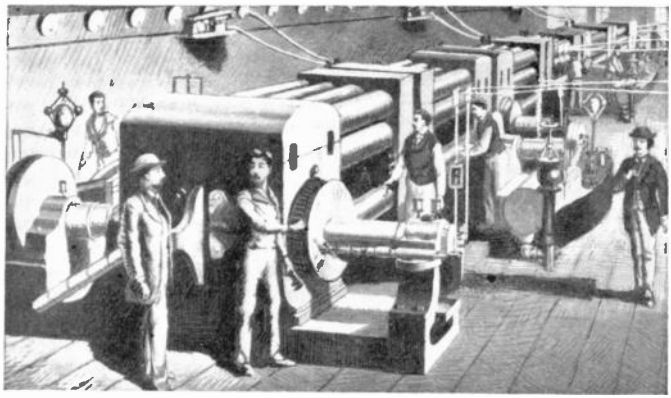
In every field of human activity, in the home and in the workshop, in the city and on the farm, will be found the products of the Company and the results of its work in the application of electricity.

It would be quite impossible to set forth within the limits of this review the long succession of the Company's achievements, but some of the most significant and far-reaching of its creative efforts may be briefly mentioned, supported by a number of quotations from past annual reports.

Large Scale Power Generation

From the beginning, the predecessors of the General Electric Company turned their thoughts to the *sources* of power as the foundation on which to build a greater industry in the service of man. It was Thomas A. Edison who gave to the world the first "central station"—or central plant in which to generate electricity for public lighting.

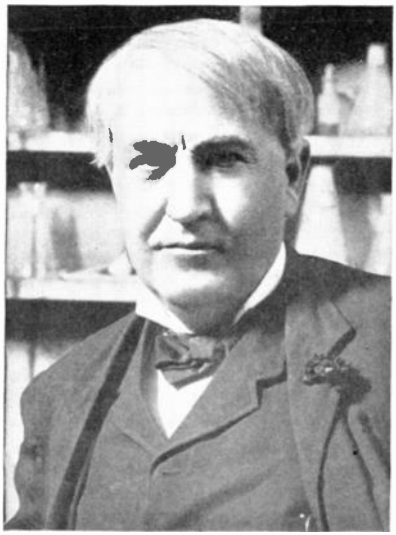
Late in the year 1880, the Edison Electric Illuminating Company was organized and a building purchased on Pearl Street,



INTERIOR OF PEARL STREET STATION, 1882, SHOWING SIX GENERATORS, TOTAL CAPACITY 750 HORSE POWER

New York City. In this structure Mr. Edison installed complete machinery for generating and distributing current, including a steam engine direct-connected to a generator of 1200-lamp capacity, and among other features, underground conductors—the first application of a now universal practice.

On September 4, 1882, Mr. Edison put the station in operation and inaugurated the first supply of electric lighting current to the public. It was soon necessary to increase its capacity, and the supply grew with the demand until now the United



THOMAS A. EDISON

States is thickly dotted with light and power-producing plants —offspring of Thomas A. Edison's original thought and in the development of which your Company's engineers have had an important part.

Progressive investigation of the problems of power generation on a large scale has continued year after year, your Company sustaining its full share and bending its every energy to the establishment of still greater sources of power.

The following quotation is taken from the ninth annual report; year 1900:

> "5000-h.p. generators for the new power house at Niagara Falls have been designed and their construction is well under way. In many instances it is found to be cheaper to convert the energy of coal into electricity at the mines and transmit it over a wire to the point of consumption, than to transport the coal itself. Successful installations of this character have been made by us during the past year."

The following is taken from the twelfth annual report; year 1903:

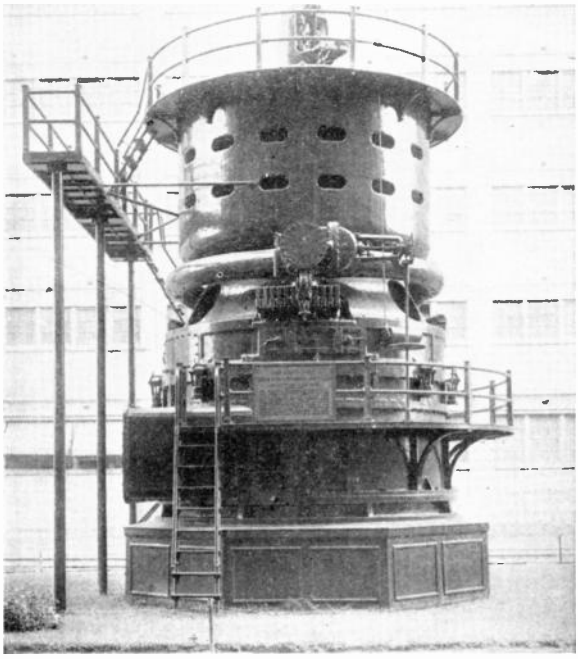
> "We have also shipped the 10,000-h.p. generators intended for the Canadian development of Niagara Falls power and the second and third machines of this same size are nearly completed. These generators are the largest in capacity that have yet been constructed."

Waterwheel generators with a total capacity of five million horse power have been installed by the General Electric Company throughout the United States and in foreign countries.

This, however, was only part of the problem for vast areas waiting for industrial development were entirely without water power. For many years engineers had been contemplating the use of steam to drive a revolving wheel directly instead of by means of reciprocating action.

The General Electric Company, after much research and experimental effort, made an important contribution in the Curtis steam turbine, which was the first large scale application of this principle to the generation of electric current. Within a few years steam turbine generators had largely supplanted all other methods of producing electric power by steam. The enterprise needed more than engineering genius—it called for faith and courage—and these three qualities were combined in

the officers and engineers of your Company who pioneered the first Curtis steam turbine of 6700 horse power capacity, installed in the Fiske Street Station of the Commonwealth Edison Company, Chicago, with very satisfactory results. It was quite natural that this first application was made under the leadership of Mr. Samuel Insull, who in earlier years had been associated with Mr. Edison in the development of the Edison General Electric Company.

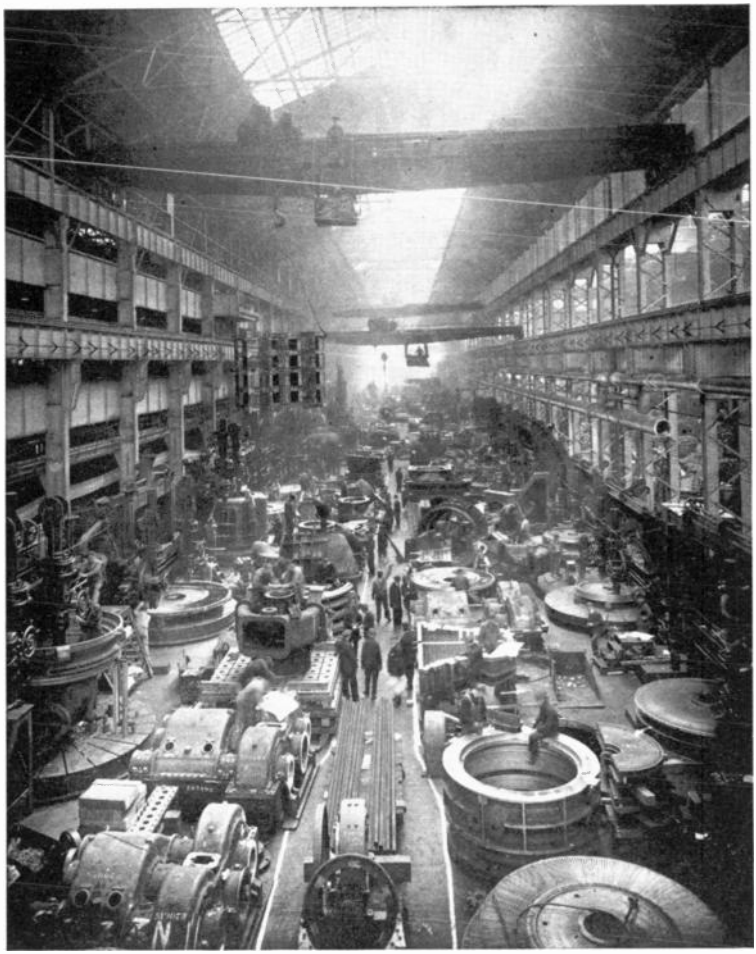


FIRST LARGE CURTIS STEAM TURBINE, INSTALLED 1902
CAPACITY 6700 HORSE POWER

The development of steam turbine generators has shown a steady increase in the power of each unit. In 1907 the capacity had increased to 20,000 horse power; in 1911 to 27,000 horse power; in 1917 to 60,000 horse power. The latest machine has 80,000 horse power capacity or more than eleven times that of the first. The most powerful single unit turbines in the world were constructed in General Electric shops.

Thus the Company has led in the introduction of steam tur-

bines for the generation of electric energy in large amounts and at low cost, making possible its application on an enormous scale to all forms of industry. It has also been a leader in the development of electrical machinery for the generation of electric energy from water power, and of improved apparatus for its transmission, thereby making low cost electric current available over large areas, and conserving the coal which would otherwise have been required for its production. Through turbine installations in power plants 90 per cent more energy was obtainable from a pound of coal in 1922 than in 1903.



VIEW IN TURBINE DEPARTMENT, SCHENECTADY WORKS

Among the pioneer electrical engineers still in the service of the General Electric Company there is one to whom in the early days was given a prophetic vision of the alternating current phenomena. In addition to his inventions of arc lighting machines, electric welding, and the electric meter, fundamental patents were secured by Professor Thomson between 1879 and 1885 covering a system of induction coils or transformers

ELIHU THOMSON

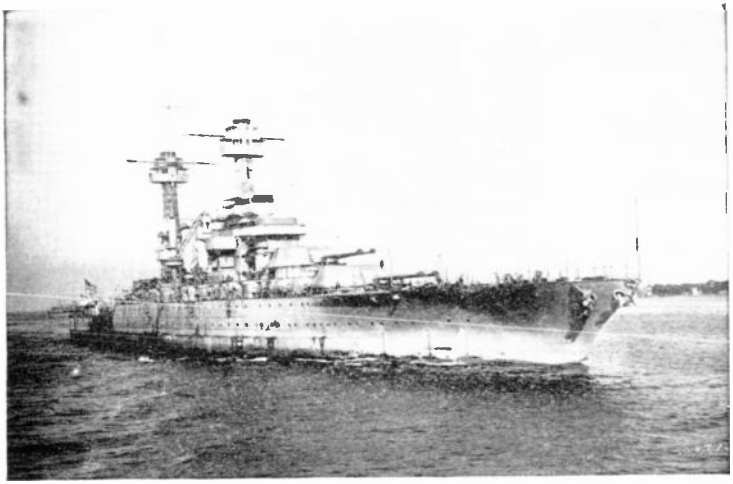
connected in multiple and thus making possible the use of alternating current. In the files of the Company may be found a photograph of the sketch showing the original application of "grounded secondary," a protective precaution now utilized on large lines throughout the country.

Power on the Sea

Electric marine propulsion has been a problem to test the finest engineering skill. As the size and required speed of merchant and war vessels increased, steam engines had become exceedingly large and heavy. A great opportunity existed to build propulsion machinery that would be lighter, more economical and more flexible. W. L. R. Emmet, consulting engineer of the Company, who developed the Curtis steam turbine, was the pioneer in bringing about the adoption of electric propulsion of ships. The first electric motor for ship propulsion was installed by General Electric in 1908. In 1913,

the *Jupiter*, a large seagoing collier of the United States Navy, was equipped with electric drive.

In 1921 electric drive was successfully installed by the General Electric Company on the United States battleship *New Mexico* and has since been applied to the battleships *California*, *Maryland* and *West Virginia*. Since 1913 the Company has equipped or is equipping 30 ships with electric



U.S.S. *MARYLAND*, LATEST BATTLESHIP EQUIPPED WITH COMPLETE ELECTRIC DRIVE BY GENERAL ELECTRIC COMPANY

drive, including naval vessels, coast guard cutters, cargo ships, passenger vessels and ferry boats. The two largest ships are airplane carriers now being built for the United States Navy, which require 180,000 horse power each. Since 1914 the Company has manufactured or is now building propulsion machinery for 400 ships, including 322 merchant cargo carriers of from 6000 to 9000 tons, 48 torpedo boat destroyers, provided with geared turbines, and the 30 ships already mentioned which are equipped with electric drive, a record in the field of ship propulsion which is without a parallel.

In the Field of Transportation

The Company and its predecessors were pioneers in the introduction of electricity for street railway transportation, thereby assisting in great measure the spread of population, by making it practicable, through rapid transit, for men and women to live at greater distances from their places of work.

It was the first to supply apparatus for the electrification of elevated railroads and the electrification of steam railroads, especially through tunnels entering large cities, which made possible underground electric railway lines.

Trolley, track, line material, and transmission were, from the first, the subjects of original investigation and constant improvement at the hands of engineers.

An outstanding example is the application to street car motors and to generators, of a carbon brush in place of copper, which had previously been used. This was the invention of Charles J. Van Depoele who thus, with the advice and assistance of E. W. Rice, Jr. and Elihu Thomson, established in 1888 a method of continuously applying a contact to a rotating part by a carbon brush without the destructive wear and arcing caused by the copper brush.

The following quotations from the annual report of the Company are of interest:

Third annual report; year 1894:

> "The only successful work yet accomplished in the operation of elevated roads by electricity has been done by your Company, and it is now engaged in important installations of underground electric conduits for street railways."

Fourth annual report; year 1895:

> "The 90-ton electric locomotives which we supplied to the Baltimore & Ohio Railroad Co. for hauling trains through their new tunnel under the city of Baltimore are not only the largest of their kind in the world but are more powerful than the largest steam locomotives hitherto constructed. Each of these locomotives is daily hauling trains which would require two steam locomotives. Their successful operation has removed all doubt as to the possibility of substituting electricity for steam in the heaviest traction work and offers a complete solution of the tunnel problem on steam roads."

In 1893, the General Electric Company furnished the electrical equipment for the Intramural Railway at the Chicago Columbian Exposition. Four years later, two electric cars were operated by Frank J. Sprague on test tracks at the Schenectady Works. Each car could be operated independently, or they could be operated together (in multiple) from one master controller.

GRAND CENTRAL TERMINAL AREA, NEW YORK CITY, BEFORE AND AFTER ELECTRIFICATION

FREIGHT TRAIN ON CHICAGO, MILWAUKEE & ST. PAUL RAILWAY DRAWN BY DIRECT-CURRENT GE LOCOMOTIVES

In 1902 the "Sprague-General Electric multiple unit control," one of the most important advances in electric railroading, was perfected, making possible the control of the power units of every car in the train.

It is literally true that without the development of electric traction, subways would never have been built, as steam traction, with its smoke and gas, is impracticable in confined "tubes."

In the heart of New York City, and extending into its suburbs to the north, the Company has provided, for the New York Central Railroad, the entire electrical equipment and motive power for the most extensive terminal electrification yet installed. This includes 73 locomotives and the motors and complete control equipment for 256 multiple unit motor cars. Electrification has not only solved the almost insurmountable difficulties of handling by steam over 600 train movements a day at the Grand Central, but it has accomplished the wonderful transformation shown in the illustrations on page 13 by converting a huge, uninhabitable, smoking pit into 29 blocks which now constitute one of the most attractive and valuable of New York's civic centers.

The GE electrification of the great tunnels of the Michigan Central Railroad under the Detroit river, making possible the elimination of the railroad ferry, with its tedious and expensive delays and ice blockades in winter, was another early and important development by the General Electric Company.

One of your Company's outstanding accomplishments was the remarkable work of its engineers in laying out the great electrification project of the Chicago, Milwaukee and St. Paul Railway. This is the longest (860 miles) and most impressive main line electrification in the world, the contracts for which were placed with the General Electric Company in 1914.

These are only a few of the many instances of the leadership of your Company in the great economic advancement inherent in the electrification of steam railroad systems. Engineers estimate that the complete electrification of American railroads would save more than 100,000,000 tons of coal a year.

The "Trackless Trolley"

As a practical contribution to the public service of street railways and especially with a view to reducing their construction and operating expenses, your company has built and installed the electrical equipment of a "trackless trolley car" system for operation in city streets.

FLEET OF "TRACKLESS TROLLEY" BUSES AT STATEN ISLAND, N. Y.

Revolutionizing Manufacture Through Electric Drive

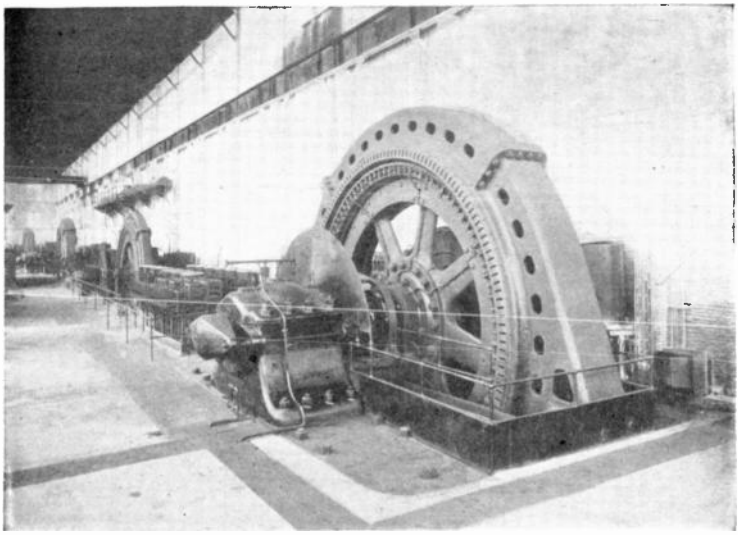
The General Electric Company has developed and installed electric drive in practically every industry, and great improvements in processes of manufacture have resulted from electrification.

The following, referring to one of the plants of the United States Steel Corporation, is taken from the seventeenth annual report, year 1908:

> "The Indiana Steel Co. at Gary, Ind., has started rolling rails by a rail mill of new design entirely driven by special electric induction motors of our manufacture. These are the largest induction motors ever designed, having an ultimate capacity in excess of 10,000-h.p. each. The application of electric motors in this case effects considerable

economies in the production of steel rails with increased output."

During the past thirty years, GE motors in sizes ranging from 1/200 horse power to those rated at 30,000 horse power or more, have been installed and are now performing work equivalent to the manual labor of a hundred and seventy million men.



INDUCTION MOTORS INSTALLED IN STEEL MILL AT GARY, INDIANA

The Company's engineering staff includes specialists in every important form of factory drive. The manufacturer of paper or rubber, of textiles or leather, can obtain from General Electric engineers comprehensive advice as to electrical equipment and expert assistance in working out his problems.

The first electric motors for elevators, which have made tall buildings practicable, were built in the shops of the General Electric Company.

At the Panama Canal

Its outstanding service in facilitating the construction and completion of the Panama Canal is referred to in the following extract from the seventeenth annual report; year 1908:

"Complete electrical equipment for two power stations and electric transmission plant are furnishing power and

light for the construction of the dams at Gatun and Miraflores, Isthmus of Panama. Each of the two power stations will be equipped with three 1500-kw. Curtis turbine generators. The order also includes twelve electric locomotives and numerous motors and other electrical equipment required for this work."

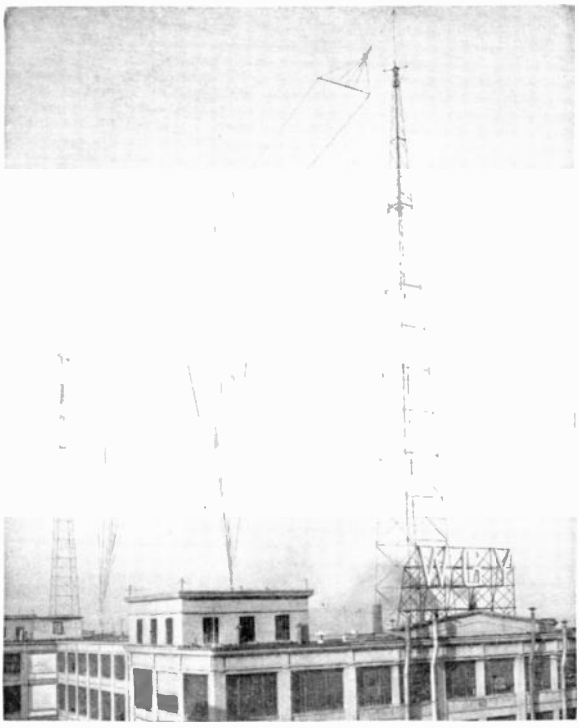
VIEW OF PANAMA CANAL LOCK OPERATED BY GE ELECTRICAL APPARATUS. GE ELECTRIC LOCOMOTIVES ARE SEEN TOWING SHIPS THROUGH THE LOCK

Contribution to Long Distance Wireless Communication

The development of the Alexanderson high frequency generators opened a new era in transoceanic radio communication. The General Electric Company has manufactured the radio transmission equipment for all transoceanic American stations of the Radio Corporation of America and for coastal stations in England, Poland and Sweden.

Immediately after the World War, your Company was instrumental, in co-operation with other great electrical

companies, in founding the Radio Corporation of America. A principal object of this enterprise was to establish on American soil and under American auspices a system of "world-wide wireless" communication with foreign nations and with American ships. Patents were secured covering every phase of manufacture and transmission; licenses were exchanged with foreign companies and the most advanced engineering experience was brought to the common service. Today the Radio Corporation of America co-ordinates the country's greatest scientific ability and facilities for research in the advancement of radio communication.



"WGY", GENERAL ELECTRIC COMPANY'S RADIO BROADCASTING STATION AT SCHENECTADY

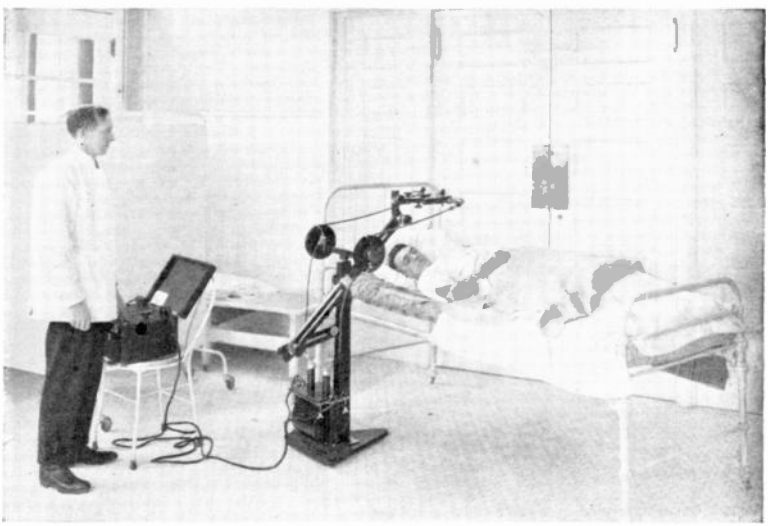
Cleaner and Better Fuel

Years ago General Electric engineers perceived that metal manufacture could be improved in production, quality, and economy, if processes requiring high heat could be freed from the mechanical contamination of common fuels. As a result of the Company's research, electricity has now largely supplanted coal, oil, and gas in many industrial arts that call for a high degree of heat. Automatic control of temperature, together with new types of lining, have made available electrically heated furnaces with a capacity of a ton of steel at a single pouring.

For automobile manufacture, electric baking ovens were designed that produce the highest quality of japan finish on car bodies.

Lightening Home Burdens

The development of all kinds of electrical household conveniences, including heating appliances, vacuum cleaners, washing machines, and the application of motors to pumps and machinery for use on farms, has received the closest co-operation of the General Electric Company.



PORTABLE X-RAY EQUIPMENT USING COOLIDGE TUBE

Far Reaching Aid to Medical Science

The development of X-Ray tubes of the type invented by Dr. W. D. Coolidge, of the Research Laboratories, for therapeutic uses, and the importance of the resulting contributions they have made to the work of diagnosis and healing, are generally recognized here and abroad.

Progress in Illumination

In the development of lighting in general, in the field of the arc lamp, and especially in the evolution of the incandescent lamp, your Company's contributions have been spectacular.

No other electrical product is so widely used as the Mazda lamp—no other so intimately serves the personal needs of man—no other more completely exemplifies the accomplishment of scientific genius when aided by every facility for research.

EDISON'S FIRST INCANDESCENT LAMP

Thomas A. Edison, in 1879, made the original invention of the incandescent lamp, on which the United States granted letters patent. This invention gave a great forward impulse to the art of electric lighting, and is referred to in the third annual report of the Company for the year 1894 as follows:

> "As a result of the decision in the patent case recently announced by the Supreme Court of the United States, it is now settled that the fundamental patent on the incandescent lamp expired in 1894. This Company still owns patents of more or less importance on the incandescent

lamp but will chiefly rely on the high quality of lamp manufactured by it, and its facilities for manufacturing in large quantities at a low cost, to maintain its commanding position in the lamp business irrespective of patent control."

The fact that so many great improvements in the incandescent lamp have subsequently been made in the laboratories of the General Electric Company has not been a matter of chance, but the outcome of persevering and arduous studies undertaken by scientifically trained men with definite objectives clearly in mind and a steadfast purpose to solve the problem of better and more efficient light for the service of the community. The creation of the Research Laboratories is interestingly referred to by Mr. Rice in the tenth annual report, for the year 1901, as follows:

> "Although our engineers have always been liberally supplied with every facility for the development of new and original designs and improvement of existing standards, it has been deemed wise during the past year to establish a laboratory to be devoted exclusively to original research. It is hoped by this means that many profitable fields may be discovered."

The following extracts from reports show in part the Company's record of progress and achievement in the field of illumination:

Taken from the thirteenth annual report; year 1904:

> "Our inventors have been actively at work for several years to discover more efficient and better methods of electric illumination than the present carbon arc and incandescent lamp. As a result, this last year we have introduced the 'Magnetite' arc lamp, which gives a light equal to the present carbon arc with about one half the consumption of energy, and have also made important improvements in the economy of the incandescent lamp."

Taken from the fourteenth annual report; year 1905:

> "Our metallized filament incandescent lamp, invented by the chief of our Research Laboratory, constitutes a most important advance in the art of electric lighting."
>
> (This refers to the great improvement in incandescent lamps made by Dr. W. R. Whitney, on which the United States granted letters patent.)

Taken from the sixteenth annual report; year 1907:

> "Our new tungsten incandescent lamp, which gives more than double the illumination of the carbon filament for the same expenditure of power, has been further developed and has now become a standard commercial article."

No scientist had ever succeeded in drawing tungsten into a wire. It remained for Dr. W. D. Coolidge, of the Research Laboratory, literally to transmute the nature of tungsten by perfecting a method to make it ductile, pliable, and stronger than steel.

Taken from the nineteenth annual report; year 1910:

> "A most noteworthy advance has been made in the character of our metallic filament incandescent lamp by the use of a new filament of drawn wire, which was developed by the engineers of our Research Laboratories."

In 1913, the efficiency of the incandescent lamp was again doubled by Dr. Langmuir's invention of the modern gas-filled lamp, on which the United States granted letters patent.

The many important incandescent lamp patents granted by the United States Government to the General Electric Company have been repeatedly sustained by courts in the United States, the last three decisions having been handed down as recently as February 2 and March 22, 1923. The patents obtained as a result of the research work of our laboratories have been sustained by the highest court in England, and are recognized all over the world as covering the fundamental principles of the best and most efficient lamps known to the art today.

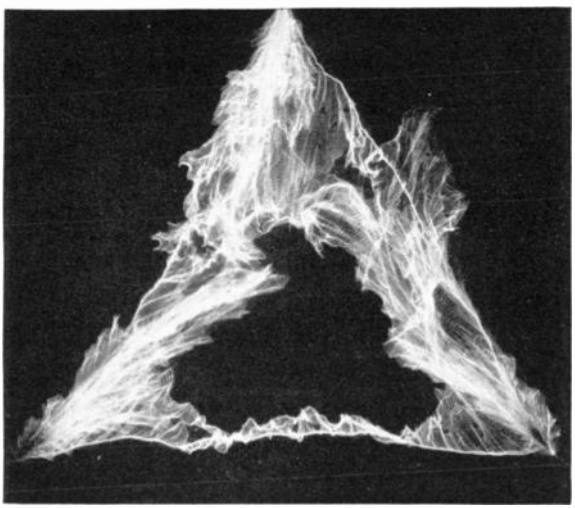
A Great Necessity at a Small Expense

Electric lighting is one of the few commodities that have steadily decreased in cost from the beginning. The General Electric Company has placed an economical, safe, efficient, and flexible system of illumination within the reach of factory, store, and home. The aggregate of its improvements, together with the reduction in cost of producing electricity (largely the result of General Electric inventions, processes and machinery) have reduced the cost of a given amount of light to five per cent of its cost in 1880.

Purchasers of incandescent lamps in the United States paid approximately $90,000,000 in the year 1922 for lamps with which to light homes, stores, factories, streets, etc. (excluding miniature lamps). This is equivalent to about 85 cents per capita per year, or less than two cents per capita per week.

Your Company's improvements in lamps may be utilized either to obtain more light for the same money or the same amount of light for less money. America has chosen to obtain more light. If the present day intensity of lighting had been obtained by using the carbon lamp of 1892, the cost of lighting in 1922 would have been increased one and a half billion dollars, and there would then have been required 25 million tons of coal additional to generate the amount of current required.

The electric lighting of the Panama-Pacific International Exposition was entrusted to your Company, as was also that of the Centennial Anniversary of Brazilian Independence, held at Rio de Janeiro. In appreciation of the artistic and spectacular effects obtained it was well said that "General Electric had transformed Electric Lighting into the Art of Illumination."



NINE FOOT ARC OF ONE MILLION VOLTS

One Million Volts

The generation and transmission of electricity in excess of 1,000,000 volts was first accomplished at the Pittsfield laboratory on September 13, 1921. The practicable transmission of energy at voltages now reached only in the laboratory, is a thing of the future, but in this connection it is important to recall that the 220,000 volts now utilized in commercial practice was anticipated in your Company's laboratories about 20 years before its application to high-power transmission.

All this is of great significance in view of the rapid expansion of hydro-electric plants and the dawning possibility of interlocking many systems now isolated.

DR. CHARLES P. STEINMETZ

Reference to the laboratory study of high voltage would not be complete without mention of the "artificial lightning" produced for experimental purposes by Dr. Charles P. Steinmetz, consulting engineer of the Company, who for many years has dedicated his profound knowledge to the General Electric Company and has been an important aid in the solution of its great problems.

Prices Increased Less Than the Average

With all the improvements in the art and the introduction of better methods of manufacture, and notwithstanding the increased cost of labor and material, the average selling price of products has not increased as rapidly as the average selling price of commodities in general, as shown by reports published by the United States Bureau of Labor Statistics, and illustrated on Chart No. 2. The 1914 average price is taken as 100, and the upper curve is the one reported by the United States Bureau of Labor Statistics, the lower curve showing the average of all products during the same period. It will be seen that in 1920 the United States Bureau index reached the peak of 231, and that the General Electric Company reached its peak in the same year, but its peak was only 155. The average for 1922 of the United States Labor Bureau's commodity figure was 152, while that of the

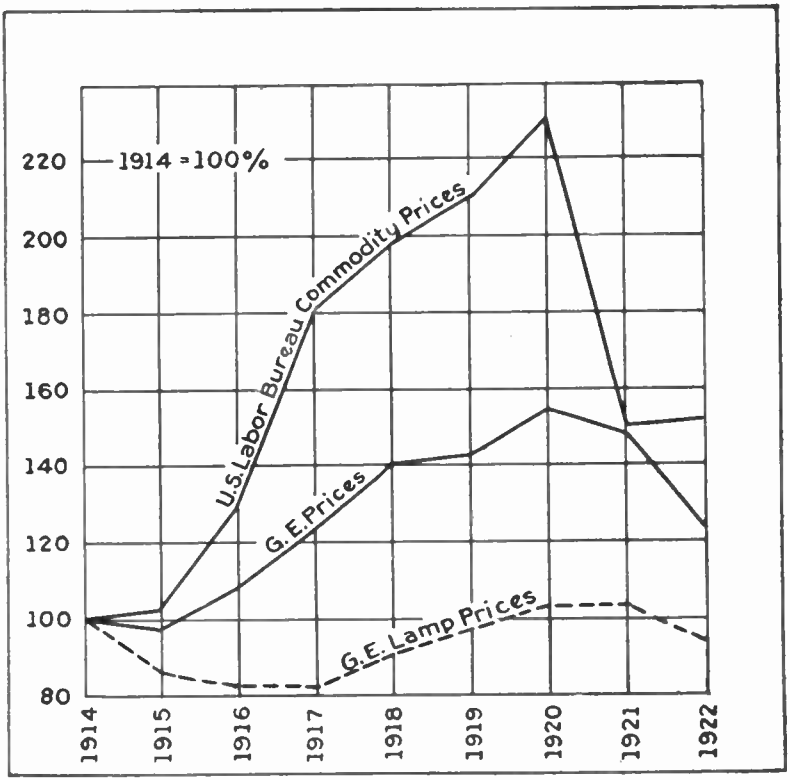


CHART NO. 2

General Electric Company was but 125. As a matter of interest, the price index for GE incandescent lamps is also shown. From this comparison it will be seen that taking the price in 1914 as 100 it has not since been over 4 per cent higher, and in 1922 was but 95 per cent of the pre-war price, a fact of profound importance in view of the previous statements of the great improvement in lamp efficiency.

How GE Money is Spent

Chart No. 1, on page 4, illustrates the growth of the Company's business. It is always a matter of interest to know what becomes of the large amount of money received each year. The distribution of every dollar received in the prosperous years 1918-1920 is clearly set forth in Chart No. 3.

It will be seen that 41.7 cents out of every dollar were paid to the employees of the Company as compensation. In addition, it should be borne in mind that of the 40.6 cents spent for materials, supplies, etc., and of the 4.7 cents of surplus re-invested for the enlargement of your business, and of the amounts expended for taxes and public utility services, by far the greater part was eventually paid out as wages and salaries. Hence it is clear that those who labor with hands and brain are receiving either from this Company or other corporations and the government, much the largest share of the money paid your Company by its customers.

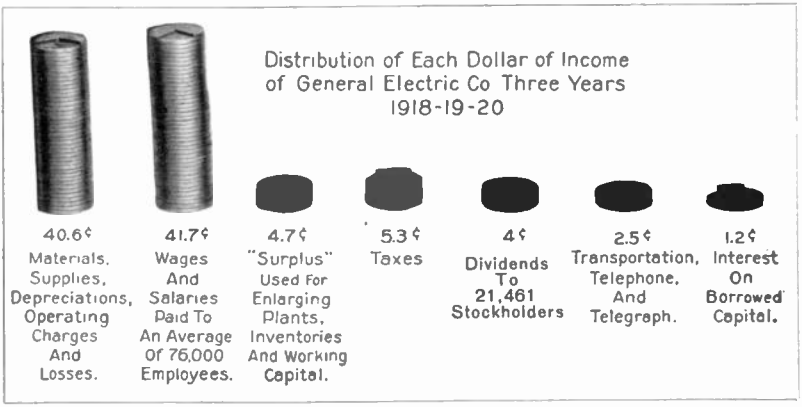


CHART NO. 3

Record of Earnings

The net earnings of the General Electric Company in each of the last 20 years, after providing for all operating expenses, interest, taxes and reserves, have been sufficient (except to a small extent in the year 1908) to pay the full amount of its cash dividends and leave something additional for surplus, as shown on Chart No. 4.

The 100th quarterly cash dividend on the common stock was paid on October 15, 1922. The surplus has been retained in the business and invested in land, buildings, inventories, etc., required by the constantly increasing demand for GE products.

Chart No. 5 illustrates the growth in the number of stockholders. The fact that thousands of men and women have invested their savings in the capital stock of the General Electric Company undoubtedly has deepened the sense of responsibility for the success of the Company which is felt by managers and workers in all departments.

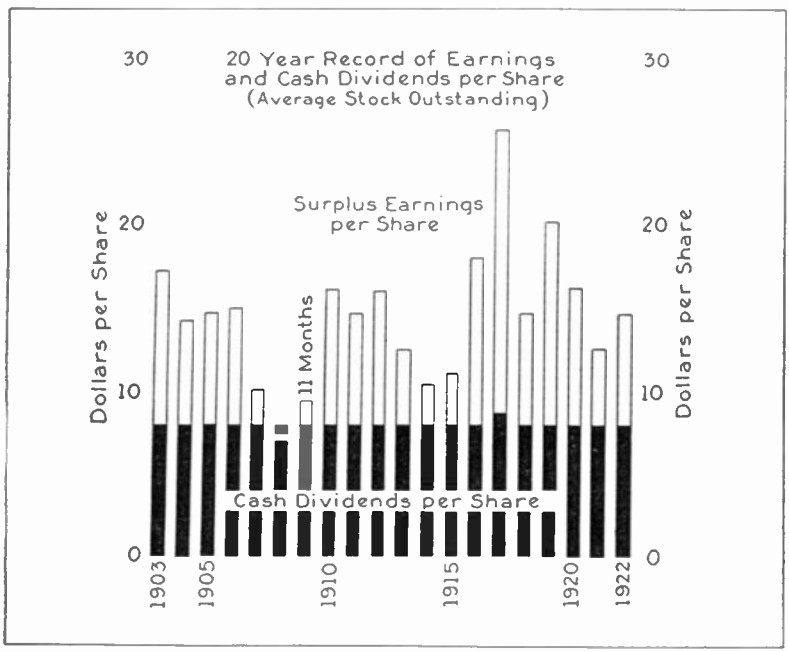


CHART NO. 4

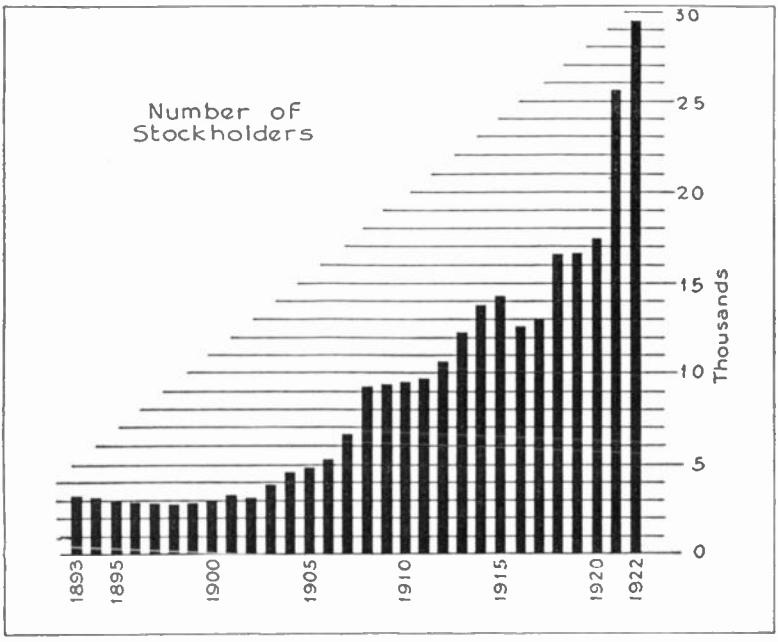


CHART NO. 5

Opportunities for the Future

It is frequently said that we are living in an electrical age. When it is considered what a small proportion of the water power of the United States is utilized for the generation of electrical energy, and what employment of this water power would mean in the conservation of millions of tons of coal per year and in saving of human effort in mining, transporting and distributing the coal; when it is considered that only 55 per cent of the manufacturing establishments and mines in the United States are operated by electricity, and that but 38 per cent of the people of the United States are living in electrically lighted homes, and that only a still smaller proportion are using electrical appliances, it will be seen that the future promises for this great industry even larger growth and expansion than has yet been realized.

Intensity of research in this field of science—the rapid succession of inventions—the fervor of engineering investigations—all these are going forward at a rapid rate and are far ahead of the appreciation by the general public of the service

that electrical appliances will render in future. The task of making the public understand and appreciate the advantages of electrical apparatus and appliances and the economies, comforts and conveniences to be realized from their application to industry, trade, transportation and the home, will always be one of the duties of your Company; and as this knowledge is extended the resulting accomplishment in serving the community will immeasurably increase the industry. It is hoped that your Company will continue to contribute to this development as it has so creditably under Mr. Coffin's leadership.

For the Board of Directors:

OWEN D. YOUNG, Chairman
GERARD SWOPE, President

BOARD OF DIRECTORS

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EDWARD R. STETTINIUS
PHILIP STOCKTON
BERNARD E. SUNNY
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EXECUTIVE OFFICERS

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F. S. TERRY, *Vice-President*

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MYRON F. WESTOVER ..... *Secretary*

COUNSEL

FREDERICK P. FISH ..... Boston
CHARLES NEAVE ..... New York

Manufacturing Plants

Apparatus and Supply Factories

Baltimore, Md.
Bloomfield, N. J.
Bridgeport, Conn.
Decatur, Ind.
Erie, Pa.
Everett, Mass.
Fort Wayne, Ind.
Hudson, Mass.
Jamaica Plain, Boston, Mass.
Maspeth, N. Y.
New Kensington, Pa.
North Easton, Mass.
Philadelphia, Pa.
Pittsfield, Mass.
Providence, R. I.
Rochester, N. Y.
Schenectady, N. Y.
Taunton, Mass.
Weehawken, N. J.
West Lynn, Mass.
Windsor, Conn.
York, Pa.

Incandescent Lamp Factories

Ampere, N. J.
Belleville, N. J.
Bridgeville, Pa.
Buffalo, N. Y.
Central Falls, R. I.
Chicago, Ill.
Cleveland, Ohio
East Boston, Mass.
Fort Wayne, Ind.
Harrison, N. J.
Minneapolis, Minn.
Newark, N. J.
Oakland, Calif.
Providence, R. I.
Sandusky, Ohio
Scranton, Pa.
St. Louis, Mo.
Warren, Ohio
Waverley, N. J.
Youngstown, Ohio

Sales Offices

Akron, Ohio	Second Nat. Bank Building
Atlanta, Ga.	Red Rock Building
Baltimore, Md.	Lexington Street Building
Birmingham, Ala.	Brown-Marx Building
Bluefield, W. Va.	Law & Commerce Building
Boston, Mass.	84 State Street
Buffalo, N. Y.	Electric Building
Butte, Mont.	Electric Building
Canton, Ohio	Belden Building
Charleston, W. Va.	Charleston Nat. Bank Building
Charlotte, N. C.	Com. Nat. Bank Building
Chattanooga, Tenn.	James Building
Chicago, Ill.	Illinois-Merchants Bank Building
Cincinnati, Ohio	Provident Bank Building
Cleveland, Ohio	Illuminating Building
Columbus, Ohio	The Hartman Building
Dallas, Tex.	1801 North Lamar Street

Dayton, Ohio	Dayton Sav. & Trust Building
Denver, Colo.	U. S. National Bank Building
Des Moines, Iowa	Hubbell Building
Detroit, Mich.	Dime Sav. Bank Building
Duluth, Minn.	Fidelity Building
Elmira, N. Y.	Hulett Building
El Paso, Tex.	206 San Francisco Street
Erie, Pa.	Commerce Building
Fort Wayne, Ind.	1635 Broadway
Grand Rapids, Mich.	Com. Sav. Bank Building
Hartford, Conn.	Hartford-Aetna Nat. Bank Building
Houston, Tex.	Third and Washington Streets
Indianapolis, Ind.	Traction Terminal Building
Jackson, Mich.	Central State Bank Building
Jacksonville, Fla.	Graham Building
Kansas City, Mo.	Dwight Building
Knoxville, Tenn.	Burwell Building
Little Rock, Ark.	Southern Trust Building
Los Angeles, Calif.	724 S. Spring St.
Louisville, Ky.	Starks Building
Memphis, Tenn.	Exchange Building
Milwaukee, Wis.	Public Service Building
Minneapolis, Minn.	410 Third Ave., North
Nashville, Tenn.	Stahlman Building
Newark, N. J.	671 Broad Street
New Haven, Conn.	Second Nat. Bank Building
New Orleans, La.	Maison Blanche Building
New York, N. Y.	Equitable Bldg., 120 Broadway
Niagara Falls, N. Y.	Gluck Building
Oklahoma City, Okla	1 West Grande Ave.
Omaha, Neb.	National City Bank Building
Philadelphia, Pa.	Witherspoon Building
Pittsburgh, Pa.	Oliver Building
Phoenix, Ariz.	318 W. Jefferson Street
Portland, Ore.	Electric Building
Providence, R. I.	Turks Head Building
Richmond, Va.	Va. Ry. & Power Building
Rochester, N. Y.	Granite Building
St. Louis, Mo.	Pierce Building
Salt Lake City, Utah	Newhouse Building
San Antonio, Tex.	Central Trust Building
San Francisco, Calif.	Rialto Building
Schenectady, N. Y.	River Road
Seattle, Wash.	Colman Building
Spokane, Wash.	Paulsen Building
Springfield, Mass.	Third Nat. Bank Building
Syracuse, N. Y.	Onondaga Co. Sav. Bank Building
Tacoma, Wash.	W. R. Rust Building
Terre Haute, Ind.	Terre Haute Trust Building
Toledo, Ohio	Spitzer Building
Trenton, N. J.	Broad St. Nat. Bank Building

Tulsa, Okla. . . . . Cosden Building
Utica, N. Y. . . . . Mayro Building
Washington, D. C. . . . . Com. Nat. Bank Building
Worcester, Mass. . . . . State Mutual Building
Youngstown, Ohio . . . . . Stambaugh Building

Motor and Lamp agencies in all large cities and towns

distributors (at wholesale) in 57 important cities

Distributors for Products outside of the United States:

International General Electric Company, Inc.
120 Broadway, New York Schenectady, N. Y.