

The



MONOGRAM

JULY 1930

THE General Electric Company now has 88,383 stockholders, an increase of approximately 60 per cent in the past year. This was the number on June 20, the record date for dividends to be paid in July. In June, 1929, the number of stockholders totalled 55,216.

A tabulation for the last five years, giving the number of stockholders at the four annual periods when counts were made for dividend payments, follows:

	1926	1927	1928	1929	1930
March	37,422	44,969	49,740	53,985	†72,847
June	*38,853	47,384	49,572	55,216	88,383
September . . .	44,226	48,867	50,448	56,383	
December . . .	46,305	49,841	51,882	60,374	

* Change of each share of \$100 par value common stock into four shares of no par value common stock, effective May 26, 1926.

† Change of each share of no par value common stock into four shares of no par value common stock, effective January 24, 1930.

JULY
1930

The
 Monogram

VOL. 7
No. 10

IN THIS ISSUE

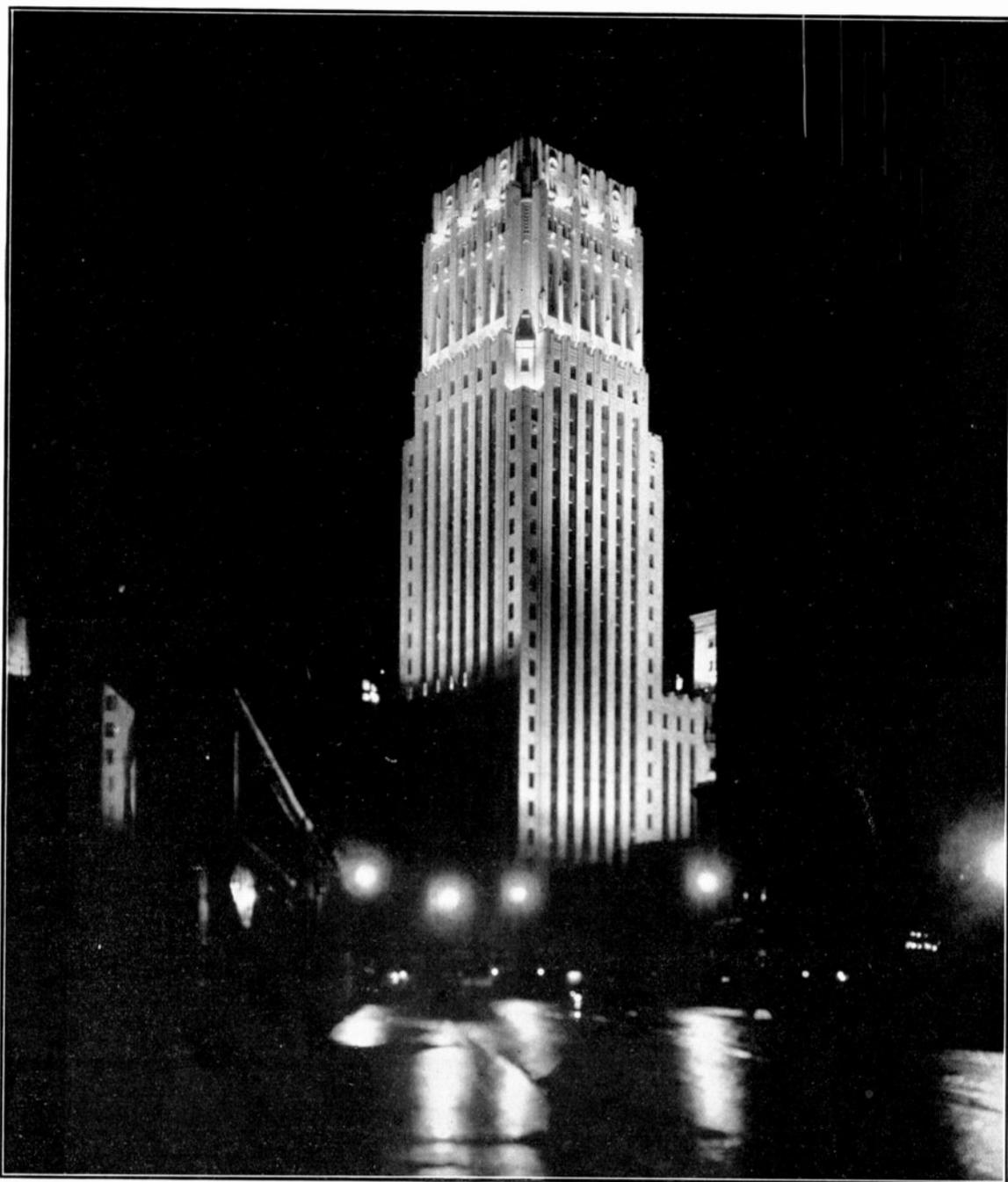
Unemployment—a Plan to Minimize Its Cause and Effect in the General Electric Company.....	3
Public Service Electric and Gas Company of Newark Receives Charles A. Coffin Foundation Award.....	8
Market Analysis is Taking Its Place in the Forefront of Scientific Study, <i>Howard Cooley</i>	9
"A Central Station Off the Starboard Bow, Sir!".....	11
World's Record for 100-yard Dash Equalled on Electrically Lighted Track, <i>S. W. Scarfe</i>	13
Turbine Generators and Silk Worms, <i>R. E. Strickland</i>	14
The First A-c. Network System in San Francisco, <i>D. I. Anzini</i>	15
Youngstown Municipal Railway Company Wins Charles A. Coffin Foundation Award.....	17
Behind the WGY Farm Broadcasts Goes the Message of the Farm Electrification Program, <i>G. Emerson Markham</i>	18
Performance for Pumps, <i>H. E. Adams</i>	19
C. C. Chesney Retires as Chairman of Manufacturing Committee; Is Succeeded by W. R. Burrows.....	22
Metallic Arc Welding Being Used on a Dallas Office Building.....	23
Giuseppe Faccioli Becomes Consulting Engineer.....	25
Killing Disease Germs with Artificially-induced Fever Temperatures.....	26
Jones Beach State Park and Causeway Light Up.....	29
The E. W. Rice Club Has an Honor Guest.....	31
A New Power Giant for the Hudson.....	33
A Thousand Dollars for Ideas.....	34
Interesting Orders.....	39
Around the Circuit.....	41

Published Monthly by General Electric at Schenectady, New York

CHARLES H. HUNTLEY, *Editor*

CORRESPONDENTS

B. J. ROWAN, <i>New York</i>	H. D. SANBORN, <i>Central</i>	HENRIETTA WEBER, <i>Southeastern</i>	H. E. BLACHLY, <i>Rocky Mountain</i>
C. D. LAIDLAW, JR., <i>East Central</i>	J. W. SHOLDER, <i>Atlantic</i>	M. F. LARMER, <i>Southwestern</i>	GRACE MAHONEY, <i>San Francisco</i>
F. W. BLISS, <i>New England</i>	J. D. FRANZ, <i>Northwest</i>	J. J. HENRIETTA, <i>Edison Lamp Works</i>	A. H. WEBB, <i>Los Angeles</i>
L. R. EDWARDS, <i>Electric Refrigeration Department</i>	W. D. YATES, <i>Merchandise Department</i>		D. W. KOPPEL, <i>National Lamp Works</i>



ONE OF THE SHOW PLACES OF THE CITY OF SAN FRANCISCO DURING THE RECENT CONVENTION OF THE NATIONAL ELECTRIC LIGHT ASSOCIATION WAS THE NEW SHELL OIL BUILDING. IT IS PERMANENTLY FLOODLIGHTED BY 370 G-E NOVALUX FLOODLIGHTING PROJECTORS, AND IS ANOTHER STRIKING EXAMPLE OF "ARCHITECTURE OF THE NIGHT"

Unemployment

A Plan to Minimize Its Cause and Effect in the General Electric Company

GENERAL  ELECTRIC
COMPANY

June 16, 1930

To the Employees:

FOR many years the General Electric Company has been developing methods of stabilizing employment for its workers. Prominent among these methods has been that of manufacturing for stock toward seasonal fluctuation lines and of producing at times of serious depressions, even such special apparatus as turbine-generator units with the hope of future sales. The Management has always realized that the first step in solving the problem of unemployment in industry was to use every available means of keeping men at work. The general program which has been used to effectuate this is described in the following Plan, under the heading "Stabilization of Employment." Every effort will be made to carry out such plans more effectively in the future.

Hand in hand with the efforts for greater stabilization has gone the study of ways and means of bringing some form of relief to employees for whom no work can be found in times of general industrial depression. Valuable contributions to the solution of this problem have been made by committees of leading workmen at the Lynn, Schenectady, Erie, and Philadelphia Works of the Company.

Fundamental in this new plan for relief are the following principles:

1. Joint and equal contributions by employees and the Company.
2. Joint participation in the administration of the Plan.

3. Aid through group action to those workers who are in need or require temporary loans, or who become unemployed, or for whom only part-time work is available.
4. In times of unemployment emergency, cooperation and assistance from those employees of the Company not usually affected by unemployment, and assistance by the Company in equal amount.

The plan may be adopted by each Works as a unit, by a majority vote of its eligible employees. It has now been adopted or is being considered by the employees of all Works. It is of further interest that the plan is quite generally favored by departments which are not usually subject to layoff in periods of unemployment, and whose members would not make normal contributions to the fund, but would contribute during the unemployment emergencies.

This plan is not final in form or in substance and may be modified by joint action of the employees and the Company. It is an interesting experiment in which the Company is glad to join its employees, first, in endeavoring to find a solution, and second, in ameliorating the tragic effects of unemployment on particular employees, who are in no sense responsible for their unemployment.


PRESIDENT.

What the Plan Will Mean to General Office and District Employees

THE Plan to minimize the cause and effect of Unemployment referred to by President Gerard Swope on the preceding page is described in detail on this and following pages.

The new Plan should be carefully read by all employees of the Company, not only because it is of direct concern to them, but as a matter of general information, since it is indicative of the efforts great industries are making to help solve the generations-old problem of occasional unemployment.

Of particular interest to General and District Commercial, General Manufacturing, Engineering, and Administrative employees is Article 20.

This article indicates the means whereby, should a time of emergency occur, and only then, the burden of unemployment will not fall wholly on those out of work but will be shared—to a very small degree—by their fellow workers who are employed.

The Company adds to the Trust fund a dollar for every dollar paid in by the employees. Thus the Company will at all times carry half the burden. Moreover, it will engage to pay the

cost of administration of the Fund for at least two years, and will guarantee 5 per cent interest on the Fund.

All that employees of the General and District Commercial, General Manufacturing, Engineering and Administrative Departments will be called upon to do, under the provisions of this Plan, is to contribute—at the most—one per cent of their salary should an emergency condition of unemployment in the Company occur, and that for only so long as the condition created by the emergency continues. Expressed in figures, it means that the *maximum* amount paid by an employee whose salary is \$200 a month, in the departments mentioned above, would be two dollars a month.

This one per cent will be paid, under these conditions, by Chairman Owen D. Young, President Swope, the vice presidents, and the department managers as well as all the others.

It is another example of the spirit of coöperation of the General Electric family; of the mutual bearing by both Company and employees of a burden common to both, just as are the Insurance Plan and the Pension Plan.

— c —

Stabilization of Employment

When Business is Increasing:

1. Increase the working force by adding employees as slowly as possible.
2. Increase the number in especially busy departments by transfers from other departments.
3. Resort to overtime in particular departments and generally before increasing the working force.
4. Postpone plant renewal and maintenance work as much as possible, employing the men on regular production.

When Work Begins to Fall Off:

1. Cease hiring at once.
2. Cut out all possible overtime and bring departments down to the normal week.
3. Transfer people from slack to busier departments.
4. Stimulate the Sales Department to secure coöperation from customers and get business for future delivery.
5. Build standard apparatus for stock up to ... months' shipments, based on average

of last three years' sales, adjusted to expectation of next two years.

6. See that stocks at all factory and district warehouses are brought up to this maximum.

7. Use men on maintenance and repair work, bringing the plant and equipment up to a high standard.

8. Cut the normal week as generally and gradually as possible, by departments (down to 50 per cent of the normal week.)

9. Proceed with construction of increased plant facilities previously planned, using our own men as far as possible.

10. Drop new employees with less than one year of service—single people with no dependents and who are most easily spared first—always with not less than one week's notice.

11. In accordance with our custom established for some time, employees should be told whether it is a temporary layoff due to lack of work, or permanent layoff, and in every instance of the permanent layoff the usual compensation, if any, should be paid, depending upon the character of work, age, and length of service.

G. E. Employees Unemployment Pension Plan

1. Any employee with continuous service with the Company of one year or more, is eligible for participation in the G.E. Employees Unemployment Pension Plan (hereinafter called the "Plan"), and may by his affirmative action participate in the Plan and by so doing agrees to pay into a trust created by the General Electric Company for the benefit of said employees, to be known as the General Electric Company Unemployment Pension Plan Trust (hereinafter referred to as the "Trust"), approximately 1 per cent of his actual weekly or monthly earnings for three years after the beginning of his participation, but only so long as such earnings are 50 per cent or more of his average full-time weekly or monthly earnings, or for such shorter or longer period as may be determined from time to time by the Administrators of the Plan. These normal contributions shall cease in abnormal times of unemployment, as outlined in Article 19 hereof.

(The normal contributions may be deducted semi-annually from Supplementary Compensation of employees with five or more years of service.)

2. The General Electric Company will contribute to the Trust an amount equal to that contributed by the contributing employees.

3. Three per cent of the normal contributions paid into the Trust by contributing employees and by the Company may be considered by the Trustees as available for payment to employees or former employees in need, as provided for in Article 10 hereof. The Trustees shall be authorized to make loans to employees as specified in Article 11 hereof to an amount not in excess of 27 per cent of such normal contributions paid into the Trust. The balance of the normal together with all emergency contributions so paid into the Trust and all interest shall be made available by the Trustees for unemployment payments as specified herein.

4. The Plan may be adopted at any works, and the Company will contribute as provided in Article 2, upon an affirmative vote of 60 per cent or more of the eligible employees of that works.

5. The General Electric Company will create the Trust whose Trustees will be the custodians of the fund contributed by the employees and by the General Electric Company, and the General Electric Company will guarantee 5 per cent annual interest thereon, credited semi-annually on June 30 and December 31, on average monthly balances during the period. For two years after the inauguration of the Plan, the General Electric Company will pay the administration expenses, including time of men necessary for its administration. After this preliminary

period, the expenses of administering the Plan will be determined and an agreement reached between the Company and the Administrators of the Plan as to a proper method for bearing such administrative expenses.

6. The plan will be administered in units of each works.

7. The administration of this Plan at each Works shall be vested in a Board of not less than four nor more than 16 administrators, one-half of the number representing and elected by the contributing employees and the other half appointed by the General Electric Company, with a Chairman elected by the Administrators from among themselves and the Chairman to have a vote. Such other officers shall be elected as the administrators deem necessary.

8. At the larger works a number of committees may be appointed by the Administrators, dependent on the size of the works.

9. No payments are to be made from the Trust for at least six months after its creation and thereafter only to employees who have made their normal payments for at least six months.

10. *Need.* Payments to any employee, or former employee, of the Company who has been retired on old age or disability pension, and who is in need, will be considered by the Administrators, and after investigation such action will be taken for such amount and for such a period as may be approved by the Administrators.

11(a). *Loans.* The Trustees shall be authorized to make loans to those who have been contributing employees for six months and have made their payments for six months into the Trust. Loans may be made by such Trustees to such contributing employees in amount not exceeding \$200 each, with or without interest, as may be determined by the Administrators.

11(b). *Repayments.* Repayments on loans may be made to the Trust by deductions from the payroll, such deductions to begin when the contributing employee is given full time work by the Company, and to be in amount approximately equivalent to 10 per cent of his weekly pay, or an amount over such a period as may be determined by the Administrators. If a contributing employee who has been granted a loan leaves the employ of the Company, he shall repay his loan upon terms to be arranged by the Administrators.

12. The Unemployment Administrators will define unemployment.

13. When a contributing employee receives notice of temporary layoff from the Company, notice shall also go to the Administrators.

14. For the first two weeks of unemployment there shall be no payment from the Trust to a contributing employee.

15. After the first two weeks of unemployment, and subject to the approval of the Administrators, payment to a contributing employee will be made.

16. Payments made to a contributing employee shall be 50 per cent of his average weekly or monthly earnings for full time, but in no case more than \$20.00 per week.

17. Such payment to an individual contributing employee shall continue to the extent approved by the Administrators, but in no event longer than ten weeks in twelve consecutive months.

18. When a contributing employee is working part time and receiving less than 50 per cent of his average weekly or monthly earnings for full time, he may be eligible for payments to be made from the Trust amounting to the difference between the amount he is receiving as wages from the Company and the maximum he might be entitled to as outlined herein and as laid down from time to time.

19. When contributing employees are temporarily laid off or working part time, and payments made from the Trust for unemployment amount to 100 per cent or more of the average normal weekly receipts, the Administrators shall notify the Company of this fact and normal collections from contributing employees, as outlined in Article 1, shall cease. Furthermore, the Administrators shall notify the Company weekly thereafter the amount of the payments made from the Trust and the relation of such to the average normal weekly receipts during the preceding three months.

20. The Company agrees, upon such notification, to make a statement that an unemployment emergency has arisen, and to put the following into effect:

The following emergency payments to the Trust shall begin and continue as long as payments from the Trust Fund amount to 100 per cent or more of the average normal weekly receipts of the Trust, and until the total of the Trust is not less than 75 per cent of the previously attained maximum.

- (a) From all those employed by the Company at the particular works and receiving 50 per cent and over of their average weekly or monthly full time earnings, approximately one per cent of the weekly or monthly earnings. This includes all the clerical and supervisory staff, including the highest officers of the Company connected with the particular works.
- (b) All the General and District Commercial, General Manufacturing, Engineering and Administrative employees of the Company at all works, and offices in the United

States not on a particular works payroll, shall contribute their proportion of the percentage outlined in Paragraph (a) of this Article. Their proportion shall be determined by the ratio of the average earnings of the contributing employees of the particular works to the total payroll of the eligible employees of all works of the Company (for example, if Schenectady should adopt the Plan and the average earnings of its contributing employees should be 20 per cent of the total payroll of the eligible employees of all works of the General Electric Company, then 20 per cent of one per cent shall be deducted from the employees designated in paragraph (b) of this Article).

- (c) The Company will contribute to the Trust an amount equal to that contributed by the employees as provided in this Article.
- (d) The method of collection of emergency contributions shall be in accordance with instructions issued by the Comptroller of the Company.

21. After an emergency is over, the Administrators shall decide upon the renewal of normal payments into the Trust from the contributing employees and the length of time they shall continue, similar to those outlined in Article 1. After a contributing employee has received payments from the Trust in time of unemployment, the Administrators shall decide, after his return to work, whether he shall again be called upon to pay into the Trust, depending upon the condition of the Trust, the length of time he has been a contributing employee before receiving such payments, the amount of such payments and the length of time they shall continue.

22. If a contributing employee leaves the Company, is discharged, retires on old age or disability pension or disability relief while in the active service of the Company, the amount of his payments into the Trust, as provided in Article 1, less the same proportion of his normal payments that the total disbursements from the Trust have been to the total normal collections, and less any unpaid loans and payments made to him, shall be paid to him or his beneficiaries from the Trust, in addition to the regular old age and disability pension or disability relief or death benefit plans of the Company.

23. When the amounts are repaid to contributing employees in accordance with Article 22 hereof, an amount equal to that paid to the contributing employees shall be paid to the Company.

24. Certification of the amount of the contributing employees' net payments, as outlined in Article 22, made by the Comptroller of the Company, shall be accepted as final.

25. All payments or loans from the Trust fund are contingent upon the availability of Trust funds at the time of application.

26. Rules and regulations governing receipts and payments under the Plan will be made by the Administrators, and their rulings will be final. After the Plan has been in operation for two years, the Administrators may decide in view of their experience what the normal amount to be collected from a contributing employee shall be, the percentages to be set aside for payments and loans as herein provided, the amount to be paid to contributing employees, and the loans to be made and the length thereof.

27. This plan may be modified, amended or changed at any time by recommendation of a two-thirds vote of the Administrators to the contributing employees, and accepted by a majority vote of the contributing employees voting thereon.

28. If, because of enactment of any law, state or federal, or for any other reason, it appears to the Company that it would not be good policy to continue its support of the Plan, it will confer with the Administrators and will give them at least 400 days notice of its decision as to alteration or abandonment of its support of the Plan.

29. The employees, acting through their Administrators, may decide to continue the Plan and Trust without the support of the Company as herein provided, in which event the Company will be entitled to receive only one-half the amount that would have been paid to participating employees as outlined in Article 22. If the Administrators, representing the employees, decide to abandon the Plan, then the payment to the Company will be in the same proportion as the payment to the contributing employees.

Floodlights Mean Gate Receipts

An increase of more than five times was shown in the attendance at mid-week baseball games at Des Moines during May. The team played to an average attendance of more than 1600 paid admissions at each home game, while the average attendance at the games during the week in the past two seasons was only 300 per game. The 500 per cent increase in attendance resulted from the games being played at night instead of the afternoon, under the light from six batteries of General Electric floodlights. Through May there were eight mid-week home contests, the schedule having been cut because of weather conditions. These games, including the opening one, were played at night, and the total attendance for all of them was 12,943 paid admissions.

A further comparison of day and night games was furnished by the double-header on Memorial Day. Double-headers in previous years have seen good attendance at afternoon contests, but the bleachers far from crowded at the morning games. The attendance at the afternoon game

this year was 1200 paid admissions; at the night game those who paid totalled 1500.

Outdoor sports lighting has been gaining rapidly throughout the Middle West since the opening of the Des Moines baseball park for night baseball under General Electric floodlights. Six football fields have already been lighted during the rush period of floodlighting business.

Beside selling the Des Moines installation, J. A. Leonard of the Des Moines Office has turned in an order for equipment to light the football field at Boone, Iowa. Football lighting installations at Mitchell, S. Dak., and Fargo, N. Dak., have been sold by Paul Reed, lighting specialist of the Minneapolis Office. A. W. Crary sold equipment to light the football field at Warrensburg, Mo., and assisted O. I. Markham in the sale of a similar installation at Fort Scott, Kansas. Both Crary and Markham are of the Kansas City Office. The lighting equipment for the football field at Burlington, Iowa, was sold by D. A. Abbott, of the Davenport Office.

Scientists and Engineers of Argentina Present Medal to Edison

A gold medal, typifying the gratitude and affection of electrical engineers and scientists of Argentina, South America, for Thomas Alva Edison, and in commemoration of the golden jubilee of his incandescent lamp, was presented to Mr. Edison on June 20 in his laboratory by William A. Reece of Buenos Aires, president of

General Electric, S. A., of Argentine, who acted as representative of the Argentine Association of Electro-technicians.

As the Argentine association is closely allied with the A.I.E.E., Cummings C. Chesney, past president of the Institute, and a vice president of our Company, presided at the ceremony.

Public Service Electric and Gas Company of Newark Receives Charles A. Coffin Foundation Award

THE Public Service Electric and Gas Company, of Newark, New Jersey, has developed a system through interconnection and other engineering improvements benefiting both the company and its customers. As a direct result, the generating stations of the company were able to produce 65,000,000 additional kilowatt-hours of energy in 1929, compared with 1928, at a decrease in cost of \$565,000; and the benefit was passed on to the customers in lower electric rates.

This was one of the outstanding achievements which led to the company's receiving the Charles A. Coffin Foundation Award at the annual convention of the National Electric Light Association at San Francisco on June 19. The committee which granted the award included M. S. Sloan, president of the N.E.L.A.; P. S. Arkwright, chairman of the public policies committee of the association; and Dr. S. W. Stratton, chairman of the board of trustees of Massachusetts Institute of Technology. Thomas M. McCarter, president of the company, received the award. This Charles A. Coffin prize, awarded annually to that central station company which has done most for the advancement of the electrical art, was established by General Electric in honor of the Company's founder. With the award goes a check for \$1,000 to be placed in the treasury of the recipient company's mutual benefit association. The New Jersey company is the eighth to receive the award.

The engineering improvements of the Public Service Electric and Gas Company began in 1927 through an agreement with two other public utility companies to regulate their current supplies and make possible an interconnection of 2,250,000 kilowatts by means of a 220,000-volt ring. This interconnection will be completed this year. The interconnection made it possible to abandon the older, less efficient generating plants, with the result that 80 per cent of the energy is now being generated in the two most efficient stations. This centralization greatly reduced the cost of energy through a decrease in the coal rate, price, and transportation, and a reduction in the cost of supervision. Incidentally, all plants of the company are steam-operated, the nature of the country not permitting hydroelectric developments.

The interconnecting ring is tied in at two points to the company's transmission system, a

pioneer achievement in size, benefits, engineering, and contractual relationships. It is estimated that the net savings to accrue to customers of the company will total about \$1,000,000 annually.

The central station company also has conducted researches in several fields, and the results of the investigations have been given to the profession at large through publication of papers in technical society journals. Researches of lightning effects on transmission lines were made, and the results presented in a paper before the American Institute of Electrical Engineers. Mathematical researches were made in the field of synchronizing power. The chlorination of condensing water, which will eventually effect an annual saving of \$20,000, was developed last year, and presented in a paper before the American Society of Mechanical Engineers.

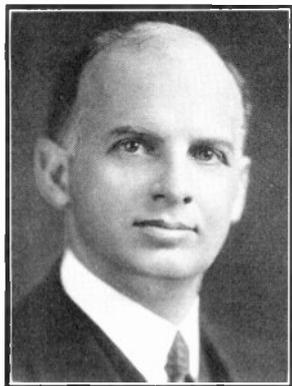
The company has also taken advantage of other new engineering developments with great success. During 1929, the first full year of operation of the supervisory control system, for instance, six substations with 162 circuits were controlled from a central point, making 9,680 operations without an interruption due to control. Three substations were equipped for flooding with carbon dioxide to minimize the fire hazard.

Two new promotional domestic rates were introduced last year, and a change to single metering was also made. The home economics department, the first to be instituted by an electric utility company, conducted weekly classes, presented lectures before women's groups, and made home demonstrations. The home lighting department gave lectures and conducted classes in lamp shade making. Nine medals were awarded to employees during 1929 for saving the lives of people who were not company employees. Buildings and grounds of the company are being landscaped, and street pole lines have been improved in appearance by the installation of new street lamp brackets and the banning of posters on poles. During the year about \$3,500,000 was spent in placing overhead lines underground. Twenty employees are working toward engineering degrees at night schools, and the company is conducting special training courses for technical graduates. Savings clubs and building and loan associations are being conducted by the employees.

Market Analysis Is Taking Its Place in the Forefront of Scientific Study

Declares Prominent Boston Industrialist -- Great Progress Possible When Sales Data are as Carefully Sifted and Examined as are Similar Factors in the Field of Production

HOWARD COONLEY, *President, Walworth Company, Boston*



Mr. Coonley is a native of Chicago, the son of a manufacturer, his father having been one of the founders of the Link Belt Company. He was graduated from Harvard in 1899. His first business experience as a manufacturer was as the founder of the Coonley Manufacturing Company of Chicago, manufacturers of enamel ware. He went to

the Walworth Company as president in 1914. In the 16 years that he has been with the company, the business of the company has increased ten-fold. He is a director in about 20 large corporations, including the Link Belt Company, the National Malleable Castings Company, the Second National Bank of Boston, Chicago Trust Company, and the Universal Winding Company. He has been very prominent in the development of air transportation in New England. Mr. Coonley was for some time president of the Boston Chamber of Commerce and has served numerous other agencies of public welfare.

During the war he was vice president in charge of the administration of the Emergency Fleet Corporation, where he developed an organization control which, if the war had lasted longer, would have been adopted by the other war agencies. He is now District Chief of the First Chemical Warfare Procurement District.

FROM its very inception, industry has faced a multitude of problems. Most of them have been met squarely and solved. Yet there are a number that have been ignored or avoided and which stand directly in the path of complete efficiency. Chief among these is the problem of distribution—and of course I mean by this, profitable distribution. The key to a successful solution undoubtedly lies in scientific analysis, the instrument which unlocked the door to modern methods of production.

The principles of scientific research are not complex. They consist primarily of breaking the problem into its elements and measuring the separate factors for comprehensive study. Distribution needs application of this process of research.

For just such purposes, economic statistics have been winning for themselves an incomparably more important place in American life than they formerly occupied. Their collection and effective use have expanded by leaps and bounds, though much remains to be done. The "statistical yardstick" has become standard equipment in our business offices. Yet there is an air of pleasing finality about figures, deftly arranged, that fails to indicate that the data set forth is even yet too limited to be of final value. More information is needed about our economic life, more facts on which it will be possible to base judgment and plan action to maintain our future balance and progress. For in some respects, many of the statistical standards we now have to use are like painted rubber yardsticks. They look more dependable than they are, and, lacking any better devices, we are sometimes forced to stretch them or bend them around corners to ends not properly served. Often the interpretation of statistics proves to be misleading.

Nevertheless, progress is most certainly assured when we use to the full our present possessions and profit by that experience in building for the future. In the field of marketing, there are two major divisions where statistical measurements can be, and to a degree have been, successfully applied. One division includes economic forecasting, and the other, market analysis.

The first presupposes the possibility of analyzing what past trends have been, and the likelihood of their repetition in the future, so as to plan more intelligently executive action.

Market analysis, on the contrary, presumes things are not now as they ought to be, that constant change is the only assured factor, and so aims to find in what areas and in what quantities goods are now being consumed, with a view to using the resulting knowledge to guide sales

policies. This article deals only with this second major division—market analysis.

Market analysis is a comparatively virgin field. However, it is gradually being recognized that there are great opportunities for improved efficiency to be found in every direction. No doubt there is some enthusiastic exaggeration. Yet it cannot be denied that if costs per salesman-hour, cost per call, cost per customer according to size, selling cost per kind of product, and the like are analyzed as carefully as are similar factors in the field of production, great strides of progress are possible.

In announcing plans and a committee to aid in a census of distribution to be taken in 1930 (the first such census ever undertaken), Secretary of Commerce Lamont said: "Wastes now occurring in distribution of commodities from producer to consumer are estimated to cost the nation between \$8,000,000,000 and \$10,000,000,000." Some of the Department of Commerce reports already at hand, based on their findings from preliminary distribution surveys, are so startling as to suggest that estimates of Secretary Lamont are not exaggerated.

Data make it seem more often the rule than the exception that 80 per cent of the business is done on 20 per cent of the varieties offered, and that 80 per cent of the sales income results from 20 per cent of the sales effort. This generality has been supported by so many typical cases coming to public attention that it behooves us to ask ourselves whether we, too, are permitting a large part of our own efforts to be scattered over barren fields.

When research is applied to distribution, we see there exists a most urgent necessity to concentrate effort where it will produce the highest returns. When this is the adopted policy in the field of distribution as well as elsewhere, then profitable business, rather than volume only, becomes the standard of business success. This is in large part only an ideal to aim at, for as yet our working tools are too dull. There are ways of tackling the problem, methods already proven valuable in the field of production, but materials to work on are still crude and insufficient.

Nevertheless, market analysis is taking its place in the forefront of scientific study. Its field is widespread. What are our efficient sales territories? Who are our logical customers within those territories? What is our proper proportion of their business? How should we solicit them? At what cost? are only a few of the questions that sound analysis may serve to answer.

In the past it has been common for business to become too involved in its own operations. Too little thought has been given to markets from a purely unprejudiced viewpoint. Not enough care has been given to the cultivation of foresight.

We cannot rest content with past progress, nor with the benefits of our earlier researches. To speed our progress we need to travel the road ahead more intelligently. Research is the vehicle that will quicken our journey, but its fuel tank must be fed with facts. And not until we have learned to drive safely and surely on the ground can we hope to take to wings.

Up in the Air with the "General Electric Refrigerator"

Sky advertising for the General Electric refrigerator has been added to the long list of media used by the Electric Refrigeration Department. The "General Electric Refrigerator" balloon is entered in the National Elimination Balloon Race, which starts July 4 at Metropolitan Air Terminal, Houston, Texas. Piloting the balloon will be Svend A. U. Rasmussen, holder of the world and American records for

distance for the type of balloons in this flight. He will have as aide Tracy W. Southworth, secretary of the Detroit Balloon Club. The first and second winners of the race will be entered in the International Gordon Bennett balloon races which start in Cleveland on Labor Day.

As the 16 balloons entered in the national race will take off from the Houston field at night, the field will be floodlighted.

Milwaukee, Davenport and Toledo Offices in New Quarters

July 1 marks the opening of the new Milwaukee Office at 990 St. Paul Ave., while a Service Shop and Warehouse will be opened at the same address by August 1. The spacious new quarters offer excellent shipping facilities for the shop and warehouse, while the office space is considered a great improvement over the old quarters.

The Davenport Office force will occupy new quarters at Pershing and 5th streets, where a

Warehouse and Service Shop will be in operation by August 1.

The Toledo Office will be located at 405 Madison Avenue (new Ohio Bank Building) after July 1. Additional space in the Continental Illinois Bank Building at 230 South Clark Street has been taken by the Chicago Office. The Edison Lamp Works office, Commercial Service Department, and Fractional Horsepower Motor Departments are now located on the 20th floor.

“A Central Station Off the Starboard Bow, Sir!”

The New England Public Service Company Will
Launch a Floating Power Plant

NEW England is to have a new kind of electric generating plant—a floating one that can be towed to whatever section of the territory is in need of additional power. A very large part of the energy required by the subsidiaries of the New England Public Service Company is supplied by water power; but it is necessary to have a certain amount of steam auxiliary to furnish service in time of drought or in case of interruption of transmission lines. The markets are widely scattered throughout Maine, New Hampshire, and Vermont, the ones in Maine and New Hampshire being near the coast or on waterways.

By installing the generating equipment on shipboard additional reserve capacity has been made available at any one of several points along the New England coast. Approximately twice as many hours of use of the investment can be secured in a term of years as compared with a stationary generating plant. As fixed charges are an important part of the cost of energy from a stand-by plant, this increase in the number of hours of operation should reduce the kilowatt-hour cost of the energy.

In a market widely scattered over a large area, such as is served by the subsidiaries of the New England Public Service Company, the load center of the system may shift considerably more than in the case of compact metropolitan districts, and scattered loads may make necessary the building of additional high tension line capacity for use with the steam auxiliaries for short periods, if the steam capacity is located at one point. A considerable investment in high tension lines is saved by being able to move the floating power station from one point to another along the coast.

Among the expensive features of the usual generating plant are the foundations and the provisions for condensing water into and out of the power house. In the case of a ship, the condensing water surrounds the plant, and it is necessary only to bring the water through the side of the hull and pass it out through the other side after it has gone through the condenser. The *Jacona*, the boat on which the generating equip-

ment is to be installed, was a cargo vessel of 7,000 tons, 380 feet in length, 50 feet beam, and 26 feet draft, and was purchased from the U. S. Shipping Board. It is being reconditioned by the Newport News Shipbuilding and Dry Dock Company, which is also installing the equipment.

The installed capacity of this floating power house will be 20,000 kw. The equipment will consist of two General Electric turbine generators, each rated 10,000 kw. and operating at 3600 r.p.m. These turbines are of the very latest design and are standard power house machines in every respect, and the only unusual feature involved is that they will be installed in a boat instead of in a central station. The turbines operate on steam at 400 pounds pressure and 250 degrees superheat, and exhaust into condensers at one inch mercury back pressure. With these good steam conditions the steam consumption is between 9 and 10 pounds per kilowatt-hour. The turbines will drive direct connected 10,000-kw., 0.8-p.f. generators, which will produce 60-cycle power at 6900 volts delta, or 11,930 volts Y. The generators will employ the closed system of ventilation and the circulating air will be cooled by General Electric surface air coolers, through which sea water will be circulated.

The boiler equipment will be four Babcock and Wilcox marine-type boilers, capable of furnishing 240,000 pounds of steam per hour at 425 pounds and 250 degrees superheat. They will be



CARGO VESSEL "JACONA" WHICH WILL BECOME NEW ENGLAND CO.'S
FLOATING POWER PLANT

oil-fired, each furnace being equipped with 11 B. and W. burners of the Cuyama design. The furnace walls will consist of B. and W. Number 80 fire brick and special insulation. Each boiler will be equipped with air preheaters. The boiler plant is planned to develop 83 per cent efficiency. Two boilers are equipped with re-superheaters to provide steam for heating fuel oil and for miscellaneous purposes. All boilers, superheaters and air heaters are equipped with Diamond soot blowers. Both forced and induced draft fans will be used, and two boilers will be connected to a short steel stack.

The center of the vessel is occupied by steel tanks. One will be used as a water tank, the other as a surge tank, holding a supply of hot water in emergency for boiler feed purposes. The makeup water will be supplied by a shore connection, and will be passed through evaporators for purification. All water for boiler feed goes through feed

water heaters for temperature control, and is deaerated.

The boiler plant will be forward and room will be left for possible future coal crushing equipment. The turbine equipment will be aft, and the switchboard equipment will occupy the intermediate deck toward the stern. One mast will be unshipped to provide room for the boiler stacks; and the other, which is equipped with boom and hoists, will be kept in place to assist in installing turbine and condenser equipment. Condensing water connections will be arranged on both sides of the hull. The *Jacona* was an oil burner, equipped with a double bottom and space for both oil and water storage. These tanks will probably be used for water ballast to trim ship, and give proper weight. In addition, there are ballast tanks in both the bow and stern. It is proposed to tow the vessel to its berth, and connect with facilities ashore.

Electric Refrigeration Department Plays Host to Utility Men At Nela Park

WITH various merchandising campaigns staged by electric light and power companies, the attention of the Electric Refrigeration Department has been focused recently on central stations. A large gathering of central station merchandising managers, held at Nela Park, served as a climax to efforts along this line, when 125 utility men from various sections of the East, South and Middle West attended a recent one-day conference.

"The foundation of the electrical industry is service to the customer," T. K. Quinn, manager, said in a message to the conference. "As to the object of this meeting, did you ever hear of a General Electric refrigerator owner who wasn't delighted with his purchase or a utility company that was not glad of the opportunity to please the customer and get some reasonable return from the investment already made? The electric refrigerator is easily first and in a class by itself as a promoter of good will in the home and as a domestic load builder."

P. B. Zimmerman, sales manager, stressed the load building factor of the refrigerator and showed charts which depicted how it tends to even out the domestic load curve. Walter J. Daily, sales promotion manager, told the utility men that this year will be one of active advertising in every line and he discussed direct mail, national and local advertising copy, window displays, and dealer helps. H. T. Hulett discussed new product features while Dr. George W. Allison, of Chicago, gave an inspiring talk on salesmanship.

One of the most interesting hours of the session was conducted by A. C. Mayer, manager of the Merchandising Service Division. This was in the nature of an impromptu symposium, various merchandising managers for utility companies discussing methods of refrigerator sales campaigns, new merchandising methods, and matters pertaining to the hiring and directing of salesmen. H. H. Bosworth, manager of the Central Station Division, arranged the program for the conference, which was the most successful gathering held thus far by the department. E. L. Manning of Schenectady was the speaker at the evening banquet.

A number of refrigerator sales campaigns are now on in all sections of the country. Such companies as the Ohio Public Service, Ohio Power, many New England, Western and Southern companies, are reporting most encouraging sales of General Electrics. The Georgia Power Company is staging perhaps the largest drive. Another interesting development in the central station activity was the announcement that the Toledo Edison Company has added the General Electric to its line of appliances. P. B. Zimmerman, M. F. Mahoney, W. J. Daily, H. H. Bosworth, and Charles Wagner, of Cleveland, with H. G. Bogart, Toledo distributor, met with Toledo Edison officials, following which conference the announcement was made. Representing the Electric Refrigeration Department at the annual convention of the National Electric Light Association in San Francisco were Mr. Zimmerman, Mr. Daily and Mr. Bosworth.

World's Record for 100-yard Dash Equalled On Electrically Lighted Track

S. W. SCARFE, *San Francisco Office*

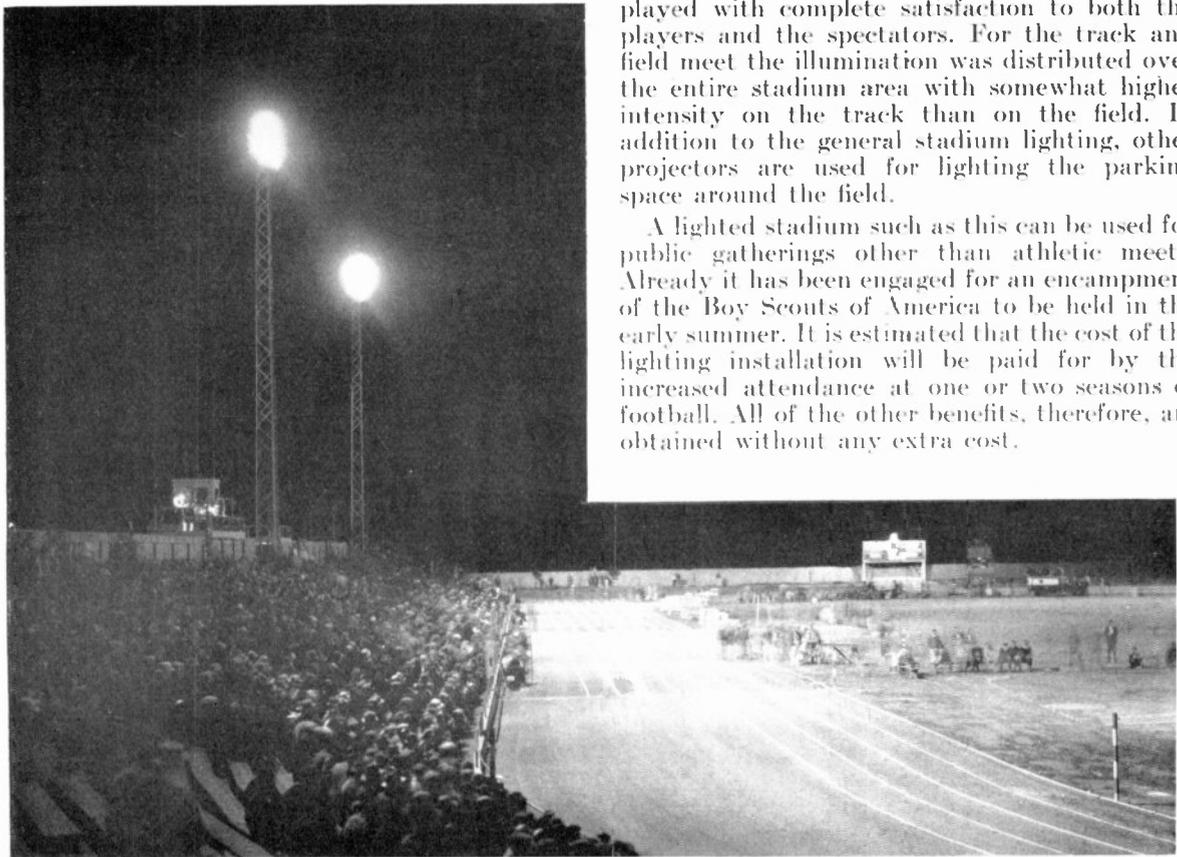
FOR the first time in the history of outdoor sports a major track and field meet has been held at night under the brilliant illumination of electric floodlighting projectors. On the night of April 26, at Fresno, California, the West Coast Relays, held under the official sanction of the A.A.U., thrilled thousands of spectators, who saw the world's record equalled in the 100-yard dash and new meet records set in six events. Coaches and athletes alike were enthusiastic about night running and it is quite certain that the West Coast Relays will become permanently a night event on the Pacific Coast.

The Fresno State College stadium, where the West Coast Relays were held, has just been

equipped with a very complete and modern system of floodlighting, which is to be used for night football and other events. The General Electric Company furnished all of the electrical equipment and the installation was made in exact accordance with our recommendations and design.

For the lighting of the playing field, 60 General Electric Type L-31B projectors with lightly stippled lenses and 1000-watt G-40 lamps are used. These are mounted 90 feet above the field on six steel towers, 10 projectors to the tower, and with three towers on each side of the field. With the floodlights adjusted for football playing, the intensity over the entire playing area is approximately eight foot-candles. It has been found that with this intensity football can be played with complete satisfaction to both the players and the spectators. For the track and field meet the illumination was distributed over the entire stadium area with somewhat higher intensity on the track than on the field. In addition to the general stadium lighting, other projectors are used for lighting the parking space around the field.

A lighted stadium such as this can be used for public gatherings other than athletic meets. Already it has been engaged for an encampment of the Boy Scouts of America to be held in the early summer. It is estimated that the cost of the lighting installation will be paid for by the increased attendance at one or two seasons of football. All of the other benefits, therefore, are obtained without any extra cost.



THE CROWD AT THE FIRST NIGHT MAJOR TRACK EVENT, THE WEST COAST RELAYS, A FEATURE OF THE RAISIN DAY CELEBRATION AT FRESNO, CALIFORNIA

Turbine Generators and Silk Worms

The Skenandoa Rayon Corporation Outgrows the Old Homestead with the Aid of Electricity

R. E. STRICKLAND, *Schenectady Local Office*

DURING the great exodus of the cotton industries from the North to the more convenient surroundings of the South, the old Skenandoa Cotton Company, at Utica, New York, felt the urge and yielded; thereby a good home of generous size and fine location was left without a tenant. At about that time, the Skenandoa Rayon Corporation, a small but energetic youngster, moved in and has since apparently been busy trying to outgrow the old homestead. At present it bids fair to succeed.

From a small beginning, using just a few hundred spinning pots, this industry has grown steadily until, on completion of equipment now being installed, a yearly production of 3,500,000 pounds of rayon thread will be possible.

A considerable amount of rebuilding has been required to fit the old structure for new processes and a complete new equipment of process machinery has been necessary. During the growth of this business, there have been many very interesting and, at times, extremely puzzling problems. These problems have been met alike by those interested mainly in the best methods of manufacture and by those interested particularly in how best to suit electrical equipment to those methods.

As a sample of the early troubles there might be mentioned the difficulties encountered from chemical action on electrical equipment of all kinds. Attempts at combatting this included various kinds of paints, varnishes, sprays, and plating. Finally, it was found that cadmium plating was by far the best method of overcoming this action, and now practically every piece of electrical material, including bus bars, switchboard equipment, control devices and even machine parts, are so treated.

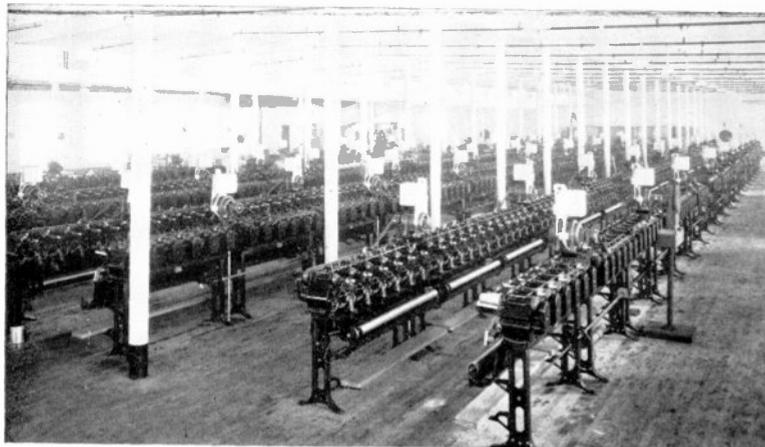
This plant operates by what is known as the viscose process. After proper chemical treatment of the "raw" material, the vegetable

fiber employed is delivered to the spinning room. Here the product is received in about the same consistency as thin mucilage, where it is pumped through glass tubes provided with gold and platinum nozzles to the spinning pots proper.

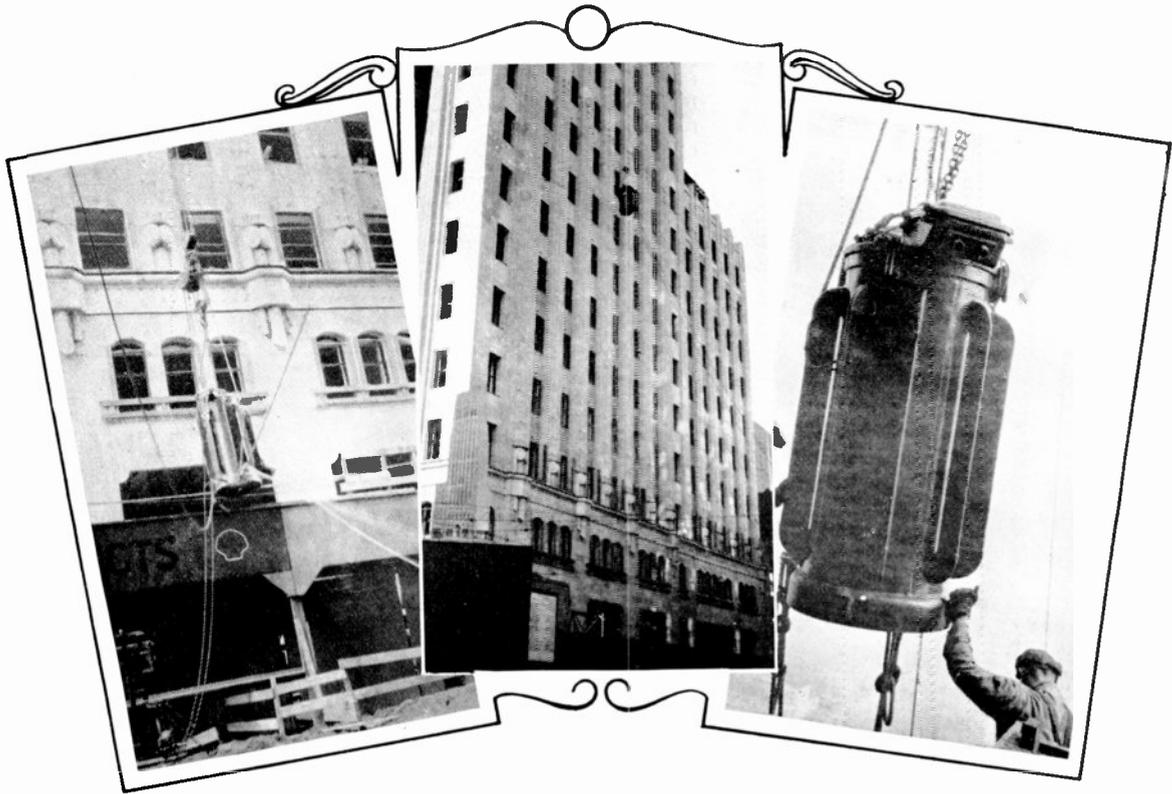
The spinning pots are eight inches in diameter and are mounted on vertical spindles of special three-phase induction motors rated 0.15 hp. These motors are at present operating at 120 cycles, 94 volts, and a speed of about 7200 r.p.m. Provision has been made for operation of these pots at considerably higher speeds. The higher frequencies are obtained from a battery of frequency changer sets installed between the power station and the spinning process. The sets are now driven by synchronous motors rated 500 hp., 440 volts, three-phase, and they are so constructed that, when operation at higher frequency is required, the motors may be replaced with similar machines of increased capacity.

Very definite process steam requirements had to be met, and the layout of a suitable power station and design of proper generating equipment was most interesting. Pulverized coal, handled by electrically-operated equipment, was decided upon as a fuel. Steam is furnished by two boilers having a capacity of 185,000 pounds per hour. The initial pressure is 250 pounds. Water for all purposes is pumped from the Mohawk River to a purification and filtration plant constructed in the bed of the abandoned Erie Canal. The generating station consists of two 3000-kw., 3-phase, 60-cycle,

480-volt units, one of which is an extraction, condensing type, and the other a non-condensing type. Steam is furnished at 20 degrees F. superheat. A brick ventilating chimney, 300 feet in height, 20 feet inside diameter at the top, containing 7000 tons of material, is one of the features of the plant equipment.



G-E MAGNETIC SWITCHES MOUNTED ABOVE G-E MOTORS WHICH DRIVE UNIVERSAL SILK CONE WINDERS



THESE VIEWS AT THE SHELL OIL BUILDING SHOW A TRANSFORMER MAKING ITS ASCENT TO THE 29TH FLOOR

The First A-c. Network System in San Francisco

D. I. ANZANI, *San Francisco Office*

THE Pacific Gas and Electric Company has been interested for some time in the possibilities of the a-c. network system, and with the addition of several new buildings in San Francisco's financial district, the first application has been made possible. While this first unit is designed primarily for this group of buildings, it can easily be extended to the surrounding area.

This network system will serve three buildings within a radius of a block: the Shell Oil building with a connected load of 2150 kw.; the Stock Exchange building with 600 kw.; and the Crown Zellerbach building with 150 kw. Four banks of transformers connected to three separate feeders will supply these three buildings. The feeders are rated 2300/4000Y volts, and in addition to the above will also serve other loads. The transformers themselves are rated 2300 volts and are connected on the secondary for 120/208 volts. The ratings and locations of these banks are as follows: three 200-kv-a. special low loss pole type units on the 29th floor of the Shell Oil building, with a 2000-amp. open type network

protector; three 150-kv-a. special low loss sub-way units in a vault in front of the Shell Oil building, with a 1600-amp. submersible network protector; three 150-kv-a. special low loss pole type units in a vault alongside the Stock Exchange building with 1600-amp. open type network protector; three 100-kv-a. standard sub-way units in a manhole in front of the Crown Zellerbach building with 1600-amp. submersible network protector.

The interconnecting low voltage street mains are single conductor, 500,000-cir. mil. cables, while the bus running from the basement of the Shell Oil building to the 29th floor consists of four 3½ inch outside diameter, 3 inch inside diameter, copper tubes running straight through the center of the building from top to bottom. Services are taken off this main bus at each floor, and distributed through local boards. In addition to the network protectors installed on the two banks of transformers serving this building, another protector is located between the building bus and the street mains to prevent power being fed from the 29th floor bank to the street mains.

Standard single-phase D. & W. cutouts are used as disconnecting devices on the high side of the transformers. A 4000-volt oil circuit breaker is provided in the basement of the Shell Oil building to disconnect the cable running to the transformer bank on the 29th floor. This circuit breaker, as well as the network protector in the basement, may be controlled by pull buttons on the building switchboard, thereby enabling the building to be isolated from that point.

The installation of the 4000-volt cable to the 29th floor of the Shell Oil building was somewhat of a problem, and it was finally decided to use three-conductor, solid non-leaded wire armored cable. This was drawn up through a conduit and at the top the strands of the wire armor were fanned out between two flanges which held the entire weight of the cable through this armor stranding. The photographs show General Electric transformers on the way to their location in the Shell Oil building.

University of Chattanooga Girl Will Visit "House of Magic"

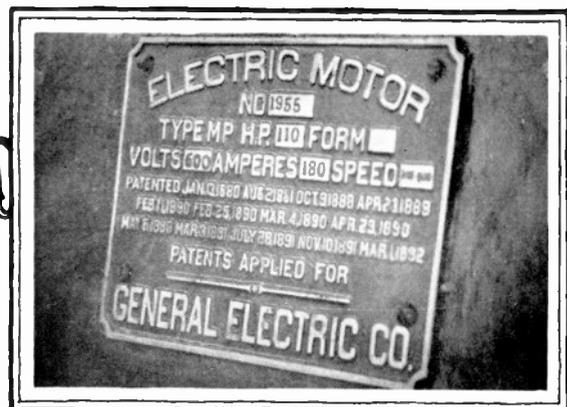
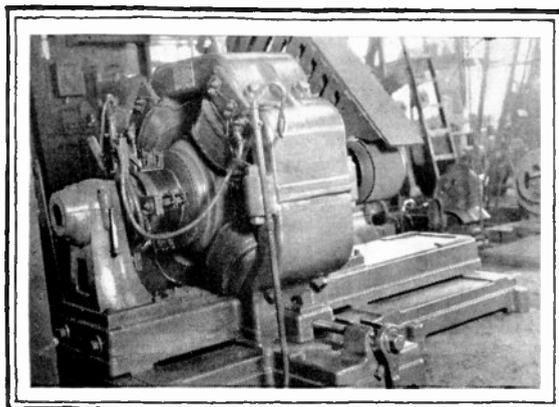
As a winner of a prize offered to students of the University of Chattanooga by Adolph S. Ochs, publisher of the *New York Times*, Miss Marie Klein, of 925 Magnolia Street, Chattanooga, will have a free trip to the Research Laboratory of our Company in Schenectady. The prize was offered for the best essay on the life of John Wesley Adams.

Mr. Ochs was himself a visitor at the Research Laboratory and Schenectady Works last April on the occasion of his radio talk with Rear Admiral Byrd, who had just reached New Zealand on his return from the Antarctic. Mr. Ochs talked from the Company's short-wave station, and afterwards went through the laboratories. In addressing the university students he described the wonders of science and invention as he had witnessed them in Schenectady, and then offered the prize. Miss Klein will leave Chattanooga early this month for her visit to the "House of Magic."

U.S. Government to Build an Electric Lighthouse Tender

An electrically-propelled lighthouse tender, *Linden*, for use by the United States Government, Bureau of Lighthouses, in buoy and supply work in Chesapeake Bay and its tributaries, is soon to be built. It is expected to be completed in late winter or spring.

The boat will be of steel construction, approximately 120 feet long, with 25-foot beam, and will be built by the Merrill Stevens Drydock Company of Jacksonville, Florida. The power plant will consist of two Winton Diesel engines driving two 100-kilowatt, 250-volt, 400-r.p.m. electric generators, which will supply electricity for all purposes, including propulsion, lighting, and the operation of auxiliaries. A single-screw propeller will be direct-connected to a 240-hp. driving motor operating on 500 volts at 350 r.p.m. This will be of double-unit construction. The complete electrical equipment will be furnished by General Electric. Control will be of the armature type.



THIS MOTOR WAS PURCHASED BY THE MARKET STREET RAILWAY COMPANY, SAN FRANCISCO, IN 1890. UNTIL 1918 IT PUMPED SALT WATER INTO THE BRYANT STREET SUBSTATION, AND HAS SINCE DRIVEN LINE SHAFTING AND COMPRESSORS IN THE ELKTON SHOPS

Youngstown Municipal Railway Company Wins Charles A. Coffin Foundation Award

Modern Equipment, Friendly Public, were Features that Invited Attention

COMPLETE coördination of its trolley car and bus services, consistently increasing net earnings, and the complete modernization of its track and equipment were among the accomplishments that led to the Youngstown Municipal Railway Company receiving the Charles A. Coffin Foundation Award at the annual convention of the American Electric Railway Association, in San Francisco, June 23. C. S. MacCalla, president, accepted the award on behalf of the railway company.

The award of the Charles A. Coffin Foundation, established in 1922 by General Electric as a perpetual memorial to its founder and first president, is given to that railway company which during the year has made a distinguished contribution to the development of electric railway transportation for the convenience of the public and the benefit of the industry. The award consists of a gold medal to the company and \$1000 in cash to the company's employees' benefit association. The committee of the A.E.R.A. which decided the award, consisted of Paul Shoup, chairman, John H. Hanna, and James H. McGraw.

Except for those which have been completely rebuilt, no car being used in Youngstown was built before 1917. The new cars are modern in every respect, with very low weight and an acceleration of three and one-half miles per hour per second. All cars are one-man operated. That the operating company has a friendly public is indicated by the fact that last year a commit-

tee of disinterested citizens prepared a new and most favorable franchise, which was adopted. Operating expenses per car mile were reduced 0.8 cents a mile during 1929 over 1928, and the net revenue per car mile increased 1.44 cents per mile.

Among improvements in equipment and practices in the shop and garage have been the installation of washing and vacuum cleaning systems, gun metal brake drums, standardized car wheels, low voltage series lighting, changes in car resistances and fuse boxes, and a definite program of testing, dipping, and baking fields and armatures. The percentage of delays to total hours operated amounted to only 0.04 per cent for trolley cars and 0.05 per cent for buses in 1929. Car miles per pull-in amounted to 286,733 miles, and bus pull-ins to 299,054 miles.

Safety contests, bonus systems, dinner and group meetings, have been instrumental in keeping the accident record at a minimum. The use of automatic trolley contact signals on single-track lines, non-slip safety treads on buses, "car swing" zones marked on pavements, and illuminated warning signs on streets further added to the safety of operation. Eighty-five per cent of the employees own stock in the Penn-Ohio system.

Ten buses and 13 trolley cars in 1929 and 10 buses early this year were purchased on a cash basis. Through the use of the 13 cars purchased last year, savings of \$80,000 per year will be effected.

Appreciated Service

At noon, April 9, a telegram from Binghamton, N. Y., stated that one of our customers had met with an accident to an oil circuit breaker, and that six 37,000-kv. bushings were required immediately. The Philadelphia Works tested, packed and shipped the bushings the same day, wiring the Binghamton Office the train number and the time it left Philadelphia. The customer met the train in Binghamton at 7 a.m. the following day, and had the breaker in service before noon.

The following letter to F. A. Buttrick of our Binghamton Office from the assistant general manager of the company shows their appreciation:

"I would like to take this opportunity to thank you and your Company for the splendid job you did in helping us out of our trouble.

We try to carry spare bushings to take care of emergencies of this kind, but, as it happened, we had used the three we carry in stock just a few days before the accident. It was necessary for us to get six bushings at once; and getting in touch with your office and explaining our conditions we were able to get information within two hours that you would have six bushings in Binghamton the next morning, which you did.

"It is things of this kind that place a warm spot in our heart for your Company.

Behind the WGY Farm Broadcasts, Goes the Message of the Electrification Program

G. EMERSON MARKHAM, *Publicity Department*

THE commercial departments of General Electric which handle products for the farmer should know that, for nearly five years, WGY has been developing a group consciousness centered about its agricultural broadcasting. At present, the radio mail received at the Schenectady station indicates that the daily half-hour noon farm program and the Thursday evening Farm Forum broadcasts are among its most popular features.

The present popularity of the WGY farm broadcasting is not an over-night development. Its beginning dates back to the time when farm information was not generally available for radio broadcasting—when agricultural colleges, state and federal agricultural divisions, and farm organizations were ill-equipped to provide worthwhile features. Now, a great deal of discrimination is required in selecting the material which is most likely to interest the farmers of the northeastern part of the United States. More than anything else, WGY's farm service resembles an information bureau, and such reliance is placed on the opinions of its regular speakers that listeners have even been known to defer the purchase of a farm until advice from WGY has been received.

It is safe to say that the WGY farm broadcasting is unsurpassed in variety and in completeness. Weather forecasts, market reports, a question and answer bureau, chats for the farm wife, and agricultural talks of every conceivable type are presented at stated times. But behind the other services, stands a well planned series of discussions which bring out the uses, and the importance of those uses, of electricity on the farm. Copies of these papers are regularly forwarded to rural service men in many power companies, thus serving the double purpose of identifying General Electric with the rural electrification movement in the minds of uncounted thousands of radio listeners and in the minds of utility officials.

The attention of this great farm audience has been recently centered upon the WGY Farm Essay Contest. Eighteen cash prizes were offered by General Electric for the best papers on the subject, "How Electricity Helps the Farmer." A surprising number participated in the contest, and the manuscripts which were received clearly showed a widespread knowledge of the problems

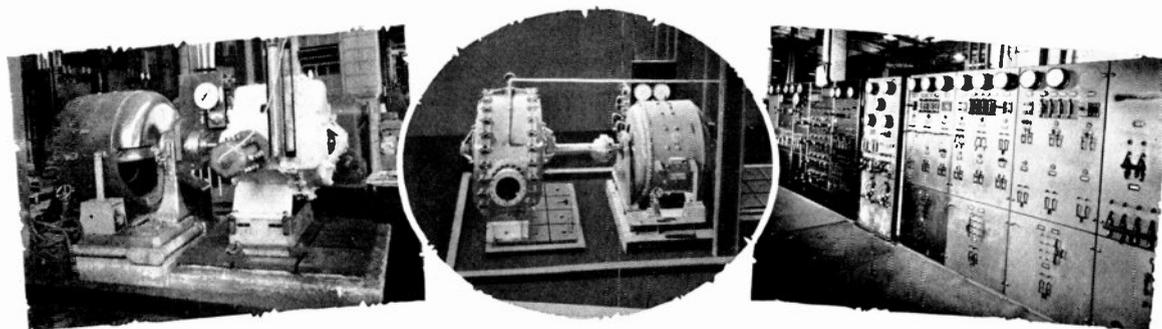
attendant upon the extension of rural power lines, as well as the various ways in which electricity can be profitably used on the farm.

The obvious friendliness displayed toward our Company, and the reliance placed by these radio listeners upon products which bear the G-E monogram was gratifying.

"The Thunderer"



From a photographic study of the late Dr. Charles P. Steinmetz, H. M. Mott Smith, of the Publicity Department, has painted a portrait. The photograph shows the artist and his work. The painting will be hung in the reception room of the General Office at Schenectady. Steinmetz, who died in 1923, would have been 65 years old on April 9.



LEFT—100-HP. DYNAMOMETER INSTALLED. CENTER—250-HP. DYNAMOMETER DRIVING PUMP ON TEST.
RIGHT—SECTION OF CONTROL BOARD FOR PRODUCTION TESTS

Performance for Pumps

Dynamometers Play Their Part in This Unique Testing Laboratory
at South Norwalk, Connecticut

H. E. ADAMS, *Chief Engineer, Nash Engineering Company*

THE Nash Engineering Company was founded by the late Lewis H. Nash in 1905 for the purpose of developing his compressor, an outstanding contribution to the pumping art. The principle of the Nash Hytor, with its single rotating part, is indicated in the following. The rotor, with a number of curved blades forming a series of buckets, rotates in an elliptical casing. This rotation carries with it a ring of water or other sealing liquid which is thrown out of each bucket where the casing recedes from the rotor and is then crowded back into the bucket at the narrow portion of the casing. Properly placed openings or ports serve to admit air to and from each revolving bucket as the sealing liquid alternately leaves and fills it. This action may be compared to the cylinder and piston of a reciprocating pump or compressor, the cylinder being the bucket of the Nash rotor and the piston the liquid seal.

It will be noted that each liquid piston trapped between the various blades of the rotor makes two complete pumping cycles per revolution. Considering the number of blades and the speed of the pump, the resulting discharge from the pump is continuous and non-pulsating.

In 1908 Mr. Nash was joined by Irving C. Jennings, who is now president of this company. In 1909 manufacturing space was rented and in 1912 the basement and first floor of the present factory at South Norwalk, Connecticut, was completed. Mr. Nash lived to see the development of his idea to the point where the business was firmly established and the use of his pump being steadily extended in industry in

general. Mr. Jennings recognized the merits of the Nash Hytor principle and has worked untiringly in its further development. He has worked out many ingenious combinations with it and the centrifugal pump, creating the Jennings vacuum return line heating pump and other specialty pumps, such as the Jennings flat box pump, a combination pump for maintaining a suction on the flat boxes of Fourdrinier paper machines and returning the white water to a higher elevation; Jennings self-priming centrifugal pump, suction sump pump, suction sewage pump, pneumatic sewage ejector, centrifugals, etc.

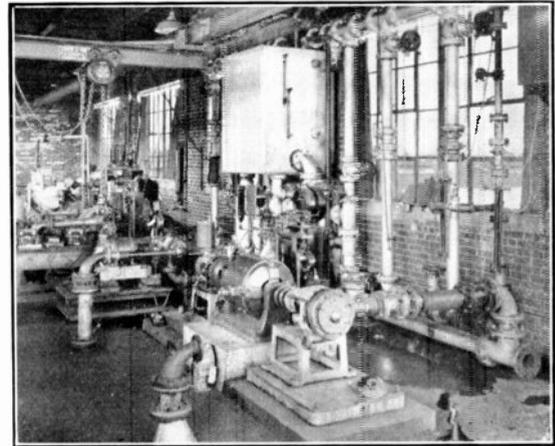
Many of these units are built with specially constructed motors which are supplied by the General Electric Company, with special end shields having supporting arms and bolting ring by which they are secured to the pump. The motor has an extended shaft and special bearings which support the impeller and rotor, or both, as the case may be, of the pump, thus giving a very compact and efficient unit, eliminating the use of couplings, extra pump bearings and an extra stuffing box which are required on the conventional pump and motor assembly.

Among the factors contributing to the rise of the Nash Engineering Company to its present position in the pumping field is a forward policy in research and development. In order to study thoroughly the characteristics of the many ingenious combinations of their pumps, they have spared no expense in developing laboratory equipment and test procedure that is outstanding. The thoroughness of the laboratory is incorporated in production methods to the

extent that every Nash pump, regardless of size, receives a complete performance test. On the production test stand for return line vacuum heating pumps very elaborate means are provided for testing the pump with its driving motor completely assembled. The Jennings return line vacuum heating pump is supplied with motor drive and full starting equipment completely wired and ready for operation when connected to the heating system and the source of electrical power. Because these units are sold all over the world, it is necessary to provide alternating-current in all cycles, phases, and voltages, and direct-current, in all voltages existing in the various territories in which these pumps are sold.

A very elaborate switchboard with complete meter equipment and special connecting stations has been worked out in conjunction with several d-c.-a-c. generators, transformers and switching equipment necessary to effect the combinations desired. Thus, every motor-driven pump supplied by the Nash Engineering Company is subjected to an actual operating test. At any time the customer can write in and obtain certified copies of this test, showing the pump capacity in air and water, together with the operating pressures obtained, also the complete power input readings to the driving motor and other pertinent facts noted on the test.

Nash pumps and compressors in sizes varying from 3 cubic feet to 5000 cubic feet per minute are generally belt-driven although recently they have been installed with considerable success with synchronous motor drive, the rotor of the synchronous motor sometimes being mounted directly on the extended shaft of the Nash pump. These pumps require up to 250 hp. Each pump must receive an operating test before shipment, the drive being obtained by the use of dynamometers. Up until the past year these pumps were driven by a-c. cradle type dynamometers through pulleys and belts in various combina-



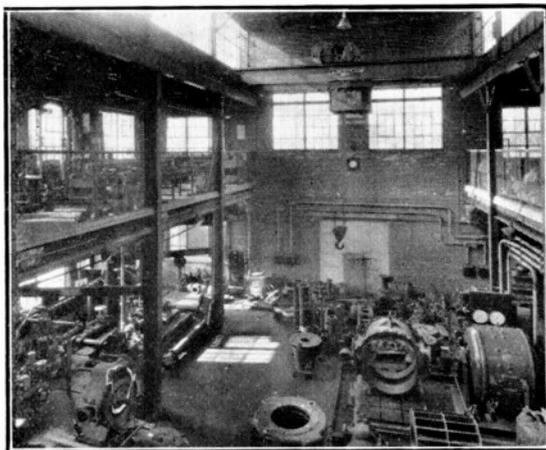
ALONG EAST MEZZANINE OF LABORATORY, SHOWING SMALLER DYNAMOMETER

tions to obtain the wide range of speeds over the complete line of Nash pumps, these speeds ranging from 138 r.p.m. to 3600 r.p.m.

An improvement over this method of testing has just been completed by the installation of a complete new set of d-c. cradle type dynamometers and other test equipment housed in a new test laboratory, which represents a total investment of close to \$100,000. The use of variable speed direct-current machines eliminates the necessity for belt and pulley equipment as required in the old a-c. machines, and allows for direct coupling to the pump tested. This arrangement is far more efficient, takes up less space, is safer, and generally far more satisfactory than the former method of belt drive.

A 360-kw. motor-generator set is required to furnish d-c. current for the various dynamometers. By elaborate switching arrangements, interchange of current can be obtained between the production test stand and the laboratory, also with the rotary converters used for operating the d-c. motors driving many of the machine tools in the shop. The laboratory equipment includes the following General Electric d-c. dynamometers: one 13-hp., 1750-4000 r.p.m.; one 15-hp., 1150-3600 r.p.m.; one 75-hp., 1050-3600 r.p.m.; one 100-hp., 350-870 r.p.m.; one 250-hp., 138-300 r.p.m.; one 50-hp., 875-1200 r.p.m. The 250-hp., 138 to 300 r.p.m. machine was designed especially for the Nash company, and is the largest slow speed machine of this type ever built by General Electric.

An interesting feature which the Nash company incorporated in these larger dynamometers was the use of the Emery torque reading device, which indicates the torque being absorbed by the dynamometer through hydraulic devices on a gauge calibrated in pounds torque. This gives

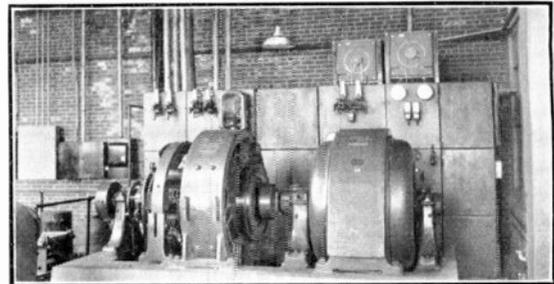


THE TESTING LABORATORY FROM THE MEZZANINE FLOOR

a very accurate reading and obviates the time required by the operator of the conventional dynamometer in juggling weights on the scales to weigh each individual reading.

In conjunction with the various test stands, an elaborate system of piping, tanks, etc. has been arranged so that any kind of test can be obtained without setting up special piping for each type of experiment.

R. T. Roberts, New Haven Office, is responsible for the large amount of business obtained from the Nash Engineering Company.—*Editor.*



360-KW. MOTOR-GENERATOR SET AND SWITCHBOARD

President Swope Aids M.I.T. Fund

Gerard Swope, president of our Company, has subscribed a quarter million dollars to a fund of \$4,200,000 created for loans to students at Massachusetts Institute of Technology, it was announced at the All-Technology reunion dinner at Cambridge, June 7.

The fund, Mr. Swope said at the dinner, has been raised by alumni and friends of the institution. Under provisions of the fund, it not only helps students to pay more of the cost of education, but makes higher education available to many who otherwise could not afford it.

Mr. Swope said: "The plan adopted is a loan to any student who passes certain required tests of ability, character, and personality, for the amount of the tuition either in part or in whole. This loan will be made generally after he has been one year at the institution, and can be repaid in small installments after his graduation."

The subscribers, as made public by Mr. Swope, are: George Eastman, \$500,000; Charles Hayden, '90, \$500,000; Alfred Pritchard Sloan, Jr., '95, \$500,000; Edwin Sibley Webster, '88, \$500,000; John Edwards Aldred, \$250,000; Coleman du Pont, '84, Irene Du Pont, '97, Lamont du Pont, '01, and Pierre Samuel du Pont, '90, jointly, \$1,000,000. Charles Augustus Stone, '88, \$250,000; Gerard Swope, '95, \$250,000; Franklin Atwood Parks, '95, \$150,000; Frank Libby Dame, '98, \$100,000; Albert Gould Davis, '98, \$50,000; Charles Neave, '90, \$50,000; William Chapman

Potter, '97, \$50,000; an alumnus, '94, \$50,000; the late William Emery Nickerson, '76, \$10,000.



© Underwood & Underwood Studios

PRESIDENT SWOPE READY FOR A MORNING RIDE AT "THE HOMESTEAD," HOT SPRINGS, VA.

The General Electric Radio Program for the Summer

The G-E Orchestra under the leadership of Walter Damrosch gave its concluding radio concert for the season as a part of the General Electric Hour on the night of May 31.

The G-E Program for the summer began on the night of June 7, featuring the G-E Band under the leadership of Arthur Pryor, the famous bandmaster, and a continuation of the "Adventures in Science," by Floyd Gibbons. This General Electric Program begins at 9:30 p.m., Daylight Saving Time, and continues until 10 o'clock. The musical feature will include classical as well as popular numbers.

C. C. Chesney Retires as Chairman of Manufacturing Committee; Is Succeeded by W. R. Burrows

"MR. C. C. Chesney, after more than forty-two years of continuous service with the Company, at his request will retire on July 1, 1930, as Chairman of the Manufacturing Committee," says an announcement by President Gerard Swope, dated June 20.



C. C. CHESNEY

"He will visit, during the summer, many of the works of the associated companies in Europe.

"Mr. W. R. Burrows will succeed Mr. Chesney as Chairman of the Manufacturing Committee, effective July 1, 1930."

Mr. Chesney is one of the outstanding figures in the electrical industry, with which he has been identified for more than 40 years.

He was associated with William Stanley as early as 1888 and was one of the incorporators of the Stanley Electric Manufacturing Co., the plant of which at Pittsfield became the Pittsfield Works of the General Electric Company in 1907. He was vice president and chief engineer of the Stanley Company at that time, and was made manager of the Pittsfield Works when the latter became a General Electric unit. On May 25, 1927, he was elected a vice president of our Company and made chairman of the Manufacturing Committee, W. R. Burrows and C. E. Eveleth, who were also elected vice presidents at the same time, being associated with him in the administration of the Manufacturing Department. Of his standing as an engineer, the fact that he was elected to the national presidency of the A.I.E.E. in 1926, and that he received the Edison Medal for early development in alternating-current transmission in 1921, speaks eloquently. Although retiring from the chairmanship of the Manufacturing Committee, he continues as a vice president of the Company.

Mr. Burrows, the new chairman of this committee, has also been long and prominently identified with the electrical industry. Gradu-

ating from the Lynn High School, he spent a year at M. I. T., and in 1889 entered the employ of the Thomson-Houston Electric Co. as a stock man at 12½ cents per hour.

Thus began a business career that has included detailed personal experience in factory work and methods, engineering, and administration.

In 1894 Mr. Burrows went to Harrison to work in the lamp factory at photometer and rack testing at 20 cents an hour. His advancement was rapid and he soon became general foreman under G. F. Morrison, then superintendent and now an honorary vice president of our



W. R. BURROWS

Company. During this time he did valuable work in the development of methods of lamp manufacture, and in 1897 he was transferred at his own request to the Engineering Department, under the direction of John W. Howell. Mr. Howell recalls that Mr. Burrows offered to work for two or three months without pay in order to take up this line of activity. Here he continued developmental work, carrying through in collaboration with Mr. Howell, or subsequently alone, important developments in connection with the making of lamps.

When Mr. Morrison was made a vice president of the Company, in 1917, Mr. Burrows was appointed Works Manager of the Edison Lamp Works, and while thus engaged again continued developmental work which resulted in outstanding improvements.

In September, 1925, he and T. W. Frech of the National Lamp Works were made Associate Managers of the newly-formed Incandescent Lamp Department of the Company. On May 25, 1927, as stated above, he was elected a vice president of the Company and was associated with Vice Presidents Chesney and Eveleth in the Manufacturing Committee.

Birmingham Office Changes Address

The Birmingham Office of the General Electric Company and the Edison Lamp Works of the General Electric Company, formerly located

at 602 N. Eighteenth Street, is now located in the Protective Life Building, 2031 First Avenue, North.

Metallic Arc Welding Being Used on a Dallas Office Building

CONSTRUCTION has already been started on a 100 per cent shop and field electrically welded 18-story building for the Dallas Power and Light Company at Dallas, Texas. Interest in this project has been intense, and already several other similar building projects in the Southwest are developing favorably to electric welding. The following is an article which appeared in the May 1st issue of *The Texas Contractor*, which has a widespread distribution in the Southwest. This article indicates how interested the building industry is in this new method of fabricating steel structures:

"The firm of Lang and Witchell, of Dallas, Texas, a firm of architects of long standing, to whose credit stand many of the most prominent structures in the state, are the first architectural firm in this section of the country to use the metallic arc welding process in place of riveting.

"They recommended this process to their clients, the Dallas Power and Light Company, for whom they are planning an 18-story office building. This will be the highest steel frame in the United States where the welding process has been used. They recommended it to their clients only after they had made a thorough investigation, in company with Gardner and Howe, their consulting engineers. They inspected welded structures already built and in course of construction, visited shops where hand and automatic welding was being done; consulted with engineers of the General Electric Company, which is sponsoring this method of welding, had conferences with consulting engineers and construction companies having had actual experience in the erection of welded frames. Consultations were also held with inspection bureaus with respect to the manner in which welders qualify and are certified as to their ability.

"The result of their investigation was that the architects became strengthened in their conviction that the welding process has more than sufficient

credits in all fields of structural work, architecture, engineering, and general manufacturing, to justify the prediction that in the future welding will take the place of riveting wherever possible.

"The advantages of welding over riveting are as follows: it simplifies designing, fabrication and erection; it saves material and labor, in truss work especially, from 20 to 30 per cent; it eliminates the danger to workmen and the public from dropped rivets; and above all it avoids the nerve-racking noises of the rivet hammer extending over a period of several months, disturbing occupants of hotels, hospitals, offices, and court rooms, not to mention the effect upon the nerves of the public in general.

"The welding in reference to electric arc welding consists of striking and maintaining an electric arc between two electrodes, one electrode being a metallic rod and the other being the junction point of two surfaces to be connected. The metallic rod is melted away and deposits a fillet between the two surfaces to be connected, and in the process fuses and welds together the two surfaces immediately adjoining.

"The dimensions of fillets, length and depth, are calculated and marked on plans, corresponding to the necessary number and size of rivets. The

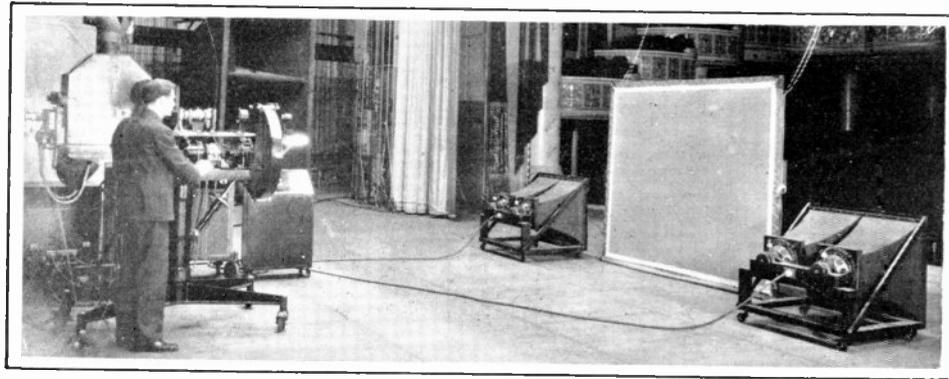
calculations are based on numerous rigid and dependable tests for tension, compression, shear and bending, establishing a standard of unit stress per lineal inch. A welding gang consists of an attendant to the welding machine and a welder.

"Bolts are used during erection as in rivet work.

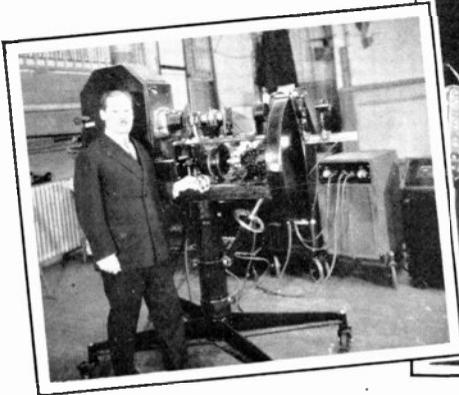
"Professor Frank P. McKibben, consulting engineer for arc welding, of the General Electric Company, has been employed to check the details of all welded connections. He will also have charge of the shop and field inspection, and examine and certify welders. The Mosher Steel and Machinery Company, Dallas, have the contract for furnishing and erecting steel on this building."



ARCHITECT'S DRAWING OF THE DALLAS POWER AND LIGHT BUILDING



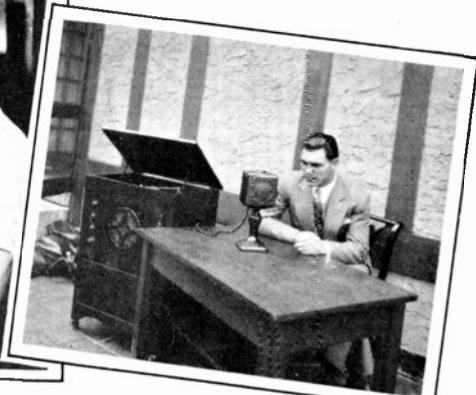
R. D. Kell, an assistant to Dr. E. F. W. Alexanderson, operating the television theater projector at RKO Proctor's theater in Schenectady, May 22



Dr. Alexanderson and the television apparatus



Merrill Trainer before the television camera in Building 37



Max Schmeling, German boxer, spoke to his mother in Berlin as a part of the day's program



Representative newspapermen, guests at the television party, posed with their G-E hosts before luncheon at the Schenectady Works restaurant

Giuseppe Faccioli Becomes Consulting Engineer

Has Been Forced by Condition of His Health to Retire from Active Service as Associate Manager and Engineer of the Pittsfield Works

GIUSEPPE FACCIOLI, famous electrical engineer, co-worker and friend of Steinmetz, source of inspiration to countless young engineers, has retired from active service as associate manager and engineer of the Pittsfield Works and assumed the less arduous duties of consulting engineer. Ill health made this course imperative.

Public announcement of Mr. Faccioli's action was made May 27 at the 25th annual banquet of the Pittsfield Section, A.I.E.E., held at the Curtis Hotel, in Lenox, Mass. The dinner was also in honor of Mr. Faccioli and his close friend, Cummings C. Chesney, vice president in charge of manufacturing. The latter made the announcement and at the time paid his colleague one of the finest tributes possible. He said: "Had ill health not intervened, there was no limit to what Mr. Faccioli could have done."

Six days later Mr. Faccioli received a handsome, hand-illuminated memorial on fine parchment, signed by more than 150 men who have served with him in the work of the General Standardizing Committee of the Company. It was presented at his home by Dr. L. T. Robinson, S. H. Blake, and J. L. R. Hayden of Schenectady, all members with Mr. Faccioli of this committee.

Mr. Faccioli came to America from Italy nearly 25 years ago. He was born in Rome in 1877, the son of an Italian army colonel, and was graduated with high honors from the University of Technology at Milan as an electrical and mechanical engineer. For several years after his school days he designed alternating-current machinery. His eyes turned to America, then in the van of electrical progress. He came, expecting to look about and study and then return. He reckoned without William Stanley.

Not long after his arrival in America his path crossed that of Mr. Stanley. As a result he became associated with Stanley at his shop in Great Barrington, Mass.

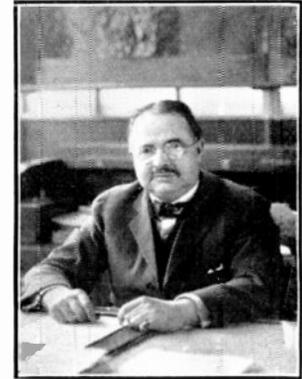
What attracted Stanley's attention to him was the latter's methods of calculation. These produced results in a strikingly accurate way. The association with Stanley continued unbroken until Stanley's death. In 1907 the Stanley Company became a part of the General Electric organization and in 1908 Mr. Faccioli became

a member of the Transformer Engineering Department. In 1911 he became assistant chief of the department and in 1914 chief engineer for the entire Pittsfield Works. This, in brief, is the history of one of the brilliant men in the electrical engineering profession.

He has the unusual faculty of making the most profound problems clear to the lay mind. To young engineers he is a veritable confidant. Many of them owe their success to his wise advice, administered in kindly fashion and always with his famous smile.

Mr. Faccioli has always been keenly interested in affairs of the A.I.E.E. Elected an associate in 1904, a fellow in 1912, he became vice president of District 1 in 1922. His leadership then resulted in the establishment of regional meetings and prizes. These activities were afterwards placed on a national basis.

While his early interest in the profession centered about alternating-current machinery, he delved into the transmission field. Development of apparatus such as high tension transformers, lightning arresters and protective equipment became his chief activity in recent years.



GIUSEPPE FACCIOLI

High Voltage Testing Set for U.S.S.R.

Russian students of electrical engineering will soon be experimenting with American-made lightning, when a 1,000,000-volt testing set made at the Pittsfield Works is installed at Leningrad. The outfit, half as large as the one

installed at Stanford University a few years ago, will be erected in the Electro-Technical Institute at Leningrad. It will be used for general testing purposes and for the study of various high voltage phenomena.

Killing Disease Germs with Artificially-induced Fever Temperatures

Recent Experiments in Electrical Diathermy are Announced by
the Research Laboratory

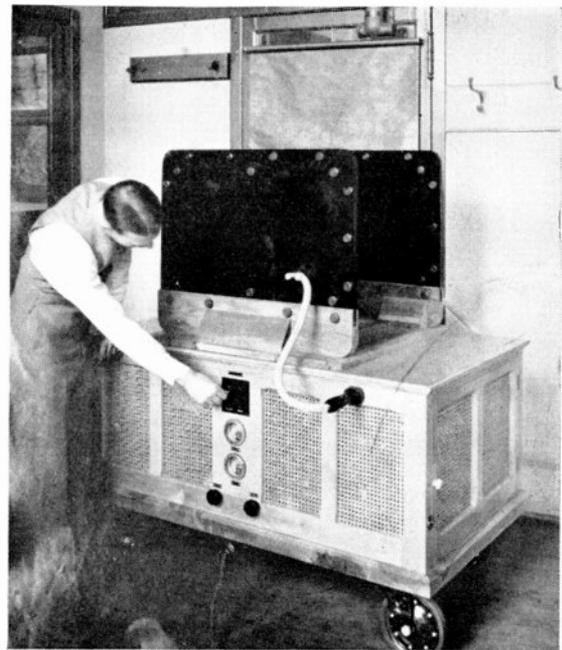
A NEW tool has been made available to the medical profession for investigations concerning fevers and their use in the cure of certain diseases. At a joint meeting of the New England Physical Therapy Society and the American Physical Therapy Association, in Boston on April 18, the apparatus was shown and described by Charles M. Carpenter and Albert B. Page of the Research Laboratory of our Company. The equipment, similar in principle to a short wave radio transmitter, is featured by a tube which oscillates the current at between 10,000,000 and 14,000,000 cycles per second. This oscillating current is concentrated between two condenser plates, instead of being fed into an aerial, and the body to be heated is placed between the two plates.

Heat has been used throughout the history of medicine as a means of alleviating and curing diseases, and more recently the causes and effects of fevers have been the subject of investigations and debates. Previously it was thought that fever temperatures were a sign of disease, just as is pain, and that the fever heat should be eliminated to make the patient more comfortable. Recent investigations, however, have indicated that, at least in the case of certain diseases, the fever is valuable in killing the germs of the disease—many germs are unable to withstand the fever temperature of the human body.

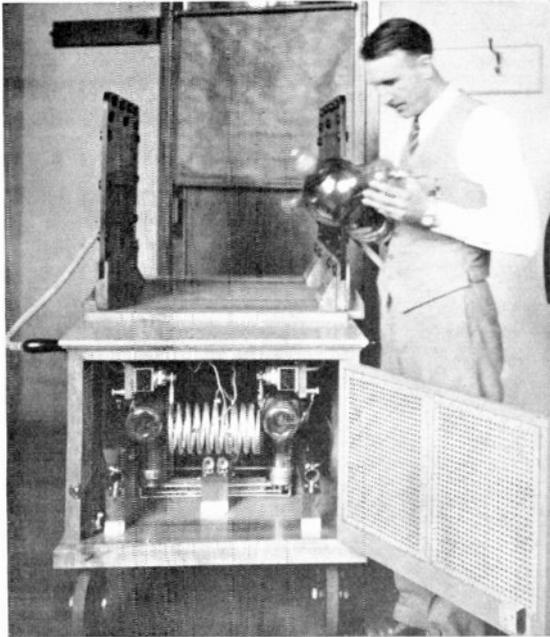
The production of artificial fevers in the human body has been a difficult task because man's temperature-regulating mechanism is so efficient. A fever results from a rise in temperature throughout the body, and local external heating is dissipated without raising the temperature of the whole body. Various methods of producing fever temperatures have been tried in the past, such as the use of hot water baths, and exposure of the body to artificially heated atmospheres. The injection of a protein results in a fever, and a high fever temperature for the treatment of paresis can be produced by the injection of malaria germs in the patient. The injection of a protein is hazardous because one is dealing with unknown factors and uncertain quantities, Messrs. Carpenter and Page pointed out in their paper presented at the Boston meeting: the use of malaria or other germs often fails because of immunity of the patient, and is dangerous because a living virus has been introduced;

and the hot water bath and similar methods are time-consuming, difficult of application, and not easily controlled. The new short radio wave method, on the other hand, is at all times under control.

The development of the equipment for producing the artificial fever resulted from some experiments conducted by Dr. Willis R. Whitney, director of the Research Laboratory, and Mr. Page, in studying the effects of high frequency induction coils on fruit flies and mice. Shortly after these experiments it was noticed that the blood temperatures of research men working in close proximity to vacuum tube oscillators delivering six or eight kilowatts of 5- to 6-meter waves were slowly raised. It was known that various ways of producing fever heat have been applied to human beings for therapeutic purposes, so it seemed worth while to study experimentally the electric fever, since it seemed to carry with it no danger and no discomfort. In addition, when the current is off, the fever quickly subsides—in other words, it is controllable.



A SIDE-VIEW OF THE G-E HIGH FREQUENCY HEATER



END VIEW OF THE HEATER, SHOWING HIGH FREQUENCY TUBES IN PLACE

Various forms of electrical diathermy have been extensively used for years, but they have been methods of direct application of electrodes to the body, and had certain limitations which are not present in this new apparatus. With the new equipment, which is essentially more costly, it is necessary only to place the body, or that portion to be treated, in the space between two insulated plates, and the body temperature is raised at a rate and to an amount dependent only on the controlling or generating apparatus.

"If there is merit in artificial fevers," says Dr. Whitney, "it seems worth while to study carefully the electrically-induced fever. If there are infections whose temperature tolerance is less than that of the host of the infection, it may be possible to destroy the infection. It is also customary to bake out, or heat by various means, stiff joints. As the radio method produces the heat within the tissues themselves, because of the electrical resistance of the body fluids, it seems probable that this method of applying heat should be studied in member and joint diseases."

The apparatus shown at the Boston meeting is enclosed within a case about three feet high, three feet wide and six feet long, mounted on small wheels so as to be portable. It is like a short wave radio transmitter, with the exception that the energy is concentrated between two condenser plates instead of being directed from an aerial. The heater consists of a vacuum tube oscillator and a full wave rectifier that supplies the high voltage for the oscillator. The high fre-

quency oscillator is composed of two 500-watt vacuum tubes operating at a frequency of from 10,000,000 to 14,000,000 cycles, the output of which is concentrated between two plates mounted vertically on top of the cabinet. The rectifier, for changing the low-voltage house supply of alternating current to direct current for use in the vacuum tubes, consists of an oil-immersed transformer having a 7,000-volt secondary and feeding two half-wave, hot cathode, mercury vapor tubes. In conjunction with a filter system, this unit furnishes the 3,000-volt direct-current supply for the oscillator. An auto-transformer is connected on the primary circuit of the high voltage transformer to provide plate voltage regulation.

The condenser plates are of aluminum, 28 by 18 by $\frac{1}{8}$ inches, and are covered with hard rubber plates 30 by 20 by $\frac{1}{4}$ inches to prevent arcing should the patient or attendant come in contact with the plates. In this field of undamped waves between the plates there is a rapid alternation of 3,000 volts drop of potential.

The patient is suspended on interlaced cotton tapes stretched across a wooden frame 76 by 28 inches, made of two-by-six lumber. The under surface of this frame is covered with composition boards, forming an air chamber beneath the body. A cover of the same material, eight inches high and one foot shorter than the frame, is fitted over the frame so that the head of the patient projects through an opening at one end. Thus there is formed a fairly tight air chamber around the body as it lies on the tapes. The patient rests on his back and the plates are placed each side of the box so that the waves oscillate through the body from one side to the other. The plate distance can be varied, but as a rule has been kept at 30 inches. Two small hair dryers are placed in openings at the foot, one above and one below, to circulate hot air around the body. These decrease heat loss and equalize the humidity throughout the enclosed atmosphere. By applying the plates in this manner and by enclosing the body, it is heated rapidly without causing great discomfort to the patient. When the desired temperature is reached it may be maintained by decreasing the voltage, by increasing the plate distance, or by employing only the hot air blowers.

The tube used for the production of the 30-meter waves is a four-element screen-grid tube designated as General Electric Type PR-861 Plotron. Especially adapted for use at the higher frequencies, it has a nominal output rating of 500 watts.

The filament is thoriated tungsten in the shape of a double helix supported from a center rod, and requires no tension springs. The grid and plate are cylindrical; the plate has six wings for dissipation of heat.

The fourth electrode, the screen grid, consists of a close mesh or winding placed between the control grid and plate, and extends the full height of the tube. It is supported by suitable means on the filament and control-grid stems.

In connection with the exhibition of the equipment and the announcement of the work with artificial fevers, Dr. Whitney issued a statement emphasizing the fact that the equipment is being used for experimental purposes only.

"Our policy concerning this new method of high frequency therapy has been to sell no apparatus but to study it ourselves and to assist

researches by others. We have built a number of outfits and have lent most of them to competent research groups. The expense has been considerable and we could hardly justify increasing the number of these loans," he said.

"Therefore, if the medical profession, in view of the experimental results already announced, feels that such researches should be multiplied, while we are still unwilling to sell such outfits generally until their utility is more completely proved, we are now willing to sell apparatus to accredited medical institutions equipped for research work."

Emblem in New Form

In striking new form, "The Sun's Only Rival" design trade-mark of Edison MAZDA Lamps is to be employed henceforth as the sole identification emblem for all Edison Lamp Works agents, products, and advertising. This design, in its old form, has been carried on lamp cartons since 1910. Now a modernized version will also supplant the "Pages" emblem of Maxfield Parrish, which has been in use since September, 1924, to distinguish agents and to embellish stationery and publicity matter.

The Edison emblem is an important point of contact with the buying public. It serves to identify the agent, tell where the lamps are sold, and draw the customer into the store—a symbol of dealer integrity and lamp quality. The adoption, for this important purpose, of a modernized and improved version of "The Sun's Only Rival" design has been brought about by its popularity and the universal recognition gained from six billion estimated appearances since its creation 20 years ago.



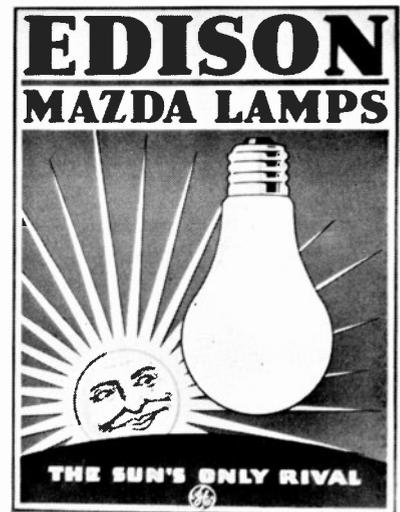
THE "PAGES" EMBLEM

In September, 1924,

when the Edison Lamp Works began intensively to publicize its agents, the regular trademark was not employed for the window transparencies and swinging signs. To associate the agent and customer pictorially, Maxfield Parrish was called upon to prepare a suitable emblem.

His design, which has been in use up to the present time, shows two Shakespearean pages leaning over what might be a counter, one representing the agent symbolizing the idea of service in his attitude of explaining the Edison MAZDA Lamp. The wording, "Edison MAZDA Lamps," appears in the center, and the whole indicates quality and service.

Although this emblem has become familiar from wide use since 1924, it is thought that the world-famous slogan, "The Sun's Only Rival," will tie in much better at the present time with the extensive advertising program of Edison Lamp Works, which is concentrating on this widely-known line as an integral part of its displays, cartons, magazine advertisements, car cards, booklets, etc.



THE EMBLEM IN NEW FORM



HOUSE NUMBER ONE AT JONES BEACH STATE PARK, ALREADY CONSTRUCTED

Jones Beach State Park and Causeway Light Up

MEMORIAL Day marked the opening of the Jones Beach State Park on Long Island to the public, and likewise it marked the completion of another unit in a lighting-up program, negotiations for which were begun over two years ago. Motorists have been using the Jones Beach Causeway and the Ocean Parkway in increasing numbers of late. The Causeway, four miles long, connects the mainland at Wantagh with the Parkway. Three stone bridges carry it over the principal channels of Great South Bay.

The first section of the Ocean Parkway runs through a tract of 1000 acres of unsurpassed ocean beach given to the public by the towns of



A HOT WEATHER CROWD ON THE MARINE BOARDWALK



G-E MARINE LANTERN UNITS ALONG THE OCEAN PARKWAY

Hempstead and Oyster Bay. At the intersection of the Causeway and Ocean Boulevard stands an imposing campanile 200 feet high, housing the water tower. To the west is the first completed bathhouse, which accommodates 10,000 bathers and 8,000 cars, and nearby a second similar building is under construction. Connecting these is the Marine Boardwalk, a half mile long.

Not the least of the problems encountered in this development was that of a suitable and adequate system of illumination. It was designed by engineers of the Long Island State Commission working with the Illuminating Engineering Laboratory of our Company. A floodlighting layout was designed for the campanile. A special lighting pole of Oregon red cedar was selected. From each pole is suspended a bronze marine

lantern, using a 4000-lumen lamp and dome reflector. There were 375 of these units ordered.

The Marine Boardwalk will be lighted by a special design of a ship's running light. When the lighting program is completed it is expected that the Jones Beach and Ocean Parkway will become a show place of Long Island.

The order for this installation was placed by the E. L. Phillips Company, and the obtaining of 100 per cent G-E equipment was made possible through the coördinated efforts of several members of the New York Office. The Watson-Flagg organization is handling the installation.

Compressors for the Ford Motor Company

An order for 15 centrifugal compressors, all designed for 1¼-pound pressure, to be used for operating cupolas in the foundry of the Ford Motor Company's River Rouge Plant, at Dearborn, Michigan, was recently received by the Detroit Office. One of the compressors is rated at 10,500 cu. ft. per minute, while the other 14 are rated at 5300 cu. ft. per minute. This business was secured as a result of tests extending over a period of several weeks on a 10,500 cu. ft. 1¼-pound machine. This test was conducted by H. V. Crawford, Industrial Department, River Works, and the results obtained bore out his contentions in regard to improved iron output and resultant economy due to lower maintenance, saving of valuable floor space, power consumption, and especially the saving of coke due to the automatic weighing of air required by the cupolas.

With an actual saving of 50 pounds of coke per cupola charge, it is calculated that an annual saving of \$62,500 will be realized in this plant alone. This figure is believed to be a conservative one, as Mr. Crawford expects a saving of more nearly 100 pounds per charge after the equipment is installed and in working order.

All the compressors are equipped with automatic blast gate controls, permitting the actual weighing of the air, and 440-v, a-c. motors with full voltage starters. They replace approximately 30 positive pressure blowers of another manufacture which have been in use for the past eight or ten years. A saving in floor space of more than 7500 sq. ft. is expected through the new installation. While the positive pressure blowers are equipped with 85-hp. d-c. motors, the new blowers will be powered with 40-hp. a-c. motors, which will be of ample capacity with the new machines.

Orders from the same customer have also been received during the past several weeks for one 6000-ft., 1-lb. machine; one 4200-ft., 1-lb. machine; two 2400-ft., 1½-lb. compressors, all of which will be used for foundry applications and heat-treating furnaces; and an order for five 5500-cu. ft. compressors, rated at 1½-lb. pressure, for use in connection with forging furnaces. This latter application will furnish air for 60 forging furnaces, 30 of which are installed

on each of two 24-inch main pipe lines, there being two blowers for each 30 furnaces, and a spare blower.

This type of motor-driven compressor has met with the enthusiastic approval of the Ford engineers and operators and has been practically adopted as standard for all low-pressure air applications in the entire plant. These compressor orders were obtained by T. Harvey, Detroit Office, with the assistance of C. L. Penny, Detroit Office, and H. V. Crawford, River Works.

B. & O. Installs Equipment for Cooling Dining Car

The Baltimore and Ohio Railroad, a pioneer in heavy duty electrification, has installed equipment for cooling and conditioning the air in a dining car.

The equipment is installed in one of their beautiful colonial diners, the *Martha Washington*, and is designed and installed so as to conform with the general architecture of the car. All equipment is out of view, being either under the car, in cupboards, or between the ceiling and the roof of the car.

The power is furnished by a 10-kw., 110-volt, d-c. axle generator, with the control equipment designed to cut in at 105 volts, or a speed of about 35 miles an hour, and cut out at 86 volts. The ammonia compressor is driven by a 7½-hp. motor, and both are suspended under the car. The cold water at about 38 deg. is pumped through a finned radiator. A fan draws the air through the radiator and forces it out through the overhead ducts on each side of the car.

The temperature is regulated by a thermostatically controlled shutter, maintaining a room temperature of from 10 deg. to 12 deg. below that of the outside atmosphere. The shutter by-passes the air, or a portion of the air, when the temperature reaches a desired value. The humidity is reduced to about 50 or 60.

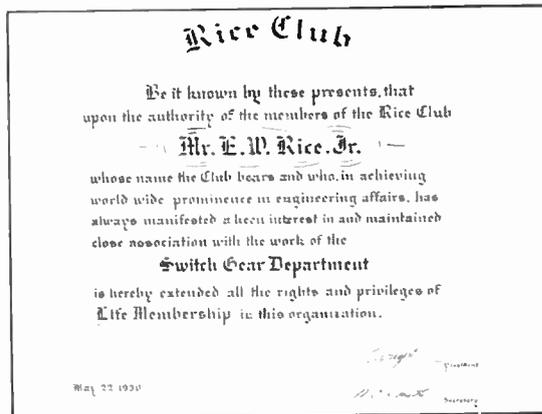
One of the remarkable features noted was that the temperature of the car was reduced about 10 deg. in less than 5 minutes after the equipment started. The equipment was furnished by the Carrier Engineering Company, using General Electric motors and control.

The E. W. Rice Club Has an Honor Guest

And Presents Mr. Rice with a Life Membership

THE E. W. Rice Club, organized in December, 1929, at the Philadelphia Works, held its most outstanding meeting on May 22 at the Brookline Square Club. About 115 men, laughing and singing and having a good time, attended the banquet held in honor of E. W. Rice, honorary chairman of the board of directors of our Company. It was an evening primarily for the Test Men, younger engineers, and Mr. Rice. All others were merely "among those present."

Telegrams (we suspect they were spurious) came in over a wireless set which buzzed and stuttered realistically at proper intervals. An operator trotted out to locate the addressees of these messages and read them. Advice, inquiries, promises, and suggestions were received, given or intercepted from "Mr. Young," "Mr. Barry," "Chic Sale," "Mr. Currie," and "Mr. Good." In spite of the paint and hired messenger suit the operator strongly resembled George Goodloe. Toastmaster "Bill" Sease got in a short announcement here and there. Each of the two professional vaudeville acts got an enthusiastic hand. Next, Sease announced that in honor of the distinguished guest and by virtue of close association with the R.C.A., Continental Congress, Reparations Commission, Toothpaste Company, etc., Amos and Andy would give a special program. Tiring of the unprofitable taxicab business they had hired out as Test Men and were seated on field boxes back of an automatic panel having a discourse on testing in general, their "bosses," and others in particular. The Alabama drawl of W. P. Smith as Andy, and W. E. Bankson as Amos, coming through megaphones from behind a screen of slats and crepe paper, was a perfect imitation. The subject



THE LIFE MEMBERSHIP CERTIFICATE PRESENTED TO MR. RICE

matter of their skit had been carefully prepared without respect to persons, but its humor was kindly and the victims of the jokes had as much fun as their unsung neighbors.

In the absence of President F. S. Wright, W. P. Smith, secretary-treasurer and foreman of automatic Test, welcomed Mr. Rice as the entire assemblage rose to its feet. Toastmaster Sease extended to him full membership in the club which has the honor to bear his name. Neil Currie was then called upon to outline the connection which the club has had and may have with the Philadelphia Works.

"Jack" Merriam introduced Mr. Rice, tracing briefly his progress from assistant to Professor Elihu Thompson through the offices of a vice president, president (1913 to 1923), and since then honorary chairman of the board, naming also a few of the many degrees and other honors conferred. Mr. Rice expressed first his appreciation of the action taken by the club in naming it after him. He told of many things which the necessity of early days turned into use. For example, he had to kill a cat, and dry its skin in order to get fur to use in a home-made static machine he was building out of broom handles, paraffined paper (home paraffined) and similar supplies. Apparently killing that cat brought no bad luck to him! He read with much amusement extracts from his own high school graduation essay written in 1880 when he was graduating from the Central High School of Philadelphia, of which Professor Elihu Thompson was principal. He aroused great merriment by reading the extravagant predictions this youth made about

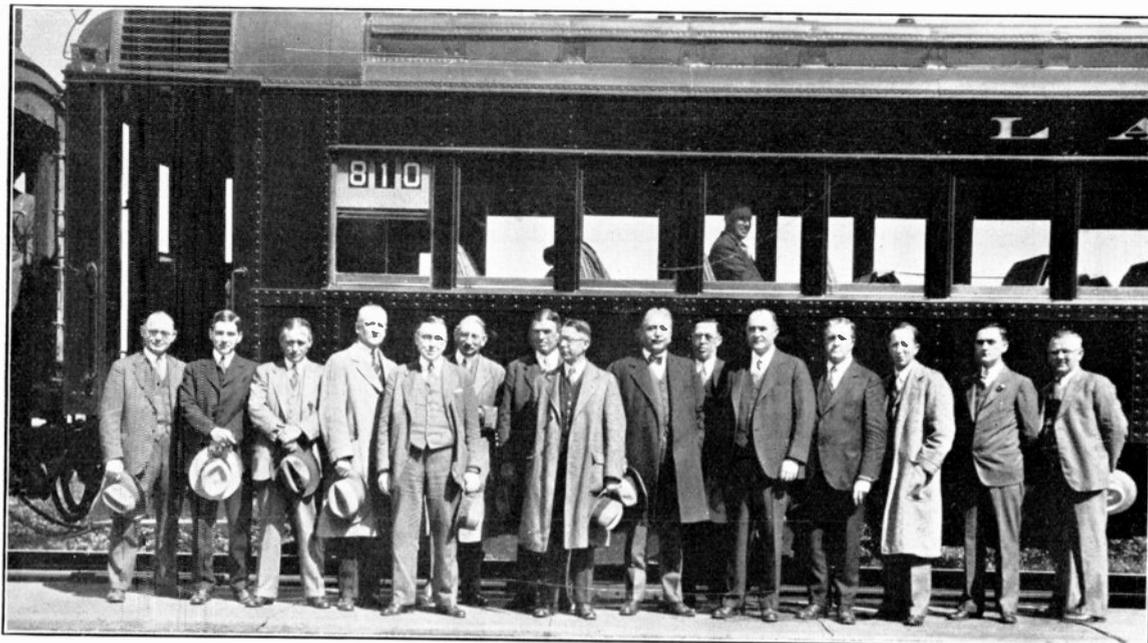


E. B. MERRIAM AND MR. RICE

the future of electricity, the new force that was just appearing on the industrial horizon, predictions couched in the flourishing style still showing effects of the Victorian school. But although his hearers laughed with him, they saw in the clear light of retrospection that here had been a young man possessed of accurate and practical vision.

As Mr. Rice concluded, every man present stood to join in the applause. "Bill" Sease, after thanking Mr. Rice in behalf of the club, reached for a parchment roll and presented him with a certificate of life membership in the E. W. Rice Club, which certificate Mr. Rice accepted with a brief expression of his appreciation of the honor thus extended to him.

Running Tests on the Erie Test Track



REPRESENTATIVES OF THE D. L. AND W. R. R., LEFT TO RIGHT—GEORGE WALL, CHIEF ELECTRICIAN; E. E. ROOT, MASTER MECHANIC; E. B. MOFFATT, GENERAL SUPERINTENDENT; T. T. MAXEY, REPRESENTATIVE OF THE PRESIDENT; P. J. LANGAN, TRAVELING AIR BRAKE INSPECTOR; R. M. WHITE, DIVISION SUPERINTENDENT; G. J. RAY, CHIEF ENGINEER; H. M. WARREN, ELECTRICAL ENGINEER; C. J. SCUDDER, SUPERINTENDENT MOTIVE POWER AND EQUIPMENT; C. S. WILLIAMS, ELECTRICAL FOREMAN; E. M. JENKINS, MASTER CAR-BUILDER; S. S. RIEGEL, MECHANICAL ENGINEER; JAMES THORP, TRACTION ENGINEER; FRED JAMES, GENERAL FOREMAN; JOS. KRON, GENERAL ENGINEHOUSE FOREMAN. SEATED IN CAR, A. WILSON, FUEL SUPERVISOR

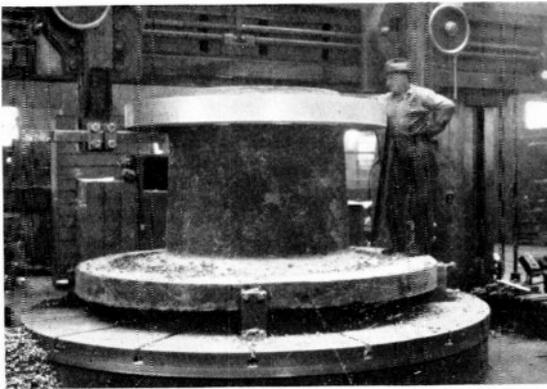
The running tests of the first 3000-volt Delaware, Lackawanna and Western two-car unit to be equipped, were made for a number of representatives of the railroad company on the Erie test track on May 27. These tests were witnessed not only by officers of the railroad company, but also by representatives of Jackson and Moreland, Consulting Engineers; the Pullman Car and Manufacturing Corporation; the American Car and Foundry Company; Westinghouse Air Brake Company; Consolidated Car Heating Company, and General Electric.

Frequent trips were made over the four-mile track of the East Erie Commercial Railroad, operating at speeds as high as 70 miles per hour, with frequent demonstrations of acceleration and braking. Comment was made on the easy

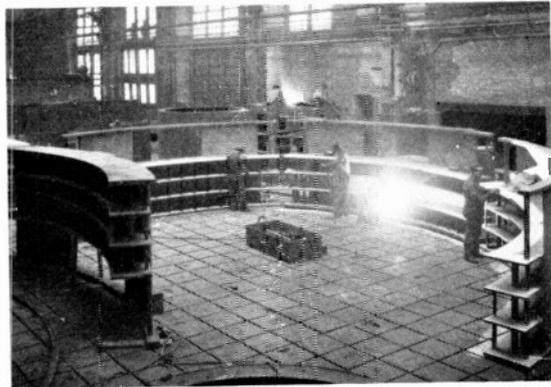
riding qualities of the car and its rapid acceleration and braking. Work on the equipment of these cars is proceeding rapidly and deliveries to the railroad will be begun within the next few weeks.

Add-A-Light Campaign Planned

Under the joint sponsorship of the MAZDA lamp companies, including the National Lamp Works and Edison Lamp Works of General Electric Company, together with various portable lamp manufacturers, a campaign to be known as the Add-A-Light campaign will be featured throughout the United States late in October and through November. The object will be to encourage the consumer to add a portable lamp in the home wherever it is most fitting and essential.



HUB OF THE ROTATING ELEMENT IN PROCESS OF MACHINING



ASSEMBLING THE FRAME OF THE STATIONARY ELEMENT

A New Power Giant for the Hudson

Spier Falls Installation, Scheduled for Operation December 1, will
Produce 57,000 Horsepower of Energy

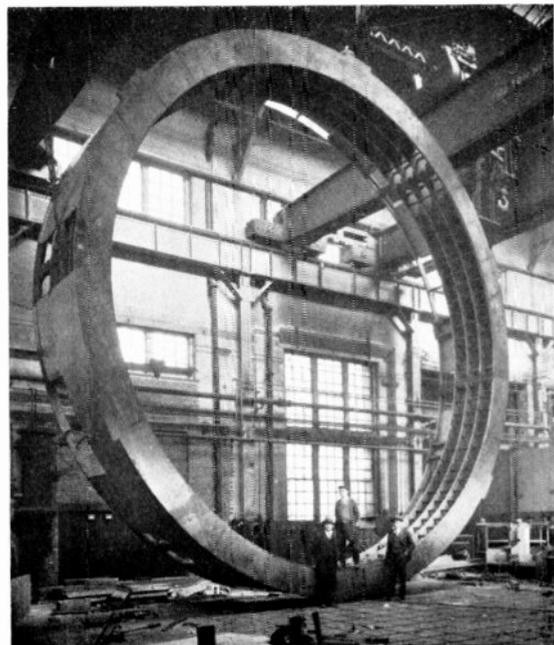
SECOND largest in New York state and among the largest water-driven machines anywhere, both as to capacity and physical size, a new power giant of the electrical realm is to be installed this year in the generating station of the New York Power and Light Company at Spier Falls, on the Hudson River. It will be capable of producing 57,000 horsepower of energy. At present the Spier Falls station has eight waterwheel generating units, but the newcomer will have a greater capacity than all these eight put together.

Only the generators at Niagara Falls will exceed this new Spier Falls electrical machine in capacity. It will have an overall diameter of 43 feet, a height of 24 feet, and will weigh 994,000 pounds. The various parts while under construction in the Schenectady Works made some spectacular scenes, such as the hub of the rotor, and the frame of the stator set up vertically, its imposing height thus representing the diameter of the completed unit.

So large is the frame for the stationary element that it is being made in six sections at Schenectady. The frame will be shipped disassembled and without the coils and windings which, because of their weight, would greatly increase the difficulty of transportation, especially as the last few miles must be covered by motor tractor, owing to the absence of a railroad track to the generating station. If shipped as a complete ring, there would not be sufficient clearance on the railroads and it would

be too massive for a motor truck, weighing 100,000 pounds by itself.

The machine is to be ready for service by December 1. During low water periods the waterwheel will be able to take the entire flow of the Hudson.

SPECTACULAR VIEW OF ASSEMBLED FRAME. IT WEIGHS
100,000 POUNDS

A Thousand Dollars for Ideas

Winners of Merchandise Department Contest Bring New Ideas to Selling Wiring

IN the recent "\$1,000 Idea Contest" sponsored by the Merchandise Department of our Company, ideas on selling wiring were received from all parts of the country, from the small-sized but growing contracting concerns to the larger and more successful establishments. The contest was open to all electrical contractors and contractors' salesmen.

Fifty-three prizes were awarded, the first prize of \$250 being won by Harvey S. Hatch of the Davis and Morgan Electric Company, Plymouth, Massachusetts. D. D. McFarlane of the Newbery Electric Corporation, Los Angeles, won the second prize of \$150, and John E. Powers, Rochester, New York, the third prize of \$100. Fifty other prizes of \$10 each were awarded.

Mr. Hatch, winner of the first prize, tells how the contractor, starting with a limited capital, can build up a well-developed business.

"Our sales activities are centered about a street map of Plymouth," he states. "We interview prospects in each zone and list them on cards."

The Davis and Morgan Electric Company then decides upon certain definite sales programs to reach these prospects, and concentrates upon these possible sources of business. This company obtains business in the rewiring field by mailing to its prospects literature which features the advantages of new lighting fixtures. This type of mailing has resulted in many return inquiries which have developed into complete rewiring and new fixture business for them. In his paper, Mr. Hatch also suggests that the office accounting system be in proportion to sales. The Davis and Morgan Electric Company maintains a price book in which every article it sells is alphabetically listed. The cost, selling price, and overhead are included, enabling them to bill customers on a consistently fair basis and to maintain a steady and fair profit. Mr. Hatch advocates selling only nationally advertised products and tying in with the manufacturer's advertising.

"Let each completed job act as a salesman for securing a contract on prospective jobs." This, in brief, explains how Mr. McFarlane of the Newbery Electric Corporation, Los Angeles, winner of the second prize, has built up a successful wiring materials business.

"After each wiring job is completed," writes Mr. McFarlane, "we prepare an attractive mailing piece which features that installation. We include the names of the architect, general contractor and engineer or other individuals who have taken an active part in the installation. These mailing pieces are sent to a list of prospects throughout the community, with the name of each person to whom it is addressed imprinted on a flyleaf, adding a personal touch."

The method of the Newbery Electric Corporation in retailing electrical merchandise has also contributed to its success. It installs attractive windows using nationally-advertised wiring materials, creating an effective tie-up with its own organization.

"We have found that by the use of a display with 60 compartments filled with wiring devices," states Mr. McFarlane, "we doubled our sales on these products over the former method of shelf display."

Perhaps one of the most unusual entries in the contest was that prepared by Mr. Powers, of Rochester, New York, who won third prize.

"My greatest help in selling wiring materials," he declares, "was cardboard furniture models, cut to a scale of one-fourth inch to a foot. When the prospective home owner spreads out a blueprint, I help him visualize his future home and electrical needs with my models. This is an advantage in locating convenience outlets, switches, and other materials. Very often, the layout planned has to be supplemented by additional outlets in every room."

Mr. Powers also makes it a practice to leave with his prospects a copy of the G-E "Home of a Hundred Comforts" booklet, which tells the advantages of adequate wiring.

Doughnut Situation Saved in Boston

Recently a gentleman who makes doughnuts called up Wolcott Fuller, of the Boston Office Central Station Department, and said that he must have a large size motor, namely, a 1/20 hp., to continue his production of doughnuts. The Boston Office was able to provide

him with the necessary apparatus by having him call at the warehouse, where his urgent requisition was promptly filled, so that Boston will have enough doughnuts for the Tercentenary visitors who cannot handle pie for breakfast.

Floyd Gibbons Sets the Pace

Floyd Gibbons, newspaper writer and author, who appears regularly on the General Electric Program every Saturday night with his "Adventures in Science" stories, is declared to be the most rapid speaker on the air today. In his talk on the General Electric Program recently, Gibbons spoke 2,930 words in 13½ minutes, or at a rate of 217 words a minute. Going deeper into the subject one finds the average per second was 3.6 words, which may or may not be a record.



FLOYD GIBBONS

Perhaps the outstanding feature of Gibbons as a radio speaker is his ability to talk rapidly and swiftly yet in a manner which is very easy to follow. This is a remarkable faculty in view of the fact that the average radio speaker must deal with his subject in a slow, methodical way, hesitating

between sentences and pausing frequently. Otherwise his words and meaning would be lost to the listening audience. Gibbons defies this standard of radio speaking. He talks exceedingly rapidly and yet his speech is easy to follow.

Floyd Gibbons was born in Washington, D.C. He says that he educated himself, mostly by reading, since he didn't graduate from grammar school. When 16 he shoveled 80,000 pounds of wheat a day for six days in Minneapolis, and on the seventh day he edited a weekly newspaper. He has been a reporter in all the principal cities of the world, says he was always lucky enough to be around when things were happening. Among other adventures he was torpedoed off the Irish coast in 1917, when 13 were killed. He stopped three machine gun bullets in Belleau Wood in 1918, and one of the results was the loss of his left eye. Lying wounded in No Man's Land in wheat ten inches high he watched machine gun bullets clip the coat buttons off an unconscious marine nearby.

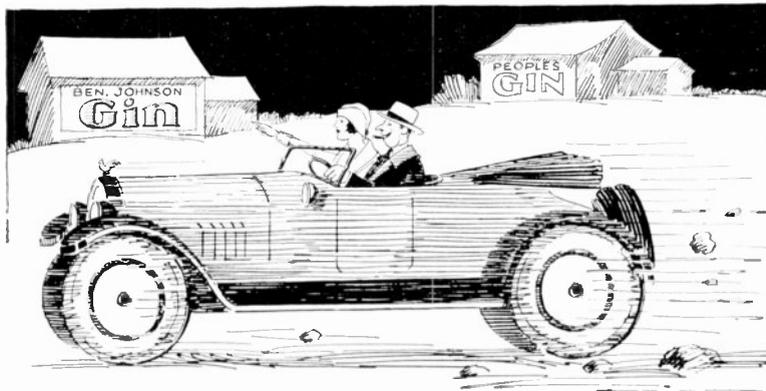
The Gin Question in the Southwest

Miss Helen McKinlay, home lighting specialist of the Edison Lamp Works, was visiting Texas.

The train steamed swiftly past Thompson's Gin. Through Miss McKinlay's mind ran a surprised "Thompson's Gin?" Five miles farther Thompson's Gin gives place to the Farmer's Gin. Surprise gave way in Miss McKinlay's consciousness to puzzled wonderment. Next down the line stands the People's Gin, and the lady, thinking her eyes deceived her, exclaimed to the friendly old conductor, "The people's gin! I am utterly amazed!" But the undivining trainman observed, "Yes, ma'am! You are in a democratic country now; the people all benefit by that gin."

The day following, Miss McKinlay, while driving down a Texas country road with V. J. Graham, illuminating specialist, found the gin

question again disturbing. To the left of Graham's car a cotton field stretched into infinity; on the right, Ben Johnson's Gin brazenly advertised itself to the world. Johnson's gin proved one too many for Miss McKinlay.



"THEY OUTNUMBER THE SPEAK-EASIES AT HOME!"

"These gin mills astound me! So many of them, too; they outnumber the speak-easies at home. Why, all along the way from the train window I saw them — Thompson's gin, the Farmer's gin, the People's gin, and now Ben Johnson promisingly advertises the fact, as

they all do, that *he* operates a gin mill!"

Miss McKinlay, who had never seen a cotton field until she went to Texas, was, however, much interested in Mr. Graham's explanation of cotton ginning, and was pleased to learn of the thousands of cotton gins throughout Texas and Oklahoma that are being G-E motorized as a result of a direct mail campaign in the district.

Baltimore Develops New Substation

When the United Railways and Electric Company of Baltimore decided to build a new substation at Hamilton, they consulted the engineers of our Baltimore Office in reference to the best type of equipment to install. As the station is located in a developed suburban section, considerable attention was given to the exterior design. This part of the work was commissioned to Addison F. Worthington, architect, and the design finally adopted called for rubble masonry construction with a rough-texture slate roof, and large flush end chimneys, which serve to ventilate the interior. This building design for a substation has received most favorable comment.

During the latter part of July, 1929, the first 2000-kw. converter, to be known as No. 2, was moved, together with transformers and other auxiliaries, from the central substation and installed in the west side of the converter compartment. During August both high tension cables were pulled into the station, and on September 24 the first of these, known as No. 209, was made alive from the northern substation. On September 28, No. 2 converter was started up and carried load for the first time. After certain minor adjustments, the station was put in regular service with one converter and one cable on October 4. On November 3, the second high tension cable, known as No. 109, was put in service.

Between October 28 and November 20, the second 2000-kw. converter, with transformers and auxiliaries, was moved from the northern substation and installed in the east side of the converter compartment. This converter was started for the first time on December 12 and was paralleled with No. 2 converter on December 14. Since that date the station has continued in full operation, and by the end of the year all except some minor details relating principally to the building and grounds had been completed.

Briefly summarized, the electrical equipment for this station consists of two 2000-kw. synchronous converters with auxiliaries, supplied with high tension energy from Northern substation over two 13,200-volt, 3-conductor, No. 6,



ARCHITECT'S CONCEPTION, A VIEW FROM THE SOUTH OF THE NEW SUBSTATION

paper insulated, lead-sheathed underground cables furnished by General Electric, the total combined length for both cables being 47,640 feet. There are six 600-volt underground feeders leaving the station, two of which will ultimately feed the Gardenville section, two the Hamilton section, and one each the Carney and Overlea sections. The negative returns consist of four cable groups, each with a total effective cross-sectional area of 2,000,000 cir. mils, two of the groups connecting with the rails on Belair Road and two with the rails on Harford Avenue. For the purpose of preventing electrolysis, suitable copper drains connect water and gas pipes and cable sheaths to the negative station bus, through an automatic General Electric contactor.

The station is arranged for safe and convenient one-man operation, and the interior layout is unique in its departures from custom. A number of automatic and semi-automatic features are also incorporated for safety and to facilitate operation. The converters are provided with automatic brush-raising devices and General Electric automatic starting and running equipments, and the four feeder panels are also of General Electric manufacture of the MC-2 reclosing type. The usual protective relays used in automatic substations for guarding bearing temperatures, air flow through the transformers, etc., are also provided.

Cable Section Renders Quick Service

About 2 p.m. one recent afternoon, a telegram from C. G. Moore of the Niagara Falls Office was received by the Cable Section of the Central Station Dept., Schenectady, stating that the Atcheson Graphite Company, Niagara Falls, required immediately a length of varnished cambric insulated 15,000-volt cable.

G. E. Jones, Cable Sales, immediately called

the Works, and after being told that none of this particular cable was on hand, finally located exactly what was wanted in another Schenectady Works stock room. Arrangements were made to transfer the cable to the Shipping Department, with the result that shipment was made by express within three hours after receiving the telegram.

Schenectady Local Sales Office Appointments

The appointment of C. A. Swanson to have charge of the building equipment work of the Schenectady Local Sales Office has been announced by George Campbell, manager.



C. A. SWANSON

Other appointments made by Mr. Campbell, effective as of June 1, are: Edson Tilley, to have direction of lamp sales, assisted by P. B. MacGathan, formerly chief clerk, in the office, and W. H. Witbeck, as chief clerk.

Mr. Swanson was in charge of lamp sales in the Schenectady Local Office territory at the time of his recent promotion. He is a native of Rockport, Mass. He entered the employ of General Electric on Test in the Lynn Works, and for three years was on instrument and meter production. He joined the staff of the Schenectady Office on May 19, 1913, as supply requisition clerk. On July 1, 1919, he was put in charge of lamp sales. In his new position on building equipment work, he will also be responsible for all state work clearing through Albany.



EDSON TILLEY

Mr. Tilley, who will direct lamp sales in the local office territory, was born in Grafton, N. Y. He came with General Electric in 1917, as clerk in the Shipping Department. On September 1, 1922, he entered the Local Sales Office as requisition clerk, and since 1924 has been assisting on lamp sales.



P. B. MACGATHAN

Mr. MacGathan was born in Johnstown, Scotland, and was first employed by General Electric on September 15, 1915, in the General Accounting Department.

He has been in the Local Sales Office since 1923, working first on supply requisitions, and advancing later to apparatus requisition work. In January, 1929, he was made chief clerk.



W. H. WITBECK

Mr. MacGathan's successor as chief clerk, Mr. Witbeck, is a native of Alplaus, N. Y. His first position with the Company was as clerk in the former Power & Mining Department, in 1917. He has been handling apparatus requisition work in the Local Sales Office since 1920.

Power Apparatus Sales Division of G.E. Supply Corporation Holds Meeting

A meeting of the men of the Power Apparatus Sales Division of the General Electric Supply Corporation was held June 9, 10 and 11 at Bridgeport, Connecticut; Plainville, Connecticut, and Pittsfield. The conference was directed by Guy G. Jeter, manager of the division with headquarters at Bridgeport. Those attending were: G. B. Cumming, district manager of the Power Apparatus Division, Chicago; C. E. Mathes, district manager Power Apparatus Division, Columbus; R. J. F. Cullen, district manager Power Apparatus Division, New York; W. F. Dooling, of the same department at Boston; S. J. Cooper, manager Power Apparatus Department at Philadelphia; E. R. Westendorf, sales engineer for the G. E. Supply Corporation at Baltimore. Mr. Jeter, who spent 15 years in the Central Station Department at Pittsfield in the Transformer Division, presided.

The conference opened at Bridgeport on Monday morning, June 9, and continued there all day. The following day, Plainville was visited, where the plant of the Trumbull Electric Manufactur-

ing Company was inspected. The products of this Company, which is one of our associated companies, were discussed, and during the afternoon golf was offered as a diversion on the links of the Shuttle Meadow Country Club. On June 11 the representatives were guests of General Electric at the Pittsfield Works. J. O. Roser and C. C. Pilsbury of the Transformer Division, Central Station Department, were in general charge of arrangements. The visit to the Pittsfield Works included an inspection of the plant, followed by luncheon at noon at the Works Restaurant, and discussions in the afternoon. Dinner was served in the evening at 7 o'clock at the Hotel Wendell. Homer Hayward, F. W. McChesney, R. C. Sogge, E. J. Wehrle, and W. T. Chapman, all of Schenectady, were present.

The General Electric Supply Corporation handles a wide variety of the Company's products in territories all over the United States. The conference was particularly valuable this time, for it brought to light many interesting facts about the several plants visited.

A. J. Francis Passes On

Albert J. Francis, manager of Fractional Horsepower Motor Sales, died on June 17 at the Battle Creek Sanitarium, where he had gone for an operation.



A. J. FRANCIS

Mr. Francis was first employed at the Chicago office of the Stanley G. I. Company in the early 1900's and was with that company when it became a part of General Electric in 1906, but left the following year. He returned, however, on August 6, 1908, and went to work in what was known as the Fort Wayne Department of the G. E. Company at Chicago. It was there that he began his remarkable career in the sale of fractional horsepower

motors, becoming manager of that division of the Chicago Office in 1912. As a result of his work, fractional horsepower motor sales became such a substantial item of the Company's business that a separate department, the Fractional Horsepower Motor Sales Department, was formed, with headquarters at Fort Wayne. Mr. Francis continued manager of the department, and through his courage and persistence built up the fractional horsepower motor business to what it is today.

He was born in California in 1875, and attended grammar school there. He had no formal schooling beyond that, but had in him the qualities which made him a brilliant salesman.

He is survived by his widow; a daughter, Mona C., of Los Angeles, and a son, Horace Francis, who is connected with the Industrial Acceptance Corporation.

The Late Erik Gustav Sohlberg

Erik Gustav Sohlberg, designing engineer in the Construction Engineering Department, died shortly before noon, June 13, at the Ellis Hospital, Schenectady. Mr. Sohlberg was seized with an attack of appendicitis while passing the week-end with his family at Camp Gahada, May 31, and the following Monday underwent an operation. His condition from the first was very serious and his recovery doubtful.



E. G. SOHLBERG

Mr. Sohlberg was born in Ockelbo, Sweden, August 1, 1880. He was graduated from Norrkoping College, Sweden, in 1900 with the degree of M.E., and for a year and a half after graduation was employed in the design and erection of steam locomotives in that country. For three years he designed electrical railway control equipment for the British Thomson-Houston Company at Rugby, England, and in May, 1905, entered the employ of General Electric as a bench hand in Schenectady. After a period on Test and five years as a draftsman, in 1912 he became designing engineer in the Construction Engineering Department, specializing in power plant and substation design.

Mr. Sohlberg is survived by his wife and three sons, Erik Thompson, Robert, and Russell. He was a member of the Schenectady section of the American Institute of Electrical Engineers.

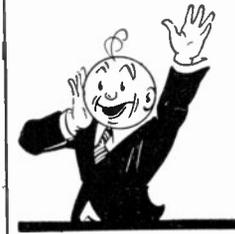
Locomotives and Water Coolers



Electricity performs many services in connection with the new Union Terminal development at Cleveland. Electric locomotives haul the trains in and out of the terminal, located at Cleveland's public square. Above is a photo of the Collinwood shops, showing a G-E locomotive and in the foreground is a G-E water cooler.



Interesting Orders



2000 Street Lighting Units for Detroit

Orders covering 2000 Form 32 Novalux street lighting units for the city of Detroit were recently secured by the Detroit Office. G-E equipment was specified on the basis of quality. These units will be used for thoroughfare lighting. In addition to the Novalux units, orders were secured for 300,000 feet of parkway cable and 46,000 feet of $8\frac{3}{4}$ conductor cable to be used in Detroit's lighting program.

Dynamometer Equipment for General Motors Corporation

The Detroit Office recently secured from the General Motors Corporation an order for dynamometer equipment to be used in the General Motors Research Laboratory for transmission testing. This is one of the largest dynamometers ever sold for this application. The equipment consists of two cradle dynamometers, each of 200/300-hp. rating and includes a special control feature of operating contactors from the standard dynamometer control panel, these contactors being located on a panel several floors above the testing floor, with motor and absorption resistance. It was found that this special control was cheaper than running resistance connections which would have been required on standard dynamometer control.

First Installation in U.S.A. of 3-conductor 66-kv. Cable

Four overhead 66-kilovolt circuits between the transformers at its Columbia Park generating station and its terminal transmission lines are to be replaced with three-conductor cable of like capacity by the Union Gas and Electric Company of Cincinnati. It will be the first such installation in this country, and is to be used in filled ground which is subjected to submersion by flood stages of the river at certain times, and to very dry conditions at other periods. The oil-filled armored cable, covered in turn with paper

insulation, a lead sheath, a layer of asphalted jute, two band steel tapes, and an outside layer of asphalted jute, is not affected by either excessive wetness or dryness. The cable, which is being built by General Electric, will be shipped and installed in five lengths, each approximately 1300 feet long. Four of the cables are to carry load (37,500 kv-a. each) at one time; the other cable will be a spare. Thirty-two oil-filled terminals and 12 feeding-type oil reservoirs will be used with the installation.

Large Order for Miniature Lamps

The Edison Lamp Works of the Southwestern District recently received an order for 72,000 miniature lamps from The Acme Company of Shreveport, Louisiana.

Equipment for Operation in Explosive Atmosphere

An order has been received from the Judson Pacific Company of San Francisco for complete electrical equipment for four cranes to operate in an explosive atmosphere. The MTC motors will be provided with externally enclosed collector rings in accordance with the Bureau of Mines standards, and the control equipment will have oil immersed contacts. The order was secured through the efforts of H. J. Gallagher and C. K. Herr of San Francisco.

Transformers for Use with Railway Signals

In connection with the D. L. & W. electrification, the New York Office Transportation Department has received an order for 257 transformers to be used to furnish power for signals. These transformers total 602.6 kv-a. capacity. In addition, orders have been received for 440 pellet type lightning arresters, and 866X242 cutouts to be used on the 2300-volt signal power line. These orders give some idea of the extensive amount of electrical equipment necessary for signal work.

Mining Company Orders Automatic Switching Equipment

J. W. Lacy, Jr., Birmingham Office, recently secured an order from the Debardeleben Coal Corporation, Birmingham, Alabama, for nine duplicate automatic switching equipments for controlling mining motor-generator sets. The installation of these equipments will eliminate two operators per equipment, and only one operator will be retained as an inspector for the total of nine equipments.

Recent Switchgear Orders

Among recent interesting orders for switchgear are the following:

Twenty-one truck panels have been ordered for installation in the steam station of the Pacific Gas & Electric Company at San Francisco. These will control the output of a 50,000-kw. turbine which is expected to be put into operation some time before September 15. Each unit will be provided with a hinged front panel and will operate on a 2300-volt circuit. Five of the 21 will contain FKR-55B, and 16 will contain FKR-55-30, 7500-volt oil circuit breakers.

Additional switching equipment ordered by the New York Steam Corporation is of interest because it was found that metal-clad units could be used to advantage in connection with the truck switchboard already installed. Space was limited and equipment of higher ampere ratings than that now in service was necessary. Metal-clad units solved the problem. The order consists of seven metal-clad units using 7500-volt, FKR-55 oil circuit breakers to control 2300-volt, 3-phase, 60-cycle generator, selector, and bus tie circuits. Five truck panels were also ordered for independent installation to control 2300-volt, 1200-ampere circuits.

The Portland Electric Power Company of Portland, Oregon, has decided on metal-clad equipment for its Tabor substation, this being the first metal-clad equipment for that section of the Northwestern territory. The order consists of eight metal-clad units with Type FKR-55, 15,000-volt, oil circuit breakers to control two 11,000-volt incoming lines and five 300-ampere feeders. The bus is sectionalized and one unit is used as a bus-tie.

The Dixie Construction Company has ordered a number of G-E explosion chamber oil circuit breakers for the Furman Shoals substation of the Georgia Power Company. The order includes three FHKO-239, 115,000-volt breakers, and five FHKO-139, 50,000-volt breakers. The requirements for the switching equipment of this substation were under consideration last year, and after careful analysis and considerable deliberation, G-E oil circuit breakers were chosen.

Another order has been received from the Lago Petroleum Corporation for equipment to be installed near Lake Maracaibo, Venezuela. It will be used to control two 3125-kv-a, 6900-volt turbine generators, and six transformer cubicles will be installed for each machine. A panel switchboard 90 inches high will also be placed in the main power station. Sixteen GB-10 switch houses will be used for distributing power from the substations, which are situated at various distances, up to 17 miles. As the climate is damp in that locality and there are wide variations in temperature, it will be necessary to provide moisture—and rust-resisting equipment throughout.

Order for a 5000-kw. Turbine

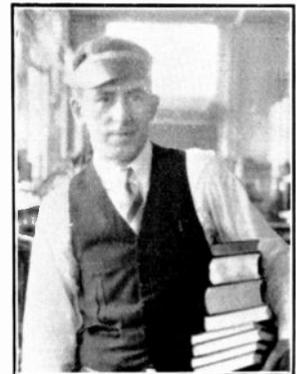
As a result of phenomenal power plant growth during the past ten years, the City of Rochester, Minnesota, has recently placed an order, through the efforts of C. J. Strayer of the Minneapolis Office, and A. J. Adams, turbine specialist, Chicago, for a 5,000-kw. turbine, together with a surface air cooler. Steam is extracted from the turbine for heating adjacent buildings.

A Novel Order Filled by the Detroit Service Shop

When the Allied Engineering Company arranged to handle the changeover plans for the Consumers Power Company, Grand Rapids, Michigan, from 30 to 60 cycles, a request was made on Detroit for a suitable shop foreman.

Irvin M. Connell, foreman of the Detroit Service Shop for the past five years, was transferred to Grand Rapids as shop foreman for the changeover program. Arthur D. King, of the Detroit Engineering Construction force, has also been transferred to Grand Rapids to act as production manager for the Allied Engineers Service Shop during the 30 60-cycle changeover, and F. D. Whelan has been transferred from Detroit to Grand Rapids to specialize on the changeover.

In appreciation of Mr. Connell's service to the Company and cooperation with his fellow workers, Service Shop employees presented him with a set of reference books. He was an employee of the Chicago Service Shop before he went to Detroit.



MR. CONNELL AND HIS BOOKS

Around the Circuit

Central

Mrs. F. H. Levinson, formerly secretary to William Hand, manager, and who was until recently Florence Rubin, was given a farewell reception in the Kansas City Office in the Dwight Building. She was presented with a Telechron chime clock in recognition of nearly 18 years of service with the Company.

George Fiske, assistant manager, Kansas City Office, has been elected vice president of the Kansas City Safety Council.

E. R. Chytraus has recently joined the Central Station Department of the Chicago Office, and W. A. Greenlaw, Jr., has been made street lighting specialist. Both were formerly with the Central Station Department, Schenectady.

"Research Laboratories of the General Electric Company" was the subject of an address by H. D. Sanborn, of the Chicago Office, given on May 19 at the noonday luncheon of the Engineers Club of St. Paul. About 50 members were present. In the evening he gave an illustrated lecture on the same subject before the Engineers Club of Duluth. Both talks were followed by open discussions among the club members.

In honor of Nellie Olsen of the Minneapolis Office, a dinner was given on May 8 at the Curtis Hotel by the girls of that office. Covers were laid for 19. Miss Olsen, who is now on a leave of absence for a European tour, was presented with an evening bag. Miss Olsen sailed from New York on May 22 after a short visit in Washington, D. C. She plans to visit London, Norway, Sweden, Denmark, Holland, Switzerland, Germany, Italy and France before returning to the office in September.

Marie Moran, of the Detroit Office Stenographic Department, was married on May 24 to John Durbin. Mr. and Mrs. Durbin visited at the home of Mr. Durbin's parents in Bloomington, Illinois, during their honeymoon.

Thirty-nine golf enthusiasts of the Detroit Office held their first golf tournament of the season May 24 at the Elizabeth Lake Golf and Country Club. Scores ranging from 91 to approximately twice that number were turned in, and prizes, based on the kicker's handicaps, were given as follows: First prize, E. F. Rickelman; low gross, L. N. Bedford; high gross, B. A. Waddle; low net, J. M. McNulty; high net, R. C. Muth; low individual hole, L. A. McKenney; high individual hole, C. G. Graves; score predicted, H. P. Doud; blind prize, V. J. Snyder; blind prize, J. C. Frank. The boys are planning another digging and dubbing contest to be held in the near future.

Mr. and Mrs. James L. Townsend, of Grand Rapids, are the proud parents of a 9½-pound boy, James Nelson Townsend, born on May 26. Mr. Townsend is a member of our office at Grand Rapids.

A daughter, Carol Lee, was born to Mr. and Mrs. C. A. Degering on May 24. Mr. Degering is in the Central Station Department of the Chicago Office.

With a huge box of cigars in one hand, Fred Lorenzen of the Chicago Office announced the birth of an 8¼-pound daughter on May 29. Mr. and Mrs. Lorenzen have named the new arrival Donna Christine.

Completing 37 years of service with the Company, John Dietrich, for the last 21 years with the Turbine Construction Department in the Chicago Office, was retired on pension on June 4 at the age of 70 years. During his many years of faithful service, Mr. Dietrich has made a host of friends both within the organization, and among customers, whose confidence he had gained. A gold watch was presented to him on

the date of his retirement, inscribed: "Presented to John Dietrich by the Executives of the Engineering and Turbine Departments and the Turbine Construction Foremen in honor of his 37 years of service—1893  1930."

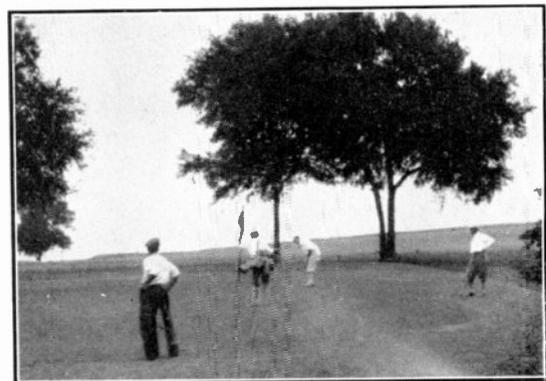
Exploiting metal-clad switchgear and oil circuit breakers, A. B. Lawrence and A. S. Martin, both of the Switchgear Department, Philadelphia, made a tour of the Central District, conducting meetings in seven local offices. A total of 294 representatives of customers interested in this line attended the meetings. A comprehensive exhibit, including working models and pictures of the equipment, was set up in each of the meeting rooms used, and open discussions of switchgear problems followed the talks given by Messrs. Lawrence and Martin. Opinions expressed by customers' representatives and G-E men indicated that much valuable information had been given to those in attendance, and considerable interest in recent switchgear development was aroused. The idea was enthusiastically received in all parts of the district. Meetings were held in Chicago, Detroit, Kansas City, Omaha, Minneapolis, St. Louis, and Milwaukee during the month of June.

Southwestern

T. J. McManis, assistant manager, Publicity Department, Schenectady, visited the Oklahoma City, Houston, El Paso and Dallas Offices during the week of May 26. While in the district Mr. McManis addressed the Southwestern District organization several times on the advertising program of General Electric and its associated Companies for this year.

G. R. Prout, Industrial Department, Dallas, recently lectured on motors and control before the Special Utilities Men's Meter Course at the University of Arkansas.

In the first flight of the recent golf tournament held by the Dallas Electric Club, W. H. Tucker, Industrial Department, Dallas Office, defeated E. P. Spear of the Texas Power and Light Company, Dallas, in the finals, the match going 19 holes. The accompanying snapshot, taken by R. W. Van Kirk, and without Mr. Tucker's knowledge, shows "Tuck" putting on the nineteenth hole. Mr. Spear is shown to the right in the middle distance. This victory marks the second consecutive year Mr. Tucker has won the first flight of the club tournament.



THE END OF A PERFECT DAY



AT THE HOUSTON OFFICE OUTING

The accompanying picture shows the Houston crowd enjoying a picnic at Red Bluff, near Sylvan Beach, Texas. U. Langhammer, who has recently returned to the Dallas Office after several months of work in Houston, has reported, as outstanding among amusements enjoyed by the picnickers, a baseball game in which Mrs. G. W. Curry and Anna Mendell starred at third base, one on each team, while E. M. Wise, star first baseman, made 20 beautiful "put-outs" and 20 errors—equally remarkable. Crabbing, swimming, dancing, and one mud fight, indulged in by L. H. Matthes, G. W. Curry and B. W. Morphis, entertained all, save A. L. Atkins and W. F. ("Pop") Ghiselin, who in consequence of their non-participation fell under the shadow of suspicion when fisher-folk, swimmers, dancers, ball players and mud-fighters accused these gentlemen of absconding with certain delectable bits of chicken before luncheon was served.

W. Hendrickson of the Dallas Service Shop spent his vacation with his granddaughter in Shreveport, La., in June.

A. E. Allen, district engineer, and W. F. Kasten, superintendent of the Dallas Service Shop, visited the Houston Office on June 4.

W. R. Power of the Dallas Service Shop spent an enjoyable week, recently, fishing at White Rock Lake.

At a recent meeting of line superintendents of the West Texas Utilities Company, Abilene, Texas, T. L. Miller lectured on cutouts.

Local distributors of General Electric refrigerators, representatives of the A. G. Reddick Company, with A. G. Reddick and other officials of the Reddick Company, Jackson, Mississippi, addressed a meeting of the Refrigeration Sales Department recently held in Shreveport, Louisiana. A. E. Freshman, district representative of the Refrigeration Section, St. Louis, and M. E. Montrose, manager of the General Electric Company Office at Shreveport, addressed the group. Mr. Freshman accompanied Mr. Montrose to Hot Springs, Arkansas, where they attended the N. E. M. A. convention.

W. B. Clayton recently attended the annual banquet of the Engineering Society of North Texas Agricultural College, Arlington, Texas. G. R. Prout accompanied Mr. Clayton and addressed the members of the Engineering Society on "The Engineering Field."

On June 10, G. B. Manning, meter specialist, Dallas Office, was married to Thelma Fryday of Groveton, Texas. After a short wedding trip Mr. and Mrs. Manning will be at home in Dallas.

On May 22, V. J. Graham, illuminating engineer, Southwestern District, lectured on Lighting before the Houston Section of the A.I.E.E.

R. W. Van Kirk, Industrial Department, Dallas Office, recently visited Chicago, Detroit, Cleveland, New York, Louisville, and Memphis.

Mrs. Howard Hitt, nee Margaret Booth, formerly with the General Electric Supply Corporation, Dallas, has been employed in the El Paso Office.

Mrs. Bess Raycraft, stenographer in the El Paso Office, has been granted a two-months' leave of absence in order to recover from an operation.

Robert G. Smith of Lynn is now a member of the Industrial Department, Dallas Office.

Mrs. Marie Payne has returned from a vacation in San Antonio and Corpus Christi, Texas.

Mrs. May McClammey has been engaged as bookkeeper in the Credit and Collection Department, Dallas Office.

Mrs. Hetty Herrin, who has been absent from the office several weeks following an operation, returned to her duties as switchboard operator in the Dallas Office on June 9.

W. J. McLachlan, Schenectady, spent several days recently in the Southwestern District. In connection with Mr. McLachlan's visit, E. G. Mugford reports orders secured in Dallas and Fort Worth for network switches and transformers.

G. N. Pingree recently gave two interesting talks, the first before the West Texas Utilities Company line superintendents at San Angelo and the second before the Oklahoma City Section of the A.I.E.E. The subjects were, respectively, "Induction Voltage Regulation" and "Developments of 1930 in the Transformer Field."

B. M. Davis, the El Paso Office, recently addressed the student Engineers' Club at the El Paso High School. His subject was "What G-E has to Offer the High School and College Graduate." The talk proved sufficiently interesting to achieve front page publicity in the high school paper. Mention was also made in this edition of the school paper of the motion pictures furnished the El Paso school.

During a recent Oklahoma City Section meeting of the A.I.E.E., L. B. Bass discussed "Some Developments in the Electrical Industry During 1929." Before the same assembly G. N. Pingree lectured on "Rural Substations."

General Electric representatives lately met with representatives of the San Antonio Machine and Supply Company in Waco, Texas, where talks were made by L. T. Blaisdell, R. H. Hoge, C. M. Southern, L. E. Stenger and R. T. Shiels. This meeting, preceded by a dinner given at the Waco City Club, by General Electric in honor of the machine and supply company celebrated the opening of the latter company's offices and warehouse in Waco.

L. T. Blaisdell, manager of the Southwestern District, was recently elected chairman of the Dallas Section of the A.I.E.E. At a dinner meeting of the A.I.E.E. in San Antonio, Mr. Blaisdell summarized the objects and aims of the A.I.E.E., reasons for membership, and benefits to be derived through membership in it.

G. B. Manning represented the Southwestern District in the Metermen's Short Course at the University of Oklahoma in May. Mr. Manning, as southwestern representative, also attended the Metermen's Short Course at the Texas Agricultural and Mechanical College.

H. M. King of the Turbine Engineering Department, Lynn, spent several days in this district, recently, inspecting turbine installations.

P. G. Cremins, chief clerk of the El Paso Office, who recently underwent a major operation, is improving.

Rocky Mountain

An item in the June issue of the G-E MONOGRAM stated that G. S. Spangler was a contestant for the David Belasco Cup in the Little Theatre Tournament. This issue went to press before we knew the results of the tournament, so we were unable to add the last paragraph to the story. Out of 20 groups of players, representing the best of amateur actors in the United States, the Buffalo Studio Theatre Players, with whom Mr. Spangler was playing, were awarded first prize for their offering, Anatole France's "The Man Who Married the Dumb Wife."

E. M. Paulin, New York Office, was a visitor to the Denver Office, May 30 and 31. While here, Mr. Paulin addressed our Sales and Engineering Departments on the Synchronous Motor Section of the Agents' Handbook, explaining the method used by his department in quoting various motors from that section.

L. M. Stauffer, district engineer, and M. G. Graff, Central Station Department, met the "Red Special," carrying delegates to the national N.E.L.A. convention, San Francisco, at Pueblo, Colorado, and rode on it to Colorado Springs, extending the greetings of the Rocky Mountain District to its passengers, especially members of the G-E organization from our Eastern offices. The Red Special originated in New York and Boston. A two-day stopover was made at Colorado Springs to allow the passengers time for a trip to the summit of Pikes Peak and other scenic trips in that region. One other stop in the Rocky Mountain District was planned at Santa Fe, New Mexico, where the delegates visited Indian and Spanish-American villages at Puye.

On their return from abroad, Harold Richmond, son of C. B. Richmond, auditor of the Salt Lake City Office, and David Buchanan stopped at the Schenectady Works, and enjoyed a very instructive trip through various shops, and points of interest nearby.

E. L. Dee, sales manager, Edison Lamp Works, Salt Lake Office, attended the General Sales Conference of the Edison Lamp Works held at Nela Park, Cleveland, May 5, 6, and 7.

Recent visitors to the Salt Lake Office were F. L. Stone of the Industrial Engineering Department, Schenectady; J. E. McElroy, assistant to supervisor, Warehouse Supervision Department, Schenectady; and M. J. Murphy, Transportation Department, Chicago Office.

New England

Homer Myers, industrial engineer of the New England District, has just returned from a vacation trip to his old home in Oklahoma. He visited Tulsa, Shawnee, Bartlesville, and our Oklahoma City Office.

C. M. Ripley of Schenectady was guest speaker recently at a luncheon arranged by Calvin Bullock at the Boston Chamber of Commerce. The following day he addressed a similar audience at Providence. He also addressed the salesmen of the Electric Refrigeration Company of New England.

On the evening of June 6, Massachusetts Institute of Technology was brilliantly illuminated in honor of the inauguration of the new president, Dr. Karl Taylor Compton. Some 70 floodlights and searchlights were used in the illumination, including two 3-ft. army searchlights playing on the "Tech" building and a 6-ft. searchlight, with a beam range of some 40 miles. The illumination included the adjacent shores of the Charles River Basin and the nearby bridges. During the banquet following the inauguration, Gerard Swope, of the Executive Committee of M.I.T. and president of our Company, announced plans for providing financial assistance to worthy M.I.T. students who would otherwise be handicapped in

their educational program. Contributions to the fund of more than \$4,000,000 were announced. The illumination at M.I.T. is expected to be continued throughout the summer, as a feature of the Massachusetts Bay Colony Tercentenary Celebration.

John B. Taylor gave a very interesting lecture on "Audible Light and Visible Sound" at the M.I.T. alumni reunion on June 6.

John W. Belling, of the Transportation Department, Boston Office, was recently re-elected secretary of the New England Street Railway Club, which has some 800 members.

Ward Harrison, of the Engineering Department, Nela Park, recently addressed the Manufacturers Research Association at Boston.

Irving E. Moulthrop, chief engineer of the Edison Electric Illuminating Company of Boston, and a member of the Mohawk Club of Schenectady and the Engineers Club of New York, has been presented with the Elliot-Cresson Gold Medal, upon recommendation of the Committee on Science and Arts of the Franklin Institute.

Harry B. Lewis, upon returning to the office early in June, after a period of illness, received the hearty congratulations of his colleagues in the Central Station Department.

The Springfield Section, A.I.E.E., recently elected J. N. Alberti, of the Springfield Office, as chairman.

On the evening of May 19, about a hundred members of the Electrical Workers' Union, in Worcester, witnessed an interesting demonstration by E. A. Hancock, control specialist, E. W. Goffin, and J. W. Harding of the Worcester Office, of electric motors and industrial control. Mr. Hancock's talk on the application of control tubes was received by those in attendance and by the public press in a manner which indicates that the action of these tubes is a source of great public interest.

M. P. Rice, manager of the Publicity Department, Schenectady, visited the Boston Office early in June. While here, Mr. Rice looked over the Uniform Customer Sales Record System with much interest.

A. D. MacAffer of the Standardizing Laboratory, Schenectady, demonstrated the largest oscillographs at various New England colleges during the week of June 2, in company with E. L. Brown, meter and instrument specialist. On Saturday morning, interested salesmen and customers witnessed a demonstration at the Boston Office.

Recent guests at the Boston Office included: W. D. Jennings, New York Office; A. J. Kroog, Atlanta Office; E. V. Dillon, Pittsfield Works, and W. J. Earle, N. S. Sprague, H. P. Hudson, F. H. Buller, and L. R. Wood, Schenectady.

The careful planning of the new G-E offices in the United Shoe Machinery Corporation's Building, by C. T. Mosman, district engineer, and the careful scheduling of the requirements of new furniture by W. H. Walker, district auditor, is making the moving of the offices from the India Building very much easier for the members of the office force. In suite with the offices of T. S. Knight, district manager, and J. P. Felton, district sales manager, is an office for the convenience of visiting executives of the company.

R. W. Herrick, manager of the Providence Office, is receiving the congratulations of his friends on a quick recovery from the recent emergency operation for appendicitis he underwent.

R. W. Adams, district manager, Central Station Department, represented the New England District at the N.E.L.A. convention at San Francisco.

C. A. Chase, district manager, Central Station Department, was quite successful in his golf at the June 5 outing of the Metropolitan Electric League. The outing was held at the Cohasset Golf Club on the shores of Massachusetts Bay. About 425 men enjoyed the perfect weather, the whippet races, a battle royal, golf, tennis, and the lobster dinner.

Wolcott Fuller of the district Central Station Department has announced the birth of a daughter, Persis Caroline Fuller, born June 12.

Southeastern

All Atlanta got a great thrill, along with the rest of the country, over the golf victory of our own "Bobby" Jones, who has many friends in our organization.

Miss Gladys Peper, secretary to the district engineer, who has been out for several weeks with scarlet fever, is back on the job again. Mrs. Robert Shillinglaw, who as Miss Ida McKinley was with us several years ago, filled Miss Peper's position temporarily.

The Atlanta G. E. Club recently elected the following officers for the coming year: E. T. Austin, president; Mrs. Anne Brantly, vice president; Myrtle Whittle, secretary; Frank Adams, treasurer.

E. H. Ginn, district manager, attended the Rotary Club meeting at West Point, Georgia, May 8.

T. W. Moore, assistant district manager, spent two days at the recent meeting of the Electrical Jobbers at Hot Springs, Virginia, meeting some of our lamp people there.

F. R. McClellan of our Publicity Department recently gave a showing of our talking motion pictures at Birmingham and New Orleans. The meetings were well attended and the pictures enthusiastically received.

J. A. Doyle has been transferred from the training course, Schenectady, to our engineering forces in Atlanta, and we welcome him into our organization.

The Georgia Power Company, together with the Georgia State College of Agriculture, recently held a course in electrical home equipment. Miss Helen McKinlay, home lighting specialist from our Lamp Department at Cleveland, was on the program to cover "Luminous Harmony in the Home."

E. F. McLaughlin and A. J. Kroog attended the recent turbine specialists' meeting at Lynn and Schenectady.

Mr. and Mrs. E. H. Ginn attended the graduation exercises of their daughter, Miss Catherine Ginn, at Marymount College Tarrytown-on-the-Hudson, N. Y.

Mr. and Mrs. Ellsworth Broward have announced, the birth of a son on May 22. Mr. Broward is one of our construction foremen.

Among those signing our visitors register during the month were: Guy W. Wilson, Erie; F. W. White, Schenectady; M. O. McKinney, Chattanooga; F. H. Worthington, Jacksonville; R. C. Walton, Schenectady.

New York

Theodore Beran, former manager of the New York District and former commercial vice president, sailed for Europe on June 12 as a delegate at large to the meeting of the International Electrotechnical Commission.

George J. Conway, of the International G. E. Co., New York Office, and Miss Kathleen A. Carey were married recently in New York. Both graduated from the Pittsfield High School in 1921, and Mr. Carey graduated from M.I.T. in 1925, earning an M.S. degree a year later. The bride attended Syracuse University and later went to Springfield, where she has been employed as an x-ray technician.

H. H. Barnes, Jr., district manager; W. E. Brown, district sales manager; and G. S. Rose, assistant district manager, Central Station Department, attended the N.E.L.A. convention at San Francisco.

The earnest good wishes of all former associates of John C. Bennett are extended to him through these columns. Mr. Bennett, commercial engineer, Industrial Department, New York Office, recently retired after 44 years of service. A dinner was held in his honor at the Harvard Club and was attended by his older associates in this office.

Mr. Bennett's entire career has been devoted to electrical engineering. He attended Tufts College and was graduated in 1885 with the degree of A. B. in electrical engineering. From his early days he was closely identified with the interests which went to form a part of our Company, starting with the Thomson-Houston Company at West Lynn, in 1885. He was later with the Brush Electric Company, Cleveland, then with the Western Edison Light Company of Chicago, a subsidiary of the present Edison Company. In 1889 he was transferred to the Edison Company at New York to assist in engineering work. This Edison Company, organized for isolated lighting, was later absorbed by the Edison General Electric Company which, in turn, was taken over by the General Electric Company. Mr. Bennett had a rare fund of knowledge not only of electrical engineering, but of many other subjects, and his advice was constantly sought by the younger and older men alike. He possessed to an exceptionally high degree, the regard and affection of those with whom he worked. We wish him every joy and happiness for years to come.

J. P. Alexander, Industrial Department, recently talked before 150 undergraduates in the engineering classes at Manhattan College. Mr. Alexander took for his subject "Vocational Guidance and Opportunities Offered Graduates by the General Electric Company and Utilities." Considerable interest was awakened in the minds of students, as was shown by the many questions asked at the end of the talk.

The membership of the General Electric Club has lately been increasing along a logarithmic curve. At the March meeting of the governors, W. W. Young, active chairman of the Membership Committee, presented the names of five new members. In April there were 13, and in May, 31. This last increase was largely due to activity among the members of the G. E. Supply Corporation in New York and Newark. At the May meeting of the governors of the G. E. Club, J. C. Bennett was elected to honorary membership.

The annual G. E. Club spring dinner which was held at the Hotel St. George roof garden, recently, was a great success. When the pangs of hunger had been assuaged, to the accompaniment of amateur chorus work on "Sweet Adeline," H. H. Barnes, Jr. arose and gave us a few words on the district business. He then introduced two newly elected honorary members of the club, J. E. Franzen, former superintendent of our Bloomfield Works, and Col. Oliver F. Allen, formerly of the I. G. E. Co., and an early member of the club. Mr. Riegel, assistant district auditor, and B. J. Rowan, district publicity representative, recently added to the New York Office, were called upon to make their bow. J. C. Bennett, whose retirement after 44 years of service was announced, received a fine tribute from Mr. Barnes, and resounding applause.

From this point on, there were no more serious moments. Entertainers regularly appearing on the RKO circuit drove away all thoughts of care. Between the halves of this performance, "Bill" Graham, "Phil" Reilly, "Vince" O'Connell, George Goodwin, and "Mike" Falavela favored us with their own number—"Hits of 1920." The hits were many, and we hope for some of our friends' sake, slightly exaggerated.

Our Monday morning sales meetings for the past several weeks have been devoted to special programs using our talking motion picture films. At the end of each commercial film our specialists gave short talks supplementing the film subject, and answering questions.

T. S. Bacon and H. M. Jalonack attended the recent baseball game between the G.E.A.A. team of the Pittsfield Works and the Brooklyn Edison team, at Pittsfield. The G-E team won, 8-6. The first ball was pitched by L. R. Brown, manager of the Transformer Division of the Central Station Department, Pittsfield.

The Power Bowling League season of 1929-1930 ended on May 1 with the General Electric team completing its labors with a whirlwind finish that could not be stopped. The final standing of the teams:

Team	Won	Lost	Perc.
G. E. Co.	66	24	.733
Combustion	63	27	.700
Electric Bond & Share	62	28	.688
Foster Wheeler	43	47	.477
American Blower	27	63	.300
Phillips Carey	9	81	.100

The members of the General Electric team are: "Len" Carlson, "Capt" Kuhn, "Hi" Perry, "Jack" Sanborn, "Big Ed" Leavy, "Pete" Skimmen, "Har" Goodman, "Ed" Reuter. The beautiful trophy which was given into our keeping for one year, now rests majestically in the office of H. H. Barnes, Jr.

The lecture roll is still longer this month. The list to May 20th is as follows:

	Internal		External	
	No. of Talks	Attendance	No. of Talks	Attendance
R. G. Morrison			9	522
A. W. Lumm			4	200
E. L. Smith			4	120
H. M. Jalonack	3	140		
E. Vom Steeg	2	48	1	125
N. Gada			3	75
W. S. H. Hamilton	1	50	1	270
W. P. Duff			2	132
Neal Parker			2	120
R. Newell	1	40	1	50
W. S. Hill			2	73
K. E. Lindquist			2	22
K. C. Beckett			1	750
J. P. Alexander			1	150
C. F. Miller			1	70
W. A. Brophy			1	63
I. C. Diefenderfer			1	63
J. A. Messier			1	52
F. C. Ross			1	40
A. H. Williamson	1	40		
C. A. Treber			1	35
G. W. E. Draper			1	30
A. C. Miller			1	12
M. W. Brewster	1	10		
J. E. Schell			1	8

East Central

J. L. Hutton has recently joined the Industrial Department of our Cleveland Office. Mr. Hutton was formerly connected with the Mining and Steel Mill Section of the Industrial Department, Schenectady.

Mr. and Mrs. G. J. Doss recently announced the birth of a son. Mr. Doss is a salesman in the Central Station Department, Cleveland Office.

A. D. Benson, who until recently has been located in the Cleveland Offices as a salesman, is now a member of the sales organization of the General Electric Supply Corporation, Cleveland.

F. A. Wassell, switchgear specialist, Cleveland, was responsible for an attractive display of metal clad switchgear in the Cleveland Warehouse during the week of the recent N.E.L.A. convention.

L. J. Crane of our Toledo Office recently underwent an operation for appendicitis. J. A. Foley of our Cleveland Office covered the territory regularly handled by Mr. Crane, while the latter was confined to the hospital.

During May our Cleveland and Cincinnati Offices assisted in conducting our displays at the American Mining Congress and the Convention of the American Foundrymen's Association. The portable Photophone equipment, which was recently delivered to the Cleveland Office for the East Central District, was used at the mining Congress in Cincinnati with very good results.

Our Canton Office, together with the Electric Sales Company and the local distributor of General Electric refrigerators, sponsored an exhibit of General Electric products and laboratory equipment at the Canton Industrial Progress Exposition early in May.

The East Central Division of the N.E.L.A. held its annual summer meeting at the Hotel Statler, Cleveland, from May 13 to 19. Our Cleveland Office Central Station Department cooperated extensively with the committee. One of the features of this meeting was an inspection trip to Nela Park. A large number of delegates from our various offices attended this meeting.

A. H. Wagner, Cincinnati Office, and Miss Virginia Mae Cook were married on May 17.

Mr. and Mrs. H. E. Dougherty recently announced the birth of a son. Mr. Dougherty is a member of the Engineering Department, Cleveland Office.

Mr. and Mrs. O. E. Holzer have announced the birth of a son on June 3. Mr. Holzer is an engineer in our Columbus Office.

Pacific Coast

E. M. Ellis, manager of the Industrial Department, Los Angeles Office, has been elected to the Executive Committee of the Los Angeles Electric Club.

W. M. Hogue, industrial heating specialist, Los Angeles Office, has been elected secretary and treasurer of the Los Angeles Chapter of the American Society of Steel Treaters.

The Los Angeles Office entertained the N.E.L.A. Industrial Heating School in Los Angeles from June 3 to June 11. A. N. Otis of the Industrial Heating and Welding Engineering Department, Schenectady, presented papers on "Continuous Vitreous Enameling Furnaces" and "Artificial Atmosphere in Electrical Furnaces"; E. J. Cipperly, of the Industrial Heating Department, Los Angeles, on "Industrial Heating Problems and Cost Analysis" and "Arc Welding of Steel Buildings;" and W. M. Hogue, Los Angeles, on "Low Temperature Heating Units and Melting of Soft Metals" and "Electrically Heated Galvanizing Pots." Over 92 from all sections of the United States attended. Inspection trips to 23 industrial plants were made to look at industrial heating installations.

C. C. Watson, of the Contract Service Department, who is supervising the welding on the Southern California Edison Company's building, spoke and showed motion pictures before the Los Angeles Chapter of the American Welding Society at the May 29th meeting of the society, which was the largest meeting of the year.

H. D. Strong, Los Angeles Office, was successful in winning the low net prize in the first flight at the annual Los Angeles Electric Club Golf tournament. Part of Mr. Strong's success may be due to his being on the Handicap Committee.

The Los Angeles Office General Electric family held its fifth annual stag party at Idyllwild in the San Jacinto Mountains, on the week-end of May 17. H. K. Winterer was chairman and was assisted by J. C. Porter and Phil Savage. Golf, baseball, horseshoes and eats were the most popular sports of the outing. Representatives were present from the following associated companies: G. E. Supply Corporation, G. E. Vapor Lamp Co., Edison G. E. Appliance Co., G. E. X-Ray Corporation. R. C. A. Special guests were: W. R. Frampton, mana-

ger of the Shop Test Department of the Southern California Edison Co., and J. O. Case, president of the Quality Electric Works, General Electric motor dealers.

Recent visitors to the Los Angeles office included: J. L. Buchanan, executive vice president, General Electric Supply Corporation; H. B. Lane, managing director, South African General Electric Co.; T. J. McManis, assistant manager, Publicity Department, Schenectady; W. E. Brown, district manager, Central Station Department, New York; R. W. Adams, district manager, Central Station Department, Boston; John W. Upp, manager, Switchgear Department, Philadelphia; C. K. West, commercial vice president and district manager, Philadelphia; G. S. Rose, assistant district manager, Central Station Department, New York; R. D. Mure, assistant manager, Central Station Department, Schenectady; Miss Scherling, Schenectady Works Shipping Department; A. D. Oday, Engineering Department, Nela Park.

T. J. McManis, assistant manager, Publicity Department, Schenectady, arrived in San Francisco early in June to contact with the San Francisco Office on the subject of the Company's publicity, before attending the annual convention of the N.E.L.A.

Executives of the General Electric and affiliated companies in the San Francisco territory held their regular meeting on May 28 at the offices of the General Electric Supply Corporation, San Francisco, as guests of Fred C. Todt, division manager. After a brief tour of the plant, luncheon was served and various problems discussed.

A. B. Sparks of the Merchandise Department has been transferred from Los Angeles, where he acted as assistant regional specialist, to replace W. O. Smith, regional specialist at Salt Lake City. Mr. Smith has been made sales manager of the General Electric Supply Corporation at Salt Lake City.

M. C. Hixson, A. E. Sargison, A. E. Longmate, W. E. Carlson, C. D. Sawyer and L. G. Gianini, of the Edison Lamp Works, San Francisco, attended the general lamp sales conference at Nela Park in May.

At the invitation of Harron, Rickard, and McCone, machinery agents in San Francisco handling G-E motors, about 20 members of the sales force of the San Francisco Office visited their plant and had the opportunity of seeing a demonstration of G-E motors on the machinery which this dealer handles.

R. Paxton, of the Philadelphia Works, spent two weeks in the San Francisco Office early in June assisting the members of that organization with a large oil circuit breaker proposition and several metal-clad propositions.

Atlantic

Fourteen Carnegie Tech and four University of Pittsburgh graduates of this year have been enrolled for General Electric. They were tendered a luncheon at the Keystone Athletic Club on June 4, when W. B. Spellmire, manager of the Pittsburgh Office, welcomed them as members of the G-E family. Following the luncheon, they were taken on a tour through the sales offices, South side office, warehouse, and service shop.

I. H. Selater, Engineering Department, and J. S. Lennox, Transformer Sales Section, Pittsfield, were recent visitors to the Charlotte Office.

C. I. MacGuffie, arc welding specialist, Atlantic District, recently made a trip through the Charlotte Office territory.

A number of Photophone showings have been given in the Atlantic District during the past month, all of which were handled by J. W. Sholder of the Publicity Section, Philadelphia Office. Among them was one at Wheeling, W. Va., before about 200 men representing the important industries there,

and featuring "Atomic-hydrogen Welding" by Dr. Irving Langmuir. The same sound-motion picture was shown at a meeting of the field forces of the Pennsylvania Power and Light Co., of Allentown, Pa. Various G-E representatives attended both meetings. This film and several others were also shown at a luncheon of the Engineers Club of Baltimore.

The Industrial Department, Philadelphia Office, recently held a two-day meeting, which was attended by all local representatives and Industrial Department representatives of our local offices. J. W. Belanger acted as chairman. This meeting was given over entirely to specialist lines, including industrial control, industrial heating, and arc welding. The first day covered industrial control, the meeting being concluded by a Photophone demonstration, at which time the new A-c Motor Production film, together with Dr. Irving Langmuir's "Atomic-hydrogen Welding" film, was shown. The second day sessions were held at the Philadelphia Service Shop, where demonstrations were given in arc welding. Industrial heating devices were also shown in operation.

The Philadelphia Office is quite proud of the recent addition to its display room in the form of a framework, on which is mounted a number of industrial control devices. It is planned to have these devices in operation as soon as arrangements can be made to have them wired.

J. R. Guard and A. B. Stoney, of the Engineering Department, Philadelphia Office, are accompanying the new electrically propelled liner, *Santa Clara*, on her maiden voyage to Chile.

Messrs. Bryan, Lail, Durkin and Wissinger of the Pittsburgh Office attended the American Mining Congress in Cincinnati, May 5 to 9.

O. E. Conway, district auditor of the Atlantic District, recently visited the Pittsburgh Office, while attending the National Credit Men's Association Convention.

Plans are being formulated for the second annual picnic of the Pittsburgh Office employees.

Incandescent Lamp Department

E. E. Potter, general sales manager of the Edison Lamp Works, left Chicago on June 6 to attend the N.E.L.A. convention in San Francisco.

A. C. Roy, Edison Lamp Works, Sales Promotion Department, spent the week of June 2-7 in the Chicago territory, visiting local central station and lighting men in the interests of central station research for his department.

C. D. Spaid, Edison Lamp Works, Sales Promotion Department, was in Bridgeport, May 19-26, working on the Edison Lamp Works' July activity with the G-E Supply Corporation.

Paul A. Dietz, Edison Lamp Works, Sales Promotion Department, left for the East on June 11, to combine his vacation and his honeymoon. On June 14, he was married to Miss Anna J. Weir, who was formerly in the Supervisors' Department. Mr. and Mrs. Dietz will reside in Cleveland.

J. W. Milford, Edison Lamp Works, Sales Promotion Department, spent the week of June 2-7 in New York and Schenectady, in connection with the work of *Revue*, "The Magazine of Light."

On Sunday, June 8, from 5 to 7, at their residence, Mr. and Mrs. H. F. Barnes were "at home" to the entire Edison Lamp Works Sales Promotion Department. A feature of the informal gathering was Mr. Barnes' singing—a talent well known to those who worked with him in Harrison.

H. F. Barnes, assistant general sales manager, Edison Lamp Works, was in Detroit on June 3, where, with Messrs. Munroe and Duncan of the Detroit Edison Company, he investigated the possibilities of promoting the sale of higher wattage lamps. On June 12 he left for San Francisco, to attend the N.E.L.A. convention.

W. L. Fader, sales manager, R. M. Davis, lamp manager, and 10 salesmen from the G-E Supply Corporation, Pittsburgh, visited the home office of the Edison Lamp Works at Nela Park on June 9 and 10. Not only were the guests shown the processes of lamp development and manufacture, but they were also familiarized with the work of the Sales Promotion Department, much of which they will be able to use to their advantage. Speakers on the two-day program arranged by W. T. Clark included H. F. Barnes, assistant sales manager in charge of sales promotion; Frank Pollard on miniature lamps; R. E. Harrington on advertising; Ward Harrison on lighting progress; J. M. Ketch on industrial lighting; Kirk Reid on street lighting; J. A. Summers on sports lighting; M. D. Cooper on voltage; and P. D. Parker, assistant general sales manager, on sales policies.

N. H. Boynton, assistant general sales manager, National Lamp Works; A. H. Meyer, general manager, Midland Division, National Lamp Works; and S. E. Doane, E. S. Merrill, and A. B. Olay of the Engineering Department, represented Nela Park at the N.E.L.A. convention at San Francisco in June.

G. E. Park, Southern Division, National Lamp Works, recently gave a talk on "Light and Its Place in the Retail Grocery Stores," before 50 retail grocers of Bristol, Tennessee.

C. E. Weitz, Technical Publicity Section, Engineering Department, was awarded the degree of E.E. by Ohio State University on June 9. His thesis dealt with conditions and trends in airport lighting. Mr. Weitz graduated from Ohio State in 1919 and has been with the National Lamp Works ever since graduation, until the merging of the engineering departments of National and Edison into the present Incandescent Lamp Department, Engineering Department.

The Buckeye Division of National Lamp Works, Cleveland, recently held a joint meeting with the distributors of the Toledo Edison Company, in Toledo. The subject of their discussion was the voltage problem. It was agreed that under voltage was a menace to the industry, and all distributors present decided to support an adequate voltage program. They likewise agreed to concentrate on the sale of 115-volt lamps. The Buckeye Division has also been active in persuading its agents who have sold 120-volt lamps to divert their efforts to the sale of 115-volt lamps.

A. Reas of the General Electric Lighting Institute at Nela Park, was married on June 7 to Miss Verna Buell, whose former home was Edon, Ohio.

The General Electric Lighting Institute, Nela Park, was host to 600 members of the East Central Division of the N.E.L.A., recently. The day was spent in showing the delegates the facilities and set-up at Nela Park. A banquet and entertainment served as the evening's diversion.

On May 16 the Engineering Department, Nela Park, was host to a group of State Extension Agents, who contact farmers of northeastern Ohio in all matters pertaining to farm improvements. Kirk Reid, Engineering Department, gave a short talk on farm lighting, after which the group made an inspection tour of the lighting institute.

L. C. Kent, director, General Electric Lighting Institute, Nela Park, spoke on "Engineering as a Life Work" before two groups of high school students, recently. These talks were sponsored by the East Cleveland, Ohio, Y. M. C. A. Talks of this nature are given each year by men in different professions, in the belief that such discussions may better help students in the choice of their life work.

G. F. Prideaux, Engineering Department, spent a week in June in Rochester, N. Y., and Naugatuck, Conn., where he assisted the Eastman Kodak Company and the Risdon Company in projection lamp problems.

Among those who received the degree of E.E. from Case School of Applied Science, Cleveland, this year, are W. M. Skiff, G. S. Merrill and R. E. Farnham, all of the Engineering Department.

A. F. Loewe recently spoke before 200 architects and central station men who assembled in the Chicago Lighting Institute for an architectural lighting school. His subject was "Fundamentals of Lighting as Applied to Architecture."

J. A. Summers, Engineering Department, spent the first week in June in Wheeling, W. Va., where he assisted the Gee Electric Co. in making recommendations for lighting some of Wheeling's baseball diamonds. He also suggested methods for lighting privately owned tennis courts in that region.

E. B. Fox, Engineering Department, spent a week early in June in Detroit, Toledo, Lima, Dayton, and Jackson, in the interest of electrical advertising. He contacted central station groups in this connection.

Electric Refrigeration Dept.

A display of General Electric refrigerators was held in connection with the national radio show at Atlantic City. Attending were P. B. Zimmerman, A. C. Mayer, M. F. Mahoney, A. A. Uhalt and J. T. Dickson of this department.

Edward Fox, of the International General Electric Co., recently stopped at Cleveland on his way to the Far East. He will visit China, Japan, the Philippines, and Australia.

An apartment house school was conducted in San Francisco for the benefit of salesmen in the West Coast territory by J. J. Donovan, manager of the Apartment House Division. Commercial schools for wholesale and retail outlets were conducted in San Francisco and Minneapolis by W. E. Landmesser, Commercial Division manager, and W. M. Timmerman, commercial engineer, while they also contacted distributors throughout the West and Northwest. At the same time H. O. H. Quinn was on a similar mission in the South and M. T. Bard in the Southeast.

One of the largest hospital installations has been made at Laval Hospital, Ste. Foy, Quebec, which has just been completed. In addition to 19 General Electric refrigerators in diet kitchens, the main hospital kitchen is equipped with eight large models. These include an 0602 special, 112 cu. ft., with 2 DR-5 icing units; special milk cabinet, 140 cu. ft., with two DR-5 icing units; three C600 standard 60-cu. ft.; one C450 standard 45-cu. ft.; one C451 standard 45-cu. ft.; and one DRP-4 icemaker. Another large installation has been made at Indiana University, where refrigerators have been placed in the kitchens, water coolers in the halls, and other models in the clinical laboratory of the university infirmary.

General Office

C. J. Thomson, J. H. Gardner, and H. Zangler, all of the Contract Service Department, sailed June 13 on the *Karlsruhe* for Russia, where they will install main and substations for the Amtorg Trading Corporation at Stalingrad-on-Volga.

E. E. Carrier of the Contract Service Department will leave soon for Mexico to supervise work for the Phoenix Construction Co. at Tuxpango. S. E. Lewis of the same department expects to go to Roseitilla, Mexico, to supervise work for the same company.

Henry L. Guy of the Transportation Department was recently elected first vice president of the Virginia Polytechnic Institute Alumni Association.

R. H. Soper of the Lynn Section of the Contract Service Department was a recent visitor to the General Office, en route to Flin Flon, Canada.

A group of about 50 supervisors, representing approximately a dozen counties of New York State, recently inspected highway lighting installations in the vicinity of Schenectady.

Commander Ericson, and B. F. Mahoney, who were active in the proposition of building the "Spirit of St. Louis," Lindbergh's famous airplane, were recent visitors of the Aeronautics and Marine Engineering Department.

Sir William Bragg, director of the Royal Institution of Great Britain and of the Davy-Faraday Research Laboratory, of London, was a recent visitor to the Research Laboratory.

H. I. Becker of the Aeronautics and Marine Engineering Department accompanied Major Mitchell and Lieut. Hegeberger on a trip from Schenectady to the East Boston Airport, Boston, and from Schenectady to Dayton, Ohio, in Lieut. Hegeberger's airplane, which is equipped with G-E navigation devices, on May 26. Both trips were very successful.

Dr. Alexander Klemin, head of the Daniel Guggenheim School of Aeronautics, New York University, visited the Aeronautics and Marine Engineering Department on June 11. He also talked over Station WGY.

Col. James Madison Andrews, formerly in charge of the steel and cement mill sales section of what was then the Power and Mining Department, died suddenly at West Point, where he had gone to attend the 40th reunion of his class at the U. S. Military Academy, June 11. Col. Andrews was born in Saratoga Springs, N. Y., April 2, 1868, graduated from West Point in 1880, was assigned to the 1st U. S. Cavalry as a second lieutenant, and took part in the campaign against the Sioux and Apaches. He resigned his commission in 1892 and went to Schenectady, where he entered the employ of General Electric. He joined the National Guard and served in the Spanish-American War as captain of the 37th Separate Company, designated as F Co., of the 2nd N. Y. Infantry, and acted as assistant adjutant general, 1st Division, 3rd Army Corps. After the war he was promoted to major and eventually colonel of the 2nd New York Infantry, and as colonel commanded the regiment when it was stationed on the Mexican border, continuing as its commander when the regiment went overseas as the 105th Infantry, a unit of the 27th Division, in the World War. In 1922, Col. Andrews received the Croix de Guerre, with palm, from Belgium, the presentation being made by the Belgian ambassador to the United States. He did not return to General Electric after the war, but made his home in Brookline, Mass. He is survived by two sons and a daughter. His wife died two years ago.

J. C. Van Deusen has been made a member of the staff of traveling auditors, Accounting Department.

W. A. Bove of the Publicity Department has returned to work after an illness of several weeks.

Herbert Stiles of the Catalog Section, Publicity Department, has been transferred to the Publicity Division of the Merchandise Department, Bridgeport.

H. K. Smith of the Statistics Division of the Accounting Department has been transferred to the staff of traveling auditors. He will be succeeded as general assistant in the division by R. W. Hess, who had charge of classified profit and loss reports. The work done by Mr. Hess will be taken over by W. F. Mitchell.

W. B. Heinz of the Aeronautics and Marine Engineering Department, and Miss Rachel F. Clarke, daughter of Mr. and Mrs. Rufus Poindexter Clark of Washington, D. C., were married at the home of the bride in that city on June 28.

John Lang of the Sales Training Course, and Miss Margaret Gressitt of Baltimore, were married at the home of the bride on June 21.

Transportation Engineering Department, Erie

Visitors to Erie from district offices during the past month included: W. A. Clough, A. F. Riggs, and C. Dorticos, Chicago; C. J. Sibert, Detroit; B. S. Pero, C. B. Keyes, and W. S. H. Hamilton, New York; J. J. Liles, Baltimore; E. S. Johnson and G. H. Hill, Philadelphia; F. V. Gantt, W. J. Hanley, and E. F. Whitney, Cleveland.

W. T. Vivian of the Motor Division recently returned from a seven weeks' business trip in Utah.

Prof. H. P. Dates, Mr. Miller, an instructor, and Mr. Zimmer, with 27 students from the junior class of Case School of Applied Science, Cleveland, inspected the Erie Works on Tuesday, June 10. They were entertained at lunch, after which a short address on the subject of electrification was given by A. I. Totten. In the afternoon they visited the experimental test track and took several trips on the D. L. & W. 3000-volt motor car and trailer. Late in the afternoon they left for Buffalo, Niagara Falls, and points east, including Schenectady.

Switchgear Department, Philadelphia

John W. Upp, manager of the Switchgear Department, attended the N.E.L.A. convention in San Francisco, June 15 to 20.

A. B. Lawrence, manager of the Switching Equipment Division, and A. S. Martin of the Circuit Interrupting Division, have been exploiting switchgear apparatus in the Central District during the past few weeks at a series of meetings arranged by H. J. Pfandhoefer, switchgear specialist, Chicago Office. Their exhibit covered the line of G-E oil circuit breakers, metal-clad switchgear, switch houses, cubicles, truck panels, and automatic switching equipment. The exhibit was supplemented by film slide lectures and motion pictures. These sales promotion meetings have aroused as keen interest in switchgear apparatus throughout the Middle West as was shown in the meetings similarly conducted in the Southwestern and Pacific Coast Districts.

The display window on the 7th floor, Building 10, was recently used to show a Type PA outdoor group-operated disconnecting switch with a setting which depicted a typical transmission line, and just a glimpse of the outdoor station to the left. The window also contained an advertisement of the outdoor switching series being used now in the campaign.

Several French industrial executives, accompanied by A. Pingon, resident agent of the associated French Company, recently visited the Philadelphia Works. They commented on the excellence of the manufacturing facilities of the Works. Another group of visitors, representing the Institute of Engineers at Philadelphia, accompanied by several members of the Philadelphia Office, were recently shown through the Switchgear Department and were particularly interested in the modern facilities of the plant.

The new indoor metal-clad switchgear has been introduced to the electrical industry with a most unusual and interesting advertising campaign and an active exhibit campaign. A complete tie-in was made with the symbol of the protection afforded to the life of the "Knight of Old" by armor and the protection afforded to the life of the "System" by metal clad switchgear. The introduction of this type of equipment at both the American Foundrymen's Show and the Association of Iron and Steel Electrical Engineers should make the delegates to both shows quite conversant with the features of the new equipment. R. F. Timmerholm, C. H. Black, and L. L. Asch were in attendance at the later show, with G. W. Brooks, switchgear specialist of the Buffalo Office.

John Erwin has been added to the Manual Panel Section of the Commercial Division.

W. P. Molette of the Quotation Division of the Philadelphia Office was a member of the Sales Section for a few weeks to obtain information for district office quotation work, particularly with regard to oil circuit breakers.

H. M. Killingsworth, oil circuit breaker specialist of the Commercial Engineering Division, who has been spending some time on the Oil Circuit Breaker Interrupting Test in Schenectady, has returned to Philadelphia.

Sales Promotion Service Results

MARTIN P. RICE, Manager, Publicity Department

The present business situation reemphasizes the necessity of getting the greatest possible return from each of our promotional activities.

One of these, the Sales Promotion Service, was presented by the Publicity Department to district and local office managers last December. All districts adopted the plan and prepared the necessary schedules, so that today the Service is being operated in the form of special campaigns for over 50 offices.

Generally speaking, the S.P.S. is resulting in a systematic, selective, and localized distribution of information on our products and services to customers and prospective customers.

A recent folder on the Sales Direction Plan mentions sales problems introduced by an increased number of products, keener and more intelligent competition, new and changing markets, increasing sales expenses, and shows the need for planned selling. The Sales Promotion Service can assist in the solution of each of these problems.

Many offices are receiving definite results. Replies from May letters show a 9 per cent return in Chicago, an 8 per cent return in Syracuse, a 6 per cent return in Atlanta, an 8 per cent return in Boston, a 10 per cent return in Louisville, and a 4 per cent return in Cleveland. Similar returns and many inquiries resulting in active propositions are reported from other offices.

The S.P.S. plan, we believe, will produce even greater results in the future.



Cook Electrically and save time for other things

The Hot-point electric range is one of the greatest time savers that electrical service brings to the farm home. It turns itself on and off, automatically, at exactly the time you have set. You needn't spend a minute in watching it—a wonderful saving of time for other things.

Its automatic temperature control does away with all the old uncertainty of baking and roasting. Canning work is greatly simplified and a real pleasure—with a Hotpoint. Hot-point ranges are made with extra-large ovens—for large families and for farm use.

And there are a hundred other applications

of electricity that save time, work, and money. Feed grinders, for instance, and ensilage cutters, electric milkers and churns, all driven by General Electric motors, save hours of labor.

General Electric appliances heat and pump water; preserve food as well as cook it; wash, iron, and clean; light the house and barns brilliantly and economically. Even to the hidden wires and wall switches, you can depend on G-E quality and service.

Think about it in terms of economy—economy of labor and time and cost. Your power company will tell you all the details.

95-759H

GENERAL  ELECTRIC

Join us in the General Electric Program, broadcast every Saturday evening on a nation-wide N.B.C. network

This advertisement will appear in general magazines of national circulation