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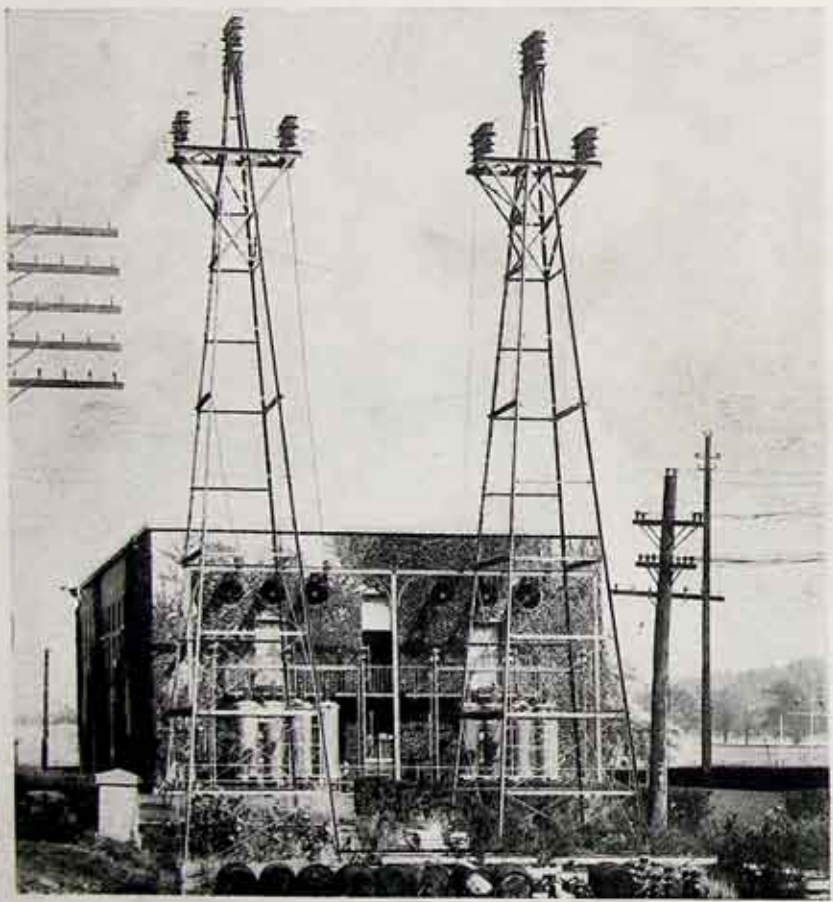

Transmission Towers at Station 33

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Electricity, From Generator to Consumer

BY J. O. MONTIGNANI

COMPARE the powerful fast-passenger compound locomotive of the present day with Stephenson's "Rocket" of 1829, or the luxurious all steel Pullman car in which we travel today with the crude wooden coaches in which our grandfathers rode, and you must be impressed by the great improvements that have been brought about. Observe, however, another feature of railroading—the track. Here the improvement over earlier forms of construction is not so obvious, and, judging from the number of wrecks in recent years due to broken rails, track-spreading, etc., it would appear as though that branch of the art had not kept pace with the others above referred to.

Closely analogous is the history of the electric light and power industry. Vast strides have been made during the last twenty years in the development of central station apparatus, and in the appliances in factories and homes utilizing electrical energy, but when we come to the track over which the energy is carried to its destination—to wit, the transmission and distributing lines—we find in the majority of cases that but

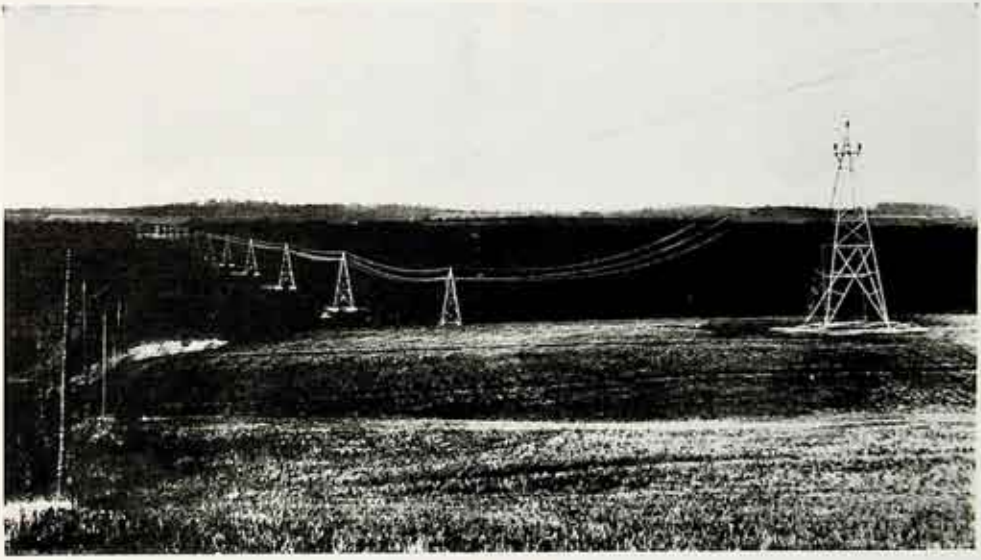


Fig. 1, 60,000 Volt Transmission Line

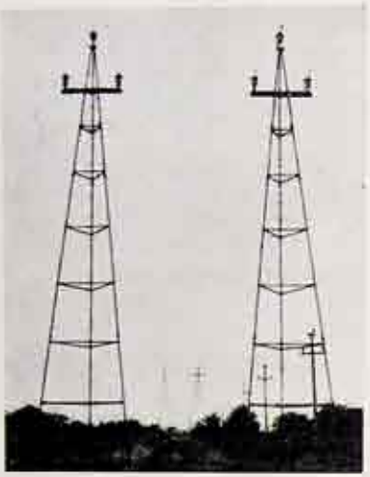


Fig. 2, Triangular Towers

little departure has been made from the practice of the early days of the art.

It is, however, becoming more apparent to managers of central station companies that good engineering should extend beyond the station switchboard, and it is gratifying to be able to state that the following features of electrical distribution are now coming in for their due share of attention, as forming very important economic factors in central station competition with the private plant.

Proper design of system as to trunk lines, mains and secondaries.

Proper selection of transformers together with location and grouping to best take advantage of the diversity factor, or variation in maximum demand characteristics of different consumers' loads. The gain of two or three per cent efficiency by the installation of improved generating apparatus can quite easily be swallowed up by line or transformer losses in a poorly designed or maintained distributing system.

Proper mechanical construction of distributing lines, overhead or underground, and installation of protective devices to insure uninterrupted service. Important industries are gradually adopting central station power as their motive force, and for many of those industries continuity of service is a vital requirement which must depend upon the distributing lines remaining intact during all conditions of load or weather.

The foregoing having, it is hoped, duly impressed the reader with the important part played by the distributing system in the Company's affairs, the writer will now confine his efforts to the main purpose of this series of articles, which is to briefly outline the methods employed to convey the elusive electric current from its source to the premises of the ultimate consumer.

Transmission Line: When electric energy is generated at a considerable distance from the point where it is to be distributed and utilized, it is necessary to provide a transmission line to convey the current to that point.

In this country three phase alternating current is almost exclusively used for transmission purposes, the size of conductors and voltage being

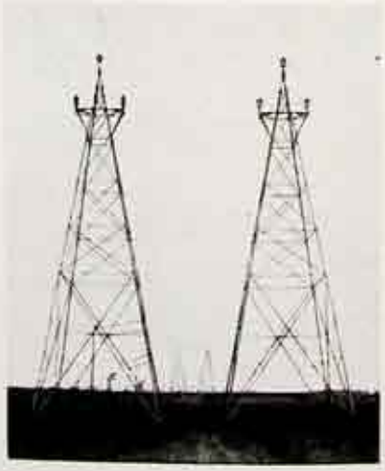


Fig. 3, Square Towers

determined principally by the amount of power and the distance over which it has to be transmitted. Pressures ranging from 11,000 to 150,000 volts are in common use for transmission lines today. Heretofore the general practice has been to transmit current at a frequency of 25 cycles per second, which frequency was thought necessary for the operation of rotary convertors; but recent developments in that class of machinery have made possible the use of 60-cycle current, and as the higher frequency is more suitable for general purposes of distribution, the tendency now is towards 60-cycle transmission.

As is the case with the Rochester Railway and Light Company, electricity is sometimes generated at several widely separated stations, and as the best load factor can be obtained by having the several units operating in parallel on the system, transmission or tie lines are run for that purpose between stations.

Although the first cost is considerably higher, steel towers are now being used in preference to wooden poles for overhead transmission lines of any length and importance, on account of their greater strength, longer life, and greater freedom from lightning troubles. The average life of a wooden pole is from ten to twelve years, and that of a well constructed steel tower can be prolonged indefinitely by scraping and painting at proper intervals after the initial galvanizing begins to deteriorate, which ordinarily will occur after fifteen or twenty years' use. Lightning will often shatter wooden poles and possibly bring down sections of the line, but steel towers by offering a low resistance path to the ground are practically free from this danger. Figure 1 shows a portion of the Niagara, Lockport and Ontario Power Company's, 60,000 volt transmission line from which by way of Mortimer energy from Niagara Falls is delivered to Station No. 33 of the Rochester Railway and Light Company. Transmission or tie lines between station No. 33 and the other city stations are maintained in underground conduit at a pressure of 11,000 volts.

Fig. 4, Out-door Sub-Station

Sub-Stations: The high voltage current having reached its destination by way of the transmission line is now converted at a sub-station into the various forms in which it is to be distributed. These forms may be as follows:

220-110-volt direct current for 3 wire Edison service. 550-volt direct current for electric railway service. 2300-volt A.C. current for general lighting and power service. Constant current series circuits for street lighting.

The sub-station equipment required to furnish the above classes of service consists of oil-switches, disconnecting switches, transformers, rotary-convertors, motor-generators, frequency-changers, voltage regulators, constant-current regulators, protective apparatus and lightning arrestors.

To serve a community or large power consumer along the line of transmission, an out-door sub-station will often meet the requirements where voltage transformation only is involved, and the necessary apparatus can safely be exposed to the weather. Such a sub-station is shown in Figure No. 4. This station is used to step down from 11,000 to 2400 volts for industrial power service on the Lincoln Park-Charlotte transmission line. The station is equipped with 3—100 K. V. A. oil cooled transformers, primary and secondary disconnecting switches, fuses, and lightning-arrestors of the horn-gap type.

The developments in this type of electrical apparatus have been particularly rapid, and have permitted Central Station Companies to take on many very large industrial power loads.

There is now in the market an out-door type of series lighting transformer which equipped with a time switch would make it possible to supply street lighting service from such a sub-station. (To be continued.)

Artificial Ice Rink

BY A. C. RISSBERGER

Electric refrigeration has again demonstrated one of its many possibilities. Ice skating has become exceedingly popular this year—so popular in fact, that one firm bid on 100 proposed artificial ice rinks for New York City alone. The Hofbrauhaus, on South Avenue, has installed a skating rink in its dining room, making the second rink in this country to be installed in the center of a dining room floor. The size of the rink is about 30 x 35 feet and although it exposes a large surface of mirror-like ice, the temperature of the room is kept constant at 72 degrees. The equipment was installed and the ice frozen ready for skating in the record time of four days. Although the rink will be used only for a period of six weeks it was constructed as thoroughly as if it were to remain permanently.

Two layers of 2-inch corkboard, cemented with pitch, were laid directly on the floor, to insulate against the heat from the kitchen below. The top of the corkboard was waterproofed and then 1-inch stringers were laid across at intervals of 4 or 5 feet. The piping was laid lengthwise of the rink, resting on these cross beams, and fastened securely to them. The floor has a total of about 3,000 linear feet of 1¼-inch brine piping placed on 4-inch centers. This is so arranged that alternate pipes are feeds and returns. Each feed and its return is equipped with a valve because it is sometimes necessary to put the entire pressure on one coil. The space under and between the pipes was filled with sand almost to the top of the pipes. After this was satisfactorily accomplished the brine circulation was started, and the sand and pipes were sprayed until a base was started for the ice floor, after which it was flooded and frozen in the usual manner.

New Steam Main From Station No. 3 to Genesee Reduction Co.

BY C. E. WALKER

About eight years ago Station No. 3 began supplying steam to the Genesee Reduction Company for the reduction of garbage. A six-inch steam line was laid in a trench and insulated with two inches of magnesia and pipe covering protected by a fifteen-inch split drain tile. Four years later the line was extended to Station No. 34 in order that Station No. 3 might supply steam for heating purposes at the Bausch & Lomb Optical Company. This extension passed the City Incinerating Plant, and a connection was made with the boilers of this plant in order to receive steam which otherwise would have been wasted.

The demand on the line has increased annually and at the present time the load taxes its capacity to a point where it was deemed necessary to erect a new line. This enables the Company to protect the service to its consumers and also allows repairs to be made on the old and the new lines without the interruption of service. Another advantage to be gained is that the Reduction Company may be served by one line and the Bausch & Lomb Optical Company by the other, thus allowing the City Incinerating Plant to supply more steam.

The new line is of six-inch, standard weight, steel pipe with welded joints and extra heavy Van Stone flanges. It is covered with two-inch Nonpareil pipe covering and galvanized sheet iron. It is of overhead construction, supported on A-frames and three-inch pipe posts set in concrete foundations. The A-frames are placed seventy feet apart, where the ground will permit, with pipe posts set midway between the A-frames, making a span of thirty-five feet. The A-frames are made up of angle iron and serve to hold the pipe in line as well as to act as supports. The pipe posts are capped with a cast iron pipe saddle and act only as supports.

It was necessary to carry the line over a small creek, which required a span of sixty-two feet. Here the pipe is supported on two trusses made up with ⅝-inch round iron rods as tension members, and one-half inch by two-inch flat iron bars as compression members. The pipe is clamped to the truss.

The pipe was delivered in twenty foot lengths and was welded on the job by the oxy-acetylene method into five lengths; two of two hundred and eight feet, two of one hundred and fifty-five feet and one of seventy-eight feet. The first few welds were tested for mechanical strength but the testing was discontinued because of the handling the pipe would receive in erection. Upon the completion of the welding, one end of a length was placed on a truck and the other end held off the ground by a pole dinkey, and the pipe was dragged to its approximate place. In this dragging process it was subjected to some very severe strains; in one case as much as eighty feet of pipe being suspended between supports without showing any signs of weakness at any of the welds. This experience with the welded joints leads to the belief that the weld is fully as strong as the pipe itself. While making a bend of about ten degrees in the pipe, the work being done with the pipe cold, the point of greatest strain was at a weld in the center of the desired bend, but the pipe bent about one foot from the weld. This is not surprising when one realizes that in making a weld the walls of the pipe at that point may

Erection of Steam Main

be made thicker than the walls of the pipe proper.

After the pipe had been placed over the concrete foundations, the A-frames were put in place and the pipe was raised up into position by a chain hoist hung from the frames. After the hangers were bolted to the A-frames, the pipe posts were set up, and the lengths of pipe bolted together. The line was laid with an offset of one hundred feet, one side having four hundred thirty feet of pipe, the other three hundred twenty feet. Each end is anchored and the expansion is taken up by the flexibility of the one hundred foot offset.

A close check was kept of the time spent on the various parts of the construction to secure reliable data. The excavation was distributed along the line in small quantities. All the concrete work was done by hand labor, moving the mixing board from pit to pit, and increasing the cost per cubic yard. There were 36 welds and three cuts of pipe were made in order to obtain the proper lengths.

The cost of welding and labor connected therewith amounted to seventeen and six-tenths cents per lineal foot of pipe or three dollars and eighty-six cents per weld or cut. The various costs per unit length of pipe are as follows:

	Material	Labor	Total	Costs per ft.
Excavation for foundations of A-frames and posts		$ 26.42	$ 26.42	$0.031
Concrete	$ 33.00	32.55	65.55	0.077
Welding and steam fitters as helpers		150.25	150.25	0.176
Making and erecting A-frames, posts and hangers	33.60	114.97	148.57	0.174
Pipe erection		94.68	94.68	0.111
Pipe and fittings	690.00		690.00	0.810
Covering, 2" Nonpareil @ 0.425	362.50	32.00	394.50	0.462
Galvanized iron @ 0.22	187.50	32.00	219.50	0.257
Paste and canvas	1.50		1.50	0.002
Totals	$1308.10	$482.87	$1790.97	$2.10
Cost per foot of pipe	1.53	0.57	2.10	

Team Work

"The man who can forget his own personal feelings and fuses his own interests with those of the company is a sure winner. Nothing can hold him back. Getting one's name on the dotted line does not depend solely upon individual effort. Team work is necessary. Success today is the culmination of co-operative effort. The perpendicular pronoun is simply a piece of type. It requires an "h" before it and a "t" behind it before it makes a "hit." Sanity shows itself in co-operation. Power does not mean what you alone can do—it means what you can get others to do by welding them into a whole, so they will work together."—*Elbert Hubbard.*

The Determination of Gas Pressures

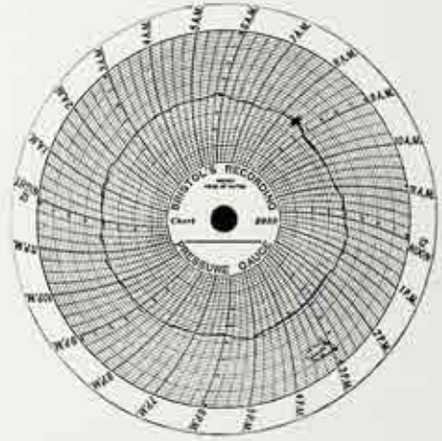
BY WILLIAM F. SKUSE

The problem of maintaining an equalized pressure throughout the Company's gas distribution system is an interesting one. The chart system is an important factor in this work as the Department depends on the daily record of the charts for the gas pressures throughout the entire system. Bristol recording gauges are used and the charts which are changed daily with the exception of those at Charlotte and Summerville indicate the gas pressure in inches of water. The charts for Charlotte and Summerville are designed for a period of seven days and are therefore changed once a week. The chart thus furnishes a 24-hour record of the gas pressure as it actually exists in the locality in which the gauge is placed. The number of gauges varies from time to time and there are at present nine gauges located in various parts of the city and suburbs. In past years it was customary to place the gauges on house services in cellars, but this practice has been done away with owing to its inconvenience. The gauges are now placed in wooden boxes on poles located near the outlet of the regulators. The chart is always checked when taken off with a water gauge carried by the inspector in order to disclose any error of the recording gauge. The inspector changes the charts, sets them at the correct time and inks the pens.

A good chart, or one that indicates an equalized distribution of the gas, is one that shows an even line, devoid of indentations and peaks, and indicates a pressure of 35 tenths or thereabouts. If the chart line is wavy and irregular, it usually indicates that the regulator in that vicinity is not working properly and needs adjusting. If, after the regulator has been put in proper adjustment, the chart line is still uneven, it shows fluctuations caused by water, either in a drip that has filled up, or in a trapped main. If, after pumping all the drips in that locality the trouble still exists, street pressures must be taken until the trapped main is located.

It can be seen from the foregoing that the charts give much valuable information. It is known at a glance whether any section is getting too much, or too little pressure.

The manner in which the high pressure line is fed into the distribution lines by means of regulators has been explained in a previous article. It might be added however that high pressure and holder sample charts are sent by the street department to the Gas Works. The Gas Works carefully follows the indications of these charts in sending out gas on the high and low pressure systems. These sample charts are changed to conform to the output of gas, the seasons of the year and general conditions that may warrant change of pressure.



Bristol Gas Pressure Chart

All charts are filed in a cabinet designed for the purpose and in this way they are readily accessible.

The Thomas Meter Preheater

BY W. H. EARLE

A steam coil preheater has been installed in connection with the Thomas Electric Meter, in accordance with specifications provided by the Cutler-Hammer Company. Fig. 1 shows the inlet connections immediately adjacent to the meter, in relation to the meter housing itself. Fitting No. 2 (Sec. A) is a horizontal flange-spigot piece of 20-in. cast iron pipe, approximately 21 in. long. In the side of this piece an opening was cut twelve inches square (Fig. II Sec. A) to receive the preheater. This consists of a continuous spiral of

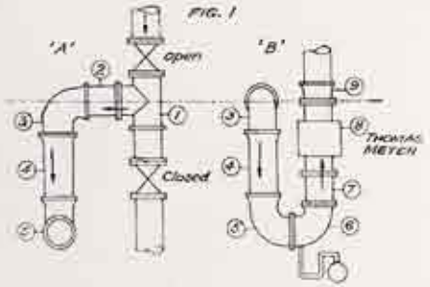
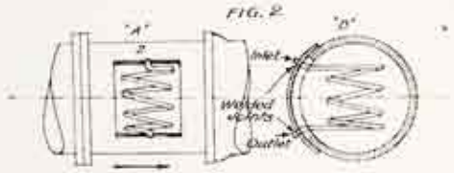


Diagram of Preheater Connections

half-inch pipe, turned about a ten-inch diameter, having a total length of 11 ft. 5 in., and presenting a radiation surface of 2.5 square feet. A steel plate of sufficient size to well overlap the opening in the pipe was bent to the outside diameter of the pipe, and the terminal nipples of the coil were welded into holes properly drilled in this plate. The coil was then inserted in the pipe, and the plate fastened with cap screws, using a mill board gasket. (Fig. II)

It is interesting to note that, aside from the actual insertion of the coil, the entire work was done while the meter was in operation. The curved plate was laid against the fitting, and the screw holes were scribed on the surface. The holes were then tapped through, and a wooden plug inserted in each one, to prevent the escape of gas. Then a second series of holes were drilled through the fitting to outline the twelve-inch opening, and plugs were inserted in each of them. The coil was welded to the plate in the shop. On the day designated for the installation, the meter was bypassed; steam was blown through to remove all traces of gas; the wooden plugs were driven through; and the opening made by chipping out the metal between the outlining holes. It was then but a small task to insert



Detail of Preheater

the coil, set up the plate with the cap screws and have the meter again ready for service. The upper or inlet nipple of the coil is connected with a steam line supplying live steam at approximately 100 lbs. pressure per square inch. The outlet nipple is connected to a drain line. In operation, the full steam pressure is maintained on the coil, and the quantity of steam flowing through it is regulated by a needle-point valve on the outlet.

The function of the preheater and its need as an added precaution for providing accuracy of the meter is evident from a consideration of the nature of the meter. As has previously been said, the essential mechanism of the meter comprises an electrical heating unit, with controlling electrical thermometers. The quantity of current flowing through the heating unit is registered directly as cubic feet of gas, and anything which influences this electrical flow correspondingly influences the quantity of gas registered. In its travel from the generating system to the holder the gas is affected by a temperature gradient which tends to throw down, or condense out, its moisture content. It is conceivable that under certain circumstances, the gas entering the meter house might be warmer than the building, and the piping contained within it. Obviously, condensation might then occur in the fittings ahead of the meter. If particles of this condensed moisture should enter the meter, and pass up through the heating unit, the heater would immediately respond in its effort to raise the temperature of the moisture to correspond with that of the gas, and to partially vaporize some of the water. The response to this demand would immediately record itself in terms of cubic feet of gas, and thus introduce a plus error in the registration.

The first step in the prevention of this error is the insertion at the lowest point on the inlet side of the meter of a drain pipe as shown on fitting No. 6 Fig. I, which carries to the sewer the moisture which may gather on the inside surface of the piping. The second step is the lagging of the meter and its adjacent fittings with suitable insulating material. This has been done with a hard finish magnesia plaster, beginning at fitting No. 5 and extending well beyond fitting No. 9. The final step is the introduction of the heating coil, whose function, then, is to raise the temperature of the gas at a point near the inlet of the meter proper, and prevent the condensation of moisture through the inlet fittings. It accomplishes its work in two ways; directly by raising the temperature, instead of allowing it to drop; indirectly by creating an unsaturated condition in the gas, as the vapor carrying capacity of a gas varies directly with its temperature. The insulation protects the preheated gas against further external influences.

Meeting of the Apparatus Committee of the National Electric Light Association

BY A. S. MAC DOWELL

A meeting of the Apparatus Committee of the National Electric Light Association was held at Atlantic City, February 11th and 12th. This Committee consists of representatives from central station companies in San Francisco, Seattle, Chicago, Cleveland, Boston, New York, Philadelphia and Rochester, and also from the Westinghouse and General Electric Companies.

The meetings serve as a "get together" between the manufacturing and operating companies with a view toward learning how various types of apparatus are working out and making suggestions for improvements, etc. The report of the Committee, presented at the annual National Electric Light Association convention, embodies a resumè of the year's developments in electrical apparatus and operating practice. The present Committee has been co-operating with Committees from the American Institute of Electrical Engineers and the Power Club along the line of standardization, particularly in connection with transformers: (sizes; voltages, primary and secondary; taps; methods of marking leads, etc.) In general, standardization means decreased stock, cheaper apparatus, better deliveries and common practice among operating companies which should be a step in the direction of making possible Dr. Steinmetz's dream of connecting together all the electrical systems of the United States and Canada.

Many interesting matters were

brought up by the various companies and the informal discussions were immensely valuable in learning how the other fellow had handled problems which were being confronted.

Among the subjects brought out at this meeting were the phase converters to be installed by the Philadelphia company, to handle the large single phase load which it has recently taken over from the Pennsylvania Railroad Company. These converters are of 5,000 K.W. capacity and consist of an A. C. motor directly connected on the same shaft to a combination starting motor and series booster. By a proper adjustment of the field currents of this set the heavy single phase load is distributed over all three phases, balancing the system. The above has an application for the smaller companies on electric furnace and other heavy single phase loads.

The development of a static condenser in larger sizes for installation at the end of A. C. feeder lines for power factor correction was considered. The cost of a static condenser is considerably less than a synchronous condenser and much less attention is necessary.

Improvements in switchboard apparatus received attention. In this connection it is interesting to note that one of the manufacturing companies has developed a process, through their experiences in the production of high explosive shells, for furnishing pressure moulded copper studs with the high conductivity of forged copper.

Two of the member companies were much pleased with their method of cleating control wiring to the rear of switchboard panels, using heavily insulated wire and one cleat with the insulation of the wires in contact. The practice of the Rochester company, however, which was developed some years ago by Mr. Charles Miller, is a great improvement over this method. It consists of using conduit for the panel supports with condulets installed at the proper points for wiring over to the various instruments, control switches, relays, etc. This obviates the necessity of leading all control wiring from the bottom of the panel, makes a better looking board and permits the use of narrower panels.

The meeting was held at the Fraynne Hotel which is about the last word in hotel construction. Some of the features are a very novel submarine grill room, the walls decorated with under sea views, a huge aquarium of gold fish in the roof and a sunken dance floor of black marble. This feature was quite regularly inspected by the Committee. The weather was surprisingly mild and on Saturday afternoon when Rochester was in the grip of a blizzard, the Board Walk was crowded with people, some without overcoats. Another popular spot was the Hygeia Swimming pool, where Filtered Sea Water is pumped in at 78 degrees temperature. This pool is about 200 feet by 75 feet of varying depth and is a very good substitute for the surf.

A new safety goggle manufactured by F. A. Hardy & Co. has been tried out by Mr. Charles Miller of the Motor Department with great success. These glasses have a frame work of fiber which is a non-conductor, a nose bridge of leather and are fastened to the head with an elastic band. There are also slits in the frame back of the glasses which permit ample ventilation. It is probable that these glasses will be adopted for all switchboard and welding work, and it is hoped that they will be satisfactory for use at the gas works where the ordinary metal type goggle becomes so hot as to be uncomfortable to the eyes and often burns the face.

Buried Treasure

BY F. E. MOREY

In business, as in other spheres of human activity, the old saying, "You cannot have an omelet without breaking eggs," holds true.

The farmer plows his field and buries the precious seed, trusting in a kind Providence to send rain and sunshine to bring forth the plentiful harvest as the reward of his investment of labor and treasure. We too often thoughtlessly assume that all the business man has to do is to receive the people's money and then spend it, but a careful consideration of a few figures will, I am sure, convince those who are inclined to be thoughtful and fair minded, that it requires great courage and an optimistic faith to establish and maintain a large business enterprise.

The original investment necessary to equip such an enterprise for the service to be rendered is immense: land, buildings, equipment, and apparatus for producing, storing and distributing the particular commodity to be sold requiring an enormous outlay of treasure before a penny of income can be realized therefrom. This original investment is termed, "Fixed Tangible Capital," and as the business increases this item is continually enlarged. The five years including 1910-1914 have been the banner years in the history of the Rochester Railway and Light Company in the matter of additions and betterments to this fundamental part of this great business organization; the gross amount of such additions in all departments being, $5,900,-830.77 divided as follows:

Gas	$1,628,444.97
Electric	4,209,402.41
Commercial Steam	62,983.39
Total	$5,900,830.77

As the total investment, Dec. 31, 1914, was $23,228,719.71, it will be seen at a glance that about one-fourth of the entire investment has been made in this five year period. Much of this is necessarily made in advance of the immediate demands, but in anticipation of, and a courageous confidence in, the future prosperity and growth of Rochester. Nearly $1,250,000.00 of these additions have been buried underneath the surface of the earth in the form of gas mains and services, conduits and cable, to distribute the Company's products to the inhabitants of Rochester for their use and comfort.

In view of this enormous original investment of capital, together with the various necessary operating and maintenance expenses, plus the fixed charges for interest on bonds, taxes, etc., amounting during this same period to the very large sum of $17,470,167.50, there must come to the thoughtful mind, suggestions at least, of the many great and complex problems involved in the promotion, financing and management of such an undertaking; providing funds, making necessary adjustments to meet the fluctuations of market values in securities, labor and material, etc.

As the sale price of the Company's products to the consumer is largely a fixed price, it becomes imperative to bring the entire organization to the highest possible efficiency, to secure successful operation and a fair return to investors.

Another very important item is the providing of a fund for the renewal of this valuable equipment, which is constantly depreciating in value, and sooner or later will have to be replaced with new and in most cases improved, more valuable and up-to-date equipment.

It goes without saying that an enterprise having such a large investment, costing so much for operation and up-keep, must have a corresponding revenue if it is to continue to exist, and pay the investors a fair rate of interest.

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It seems to be a curious fact that human beings are in the position of always receiving advice, yet always learning principally by experience. From the cradle to the grave we are cautioned, advised, warned, threatened and preached at, to do this or not to do that, to the end that we may become better, wiser, richer or happier. And yet, as it has been said "We have to live once, in order to learn how." This is not meant to imply that advice is valueless, because for some advice we cheerfully pay comparatively large sums of money. A part of the advice which we receive is very beneficial to us, and in general we value it by what it costs us. It is necessary to consider that experiences usually differ, and that heredity, training and environment handicap the majority of human beings in their power to absorb ideas and adapt themselves to circumstances. Nevertheless the progress of civilization is slower than would be the case if humanity in general had a more receptive mind. To meet the obvious need of their fellowmen, teachers, preachers and philosophers have condensed the wisdom of the ages into epigrams and sermons, so as to advise the heedless by brief and pointed statements, and the thoughtful by logic, and inasmuch as all of us are in one class or the other, these methods or their modifications, seem adequate.

Such being the case we may profitably ask ourselves why, knowing our human limitations, we suffer so much from avoidable troubles, as poverty, accident and disease. The answer is that first, we do not think or reflect upon the truth presented to us sufficiently to fix our convictions, and second, when we do so fix our convictions, we lack the moral strength to live up to them.

This more or less elaborate introduction to a specific subject has been deliberate, for the purpose of taking the reader behind the scenes, as it were, to explain something of the mechanism of an attempt to reach those who have become satiated by the ordinary appeal, i. e., the epigram or sermon. As we approach the subject of accident prevention, we come in contact with the temperament which considers the subject overworked, and which ignores both the so-called pithy slogan and the more elaborate statement. This natural sentiment on the part of the man who is normally careful, and who resents being classed with the heedless, or the man who by virtue of his station in life considers such things as not applicable to himself, must be met if possible. To this end the present article is written, as an appeal to the intellect. You who recognize the earmarks of the "Safety First" slogan or the "Accident Prevention" talk, and cheerfully pass them by, may through curiosity have read thus far, and if so, your interest may be sufficiently aroused to continue, especially as you note that the article is nearly finished. Now if we have broken

through your reserve to this extent, you realize that a serious attempt is being made to make you think along these lines. As this is an intellectual appeal, we leave statistics, grewsome photographs, "sob stuff," etc., for its logical place, the bulletin board or the lecture platform, assuming that you understand these things, and we ask you to get the "prevention spirit,"—that's the main idea. As practical men, shoulder to shoulder in the serious work of earning a living by the manipulation of nature's forces, why not consider accident prevention as a natural duty, not something to be left to chance, to the foreman or the management, but to ourselves? There is such a thing as individual responsibility. When we have each of us shouldered our share of it the job is accomplished, for surely we have sufficient combined intelligence to reduce our risks to a practical minimum. Also, when the lesson of individual "prevention spirit" is once learned it is not readily forgotten, but goes on gathering momentum through use, and paying the largest and best dividend which effort can produce.

Many of the Company's employees have availed themselves of the opportunity to offer suggestions on Efficiency and Safety, and some have received substantial rewards therefor. There are no conditions attached to this opportunity. Every employee is invited to suggest anything which will promote the objects sought, and any suggestion which receives the approval of the General Safety Committee will be awarded a cash prize of not less than $1.00. Write out your suggestion—no special form is required,—address it to the General Safety Committee and drop it into one of the Suggestion Boxes. In addition to the possible monetary reward, you may be able to receive a permanent reward by making your work much easier and safer.

Demand for Energetic Men

Every day emphasizes the need of men of thorough business ability in our American corporations. There is always a place for the young man who is energetic and competent. Look around you and study the character of those who now occupy important positions. Only yesterday, it seems, they were working by your side, but their enthusiasm and energy have lifted them to a higher and better position.

The majority of men who are today managing great industrial enterprises came from the ranks. They began at the bottom, but youth, enthusiastic effort and firm determination to win, soon came to the attention of the financiers who own the property. Be assured that advancement will never come unless you deserve it.

Idleness never won distinction in the world, and never will. The world does not owe us a living, but every man owes the world work. God made man for employment and we cannot dodge the issue.

Some men succeed by great talent and the great majority commenced life without a dollar. We are living in a progressive age. Everybody is in a hurry. Buildings go up in a day and sometimes come down as quickly. Luck is waiting for something to turn up. Pluck turns up something. The lucky man is he with his sleeves rolled up, hard at work. Bad luck is the man with his hands in his pockets waiting to see how things will turn out.—*The Road to Recognition—By W. C. Jenkins.*

There is an idea abroad among moral people that they should make their neighbors good. One person I have to make good: myself. But my duty to my neighbor is much more dearly expressed by saying that I have to make him happy if I may.—Robert Louis Stevenson.

The Dismantling of the 1100 K.W. Allis-Chalmers Engine at Station No. 3

BY A. H. LAMEY

As noted in the February issue of this magazine, a 1100 K. W. steam reciprocating unit at Station No. 3 is being removed to make room for a new 10,000 K. W. horizontal steam turbine.

After the removal of some of the smaller parts work was begun on the flywheel by drilling the links connecting the sections of the wheel. There were 16 links, each 6 in. x 6½ in. x 30 in. Six 1⅜-inch holes were drilled across the face of the link to a depth of 6½ in. and taper plugs were driven in these holes breaking the link apart. It was suggested by Messrs. Bacon and Drumm that the link be heated by gas and expanded until it was loose enough to be withdrawn. Two large gas torches were used and after applying the flame for about 40 minutes the link was loose enough to be removed. After the link was started, one torch was used to keep it hot while it was being taken out.

At the end of the first week's work the engine was stripped of all the smaller parts and the bolts in the larger parts were loosened. As the machine was dismantled the parts were loaded on one of the Company's 5-ton trucks and delivered directly to the purchaser of the scrap. All parts weighing more than 5 tons were broken, either by putting the 500-ton hydraulic jack in the piece and pushing it apart or by dropping a large weight upon it. On the two bases which carried the end bearings and in part the weight of the engine, it required a strain of 230 tons and 275 tons respectively to break them.

After the fields and armature windings had been removed, the sections of the flywheel taken off, and the upper portions of the engine taken down, the shaft was raised on one end and the end bearing removed. The shaft was again raised to remove the other end bearing. It was then placed back on the center bearing and one end was held down by large anchor bolts while the commutator, armature and flywheel hubs were removed. The commutator hub was pulled off by the large jack. This required a strain of 45 tons. The armature hub was pulled in the same way, requiring a 125-ton strain. The shaft is 27 feet 4 inches long and weighs 15½ tons.

Scrap material was recovered from the engine as follows:

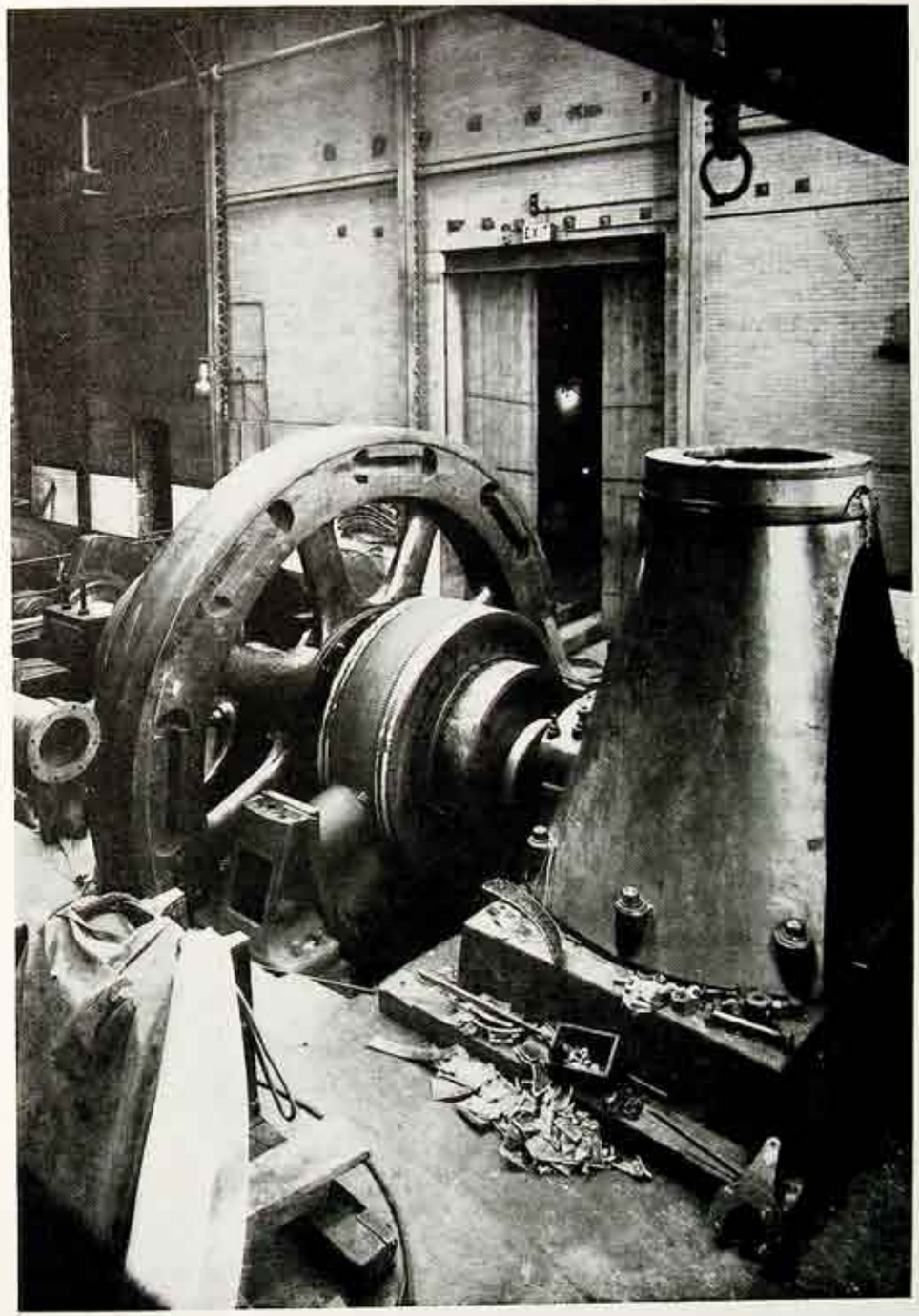
Brass	2,000 lbs.	Asbestos	1,300 lbs.
Copper	15,500 lbs.	Iron	280,000 lbs.
Babbitt	1,000 lbs.	Steel	50,000 lbs.

The accompanying picture shows the engine after the cylinders, connecting rods, links, etc., have been removed. In work of this kind great care is constantly required to properly support and move the massive pieces of metal, and none but experienced and competent men are employed.

New Sub-station

Plans are now being drawn for the erection of a new sub-station in the eastern part of the city, on the Company's property partially occupied by the Concrete Pole Yard. This sub-station will set back about 40 ft. from Leighton Ave., and the present railroad siding at the Concrete Pole Yard will be extended to the rear of the building to eliminate the necessity of hauling apparatus. The sub-station will have an original installation of 2—1000 K.W. railway rotaries, 6 arc transformers and 5 A. C. single phase circuits.

The need of a station in this section has been recognized in order to take down the present long A. C. feeder and arc circuits as well as the railway feeders. It is expected that the two rotaries will carry the additional railway load.



Demolition of Allis-Chalmers Reciprocating Engine, Station 3, Preparatory to Installation of 10,000 K. W. Turbine. **See page 222.**

New Roof at Front Street Garage

BY HUGH BOYD

EARLY in 1914 it was found that the slate roof on the Front Street garage was in such condition as to necessitate extensive repairs, and an investigation disclosed the fact that in order to make this roof weather tight it would be necessary to renew the entire roof covering.

The construction of the old roof was such as to merit description, being very different in a great many ways from modern structures. The building is about 50 years old, having once been used as a retort house for the original gas works which formerly occupied the Front Street property. It is 140 ft. long by 55 ft. 6 in. wide. The original roof was carried on 23 trusses spaced 5 ft. 9 in. centre to centre. The trusses were of eight panels each and built up of various sizes of square and round wrought iron rods. The upper chords or top members were ½ in. by 4½ in. plates, the diagonal members square bars varying from 11/16 in. to 1½ in. square and the lower chord or bottom member a 1½ in. diameter round bar. No rivets were used, all parts being bolted together. The trusses were braced by bars running along the lower chord and by diagonal members between the trusses. The slate roof was carried on 5/8 in. square purlins spaced 12 inches centre to centre, the slate being held in place by being wired to the purlins. The ends of the trusses rested in iron shoes which were supported by a wide flat iron bar running the length of the building along the top of the side walls. The iron work was evidently done by a blacksmith and was a good piece of work of its kind. An investigation of the trusses in the structure showed them to be somewhat higher than are considered good practice at the present time. This fact was especially true of the bolted joints and some of the long compression members.

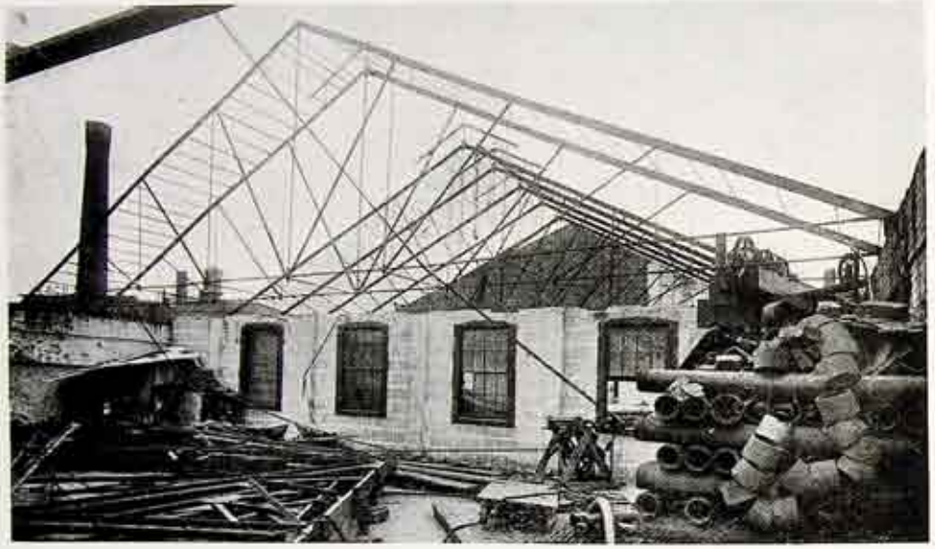


Fig. 1. View of Old Roof Trusses

The work of demolishing the old roof was done by the Company's men and was carried out without accident to any of the workmen, which indicates that great care was used on the work even though it was very difficult to perform. The old slate covering was broken off and carted away as they had no scrap value owing to many of them being cracked and to their having holes in them for the fastening wires. It was found impossible to handle the old trusses with a gin pole as they had a tendency to buckle due to their length and flexibility. The method finally adopted was to firmly brace together two of the old trusses and to slide them along the wall until they were close to the next truss to be removed. This truss was then firmly tied to the two traveler trusses after which the purlins were cut loose. Then the joint bolts were cut and the truss members lowered one at a time. The two traveler trusses may be seen in the foreground of the photograph on page 224. This shows very clearly the construction of the old roof trusses. The wrought iron recovered from the old trusses being useless for construction purposes, was scrapped.

The trusses for the new roof shown in the second photograph are what is known as the Fink type, and are built up of angle iron sections. These trusses are spaced 17 ft. on centres and carry 7″ channel purlins spaced about 5 ft. apart on which the roofing rests. The roofing is asbestos covered corrugated iron being black on the outside and white on the underside, making the interior of the building much lighter than it would be with plain corrugated roofing. The first cost of this roofing was more than that of plain corrugated iron, but it will not require painting and has a longer life, thus justifying the additional first cost.

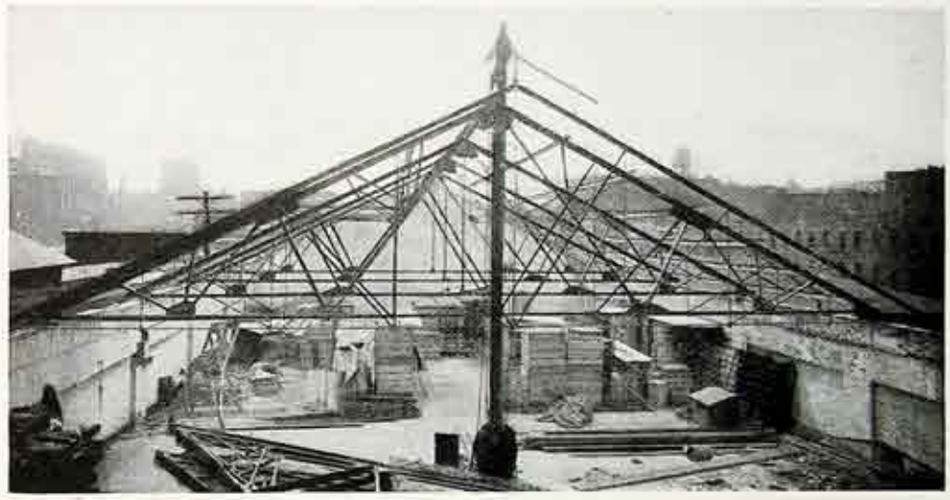


Fig. 2. View of New Roof Trusses

The work of erecting the new roof was done under contract by outside parties. The demolition of the old roof was supervised by Foreman A. H. Lamey. The new roof trusses were designed and the drawings made by the Company's Engineering Department.

The new roof, together with the new concrete second story floor which was erected a few years ago, completes the work of modernizing and adding to the utility of this building.

Women's Club Ball

Fun and merriment prevailed on the evening of March 2nd at the first masked ball given by the Women's Club of the Rochester Railway and Light Company, at the Rochester Business Institute Auditorium.

About two hundred and fifty employees of the Company, including Vice-President Searle and General Manager James T. Hutchings were present in costume.

The Social Committee of the Club, of which Mrs. Gay is Chairman, made all arrangements for the party, which was a huge success. The costumes embraced about everything one could think of. The prize given for the best dressed man was awarded to Mr. W. T. Nolan in the garb of a gilded knight of the Elizabethian age. Miss Wolf in Oriental costume was considered the best dressed woman. General Manager James T. Hutchings was the funniest dressed man, and Miss Mary Prindiville was the funniest dressed woman. Raymond Patten as a hobo was considered to have the most original costume.

The hall was decorated with flags and bunting in the Club colors, yellow and blue. Music was furnished by Fagan's Orchestra.

The Storage Battery Again Demonstrates Its Worth

On February 7th and 8th the Lyman H. Howe moving pictures were shown in the New York State Armory. Because of the well known fact that direct current gives a better arc for moving pictures than alternating current, it was desired that direct current be supplied, although only alternating current is available at the Armory, and the distance of the direct current feeders from the Armory was so great as to prohibit the supply of direct current from the Edison System.

An electric truck from the Rochester Railway and Light Company offered an easy solution of the problem. The truck was run into the basement of the building and the battery was connected with the arc of the moving picture machine. This truck was equipped with a 44 cell M V 19 plate Iron Clad battery with a capacity of 298 ampere hours. The battery contained sufficient energy to operate the moving picture machine for more than six hours.

Assistant General Manager Russell recently sent out several telegrams to various gas companies worded as follows: "Have you in operation any gas oven furnaces with capacity of 100 cubic feet of heating space, or over." Mr. Russell wished to send the same telegram to a former employee of this Company, Mr. R. H. Tillman of Baltimore, Md., familiarly known to us as "Senator." Through an error in the Company's stenographic department, the telegram was sent to Senator Tillman at Washington, and Mr. Russell is now wondering how the Senator is feeling upon being asked if he has a gas furnace of 100 cubic feet capacity in operation.

Mr. DeWitt Clinton, a descendant of the famous DeWitt Clinton of Erie Canal fame, and the Treasurer of the Worcester Gas Light Company visited the Rochester Railway and Light Company recently for the purpose of investigating office methods. Mr. Clinton attended the Friday meeting and upon the invitation of the Chairman, General Manager Hutchings, spoke briefly on his Rochester impressions, which he expressed as being most delightful in every respect.

Gas and Electricity in the Home

BY THE GAS DEMONSTRATORS

Mrs. Gabrielle Gay, Miss Frances E. Moore, and Miss Mona A. Pratt

Whether we live to eat or eat to live, the subject of food selection and its preparation is with most people a matter for daily consideration.

Dietetics and cooking are issues which interest the rich and the poor, the educated and the uneducated, in fact all classes that go to make up a world. Doctors are coming to a realization that the world does not need drugs but proper nourishment and men of science are devoting their lives to what was once considered a mean and trivial part of our existence.

Certainly if these subjects are big enough for such men as Dr. Wiley and Dr. Davenport they are worthy of the consideration of lesser minds, and the problem is one which to some extent must be considered by the humblest workman. After all, isn't it wonderful that each and everyone of us may have the privilege of helping in making the human race a more perfect one physically, or, building the foundation for the real goal, a better race, morally and mentally.

Assuming that it is a privilege to select and prepare that which sustains life, even those who are most enthusiastic must admit that it has its drawbacks. Every woman who is a homemaker and homekeeper, has a right to demand a proper workshop and suitable tools so that her work may be a pleasure rather than a burden. However, we know that no workshop in the world is as poorly equipped as the average kitchen, and physicians tell us that there are more nervous breakdowns among housewives then among any other class of women. The great trouble is that homemakers are too often working under great handicaps and consequently are not doing the work efficiently.

Inasmuch as gas and electricity are factors which enter into the lightening of labor in the home and the making of the kitchen into a good workshop, we should take more than an ordinary interest in their use.

This department has been started with the aim of giving each reader a more intelligent insight into the part which the kitchen with its gas and electric equipment plays in the real work of the home, the building of better men and women. We ask that you co-operate by spreading this knowledge as widely as possible, and we trust that our efforts will be productive of much real good.

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Valuable hints that should be remembered when using a gas range.

1. Have range in proper adjustment.
   (a) Burners should light and burn with little or no noise.
   (b) Flame should be clear and blue.
2. Proper method of lighting.
   (a) To light top burners, turn gas on full and apply match, then regulate flame.
   (b) To light oven, apply match to pilot light, turn other burners on and they will ignite from pilot. Regulate as desired by turning both low or one entirely off. Always open broiler door when lighting oven and be sure burners are lighted.
3. Care of range.
   (a) Keep air-inlets clean by boiling burners occasionally in water and washing soda.
   (b) Wash burner tray daily.
   (c) After using oven leave door open to allow steam to escape to prevent oven lining rusting.
   (d) To protect the stove from rust, occasionally rub entire surface including oven with cloth

which has been dipped in lard oil or kerosene.

4. To avoid wasting gas.
   (a) When contents of kettle begin to boil turn flame down. Water under ordinary conditions never gets above 212° F. whether boiling fast or slowly.
   (b) Use giant burner only when absolutely necessary. Usually the other burners will do the work just as well.
   (c) The simmering burner is valuable for long slow cooking or keeping things hot.
   (d) Bake several things at once. It is uneconomical to heat oven for one cake or one pie when several things may be baked at the same time. If possible make the most of the heat by using oven and broiler simultaneously.
   (e) Don't light burners until they are to be used and turn them out immediately after the baking or cooking is completed. Matches are cheaper than gas.

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"The more you learn about Gas and its way,
The less you have to use and the easier it is to pay,
Cook with it, heat with it, light with its ray,
Do anything, do everything except waste it away."

❖

Why is it a Privilege to be a Housewife?

Because I can work in an airy room, if I choose. Because I can do for those I love and serve them in return for the kindnesses they render me! Because I can utilize the finest products of the great factories—for the tools of my trade are many and very excellent. Because I can look ahead to times when my work will show in the lives of others and know that I have not lived in vain.

Seasonable Recipes

NUT CAKES

Yolks 2 eggs, 1 cup brown sugar, 1 cup chopped nut meats, whites 2 eggs, 6 tablespoons flour (level), few grains salt.

Beat yolks of eggs until thick and lemon-colored, add sugar gradually, nut meats, whites of eggs beaten until stiff, and flour mixed with salt.

Drop from tip of spoon on buttered baking sheet. Spread and bake in a moderate oven.

MINT JELLY

1½ tablespoons gelatine
1 cup vinegar
½ cup cold water
1 cup sugar
½ teaspoon salt
½ or 1 bunch fresh mint
Few drops green liquid coloring.

Soak gelatine 20 minutes in ½ cup cold water. Dissolve in hot vinegar, add sugar, salt, mint leaves, and coloring. Let stand ten minutes or until well flavored. Strain into mould and let set. This may be served with roast lamb, roast mutton, roast pork or lamb chops.

SAUCE FOR WAFFLES

To the stiffly beaten whites of eggs, add pulverized sugar to taste. Then add two tablespoons of creamed butter, folding in lightly.

Flavor with grated nutmeg, lemon or vanilla.

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Suggestions for an Evening Lunch

White bread, chopped chicken and ham, with mayonnaise and chili sauce sandwiches.

White bread, cream cheese, chopped pimentos and mayonnaise sandwiches.

Chocolate marguerites.

Small nut cakes.

Tea with slices of lemon and orange.

Salted almonds and jumbo peanuts.

Sales

The George W. Brownyard Mfg. Co. has recently moved from its small plant on Mill Street to its new and up-to-date factory building on Winton Road.

The designer of the building took special pains to provide ample daylight and with this in mind adopted the so-called saw-tooth roof construction. To eliminate overhead shafting and belts, individual motors have been used on practically every machine. For the illumination of the plant, steel reflectors equipped with a glass globe enclosing a Type C lamp have been installed throughout the factory. The total connected load in motors is 91 horsepower and in lights 20 kilowatts. Plans and specifications for the complete wiring of motors and lighting fixtures and complete recommendations for the types of lighting fixtures to be used were prepared by the Industrial Engineering Department.

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Mr. B. B. Yeomans has devised a very valuable attachment to increase the output of printing presses. This device removes all the static electricity from the paper and also dries the ink. In some cases it has been found that the drying of the ink alone has increased the output of a press 100%. The printing, when this device is used, can be done with full ink which gives better cuts and print and saves the insertion of slip sheets. The device consists of a gas pipe-burner placed under the discharge conveyor and covered with a 2-inch angle iron to keep the gas flame from coming in contact with the paper. Several of these devices are being successfully used in Rochester.

Within the last few weeks 5 gasoline engines have been shut down and electric power used in their stead with very pleasing results for the Company's consumers. A concrete block plant on Lexington Avenue is now running on electric motor power. Mr. C. W. Aiken, who manufactures spraying apparatus on North Water Street, has just shut down his gas engine and is using electric power. The Defiance Machine Co. is now using electric power in the Woodworth Bldg. on State Street. The Luitweiler Company on Ames Street is now using electric motors in its machine and woodworking shops.

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The J. W. Storandt Mfg. Co., which manufactures show cases and soda fountain fixtures, has recently moved from its plant on Lyell Avenue, to the building on Brown's Race formerly occupied by the R. T. French Company.

To drive the various woodworking machines, 142 horsepower in alternating current motors has been installed. In view of the fact that the Lyell Avenue plant current was supplied by an isolated plant, it is especially gratifying to learn that this concern has decided to use Rochester Railway and Light Company's power.

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The largest gas operated hardening furnace in Rochester has just been erected at the Rochester Stamping Company's plant on Anderson Avenue. This furnace is 4 feet long, 2½ feet wide and 20 inches high. It is being used for hardening dies for large draw presses.

The William Heiber Co., shoe manufacturers, are now moving their factory into the Karle Lithographic Company's Building on Central Avenue, where they will use electric power. Their present factory is operated with power from a private plant. The speed regulation of this plant is so poor that it is confidently expected that when they commence operating on electric motors, the output will be increased at least 15%. Direct connected motors will be used to drive the shafting for the various machine tables. The lighting for the sewing machines will consist of small lamps and reflectors attached to fixtures which permit the moving of the lighting unit into any desired position. The general lighting will be accomplished with 300-watt nitrogen lamps.

❖

The Domestic Sales Dept. has undergone several important changes in the arrangement of offices and appliances. The lamp counter has been moved from the basement to the main floor, and the basement has been subdivided into assembly, locker and display rooms. The store room has been rearranged and painted by the men in charge, Messrs. Charles J. Rhodes and George Myers. On the main floor the old arrangement of stove and heaters has given way to a simplified layout which furnishes space for the cooking demonstrators.

❖

The Rochester Motors Company has purchased a gas operated lead hardening furnace which is to be used for hardening gas engine parts. The pot holding the lead bath is 15" wide, 20" long and 8" deep.

❖

Mr. Benjamin Humphreys has just installed a 2-horsepower, automatic gas boiler. The steam is to be used for sterilizing milk bottles and cans.

There are over 75 refrigerating plants on the Company's lines at the present time. Nine additional plants have been contracted for since the first of the year, and they cover almost as many uses. The total capacity of the new plants is over 50 tons, representing 109 horsepower of connected load. Economy and superior results will pay large dividends.

Location of Plant	Capacity	Power required.
Chamber of Commerce Bldg.	8 Tons	15 H.P.
Iola Sanitarium	16 "	28 "
H. A. Irrig, meat market	4 "	10 "
H. J. Zimmer, meat market	2 "	5 "
W. P. Webber, meat market	4 "	8½ "
J. J. Brown, meat market	4 "	7½ "
Seel Grocery Co., East Main Street	4	12 "
Mr. Cambell, Dairy	2 "	5 "
Keenan & Keenan, Apartment House	6 "	18 "
Total	50 Tons	109 H.P.

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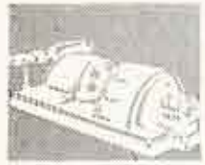
The Domestic Sales Department recently arranged a very attractive display of the Mead Mantel Type, Gas-Steam Radiator as shown in the accompanying illustration. This display was productive of sales.

❖

A high-speed steel furnace and pressure blower have been installed in the machine shop owned by Charles Englert, on North Water Street. This gas furnace will be used for hardening milling machine cutters and dies.



Electric Generation

Work was recently started on rebuilding the front wall of boiler No. 15 at Station No. 3. The two photographs show the appearance of the front wall after being torn down part way, and the appearance of the front row of tubes and baffle plates in the boiler. The picture of the front wall clearly indicates the gouging action of the fires on it. It can be noticed at the top of each row of tuyere plates, that the front wall has holes burned in it. This is apparently due to some sort of a blast action from the fire.

The picture of the front row of tubes gives a very good idea of the way in which portions of molten ash are blown up from the surface of the fire against the tubes and baffle plates, adhering to the same in quite large masses, and reducing the efficiency of the furnace.

Replacing Front Setting, Showing Top of Stoker, and Holes in Wall

Front View of Tubes. Note Melted Ash Adhering to Tubes

❖

While discussing Safety at Station 15 recently, Messrs. R. D. DeWolf and Charles Gardiner noticed that escape from the operating floor of the station would be cut off by water, in case of breakage of a turbine casing. Three safety ladders have since been installed on the south side of the room, from the floor to the switchboard gallery, and one similar ladder on the north side of the room from the floor to the crane runway.

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Mr. R. D. DeWolf reports that through the expenditure of a considerable sum of money in 1914 to repair leaks in the steam distribution system, the line loss has been cut from 33% in 1914 to 9.45% in 1915.

A change in the organization of the Electrical Construction Department for stations and sub-stations went into effect March 1st. This was the consolidation of the construction force of Mr. C. W. Miller which previously had charge of construction and repair work at all stations and a similar organization at Sta. 3 in charge of Mr. William J. Sutherland. Mr. Sutherland has been made assistant to Mr. Miller and this consolidation will result in a greater economy and efficiency along many lines.

Headquarters of the new department will be at station No. 6. In this connection also, a section of the Beehive Building will be converted into an equipment storehouse where all available electrical material from the various stations will be assembled for use in connection with new installation work.

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An economy is being affected at Station No. 6 in connection with the installation of switchboard apparatus for the control of new 11,000-volt, 60-cycle tie lines. Several spare switch cells are available on the 25-cycle 11,000-volt layout, and by a rearrangement of circuits these cells will be grouped at one end of the layout and used for 60-cycle switches, using the same construction throughout and cutting the bus bars between the two systems. All changes will be made outside the station by interchanging cables which will accomplish the desired result without the necessity of changing any control wiring, panels, instrument transformers, etc. This use of spare 25-cycle switch cells is warranted by the fact that all new developments will be made on the 60-cycle system. In this connection a 25-cycle tie line between Stations 6 and 33 is being removed for installation between Station 6 and the new sub-station to be erected on Leighton Avenue. As there will be sufficient capacity between these stations for the 25-cycle load without the tie line which is being removed, this change will save the Company many thousands of dollars in not having to purchase new cable, especially at the present price of copper. The removal of this line also releases switching equipment at each end which will be used for new 60-cycle installations.

❖

The steam heating load on Saturday, February 19th, was the largest ever carried by the Company, and was distributed among the stations at the following rate in pounds of steam per hour:

Station No. 3	113,800
Station No. 35	20,000
Bausch & Lomb Industrial	14,700
Station No. 26	2,500
Total	151,000 lbs.

This corresponds to about 5,000 horsepower.

❖

The largest daily railway output in the Company's history occurred on February 12th. The power sent out to the railway lines in 24 hours amounted to 175,000 kilowatt hours. The additional power was used by snow plows, brushes, etc. in keeping the tracks clear of snow during the heavy storm.

❖

Mr. L. V. Begy, Foreman of Station 4, says that the men at Station 4 will not be sorry when the winter is over. They have had a very hard time clearing the ice from the racks, and summer cannot come any too soon.

Only five months are left in which E. B. A. members can take additional insurance. Don't put it off.

Electric Distribution

One of the largest installations that the Distribution Department has connected to the Rochester Railway and Light Co. lines this year, has been recently completed at the T. H. Symington Company's new plant on Leighton Avenue.

The installation at the present time consists of three 100 and three 150 K.W. transformers, but additional machinery will be added in the near future, which will bring the load up to about 1500 K.W. The transformers are of the out-door type and are erected on a platform in the rear of the boiler house. An oil switch controlling the energy on the primary side, is so situated that it can be operated by a chain running in a conduit from the boiler room.

The energy supplying this installation will be 3-phase, 60-cycle, 4150 volts and will be taken from circuit No. 322 emanating from Station No. 6.

It has been necessary to relieve circuit No. 322 of the greater share of its former load, so that it may efficiently supply this installation without an excessive voltage drop, and this has been accomplished by dividing the load between other circuits in the same locality as circuit No. 322.

❖

A meeting was held in the Company's garage on February 25th, at which the Group Life Insurance now in effect through the Employees Benevolent Association was explained. The speakers were Mr. Alexander Scobell of the Aetna Life Insurance Company, and Messrs. H. P. Gould, W. C. Gosnell and F. W. Fisher.

Through the suggestion of Supt. T. H. Yawger of the Distribution Department, an economy has been effected in the manufacture of concrete poles.

It has been the practice in the past to insert into the concrete poles before they hardened, a brass plate stamped "Rochester Railway and Light Co." and the date the pole was made. In carrying out Mr. Yawger's suggestion, these plates will be omitted in the future and in their place, the day, month and year in which they are made will be pressed into the soft concrete on the face of the pole, at the time of manufacture.

❖

Last summer the Company completed an 11,000 volt, 3-phase, 60-cycle transmission line from Charlotte to Hilton. Current is supplied over this line for street and residence lighting and for power service in Hilton. On February 22nd, the Hilton Milling and Warehouse Company put in operation one 50 horsepower, one 25 horsepower and one 10 horsepower motor in its flour and feed mill. During the coming summer the same company will use Railway and Light Company power for two 50 horsepower motors driving refrigerating machines in its new cold storage plant.

❖

Mr. J. O. Montignani of the Engineering Department reports that all incandescent lamps on city circuits will be renewed 3 times a year in the future. In the past, these lamps have been usually permitted to burn 3000 hours and the average efficiency

after the first 1500 hours life has been low. In the interest of better service to the city, lamps will now be changed after 1500 hours life, and inasmuch as the lamp globes are cleaned three times a year, the expense of changing will be very slight. This work will result in less lamp outage and less patrol duty. The lamps as discarded will be tested and those coming up to standard will be given to patrolman for renewing burned out lamps. Those not coming up to standard will be scrapped.

❖

Mr. G. B. Swarthout of the Underground Department presents to our attention an unusual phenomenon. An air compressor was being used at the Gas Shop to test out a line of pipe, and frictional electricity, presumably generated by the belt, had charged the pipe to such an extent that it was possible to draw off a ½" spark. This happened on one of the cold frosty mornings, and inasmuch as the pipe was quite thoroughly insulated from the ground the charge which would ordinarily have leaked away, was built up as stated.

Mr. W. S. Burch of the Industrial Sales Department noted an unusual condition at Shortsville recently. One of the auto transformers on the 6600-volt line has developed trouble at various times. It was found that the grounding of the secondary line, presumably on wet poles, threw 6600 volts on the secondary windings of the transformer which were not strong enough to stand the strain.

❖

Mr. C. G. Durfee and Mr. G. B. Swarthout are experimenting with a method of ventilation for fire alarm globes. The heat from the lamp is too great for the ordinary globe, and it was noticed that globes which were slightly broken had a much longer life than those apparently perfect. The experiment consists of cutting ventilating holes in the base of the lamp frame.

❖

General Foreman F. C. Alcott has removed an unused transmission line formerly running into Seneca Park. About 8000 lbs. of copper wire suitable for house services was obtained.

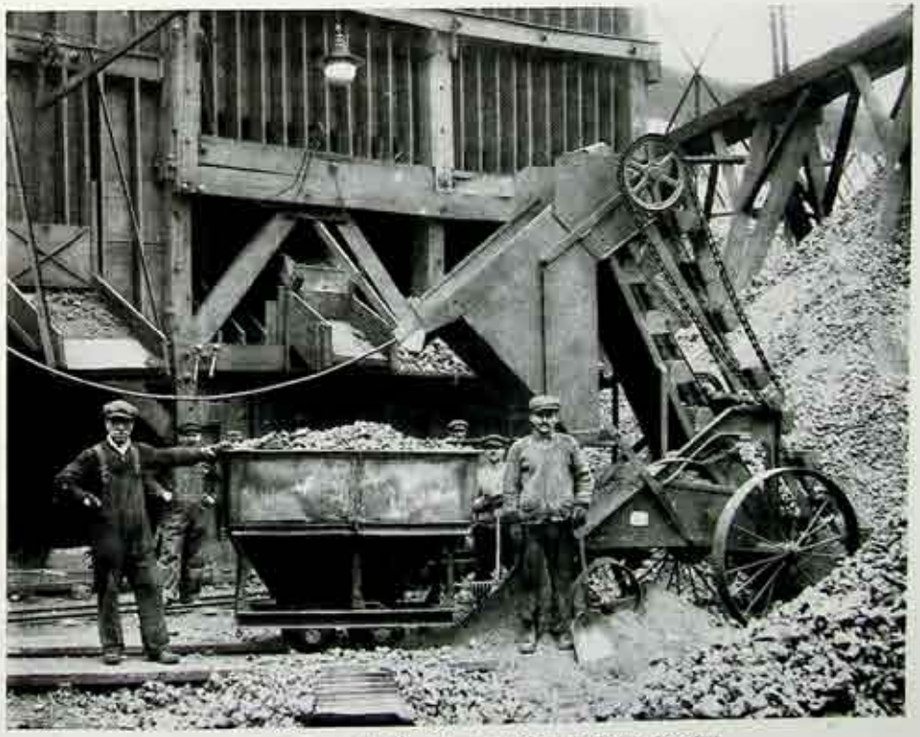
Gas Manufacture

The present season has been unusually easy on gas holder maintenance. Friday, February 25, was the first time it has been necessary to remove snow from the crown of No. 10 holder, and only the second time from the No. 9 holder. The crown of No. 10 holder has a surface area of approximately 40,000 square feet, and on the above date, a snow cover six inches deep was reported as quite evenly distributed, which meant 20,000 cubic feet of snow. The weight of snow will vary from five to twenty pounds per cubic foot, but a normally wet snow will probably average about eight pounds per cubic foot. On this basis, the load amounted to 160,000 pounds or, eighty tons. Being evenly distributed it was no particular menace, but if the snow had fallen in a drifting wind, and had piled up on one side of the crown it might have caused a serious condition, for by tilting the holder and jamming the guide wheels, it is easily conceivable that a holder could be badly wrecked.

On the other hand, an evenly distributed snow load on a holder like No. 9 which is constantly receiving warm gas, and is cupping and uncupping throughout the day may cause trouble. The melting snow running down the colder sides of the lifts tends to freeze, and might build up an ice sheet to an extent sufficient to damage a holder by interfering with the telescopic action. To obviate these dangers, men are sent to the crown, to push the snow off, but not to shovel it. They are stationed at equal distances around the rim, and gradually work their way back to the center, pushing the snow with enough force to carry it clear of the cups.

❖

Operating tests have been made on the portable, electrically driven wagon loader purchased from the Link Belt Company. It has proven efficient on coke when the pile is high enough that the coke will feed to the conveyor by gravity, or can be pushed or raked to it. Fifty per cent of the loading time can be saved on every buggy loaded by the machine, as against the old method of hand forking. Furthermore it provides a better grade of coke for the water gas machines. It has been worked to considerable advantage in loading wagons with spent oxide, but failed to develop sufficient speed to be of service in loading wheel barrows when changing purifiers. Its disadvantages lie in the lack of flexibility. It delivers directly ahead, straddling the track along which the coke buggies are conveyed, and consequently it is not readily adaptable to all parts of a pile. There is no doubt, however, but that it will prove economically serviceable in the Spring if it becomes necessary to move the gas coal, and the soft coke storage piles.



Link-Belt Portable Electrically Driven Wagon Loader

Assistant Foreman Henry Heckman is responsible for a safety grating which has been built for the generators of numbers 3 and 4 water gas machines. The coaling holes of these generators are large enough for a man to fall through, and during the barring down of the machines in the cleaning period, the men work over these holes with 1-in. round steel bars about ten feet long. A misstep, a sudden lurch, or an overbalancing caused by a broken bar or a slicing off of clinker might carry a man down into the fire. The new guard is a grating made up of 1-in. extra heavy pipe threaded and pinned into malleable fittings. Its openings are large enough to admit free working of the clinker bars, but small enough to absolutely prevent a man from falling into the holes.

❖

Superintendent J. P. Haftenkamp reports that the oil bill at the Gas Works for February is between $600.00 and $700.00 less than for a corresponding period last year. This represents a saving of 20,000 gallons.

The Company purchased 101,801 tons of coal and 6,071 tons of coke during 1915. As approximately 45 tons constitute a car of coal and 28 tons a car of coke, a total of 2,479 carloads of coal and coke was received, which averages over 47 cars per week.

The distribution and comparison of these totals are as follows:

	1915 Tons	1914 Tons		Decrease Tons
Slack coal for Stations	46891	62899		16008
Slack coal for Gas Works and Holder	10659	7208	(Inc.)	3451
Gas coal for Works	44251	29729	(Inc.)	14522
Coke for Works	6071	9864		3793
Total purchased	107872	109700		1828

A supply of coal is always kept on hand contingent upon shortage, strikes, etc. On December 31st, there were 15,500 tons of slack coal, 9,477 tons of gas coal and 886 tons of coke on hand. Most of the slack coal is kept at the Ambrose Street storage yard.

Gas Made and Sold (Million Cu. Ft.)

	1915		1914	
	Made	Sold	Made	Sold
Coal	324,256,000	.....	292,386,000	.....
Water	1,363,193,000	.....	1,368,449,000	.....
Total	1,687,449,000	1,585,700,000	1,660,835,000	1,576,850,600

Gas Works By-Products Data

Item	On hand Jan. 1, 1916	Made during 1915	Used during 1915	Sold during 1915	On hand Jan. 1, 1916
Coal Tar (gals.)	41,549	530,113		464,678	106,984
Oil Tar (gals.)	20,000	531,171	252,363	259,340	39,468
Ammonia (lbs.)	20,870	158,920		167,071	12,719
		Rcd. during 1916			
Soda Ash (lbs.)	22,760	86,100	91,276		17,584
Lime (lbs.)	36,103	30,603	58,385		8,321
Iron Sulphate (lbs.)	none	16,000	14,655		1,345

Gas Distribution

The Garage has the distinction of having the oldest man in its employ of any of the departments. Mr. W. Vincent celebrated his 83rd birthday on Feb. 11th. He is apparently in good health and works every day. An interesting fact in Mr. Vincent's life is his ability to evade doctor's bills, the secret of which he very willingly interprets. His prescription calls for a 2 lb. hammer, an anvil and a hard day's work. Mr. Vincent's friends send their congratulations and wish him many more years of happiness.

❖

At a recent meeting of the Men's Club of Westminster Presbyterian Church, Mr. Stanley Burne of the Gas Shop, gave a demonstration of the operation and use of the pulmotor. "Doc," who is the Company's pulmotor expert, says that the members of the Club showed great interest and are enthusiastic over the machine.

❖

On Monday evening, February 28th, the men of the Gas Shop held a bowling party at Muises Bowling Academy on Joseph Ave. Mr. P. L. Bitzke was the captain of the Irish, and Mr. J. W. Morrissey was captain of the Germans. This being a strictly neutral gathering no decision was given on any of the contests.

❖

Spring is apparently coming, as foretold by the nice new white dress the inside of the garage is receiving. The boys would like to express their appreciation, as heretofore dark corners are now made light, and the surroundings are pleasanter to work in.

The annual inspection of the garage was made on Feb. 17th by the State Underwriters Inspector, and apparently everything was found in good condition. Safety suggestions are immediately attended to by the garage employees, and the general condition of the garage and its safety devices are given careful attention.

❖

The Gas Street Dept. has excellent prospects for a busy year. It already has one hundred orders for new services to be installed throughout the city as soon as the weather permits.

❖

The following record of the pulmotor is of interest:

	Successful 1914	Successful 1915	Unsuccessful 1914	Unsuccessful 1915
Heart failure	1		6	1
Gas asphyxiation	6	5	2	6
Drowning			1	2
Operations ***	1	1	1	1
Childbirth	2	2	2	2
Electric shock		1*	2**	1
Carbolic acid poisoning			1	
Hanging			3	
Fainting	1			
Internal injuries				2

	1914	1915
Total Calls	37	44
Calls, Pulmotor not used	10	20

* Prone method, Pulmotor administering oxygen.

** Unsuccessful on account of fall.

*** Patients not rallying from anaesthetics.

Each of the four hospitals in the city are equipped with pulmotors.

In the picture play the cook was using a gas range. Two housemaids in the audience were exceedingly interested in the scene.

"Sure, Bridget," said one, "do you know, a gas stove is a foine thing? We have one of thim where I wurk. Oi lit it most four weeks ago and it haint out yit!"

Auditing

Monthly Report on New Business

Net Gain in Consumers in Twelve Months Ending January 31, 1916

	Jan. 31, 1915	Jan. 31, 1916	Gain in Twelve Months
Gas	67,815	69,223	1,408
Electric	16,998	19,783	2,785
Steam	37	41	4
	84,850	89,047	4,197

Statements of Consumers by Departments as of January 31st.

Jan. 31	Gas	Elec.	Steam	Total	Increased Each Year
1908	37,333	5,343	....	42,676	.....
1909	40,681	5,713	....	46,394	3,718
1910	45,259	6,345	....	51,604	5,210
1911	50,442	7,781	14	58,237	6,633
1912	55,217	9,358	19	64,594	6,357
1913	59,904	11,818	23	71,745	7,151
1914	64,681	14,073	27	78,781	7,036
1915	67,815	16,998	37	84,850	6,069
1916	69,223	19,783	41	89,047	4,197
Inc. in 8 Yrs.	31,890	14,440	41	.....	46,371

Increase in Consumers by Months

	1914	1915	1916
Gain in January	228	364	252
" " February	231	144	.....
" " March	281	247	.....
" " April	469	460	.....
" " May	564	306	.....
" " June	431	544	.....
" " July	426	132	(Dec.)
" " August	619	289	.....
" " September	653	459	.....
" " October	681	460	.....
" " November	574	548	.....
" " December	756	488	.....
Net gain year	5,933	4,209	252

Net Gain in Consumers in Month of January, 1916

	Dec. 31, 1915	Jan. 31, 1916	Gain during month
Gas	69,090	69,223	133
Electric	19,664	19,783	119
Steam	41	41	.....
	88,795	89,047	252

Miscellaneous Data

	Jan. 31 1915	Jan. 31 1916	Increase
Miles of gas main	422	435	13
Miles of underground cable	976	1,043	67
Miles of overhead line	1,645	1,763	118
Miles of subway duct	850	906	56
No. street arc lamps	4,322	4,204	(Dec.) 118
No. street incandescent lamps	3,592	4,422	830
Total no. street lamps	7,914	8,626	712
No. of employees	902	1,032	130
Amt. of pay roll (Mo)	$68,177.29	$82,428.04	$14,250.75

❖

Mr. Faulstich, who has been recently charged with the disposal of scrap material gathered up at various points, states that during the month of January 1916, there was accumulated and sold $18,807.00 worth of scrap, represented approximately by the following quantities:

27,000	lbs. of	aluminum wire
104,000	" "	iron and steel
3,700	" "	brass
8,400	" "	copper
2,800	" "	bronze
2,050	" "	babbitt metal
200	" "	zinc
2,200	" "	old rubber tires, etc.

The rise in the cost of metal, caused by the European War, has caused the Company to give greater attention to the assembling and disposal of scrap than at anytime heretofore. Each department has been made keenly alive to the necessity of "cleaning house" in this connection while the opportunity is with us.

Employees' Benevolent Association

Statement to January 31, 1916

Receipts		
Cash balance on hand Dec. 31, 1915		$3,345.48
Dues from Members	$ 259.56	
Dues from R. R. & L. Co.	259.56	
Initiation fees from members	7.00	
Initiation fees from R. R. & L. Co.	7.00	
Death assessment from members	165.25	
Death assessment from Roch. R. & L. Co.	165.25	
Interest on R. R. & L. Co. Bond	25.00	888.62
		4,234.10
Disbursements		
Sick benefits	140.30	
Accident benefits	85.03	
Doctors examinations	12.00	237.33
Cash balance on hand January 31, 1916		3,996.77

NOTE—Sick and accident benefits for January, as above, covered 195 working days off duty.

Balance Sheet, January 31, 1916

Assets		
Cash on hand	$3,996.77	
Rochester Railway and Light Co. Bond	975.00	$4,971.77
Liabilities		
Due on account J. Stewart Feeley's death	217.50	
Surplus	4,754.27	4,971.77

Membership

December 31, 1915—No. members	669
Affiliated during January	8
Unaffiliated during January	4
January 31, 1916—No. members	673
May 31, 1915—No. members	602
Increase in eight months	71

❖

Company Savings Depositors

STATEMENT TO MAR. 1, 1916

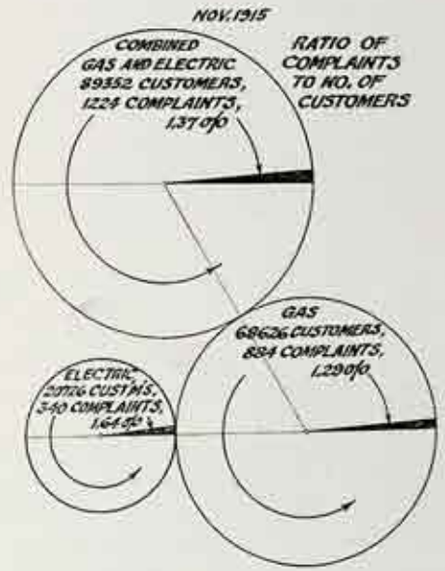
No. of depositors March 1, 1916	56
Increase during February, 1916	25
Amount deposited March 1, 1916	$414.50
Increase during February, 1916	297.00

❖

"Jim" Eaton says:

$$\frac{\text{Specifications} + \text{Quality} + \text{Test}}{\text{Price}} = \text{Purchasing Efficiency}$$

Some indication of the excellent service which is being furnished to the Company's consumers, is given by the accompanying diagram taken from a report of the Service Improvement Department, in charge of Mr. L. W. Layman. It will be noticed that the percentage of complaints of all classes is 1.37 for the month of November, 1915. This is a very low percentage, and is an indication



both of the character of the service, and of the efforts of the Service Improvement Department to make its good character clear to consumers.

The Department, in addition to its staff, is equipped with working exhibits of meters, lamps, appliances, cards of instruction, charts of lighting hours, record of sunshine, send-out charts of Gas Works and Stations, duration curves of load, records of previous complaints, tests, correspondence, etc. In general, complaints are based upon lack of information or misunderstanding, and the Department is making every effort to clear up each individual case to the entire satisfaction of the consumer.

From his experience in the Complaint Department, Mr. C. C. Clark states that it is necessary for him to convince consumers complaining of high gas and electric bills—

First—That the meter reader has not made a mistake.

Second—That the ledger keeper has not made a mistake.

Third—That the meter is not registering too fast.

Fourth—That the piping or wiring is not installed wrong in cases where there are two or more families occupying a house.

Fifth—That the leak, if there be one, is too small to have registered consumption on the meter.

Sixth—That the gas or electric current was really consumed.

❖

Mr. F. Houlahan furnishes the following:—

After paying his bill to the cashier an elderly gentleman stepped up to the Information Counter, laid down his receipted bill and a disconnect notice saying, "This notice does not call for payment until tomorrow and I was shut off last night at 9.30. Now, I want you to push that button so I can get light right away." It appeared to be line trouble that disconnected him, and he thought the Company could disconnect a consumer directly from the office at any time and had done so in his case by simply pushing a button.

❖

Mr. John Kohl, of the Addressograph Department, states that he has finished printing the names and addresses on the new meter read slips. It is now only necessary to add the meter data in connection with each. This completes about 85,000 read slips.

Engineering and Construction

A new lighting installation has been made, under the direction of Mr. F. C. Taylor, in the Drafting Department at the Clinton Avenue offices. It consists of semi-indirect fixtures with opalescent shades enclosing 250 watt Mazda lamps, spaced 9 feet apart.

In the semi-indirect system, the lamp is hidden from the eyes of the observer by the inverted glass shades, and the greater portion of the light is thrown on the ceiling. Since the ceiling is required to reflect the major part of the light, it should be painted a flat white, so that this system may be efficient and give the best results.

It has been somewhat of a question if general illumination is at all times adapted to the work of tracing, and some individual lamps may be required for close work, but it is expected that when the ceiling is painted white, there will be little need for portable lamps. It goes without saying, however, that tracers should, whenever possible, be located nearest the windows and preferably with a north light. In this respect it is worthy to note that the painting of the areaway walls in the rear of the office building has greatly improved conditions.

❖

The February meeting of the Electric Vehicle Association was held on Monday evening, the 14th, in the Rooms of the Rochester Engineering Society, Sibley Bldg.

Mr. Joseph H. Tracy, Asst. Chief Engineer of the Electric Storage Battery Company, of Philadelphia, gave a very interesting talk on "High Horsepower Operation of Modern Electric Vehicles." The talk dealt very largely with the performance of the battery under these conditions. The speaker stated that a battery was not as likely to be injured by high duty intermittent service as by complete discharges at low rates, the latter method being more likely to completely exhaust the active material of the plates. He demonstrated this by short circuiting a 70-ampere cell for a sufficient length of time to melt a small piece of steel the current starting at 3800 amperes and dying down to about 1000 as the steel heated up. This was an ordinary cell except that the terminals were of increased cross section to carry the very large current.

The talk was illustrated by lantern slides showing performance curves for various conditions of operation. One of these showed the basis of the rules for the constant potential method of charging.

Future meetings will be held on the second Monday evening of each month.

❖

The St. Paul's United Evangelical Church Society erected a Mission Chapel on North View Terrace just east of St. Paul Street, last fall. The chapel is a one story wooden structure 55 x 24 feet. The height of the ceiling is 14 feet. As the structure is of a temporary nature, a cheap means of heating was desired. This Company's engineers made an investigation upon request, and recommended the installation of eight Vulcan Heaters, six in the main auditorium and one in each of two dressing rooms. Besides being a very effective, clean and simple installation, the cost of operation has been very low. From November 12th when the chapel was opened until February 10th, a period of practically three of the coldest months, the operating cost has been $26.22 or $8.74 a month. The Society is very much pleased with the installation and the service rendered.

❖

The Company was visited during February by Mr. H. E. Hoagland, an expert statistician in the New York State Department of Labor at Albany. This department is collecting statistics and information on Safety Work preparatory to the publication of a booklet on the subject.

❖

The Utilities Mutual Insurance Company, through its Inspecting Engineer Mr. F. B. Van Doren of Albany, is now making its periodical inspection of the Rochester Railway and Light Company's properties.

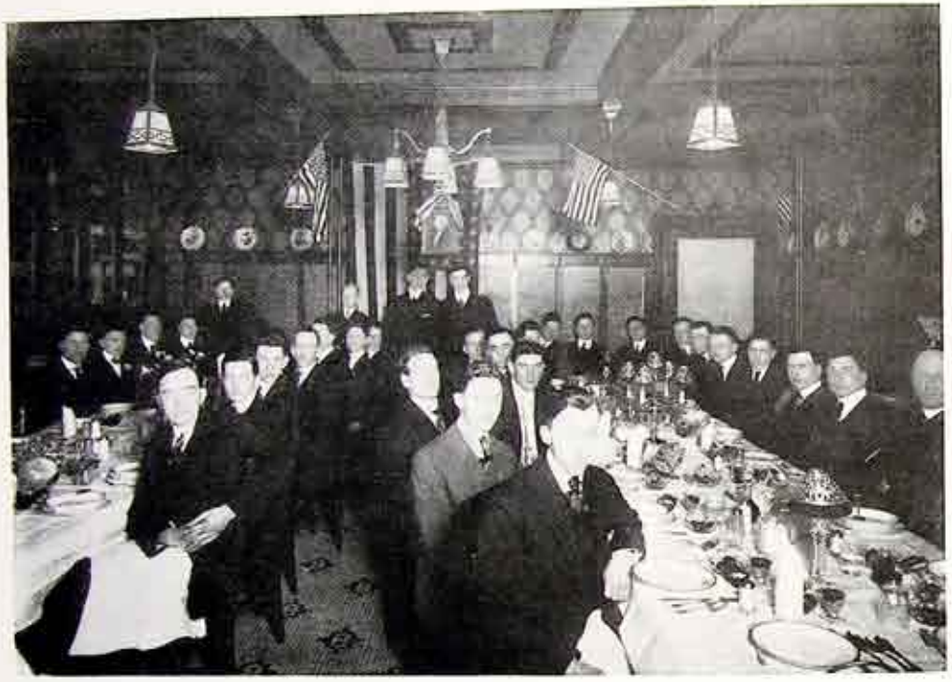
Colliding Energy

An automobile is a self-propelled projectile and as such comparable with a shell fired from a twelve-inch gun. If a shell, whistling through the air at a speed of some thousand feet a second, is suddenly stopped, some disposition must be made of its energy. Exactly the same assertion applies to the moving automobile.

What the striking or colliding energy of an automobile means has been made the subject of an interesting inquiry by Dr. William F. Durand, of Leland Stanford University. The energy of a two thousand two hundred pound automobile at sixty miles an hour, suddenly stopped, would serve to rupture some thirty bars of steel, one inch square and a foot long. The same energy is enough to shear five hundred three-quarter-inch steel bolts, or two hundred and sixty one-inch steel rivets.

A comparison with the projectile of a modern rifle proves even more tellingly the collision possibilities of a high-powered car. The two thousand two hundred pound automobile whose steel-shearing ability has just been considered, has about twenty-five per cent. more energy, when traveling at sixty miles an hour, than the twelve-pound projectile of a three-inch field-piece with a striking velocity of one thousand feet a second. That explains why a car usually emerges from a collision a tangled mass of iron and steel and splintered wood.

Athletics



The Office Baseball Team Banquet

The first annual Baseball Banquet of the Office Team was held at The East Ave. Hotel, Brighton, Monday evening, February 21st, for discussion of the plans of the coming season and also to celebrate George Washington's Birthday. Thirty-four were in attendance.

After the dinner Mr. R. L. Guppy's speech "The True American" was ably rendered and brought forth hearty applause. Mr. W. T. Nolan spoke on Washington's character and personality, and his remarks were filled with some very appropriate stories. Mr. E. F. Gosnell stated that his late appearance was due to his visiting Mr. T. Goodwin who had met with a rather serious accident, and a committee consisting of Mr. Nolan, Mr. Knapp and Mr. Culligan were appointed to call on Mr. Goodwin. Messrs. "Pop" Dowd, L. G. Knapp, C. Ades and J. Stokes were also included in the list of speakers.

Mr. J. B. McCarthy acted the role of toastmaster and had the boys guessing as to, "who was the next for killing."

Solos on the clarinet and piano were rendered by Messrs. Hyman Smith and T. Monks, respectively. Mr. Nolan's little German song was very well received. Mr. Stokes rendered his ever popular song "Danny McKenna." Cards were played and the evening was a huge success in every way.

Personals

Mr. S. M. Douglas of Station No. 35, has resigned to enter the Service Department of The Buffalo Pitts Company, builders of all kinds of road machinery. Mr. Douglas will be engaged in the inspection of machines in operation, principally road rollers, and he takes with him the good wishes of his friends in the Rochester Railway and Light Company.

Mrs. C. C. Gillis of Calgary, Canada, with her daughter, Margaret Elizabeth, aged eight months, is visiting at the home of her father, Foreman Harry Sugden. The baby is reported to have made the long journey without a whimper, and to have been the delight of all the other passengers.

The marriage of Miss Eunice Allard, of Trenton, Ontario, Canada, and Mr. Herbert Leslie Prongay, of the General Auditing Department occurred at the home of the bride's father on February 16, 1916.

We extend our best wishes to the bride and groom for a long and happy married life.

Mrs. Gabrielle Gay, one of the Gas Demonstrators, recently explained the use of a gas stove to one of the Company's consumers with such marked success that the consumer presented Mrs. Gay with a pair of gloves as a token of appreciation.

Mr. Bernard Meyering, Jr. has joined the Engineering Department, and has been assigned to laboratory work with Mr. J. F. Putnam. Mr. Meyering was graduated from the Mechanical Engineering College of Cornell University last June.

Foreman B. Noyes of Station 6, who was seriously burned recently, has entirely recovered and is back at work.

Assistant General Manager Herman Russell and Superintendent J. P. Haftenkamp recently made a trip through New England and the East, visiting several modern coal carbonizing plants of the vertical and coke oven type.

Mr. H. O. Sommer, a graduate of the Massachusetts Institute of Technology, class of 1915, has entered the Engineering Department where he will act as assistant to Mr. H. C. Deffenbaugh.

Mr. F. J. Howes, Engineer in charge of the Engineering Dept., will present a paper at the next meeting of the American Institute of Electrical Engineers. The subject is "Design of Hydroelectric Generating Plants."

Mrs. B. W. Jones, the stenographer of the Despatch Heat, Light & Power Co., sprained her ankle very severely at the Rochester Y. W. C. A. Gym and will probably be confined to her home for some time.

General Manager James T. Hutchings and Mr. F. J. Howes, Engineer in Charge of the Engineering Department were in Albany on Company business March 1st.

Mr. Guy M. Griffith, formerly with the U. S. Navy Department has been employed by the Company to take the place made vacant by the resignation of Mr. S. M. Douglas.

Mr. W. H. White of the Gas Works spent Monday, Feb. 28, at the plant of the Geneva Boiler Works, Geneva, N. Y., inspecting the new oil tar still which that concern is building for this Company.

Miss M. Hoffman, of the Billing Department, has resigned to accept a State appointment as teacher at Bedford Plains, N. Y.

Mr. William Byington, boiler fireman, has been ill with pneumonia, but is reported as improving nicely.

Mr. Claude Armstrong, fireman at the Blossom Road Gas Holder, was a successful competitor at the recent Flower City Poultry Show taking ten prizes. Mr. Armstrong was also elected Secretary of the Modern Game and Bantam Club of America.

Mr. Arthur Goddard, brother of George W. Goddard, of the Collection Department, recently returned to Toronto from France, where he has spent ten months in the trenches with the "Queen's Own Rifles" of Toronto.

Mr. Patrick McDonald has returned to work after having been home sick with the Grippe for twelve days. The Boys at Station 4 are glad to see him back on the job again.

Mr. H. L. Smith of the Meter Reading Department, attained the record recently by reading 347 meters in one day.

The following men have been engaged for work in the Meter Reading Department: Sherwood O. Peartree, William F. Miller, William P. Gilbert.

Mrs. Rose A. McIntyre, mother of T. A. McIntyre of the Meter Reading Department, died February 18th, 1916.

Mr. A. Becker, of the Order Department, has resigned to accept a position with the Vacuum Oil Company of this city.

Mrs. A. C. Denio has been called home to Waterloo, N. Y., on account of the serious illness of her father.

Mr. V. Weining of the Purchasing Department, spent four days recently with relatives at Saranac Lake, N. Y.

Mr. Harry Dougherty, of the Order Department, announces the birth of a 7 pound son, on January 30th.

Vice-President Granger A. Hollister and family are in Santa Barbara, Cal.

Mr. Dennis Donovan, formerly head stoker in the retort house, is now operating on the water gas floor.

Mrs. Dean, of the Order Department, is absent on account of the death of her sister.

Mr. A. B. Morse of the Delayed Bills Department, is confined to his home through illness.

Mr. William P. Gilbert of the Meter Reading Department has resigned.

"Every one in our family is some kind of animal," said Jimmie to the amazed preacher.

"Why, you shouldn't say that!" the good man exclaimed.

"Well," said Jimmie, "mother's a dear, the baby is mother's little lamb, I'm the kid, and dad's the goat."

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HOWES: "Well Mr. Alling, are you enjoying matrimonial bliss?"

ALLING: "Matrimonial bliss. What is that?"

HOWES: "Why, the beautiful and good of married life."

ALLING: "Oh, yes! My wife is beautiful and I am good. We are enjoying it."

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Charlie Binder is too conscientious. Mr. Wilder told him to charge some lumber for new floors to "overhead expense." Charlie said that that was not right, it should be "under foot."

❖

The Man—"Of course, you understand, dear, that our engagement must be kept secret?"

The Woman—"Oh, yes, dear! I tell everybody that."

The Man—"The world was ever thus?"

THERE is but one rule of conduct for a man—to do the right thing. The cost may be dear in money, in friends, in influence, in labor, in a prolonged and painful sacrifice; but the cost not to do right is far more dear; you pay in the integrity of your manhood, in honor, in truth, in character. You forfeit your soul's content, and for a timely gain you barter the infinities.

—*Anon*