# GAS AND ELECTRIC NEWS

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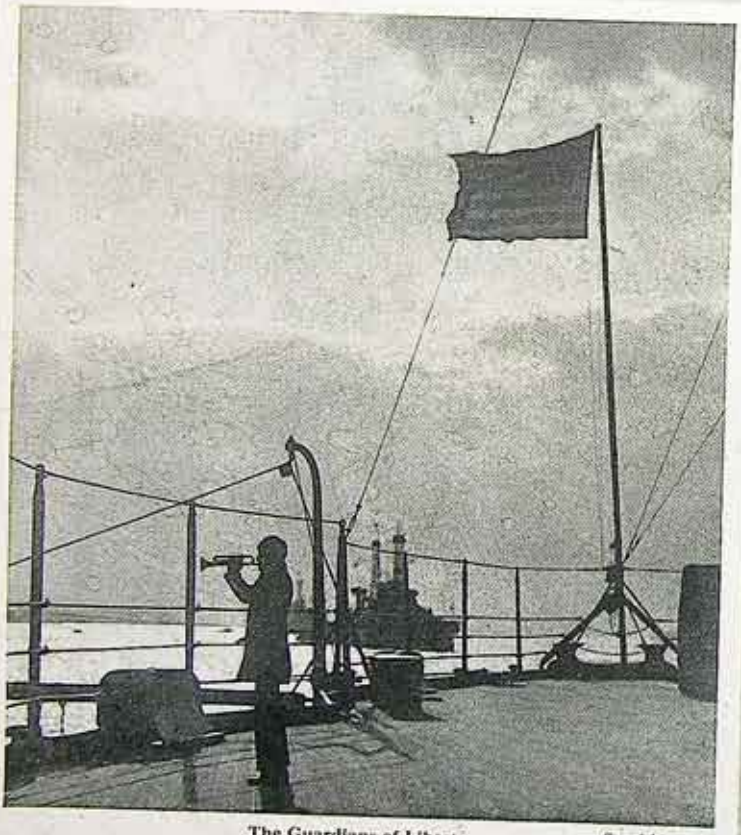
VOL. 6 JANUARY, 1919 NO. 7

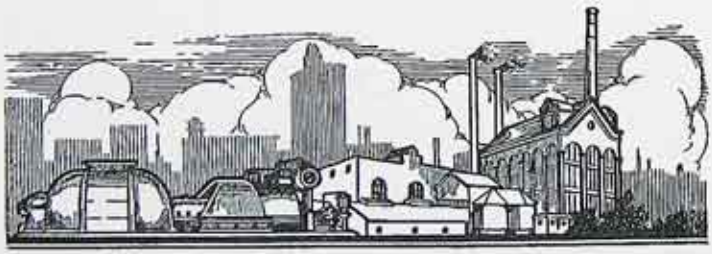
The Guardians of Liberty

## Changing Winds

I remember, I remember,
When I had reached sixteen,
How rare my judgment was of age,
How piercing and how keen.
A man of twenty-five was old,
And almost senile he,
Who doddered past me at the age
Of thirty-two or three.

I remember, I remember,
When I was sixty-two,
How much my views had broadened out;
How ripe they were and true,
A man of fifty was a child,
And one had just begun
To enter happy middle age,
On reaching eighty-one.

—*Life.*



JAMES T. HUTCHINGS


# GAS AND ELECTRIC NEWS

Vol. 6 JANUARY, 1919 No. 7


## The Company's New President, James T. Hutchings

IT IS a matter of particular pride to every employee of the Rochester Railway and Light Company that at a meeting of the Board of Directors held on December 20th, 1918, its popular Vice-President and General Manager James T. Hutchings was elected President of the Company to succeed Mr. Horace E. Andrews who died December 1st, 1918.

Gas and Electric News published in the June, 1917, issue, a biographical article on Mr. Hutchings which was widely read but which, however carefully prepared, could not do adequate justice to the business ability and character of the Company's new President.

As time passes those who know James T. Hutchings have become more thoroughly impressed with his extraordinary business ability, his sterling character and his kindly nature. His organization in the Rochester Railway and Light Company in particular has noted with personal pride and pleasure his advancement from time to time, his active participation in civic affairs and the reputation he has acquired throughout the country as one of the leading public utility operators.

His associates in the Company received him with spontaneous applause as he entered the door to preside over the regular Friday meeting, December 27, and were touched by his statement that his position toward them would be unchanged except for the fact that he hoped if possible, to mean more to them than ever before. It is a great pleasure to feel that our President's new honor will not alter his manner but that he will still be the same just superior and kind friend as formerly.

Many who have thoughtlessly said that "Business is Business" have learned that with Mr. Hutchings, business and ethics are inseparable. Integrity, financial sagacity, business perspective and the "milk of human kindness" have always been an irresistible combination.

"HERE'S TO THE NEW PRESIDENT!"

# Modern Gas Manufacture

WILLIAM H. EARLE

MODERN gas manufacturing, whether the gas is coal gas, water gas, coke oven gas, oil gas, or any other type, is as remote in its refinements from the early "gas man's" efforts as is the Mazda lamp from the "tallow dip." It is in every sense a thermo-chemical industry and must be so considered.

The chief chemical functions are carried out in the production machine, the retort or the generator. But between the raw gas and the consumer's appliance lies another very interesting and important phase of industrial chemistry, that is, the processes by which the raw gas is cleansed and purified and made fit to enter the consumer's premises.

The raw gas as it leaves the retort is dark brown in color, pungent in odor, and if opened to the atmosphere rolls out in sluggish smoky waves. It was early forced upon the gas manufacturer's attention that a large portion of this smoky material was nothing but a tar fog, because as soon as the gas entered pipes where it had a chance to cool down, it would precipitate and the pipes would fill up with a heavy tarry mass which gave him endless trouble. In other words if raw gas is cooled to atmospheric temperature its fogs condense into a tar rain which can be run off through proper piping into receiving tanks. In that experience he learned the essence of gas cleansing principles.

Later, he learned that by controlling the cooling process and prolonging it, he could precipitate all the tar and yet leave in the gas valuable constituents which gave it its heating and lighting value.

With the tar removed the gas was *physically* clean and ready to burn, but not *chemically* so. Ammonia and hydrogen sulfide, for instance, were obnoxious members of the gas family. Ammonia is easily soluble in water and that fact is used as a process for removing it. Hydrogen sulfide requires a little more difficult treatment, which will be discussed later on.

After the tar, ammonia and sulphur compounds have been removed, the gas is ready for the most fastidious users. But recent industrial developments—the advent of the heating standard instead of the old illuminating standard, the need of greater economies in production and the demands of the war, have enabled, if not forced the gas manufacturers to expand in the by-product recovery features. Thus it is that we now have many plants equipped to remove the benzols, toluols, naphthalene, cyanides, and other materials. The processes are all chemical and largely thermal.

The application of the principle of thermo-chemistry is not difficult nor is the apparatus particularly complicated. Gradual cooling of the gas by contact directly or indirectly with water, condenses out the tar, washes out the ammonia and some of the sulphur compounds.

The raw gas from the retorts enters the hydraulic main steel tanks partially filled with weak ammonia liquor which seals off the bottom of the pipes leading from the retorts. Thence it passes to the primary washer-cooler, a steel shell filled with wooden grids or hurdles, over which weak ammonia liquor is sprayed. From there the exhauster or gas pump pushes it through the secondary cooler, identical in construction to the primary; then through the sections of the intensive scrubber, a machine again quite similar to the washer-cooler, then on through the purifiers.

In the hydraulic main, the gas is reduced to a temperature of approximately 150° F. This temperature is controlled by the circulating liquor,



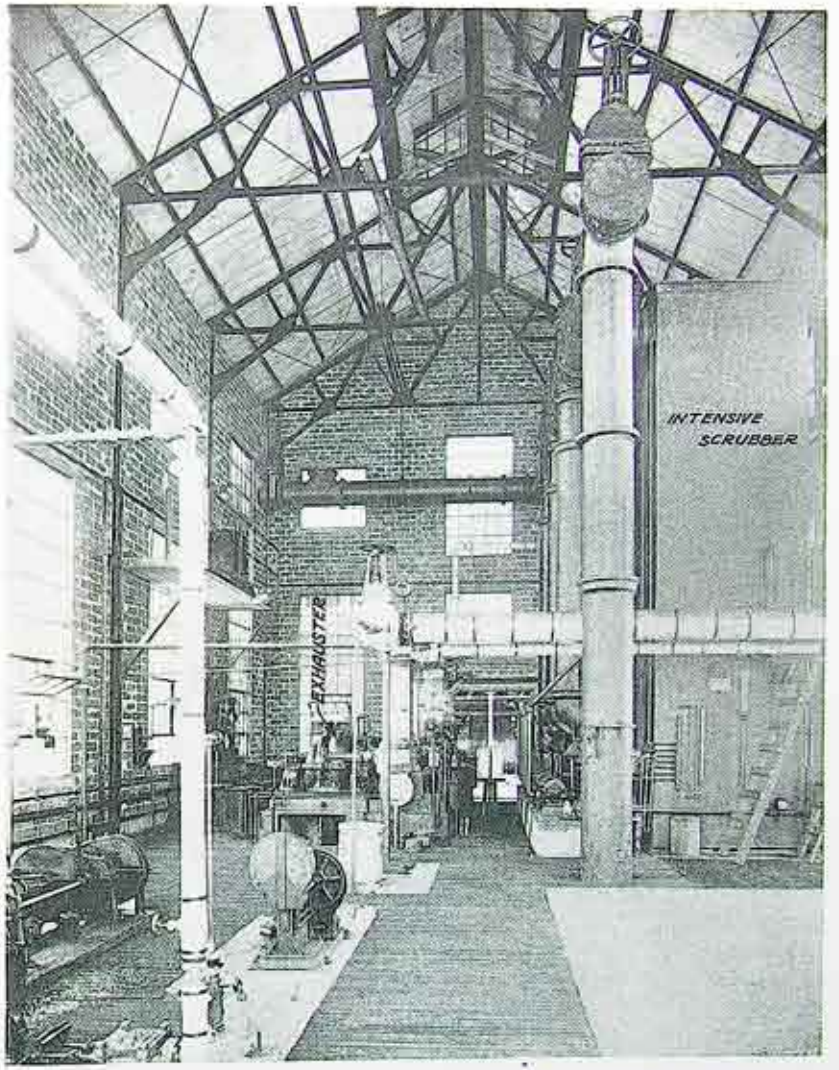



Fig. 1—Illustration of Exhauster and Intensive Scrubber at West Station Gas Works.

which overflows from the main to a collecting tank, from which it is pumped through a battery of cooling coils and returned to the main. By regulating the amount of cooling water used in the coils, the temperature of the circulating liquor is controlled at any desired point. Here about 40% of the tar is condensed.

Passing through the primary washer, the temperature is reduced to about 110° F. by a similar system of cooled circulating liquor. Here about 56% of the total tar is brought down, and the temperature is low enough to absorb some of the ammonia—

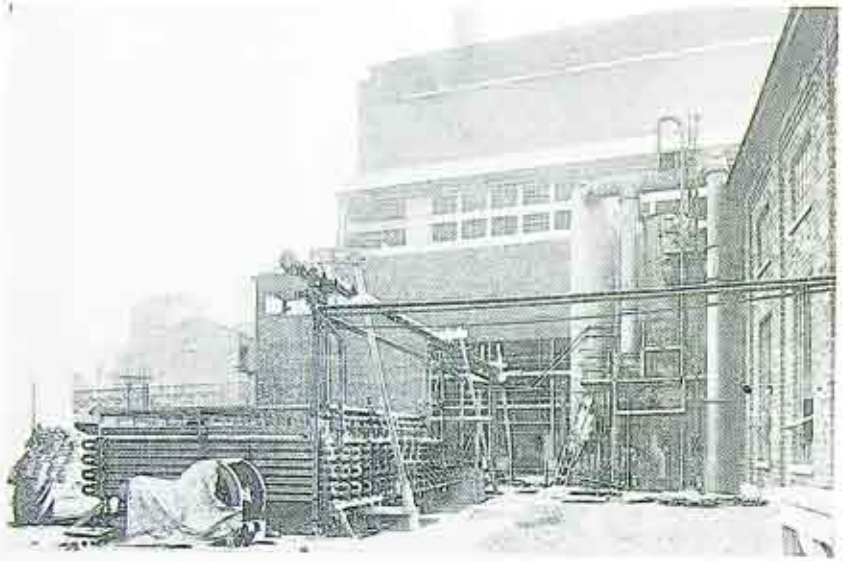


Fig. 2—Washer Scrubber and Cooling Coils at West Station Gas Works.

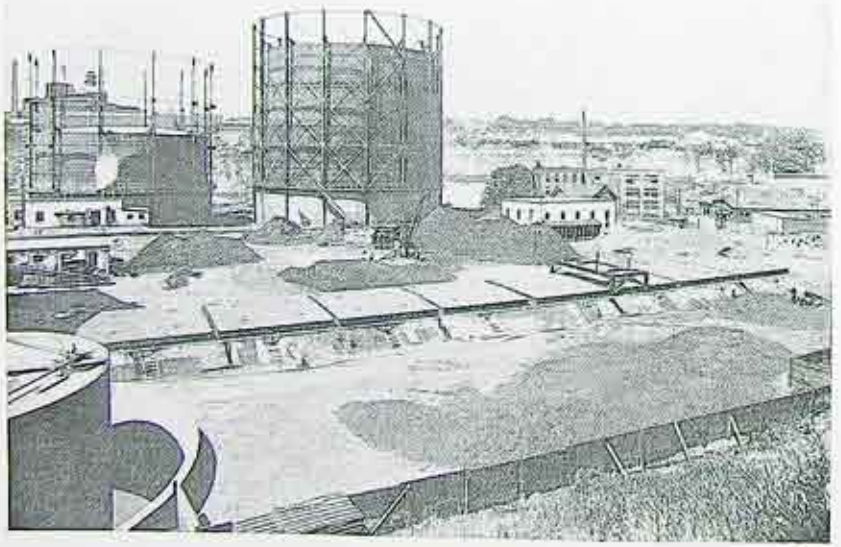


Fig. 3—Illustration showing Purifying Boxes, Mounds of Purifying Material and Gas Holders at East Station.



about 30 per cent. of the total.

In going through the exhauster, the gas temperature is raised a few degrees due to heat of compression, but another per cent of the total tar is squeezed out. Through the secondary the temperature is stepped down to 70°-80° F., the final increment of tar is thrown down and 25% of the ammonia is absorbed.

The intensive scrubber is not fundamentally different from the washer cooler, but to remove the last trace of ammonia and at the same time to use a limited amount of water in the process, a long and intimate contact must be attained. The scrubber, therefore, is composed of six compartments. Fresh water enters the last and gas the first. The water is picked up from the bottom of each successive compartment and pumped to the top of the next one, so that the water entering the scrubber, passing counter current to the gas, comes in contact with it six successive times. During the winter months the gas temperature drops in its travel through the scrubber, but in the summer when the water is warm at the source, the chemical heat of absorption is enough to raise the gas temperature as much as ten to fifteen degrees.

From the scrubber the gas goes to the purifiers for sulphur removal. The original method of removing hydrogen sulfide was to bring the gas in contact with lime, which reacted to form sulfide of lime. But the purifying boxes had to be frequently cleaned, and refilled. The material was expensive and had no recovery value. The method now commonly employed is to pass the gas through successive layers of iron oxide mixed with shavings to keep the mass porous, and produce a large surface contact with the gas. The iron oxide forms iron sulfide with the hydrogen sulfide of the gas. Other processes for removing this material are advocated, and some are in operation, and no doubt a method will eventually be perfected which will obviate the extensive layout now required for the work.

The purifiers used for coal gas treatment consist of eight concrete boxes 25 x 25 x 8 or 5000 cu. ft. They hold 4000 bushels each or 32,000 bushels of material containing 400 tons of iron oxide in continuous service. As the reaction proceeds, of course, the iron oxide is gradually exhausted so that it can no longer work. When that time arrives on any given box, the material has to be dumped out, and a new lot put in. To do that work formerly involved the labor of 40 men for two days, and cost nearly $300. By mechanical equipment the labor has been reduced to six men. Formerly it was necessary to change an average of one box a week. But again applied and controlled chemistry steps in.

When iron sulfide is exposed to the air it will partially reoxidize and can be used a second time. The old practice was to dump the material in the yard and let it revive slowly for 3 or 4 months. New practice, which is now being used here with apparent success, is to cut the gas off from a given box and blow a definite amount of air, under controlled conditions, through it, doing the same chemical work by intelligence instead of by chance. The system has so far succeeded that no box has been changed since the middle of August.

So, from start to finish the gas game is a large dose of applied chemistry, and wherever it is recognized and taken advantage of, the industry gains in added efficiencies and industrial economies.

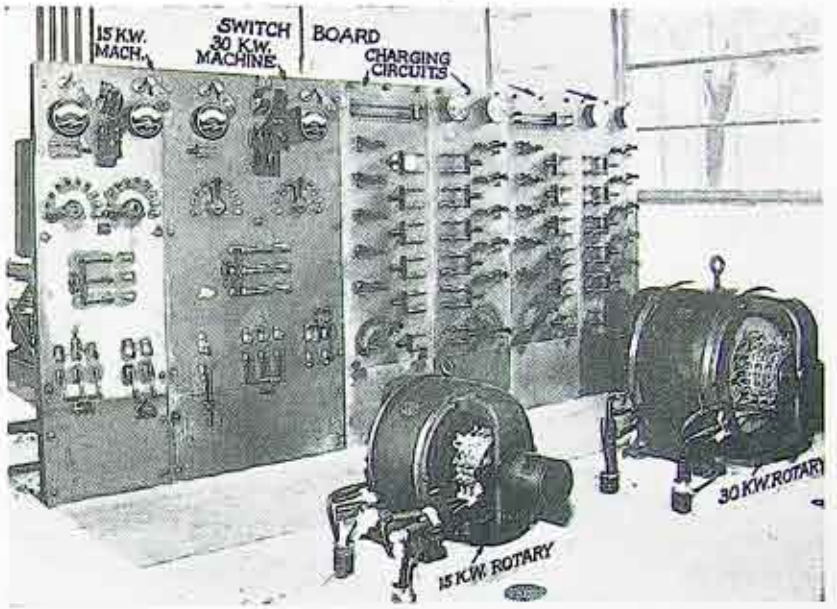

## An Up-To-Date Electric Garage

FRANK C. TAYLOR

ABOUT a year ago Sager's new electric station for pleasure vehicles at Culver and Blossom Roads near University Avenue was completed. The total floor space of 20,000 square feet is amply large for the garaging of at least sixty electric vehicles in addition to the necessary repair shop, battery room and paint shop.

At its previous location, 30 Carlton Street, the garage was supplied with the direct current necessary for charging electric vehicles. The new garage is outside of the Company's direct current district and is in the so-called alternating current district. Consequently it became necessary to provide some form of apparatus to convert the 230 volt, 3 phase, 60 cycle alternating current to the 120 volt direct current necessary for charging the storage batteries. Various types of converting equipment were considered, such as mercury arc rectifiers, motor generator sets and lastly rotary converters. In large garages mercury arc rectifiers have not met with unqualified success owing to the fact that the mercury tubes are easily broken and are expensive to replace. A motor generator set consisting of an alternating current motor and a direct current generator is reliable but does not have a very high efficiency because the mechanical and electrical losses of two machines are involved. Martin Rotary Converters manufactured by the Northwestern Electric Company of Chicago were finally selected for the work. Of these the 30 kilowatt machine has an over-all efficiency of 86 per cent at full load and not less than 73 per cent at one-fourth load. The 15 kilowatt machine has an efficiency of 83½ per cent at full load and not less than 71 per cent at one-fourth load. It is obvious that the rotary is approximately 8 per cent more efficient than a motor generator set. The converting equipment is shown in Figure 2. This consists of a 30 kilowatt, 3 phase, 60 cycle, 230 volt alternating current converter located at the right of the picture, and one 15 kilowatt converter of the same characteristics at the left. Air cooled auto transformers on the back of the switchboard reduce the alternating current supplied from 230






Switch Board and Rotaries at Sager's Garage.

Interior View of Garage.

volts to approximately 61 volts which is supplied to the rotary in order to get the desired direct current. The direct current voltage of the converter is controlled by changing the alternating current voltage by means of the two rotating switches located near the top of the board. The two rotaries may be operated singly or in parallel and are protected by a reverse current device which electrically disconnects them in case current flows from instead of to batteries. These machines are so designed that they can not revolve dangerously fast in case of failure of the alternating current supply when they operate like shunt motors. The first switchboard at the left in the rear of the picture controls the 15 kilowatt machine. The next to the right controls the 30 kilowatt machine, and the two large panels contain the necessary switches and fuses for twenty-four charging circuits or battery stations.

In accordance with the recommendations of the leading battery manufacturers, Mr. Sager has adopted the so-called constant potential method of charging storage batteries. The fundamental principle of this method of charging is that if the voltage is maintained at 2.3 volts per cell during the entire charging period no harmful gassing can occur. In charging, for instance, a forty cell battery, forty x 2.3 volts or 92 volts must be maintained at the battery during the entire charge. One battery manufacturer claims that this method will increase the life of the battery twenty per cent over that obtained by the so-called constant current method.

From this Company's point of view the electric vehicle load is a desirable one since the charging is done during the night entirely outside of the so-called peak hours. From the customer's point of view our power schedule with its off peak and night options makes it possible for him to get a very low rate per kilowatt hour.

## Re-Employment of Returned Soldiers

The policy of the Rochester Railway & Light Company in re-employing former soldiers and other war workers with the Red Cross, the Y. M. C. A. and the K. of C., is that of immediately re-instating such former employees in their former positions or others equally remunerative as soon as they present themselves after discharge from the service. It is possible that as larger numbers of former employees return, some will be required to wait a reasonable time before re-instatement, as all the departments of the Company are now well filled. Those who are required to wait will naturally be given preference over other applicants.

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## Educational Course of the National Commercial Gas Association

On November 25th, Mr. Lundgaard of the Industrial Sales Department gave a very interesting talk on "Combustion." On December 3rd, Mr. Leo Sullivan showed the different types of blowers and explained their different uses. On December 10th blowers were further explained and their uses discussed by Mr. Frank C. Taylor. December 17th a general review on burners and burner design was led by Mr. Sullivan at the Gas Shop.

The work follows a course laid out by the National Commercial Gas Association for which pamphlets are supplied. In order to explain, and to give additional information in regard to the lessons, different men from the organization of this Company, who have specialized along the lines covered by the course, lead the meetings. The exchange of ideas, based on the practical experience of the men, is one of the most interesting features of the meetings.

# *You Owe It to Your Family to Join the E. B. A.*

## COST

*Entrance Fee*—One Dollar

*Monthly Dues*—½ of 1% of monthly wage, plus 25c

*Death Assessment*—25c each death

| Weekly Wage | ½ of 1% of Wage per Month | Additional for Group Insurance | Total Cost per Month |
|---|---|---|---|
| $10.00 | $ .22 | $ .25 | $ .47 |
| 15.00 | .33 | .25 | .58 |
| 18.00 | .39 | .25 | .64 |
| 20.00 | .43 | .25 | .68 |
| 25.00 | .54 | .25 | .79 |
| 30.00 | .65 | .25 | .90 |

## BENEFITS

*Sick Benefit, ½ of weekly wage*

*Accident Benefit*, (Accidents not covered by Workman's Compensation Act) ½ of weekly wage

*Death Benefit*, $1000 { E. B. A. . . . . $400 / Group Insurance . . $600

Insurance Policies to cover the above benefits would cost a non-member of the E. B. A. about *three times* the amounts given above. This is possible because the Company pays into the treasury of the E. B. A. an amount equivalent to that paid by the members.

*In addition* you can take out life insurance cheap, (under the Group plan) up to $2400. Talk it over with your Foreman.

# GAS AND ELECTRIC NEWS

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FREDERICK W. FISHER . . . . . *Editor*
CHARLES B. EVANS . . . *Assistant Editor*
DWIGHT C. ROCKWOOD . . . *Photographer*

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HOWARD HARDING




Vol. VI JANUARY, 1919 No. 7

## To Our President

*GAS AND ELECTRIC NEWS, speaking for the thirteen hundred employees of the Rochester Railway and Light Company, pledges to the Company's new President the best service which they can render, individually and collectively.*

*The duties of many of us do not bring us into contact with Mr. Hutchings, and many do not feel free to convey to him their feeling of admiration. Therefore the editors are passing on to him an expression of a feeling of respect and affection which he knows exists.*

*James T. Hutchings is a very unusual and commanding personality. May we all live up to our opportunities of service under his direction.*

## Your Opportunity!

THE virtual end of the war again brings into prominence, through the general re-organization of employment, the fact that employment with the Rochester Railway and Light Company has certain very definite advantages which do not go with employment in many other large industries.

The organization of this Company is different from that of the ordinary manufacturing plant inasmuch as the Company does all of its business in the City and adjacent territory. The average manufacturing plant sells its product all over the United States and in many cases all over the world so the action or re-action of the employees of such a manufacturing business on the townspeople with whom they live, has ofttimes very little to do with the sale of that product and its satisfactory use by purchasers thereof. With the Rochester Railway and Light Company however, the attitude of its employees toward the Company, toward the City administration and toward the public in general, has a great deal to do with the readiness with which its products can be sold, and with their satisfactory utilization.

It has always been the endeavor of the Company to maintain a personnel above the general average and to this end great care has been taken to select only such employees as have the right attitude toward business in general, who are reasonably ambitious and who think well of its policies. The war has made the selection of such employees more difficult than formerly, but now with the closing down of many of the munition industries, more men and women of the type which the Company thinks desirable for employment will from time to time present themselves for service.



The Company has always made it a point to protect the interests of its employees, notably those who have been in its service any length of time. It is a fact that employees who have been with the Company upwards of five years have received special consideration in cases of illness, accidents and retention in service. This will continue to be the case and many employees who have turned down apparently very flattering offers of higher pay in the munition industries are to-day very glad that they stayed with the Company.

It is worth while, therefore, at this time for every employee in the Company to take stock in his or her own position and reflect that each one's general attitude toward his work and toward the public in general has a very definite bearing on what the Company's growth will be. Large calibered men and women will build up its business very much faster than those of simply mediocre ability and as the business of the Company expands, so too will each individual who has had a share in this expansion profit thereby, either through advancement to positions of greater responsibility or through receiving greater remuneration in the position which he or she may continue to hold.

It is a fact that the compensation paid by the Rochester Railway and Light Company is a little above the average paid in the City of Rochester for similar classes of work. The hours of work and conditions under which the employees work are as good if not better than those in the majority of other large establishments in the City. For these and other reasons positions with the Rochester Railway and Light Company will in the future be eagerly desired and when obtained will be carefully safeguarded by loyal service.

It is probably worth while for all of us to check up our own individual status to the end that we may make the most of our opportunities. Whether we will or no, the ancient law of the survival of the fittest is still in operation and no management can, in justice to an organization which it is guiding, attempt to controvert this law by giving unreasonable consideration to the inefficient.

Mistakes in selection of new employees will undoubtedly continue to be made but this will not, however, operate against a careful study of those employed, for the purpose of ascertaining upon whom the Company can afford to spend money in training and development. Learn to *"Keep your ear to the ground."*



## The Most Valuable Safeguards

That the work of safety engineers and supervisors has done much in recent years to eliminate accidents, is unquestionably true. The installation of safety devices has materially aided in that work. But there is a danger in that direction which I wish to point out and emphasize. That danger lies in workmen placing too much reliance in safety appliances, thereby relaxing in their individual care and watchfullness, which constitute the most valuable safeguards.

—*Selected.*

# Gas and Electricity in the Home

BY THE GAS DEMONSTRATORS
Miss Frances E. Moore and Miss Irene Walsh

## What Our Food Administration Has Accomplished

WHEN the Food Commission with its branches and agancies was formed, those responsible for it said it was purely a war agency, not intended to change the habits of the American people or to work an ecomic reform. Remembering this, it is interesting to note how well the task was accomplished. As a war agency with the object of providing food for our soldiers, allies and civilian population we know it succeeded beyond the most optimistic hopes. No soldiers ever had such food as ours did in the present war and every appeal from our hungry allies was answered. We at home know that altho we may have been inconvenienced at times, never have we suffered the pangs of hunger. Certainly as a war agency the Food Administration has been a hugh success.

Perhaps those responsible for the work did not have in view the idea of changing our wasteful habits or working economic reform but incidentally much has been done to bring about these very things. In order to feed our troops at the front we had to stop all waste. We can be thankful that a good habit is almost as hard to break as a bad one and what was done in the past for love and patriotism will be continued in the future on its own merits. In our own city, garbage has been reduced almost one half and probably the whole country could tell a similar story. A result of this sort is worth considering seriously as it has a great moral and economic value.

It is almost impossible to compute the economic results of the educational campaign carried on by the Administration because they are so broad and varied. Everything saved that might have been wasted is to be considered an economic gain to the nation. What we do not need ourselves we can export and this involves commercially an economic chain that is almost endless. We must consider too the things made possible by the co-operation of agencies throughout the whole country. Education has acquainted us with foods we have never used before and in this way we have been able to take care of the overflow products of some other section of the country. Then, too, the preserving of our perishable home grown foods makes it possible to release more canned goods for commerce.

Last but not least the practical preparation of food which has been a very important part of the educational work has helped the housewife prepare nutritious meals with less expense. Anything saved on living expenses makes it possible to spend more for the higher things of life and thus increase the morale of the country. It would seem that the work has been extremely worth while and it is to be hoped that this education together with its wonderful results will not end with the war.

❖

## Casserole Cookery

CASSEROLE cookery was practiced among savage men in almost every part of the world but seems to have been abandoned as the tribes progressed in civilization. Lately it has been revived and those who are familiar with the process are extremely enthusiastic about its possibilities. It is probably the most simple way of cooking and at the same time the results are extremely delicious. In these strenuous times when the housewife is busy with outside work and likes to conduct her home in the easiest way and at the same time do justice to her family, the casserole comes into its own.

This method of cookery is especially valuable in cooking the cheaper and tougher cuts of meat which when cooked properly are especially nutritious. The long, slow cooking in a casserole makes the meat tender and at the same time retains all the flavors and juices. It also makes possible the blending of flavors as in combination dishes like rice and tomatoes.

Casserole cookery is simple when we take into consideration a few general rules. If one wants a roasted flavor in meats they must be seared over before putting into the casserole. Also remember that many vegetables are improved by this same searing over process. Then, too, the flour for thickening should go in with the meat and this may be browned beforehand if so desired. Almost any meat is delicious cooked in this manner and many of the vegetables are much improved.

We are giving a few type dishes and using these as an example one can cook almost any casserole dish. The demonstrators have made a great many converts to casserole cookery and hope each reader of the magazine will give it a try-out.

### For Casserole Cooking

STUFFED HEART.

Clean and wash calves hearts or a beef heart, stuff, skewer into shape, dredge with flour and saute in pork fat, adding to fat one stalk of celery, one tablespoonful of chopped onion, two sprigs of parsley, four slices of carrot cut in pieces, half the quantity of turnip, a bit of bay leaf, two cloves and one-fourth teaspoonful of pepper corns. When browned put into casserole and add one and one-half cups of stock or water, cover and cook slowly about two hours.

CREAM CABBAGE EN CASSEROLE.

Cut up a small head of cabbage, cover with water and parboil five minutes. Drain and put in casserole. Cover with seasoned white sauce and bake slowly about an hour. A touch of mace is an addition liked by many.

WHITE SAUCE.

2 tablespoons flour, 2 tablespoons butter or margarine, 2 cups milk. Cook flour in butter, add milk and cook until it thickens, stirring it carefully to prevent burning.

ROUND STEAK EN CASSEROLE.

2 lbs. round steak cut about one inch thick. With a meat pounder or edge of saucer pound in ¼ cup of flour on each side. Sear in pan one cup of carrots and one cup of onions. Put these in casserole. Then cut meat into pieces about two inches square and sear in pan and put on top of vegetables in casserole. Season with pepper, salt and bay leaf. Lastly pour over one pint of stewed tomatoes. Cook slowly about two hours.

RICE EN CASSEROLE.

Saute in frying pan in a little salad oil a chopped onion. When it is slightly browned add a cup of uncooked rice and saute for a few minutes. Put into casserole and add four cups of seasoned water, stock or tomato sauce and cook in slow oven until rice is tender.

RED CABBAGE.

Shave cabbage fine. Place in baking dish. Peel and quarter four tart apples. Lay these on top of cabbage and add pepper, salt and one tablespoon butter. Pour over this ½ cup vinegar and ½ cup cold water. Cook slowly one hour then add ½ cup sugar and cook one-half hour longer.

BRAISED TONGUE.

A fresh tongue is necessary for braising. Put tongue in kettle, cover with boiling water and cook slowly about one hour. Take tongue from water and remove skin and roots. Place in casserole and surround with one-third cup each, carrot, onion and celery cut in dice and one sprig parsely; then pour over four cups sauce. Cover closely and bake two hours. Serve on platter and strain around the sauce.

SAUCE FOR TONGUE.

Brown one-fourth cup butter or drippings, add one-fourth cup flour and stir together until well browned. Add gradually four cups of water in which tongue was cooked. Season with salt and pepper and add one teaspoon Worcestershire Sauce.



## Convinced

A street car with the front sign reading "Dorchester" and the side sign "Ashmont and Milton," a motorman of Hibernian extraction and a nervous woman.

The dialogue: "Does this car go to Dorchester?"

"Yes, leddy; get right on."

"Are you sure it does?"

"Yes, laddy; get right on."

"But it says 'Ashmont and Milton' on the side."

"We ain't goin' sideways, leddy; get right on."—*Boston Transcript.*

# Gas Manufacture

The mechanical and technical perfection of the West Station gas producing equipment is of such character that it should be possible to account almost pound for pound for all the raw material used. Some months ago, with some trepidation, we calculated a weight balance, taking a ton of gas coal as the working unit. The result seemed so reasonable that the next month we tried it again, with similar success.

The interesting feature is that whereas the production results, or yields, vary from month to month within fairly wide ranges, the total weight of materials accounted for per ton of coal carbonized shows slight variation.

The following tabulations are based on monthly inventory figures for the past five months:

The weights here given are based as follows: Gas = 0.45 sp. gr. (air = 1). Coal tar = 9½ #/gal. Light oil = 0.96 sp. gr. (water = 1).

$H_2S$ in grs. per foot as determined periodically at inlet of purifier, reduced to pounds. Moisture is the % moisture in the coal as charged into the retorts, obtained from daily tests.

During November and December, the benches were steamed during the latter part of each carbonizing period. No attempt is made in the above calculations to determine the amount of steam used as a base weight of raw material to be added to the coal carbonized.

The unaccounted for balance includes chemically formed moisture, sulphur absorbed in ammonia liquor and liberated at the still, carbonic acid absorbed in ammonia liquor and purifying material, carbon deposited in the retorts, and all the possible plant losses.

It would seem, therefore, that the low unaccounted for percentage shown during November and December is partially the result of steaming the retorts without making proper allowance for the steam used. The previous figures of 4% and higher seem more plausible.

At present we are steaming each bench for 1 hour and 35 minutes at the end of each carbonizing period,

YIELDS—PER TON OF COAL—1918

| | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|
| Gas Cu. Ft. | 11,043 | 10,679 | 10,734 | 10,684 | 10,804 |
| Ammonia Lbs. | 6.03 | 5.75 | 6.10 | 5.77 | 5.47 |
| Coal Tar-Gals. | 13.03 | 13.32 | 13.22 | 11.67 | 10.6 |
| Coke—Lbs. | 1,394 | 1,400 | 1,400 | 1,478 | 1,472 |
| Light Oil—Gals. | .24 | .36 | .38 | .23 | .22 |
| Hyd. Sulfide—Grs. per C.F. | 4.50 | 4.50 | 4.50 | 4.81 | 5.25 |
| Moisture—% | .25 | .49 | .34 | .32 | .35 |
| WEIGHTS—POUNDS PER TON | | | | | |
| Gas | 375.46 | 363.09 | 370.32 | 368.18 | 372.74 |
| Ammonia | 6.03 | 5.75 | 6.10 | 5.77 | 5.47 |
| Coal Tar | 123.79 | 126.54 | 125.59 | 110.87 | 100.70 |
| Coke | 1,394.00 | 1,400.00 | 1,400.00 | 1,478.00 | 1,472.00 |
| Light Oil | 1.91 | 2.88 | 3.07 | 1.84 | 1.76 |
| Hyd. Sulf. | 7.09 | 6.86 | 6.90 | 7.63 | 8.10 |
| Moisture | 5.00 | 9.80 | 6.80 | 6.40 | 7.00 |
| Total | 1,913.28 | 1,914.92 | 1,918.78 | 1,978.69 | 1,967.77 |
| % Acct'd For | 95.66 | 95.74 | 95.99 | 98.93 | 98.39 |
| % Unacct'd For | 4.34 | 4.26 | 4.01 | 1.07 | 1.61 |



using steam at 35 lbs. gauge pressure, passing into the retorts through apertures 5/32" in diameter, using Napier's formula (for simple calculation) $W = \frac{FP_1}{70}$ in which W = lbs. steam per second. F = area of opening in sq. in. $P_1$ = initial pressure (absolute), we are using 95 lbs. of steam per ton of coal carbonized.

Thus our raw material becomes 2095 lbs. as the unit weight instead of 2,000 lbs. The total efficiency then in November and December was actually 94.45% and 93.97% respectively.

Assume, however, that regular operation would have produced for November and December results equivalent to the average of the three previous months, viz: 95.97% or 1919.40 lbs. per ton of coal. The average recovery in these two months was 1973.23 lbs. per ton. The difference between these two figures then, previous assumptions being true, should represent the production attributable to the steam; i. e., 53.83 lbs. product from 95 lbs. steam, or a productive steam efficiency of 56.7%.

Just where the products, due to steaming, appear is not evident without further investigation.

❖

Since 1907 records have been kept to show the annual gas load factor, or the ratio of total gas production to maximum day. Obviously, high peaks and low valleys in daily sendouts demand corresponding flexibility in production and equipment and decreased operating efficiencies both as to equipment and organization. An ideal condition would be steady daily loads in which case the ratio above referred to would be 365. Eliminating, however, Sundays and holidays which are necessarily valley days in the load curve, a ratio of 350 is the practically perfect factor. The following table shows that our load is gradually stabilizing itself, becoming less seasonable and evidently gaining on the industrial side.

| | Max. Daily Sendout | | Total Yearly Make | |
|---|---|---|---|---|
| Year | Date | Cu. Ft. | Cu.Ft. | Ratio |
| 1907 | 12-24 | 3651 M | 882,826 M | 241 |
| 1908 | 12-24 | 3948 M | 1,019,095 M | 258 |
| 1909 | 12-24 | 4402 M | 1,123,125 M | 244 |
| 1910 | 12-24 | 4761 M | 1,265,133 M | 266 |
| 1911 | 12-12 | 5094 M | 1,368,447 M | 268 |
| 1912 | 12-24 | 5527 M | 1,523,706 M | 276 |
| 1913 | 12-24 | 5872 M | 1,595,468 M | 272 |
| 1914 | 12-24 | 5778 M | 1,660,835 M | 288 |
| 1915 | 12-24 | 6197 M | 1,688,578 M | 273 |
| 1916 | 9-15 | 7191 M | 1,933,557 M | 268 |
| 1917 | 12-10 | 7724 M | 2,247,650 M | 291 |
| 1918 | 9-10 | 8763 M | 2,558,313 M | 292 |

The close check of the 1917 factor in 1918 is again seen in the fact that the increase in total production and the increase in the maximum day of 1918 over 1917 are nearly identical, being 13.8% in the first case and 13.5% in the second.

The table also shows the very substantial growth in our gas business from year to year.

| | INCREASE | |
|---|---|---|
| Year | Amount | % |
| 1908 | 136,269 M cu. ft. | 15.4 |
| 1909 | 104,030 M cu. ft. | 10.2 |
| 1910 | 142,008 M cu. ft. | 12.6 |
| 1911 | 103,314 M cu. ft. | 8.1 |
| 1912 | 155,259 M cu. ft. | 11.3 |
| 1913 | 71,762 M cu. ft. | 4.7 |
| 1914 | 65,367 M cu. ft. | 4.1 |
| 1915 | 27,743 M cu. ft. | 1.6 |
| 1916 | 244,979 M cu. ft. | 14.5 |
| 1917 | 314,093 M cu. ft. | 16.2 |
| 1918 | 310,663 M cu. ft. | 13.8 |

The ten-year period since 1908 shows an increase of 1,539,218 M cu. ft. in annual production or 151% and in 11 years we have increased 190%, that is our 1918 production was nearly three times our 1907 production.

## So Annoying

A very inquisitive man was sitting at the table next to a man who had lost an arm above the elbow.

"I see you have lost an arm," finally was ventured.

The one-armed man picked up his empty sleeve and peered into it.

"Great Scott! I believe I have," he answered.—*The Christian Herald.*

## An Interesting Letter

My dear Mr. Powell:

I went from Rochester to a camp at Waco, Texas, and then after about five weeks to Texas A & M College where, with three hundred other young engineers, we put in about four months in drill and the study of Meteorology and pilot balloon work. I am named on my service card as an Expert Meteorologist which may mean anything from a common weather prophet to a master of ballistic and aviation winds. As you may notice, it's not a rating, and until I landed in our headquarters here I rather thought it an affliction.

During my free time while at College Station I got to know some of the people and I can surely pay tribute to Southern hospitality. I also had the opportunity of spending a couple of days at San Antonio, seeing the town and the camps nearby. I noticed in the "News" that H. Bacon was commissioned at a Texas Officer's Training Camp. Good for him!

We had a fine trip up to Camp Merritt via New Orleans, Atlanta and Washington, stopping from two hours to a day in some of the cities. We had a full fine day in New Orleans and were able to see quite a bit of the town. Atlanta seemed like a northern city again. We traveled in a Tourist Sleeper, without a commissioned officer so we had more freedom than otherwise.

They rushed us out of Merritt within a few hours and we had to hustle to get outfitted and ready. We made the five mile walk to the ferry landing with full pack without a man dropping out except for one who, at the last halt, went to sleep beside the path and woke up to find our ferryboat gone. He joined us at the wharf, however.

I don't think I ever saw a more beautiful sight than the scenery of the outer harbor where we landed. In the harbor was a sunken ship, torpedoed out at sea and it sunk just as it reached the harbor, and also the skeleton of a German "sub" which had run aground. The metal plates had been stripped off.

After spending a week at the Coast in a rest camp, so-called, we started inland in our "private car." No, it wasn't a box car or "side door pullman" although we saw many of them, but an ancient 3rd class compartment car with a small baggage space in front. We had our reserve rations of "Canned Willie", beans, hard bread and tomatoes, and also some sugar, butter and jam which we had to almost fight for on leaving camp. It belonged to us and should have been given to us there but we were a handful of men eating with a Medical Corps company and they furnished the Mess Sergeant.

It was a very interesting trip inland. The second day out we were, for some unknown reason, switched off from the passenger train to which we were attached, and placed on the tail end of a freight. It was at nightfall and our Lieutenant who came with us from Camp Merritt went blissfully on in his passenger coach, not knowing that we had parted company. This was fine as we were henceforth able to hop off the train at its frequent stops and make coffee or walk about or even "swipe" grapes if any were near. We traveled very slowly and spent about as much time on sidings as we did moving. However, we were able to see much more than we otherwise would have. We passed thru pasturage, vineyard, grain and grazing sections—flat and hilly country. We went a roundabout way and at one time were almost in Switzerland. The country there was typically Swiss.

We finally had to change our old compartment car for a pullman of the "Hommes 36-40, Chevaux 8 en long" variety. We "parley-voused" some time, trying to get him to switch our car over but it was no use. We unloaded and jammed into the box car for a twenty-mile ride.

We were temporarily quartered in a little French village in the hay mow of a barn which opened directly upon the central square-cross-roads rather. We had wooden cots and a tick filled with baled hay.

The village is composed of a number of houses clustered around the intersection of five roads, the house fronts forming almost a continuous hall along the street gutter or close to it. Some houses are higher, by a little, than others and all have red tile roofs. All the house windows and shops too have heavy shutters which are closed most of the time. A few better-looking places have a little garden on one side, surrounded by a high wall, well about 10 feet high and this has a red tile or stone coping. The outside of the houses are plastered, with no ornamentation except for fancy grilled ironwork on the door or perhaps outside the windows. The houses and barns seem to alternate, the entrance to the barn being a double doored archway. Inside is the stable with its mangers, the hay loft and perhaps a little underground cellar. If there is a small open space or courtyard, it may have a shallow well in it.

We secured a small upright stove, used spare cots for kindling and green small wood to burn. Sometimes one could get a chance to heat water on the stove for shaving or washing clothes. Most of us are taking our laundry to the natives hereby but they keep it quite a while as most of it has to be dried indoors—it is so damp here and so often there is a heavy mist.

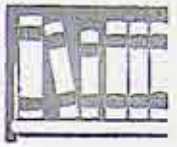
Before finishing this letter the Armistice has been declared with Germany. It is the end, I suppose, and we will be glad to get back as soon as possible.

It surely is a picturesque country but a mighty poor place in which to live to my idea. Kindly extend my regards to Mr. Brown and Mr. McNeill.

Sincerely yours,
PRIVATE GEORGE E. DAVIS



# Auditing



## New Business

### Net Increase in Consumers in First Eleven Months of 1918

| | Dec. 31, 1917 | Nov. 30, 1918 | Increase |
|---|---|---|---|
| Gas | 78,657 | 79,108 | 451 |
| Electric | 27,774 | 28,915 | 1,141 |
| Steam | 51 | 88 | 37 |
| | 106,482 | 108,111 | 1,629 |

### Net Increase in Consumers in Twelve Months Ending November 30, 1918

| | Nov. 30, 1917 | Nov. 30, 1918 | Increase |
|---|---|---|---|
| Gas | 78,635 | 79,108 | 473 |
| Electric | 27,630 | 28,915 | 1,285 |
| Steam | 51 | 88 | 37 |
| | 106,316 | 108,111 | 1,795 |

### Statement of Consumers by Departments as of November 30th

| Nov. 30 | Gas | Elec. | Steam | Total | Increase |
|---|---|---|---|---|---|
| 1908 | 41,080 | 6,386 | .... | 47,466 | .... |
| 1909 | 45,592 | 7,310 | .... | 52,902 | 5,436 |
| 1910 | 51,419 | 8,764 | .... | 60,183 | 7,281 |
| 1911 | 56,511 | 10,637 | 17 | 67,165 | 6,982 |
| 1912 | 61,338 | 13,088 | 23 | 74,449 | 7,284 |
| 1913 | 66,515 | 15,976 | 23 | 82,514 | 8,065 |
| 1914 | 70,007 | 18,393 | 33 | 88,433 | 5,919 |
| 1915 | 71,216 | 22,057 | 41 | 93,314 | 4,881 |
| 1916 | 75,531 | 25,095 | 43 | 100,669 | 7,355 |
| 1917 | 78,635 | 27,630 | 51 | 106,316 | 5,647 |
| 1918 | 79,108 | 28,915 | 88 | 108,111 | 1,795 |
| Inc. in 10 Yrs. | 38,028 | 22,529 | 88 | 60,645 | 60,645 |

### Net Increase in Consumers by Months

| | 1916 | 1917 | 1918 |
|---|---|---|---|
| Increase in January | 341 | 194 | 54 |
| Increase in February | 253 | (Dec.)19 | 56 |
| Increase in March | 339 | 386 | 183 |
| Increase in April | 684 | 608 | 322 |
| Increase in May | 765 | 568 | 508 |
| Increase in June | 645 | 726 | 292 |
| Increase in July | 616 | 713 | (Dec.)53 |
| Increase in August | 777 | 669 | " 17 |
| Increase in September | 1,225 | 554 | 147 |
| Increase in October | 494 | 584 | 125 |
| Increase in November | 725 | 171 | 12 |
| | 6,864 | 5,154 | 1,629 |

### Subscribers to 7% Preferred Stock

| | |
|---|---|
| Number of Subscriptions December 1 | 1,406 |
| Number of Subscriptions January 1 | 1,404 |
| Number of Shares December 1 | 9,478 |
| Number of Shares January 1 | 9,509 |

### Miscellaneous Data

| | Nov. 30, 1918 | Nov. 30, 1917 | Increase |
|---|---|---|---|
| Miles of Gas Main | 488 | 495 | (Dec.) 7 |
| Miles of Overhead Line | 1,905 | 1,900 | 5 |
| Miles of Underground Cable | 1,128 | 1,079 | 49 |
| Miles of Subway Duct | 1,009 | 970 | 39 |
| No. of Street Arc Lamps | 1,636 | 1,588 | 48 |
| No. of St. Inc. Lamps | 8,786 | 8,436 | 350 |
| Total No. of St. Lamps | 10,422 | 10,024 | 398 |
| No. of Employees | 1,243 | 1,314 | (Dec.) 71 |
| Amt. of payroll (Mo.) | $133,167.92 | $122,863.39 | $10,304.53 |

## E. B. A. for Month of December 1918

| | | |
|---|---|---|
| *Receipts* | | |
| Bal. on hand Dec. 1st, 1918 | | $1,926.40 |
| Dues—Members | $522.40 | |
| Dues—Company | 522.40 | |
| Assessment No. 18—Members | .25 | |
| Assessment No. 19—Members | 172.25 | |
| Assessment No. 18—Company | .25 | |
| Assessment No. 19—Company | 172.25 | |
| Interest on Bank Bal. and Inv. | 17.42 | |
| Group Life Insurance | 127.04 | |
| Members' Additional Life Insurance | 4.84 | 1,539.10 |
| Total | | $3,465.50 |
| *Disbursements* | | |
| Sick Benefits | $683.76 | |
| Accidents on Duty Benefits | 24.43 | |
| Death Benefit No. 19 | 125.00 | |
| Death Benefit No. 20 | 125.00 | |
| Death Benefit No. 21 | 125.00 | |
| Group Life Insurance | 57.45 | |
| Medical Examiner's Expense | 43.50 | |
| Members' Military and Naval Expense | 73.20 | |
| Payments for month of December | | 1,257.34 |
| Bal. on hand December 31st, 1918 | | $2,208.16 |

### Membership

| | |
|---|---|
| Members November 30, 1918 | 712 |
| Affiliated Month of December | 21 |
| Terminated Month of December | 11 |
| Membership December 31st, 1918 | 722 |

## Personals

Employees who have been in the Service, and have returned to the Company (Jan. 17th) are as follows:

| | |
|---|---|
| John B. Allington | William F. O'Brien |
| James Casey | John Palombo |
| Samuel J. Cohen | Florian W. Pierce |
| Henry A. Davis | Charles Prothers |
| Emmett Gildea | Howard V. Rettig |
| Herman J. Halstrick | Roy I. Rodell |
| Clarence C. Heiden | Edward A. Roeser |
| John J. Keeler, Jr. | William A. Schell |
| Frank Kennedy | Edmund C. Schenck |
| Arthur C. Kuhls | John J. Schwan |
| Roy J. Lynch | Herman F. Skinner |
| Angus MacKay | Marshall J. Slee |
| John P. McGinley | Daniel G. Smith |
| John E. McMann | Andrew W. Sturrock |
| L. William Miller | Charles D. Tully |

McKinley York

On December 31st, 1918, a son was born to Mr. and Mrs. James Fahy and on January 9th, 1919, a daughter was born to Mr. and Mrs. Frank Herring.

Mr. Ivar Lundgaard attended a meeting of the Executive Committee of the Power Sales Bureau in New York City, January 8th.

Mr. Dean Caple, has been transferred from the Canandaigua office to the Coke Sales Department at the Rochester office.

Mr. A. C. Loveny, formerly Shop Foreman in the General Construction Department, has been promoted to Master Mechanic at East Station Gas Works.

Miss Angeline Place, of the Purchasing Department, and Miss Anna Ade of the Department of Electric Distribution, have returned to their respective offices after an absence of several months.

Miss Grace Elger, of the Meter Reading Department, and Mr. Eugene DePrey were married January 1st, 1919, in St. Monica's Church. Mr. and Mrs. DePrey are residing at 21 Hawley Street.

Lieutenant Roger D. DeWolf, of the U. S. S. Nevada, attended the Friday morning meeting January 17th. He gave an exceedingly interesting talk of experiences while the Nevada was in European waters.

Mr. Frank C. Taylor, of the Engineering Department, addressed the Rochester Section of the American Institute of Electrical Engineers, at its monthly meeting, December 20, 1918, on the necessity of a good lighting system.

Post cards have been received from Mr. C. G. Binder, Les Laumes, France, and from Mr. H. Greenberg, Nantes, France. Both are well and glad the war is over, but do not know when they are coming home.

In one of the daily papers a short time since, appeared a statement that fifty years ago the streets of Rochester were lighted by 781 gas lamps and 525 kerosene lamps. It may be interesting to many to know that today Rochester's streets are lighted by 8,965 electric lights.

Messrs. Ruden Post and Eugene Feinberg, of the City Street Lighting Department, and Messrs. J. F. Putnam, R. C. Booth and George Hilbert, of the Rochester Railway and Light Company, have recently checked up the street lighting records of the City and Company against the Company inventory, only thirteen adjustments being necessary. There are 8,965 lamps in the City.

Among those who have recently come to the Company are: Miss Lucille Elliott, clerk Transportation Department; Messrs. William J. Marks, Edward L. Williams, John N. Williamson, Coke Sales Department; William E. Sherman, clerk Domestic Sales Department; William H. Carlin, helper Electric Meter Department; Leslie A. Kuhnert, turbine helper, Station 3.

Messrs. F. W. Fisher, C. G. Durfee, S. Alling, C. W. Miller and G. B. Swarthout attended a meeting of the Empire State Gas & Electric Association at Schenectady, January 17th.

### OUR BOYS COMING HOME

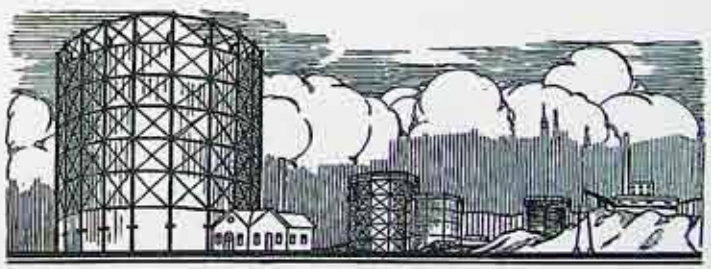
**Of the Civil War Period and Unidentified Authorship.**

**Thank God, the sky is clearing!**
**The clouds are hurrying past;**
**Thank God, the day is nearing;**
**The dawn is coming fast,**
**And when glad herald voices**
**Shall tell us peace has come**
**This thought shall most rejoice us:**
**"Our boys are coming home."**

**Soon shall the voice of singing**
**Drown war's tremendous din;**
**Soon shall the joy bell's ringing**
**Bring peace and freedom in.**
**The jubilee bonfires burning**
**Shall soon light up the dome.**
**And soon, to soothe our yearning,**
**Our boys are coming home.**

**The vacant fireside places**
**Have waited for them long:**
**The love light lacks their faces,**
**The chorus waits their song;**
**A shadowy fear has haunted**
**The long-deserted room;**
**But now our prayers are granted,**
**Our boys are coming home.**

**—Vulcan Bulletin.**



The Du Bois Press of Rochester

# Genuine Gas Coke Is Guaranteed to Give Satisfactory Results

We sell genuine gas coke with the understanding that it is the best and cheapest furnace fuel.

We are so sure of this that we stand ready to remove the coke from your cellar and refund the money for the amount removed if practical demonstration in your home by our representative does not convince you of the fact.

If you want maximum heating service at less cost and with less labor, our guarantee makes it easy for you to learn from actual experience that genuine gas coke is the furnace fuel you need.

## Price $8.70 per ton delivered

*No Fuel Administrator's Order Necessary*

## Rochester Railway & Light Company

34 Clinton Avenue North