JANUARY 1916

HEALTH BULLETIN

No. 17

REMEDIES FOR THE HOME

Rochester Ry. & Light Co.

REPUBLISHED FROM
BULLETIN ISSUED BY

EASTMAN KODAK COMPANY

REMEDIES FOR THE HOME

ALMOST every household has a medicine chest or cabinet. This is a good idea and should be encouraged, but too often the cabinet is used for toilet preparations and patent medicines to the exclusion of proven remedies of real value. Has your physician ever suggested what the contents of such a cabinet should be? If not, the following list of standard medicines may be found helpful. It is not intended that these medicines shall take the place of methods which "grandmother" *knows* are good and has used for years, such as rubbing the chest with goose grease to help break up a cold. The idea is rather to suggest a few simple medicines which are perfectly safe for anyone to use provided the indications for their use are clearly understood. Emergencies are constantly arising which may make the proper remedy, to be had at a minute's notice, a very valuable thing.

TINCTURE OF IODINE—(1 ounce)—For all *cuts, scratches, "hang nails"* or *breaks in the skin.* With a small piece of cotton wrapped on the end of a tooth pick, paint thoroughly with the Iodine. Never mind if it stings a little; it is doing good. Cover with a small piece of gauze and bandage. *Bruises, strains* and *sprains* are helped by painting with Tincture of Iodine as described above.

CASTOR OIL—(3 ounces)—This is considered the best cathartic, although perhaps not the most agreeable to take. The chief indication for its use is *constipation*, when the dose should be from 3 to 6 teaspoonfuls. In *diarrhœa*, due to improper or too much food, the same dose should be taken. The idea is to assist Nature in ridding the body of the poisons formed in the bowels which are the cause of the diarrhœa. For *colds* that have just begun, or for *headaches* due to indigestion, a liberal dose of castor oil often works wonders.

AROMATIC SPIRITS OF AMMONIA—(2 ounces)—In cases of *fainting* or *sudden weakness*, give 1 teaspoonful in ½ glass of water. Repeat in 15 minutes if necessary.

CHLOROFORM LINIMENT—(2 ounces)—For *backache, stiff neck, pain in shoulders, arms or legs.* This liniment, rubbed in thoroughly and often, will accomplish as much or more than any advertised preparation of the sort.

OLIVE OIL—(4 ounces)—For *burns.* Saturate sufficient gauze with olive oil to cover burned area. Spread over gauze a layer of cotton and hold in place by bandage.

OIL OF CLOVES—(2 drams)—For *toothache.* Saturate small piece of cotton with the oil and place in cavity of aching tooth. This will relieve the pain in most cases until you can see your dentist.

OIL OF PEPPERMINT—(2 drams)—For *indigestion* coming on shortly after eating. Take 3 or 4 drops on a lump of sugar.

COTTON, GAUZE AND BANDAGES—A 5 cent box of absorbent cotton, a 10 cent package of surgeon's gauze and half a dozen assorted bandages are sufficient.

Such a selection as outlined above may be obtained at any drug store for about one dollar.

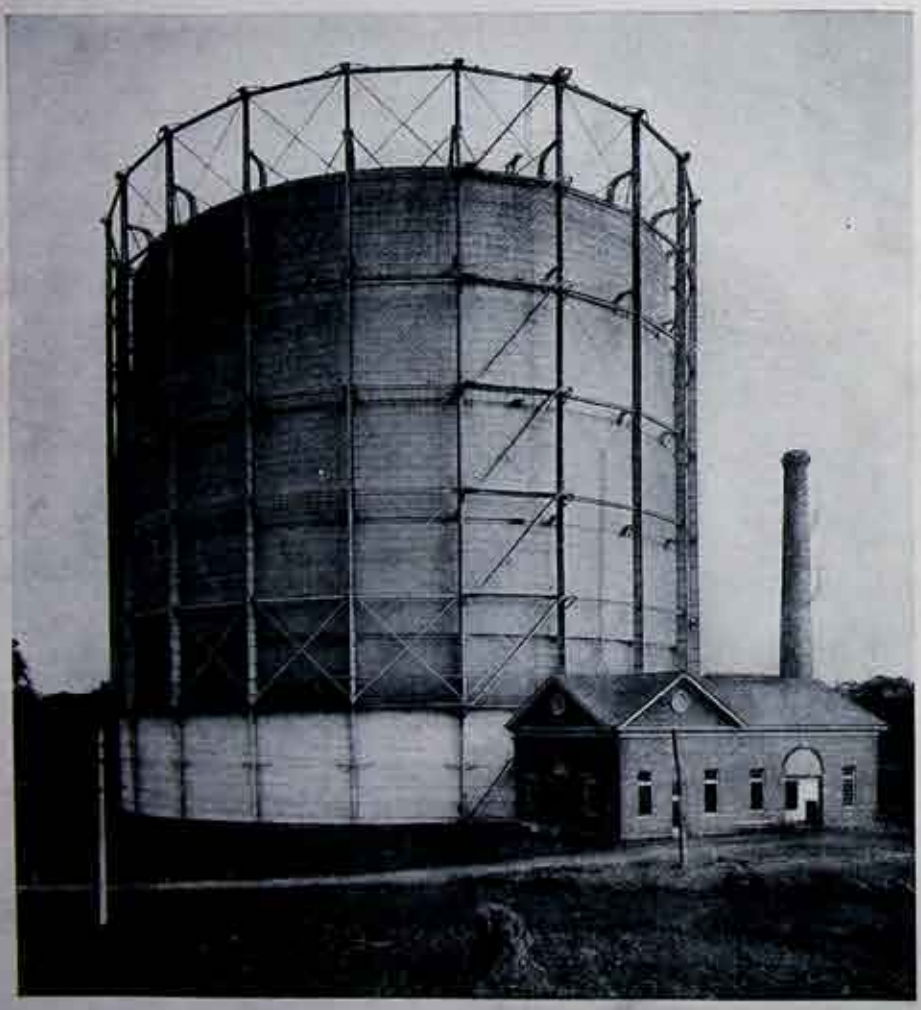
It is suggested that this bulletin be fastened to the door of the medicine cabinet where it may be referred to when needed.

GAS AND ELECTRIC NEWS

PUBLISHED BY

THE ROCHESTER RAILWAY & LIGHT CO.

VOL. 3 JANUARY 1916 No. 7



Brighton Gas Holder

GAS AND ELECTRIC NEWS

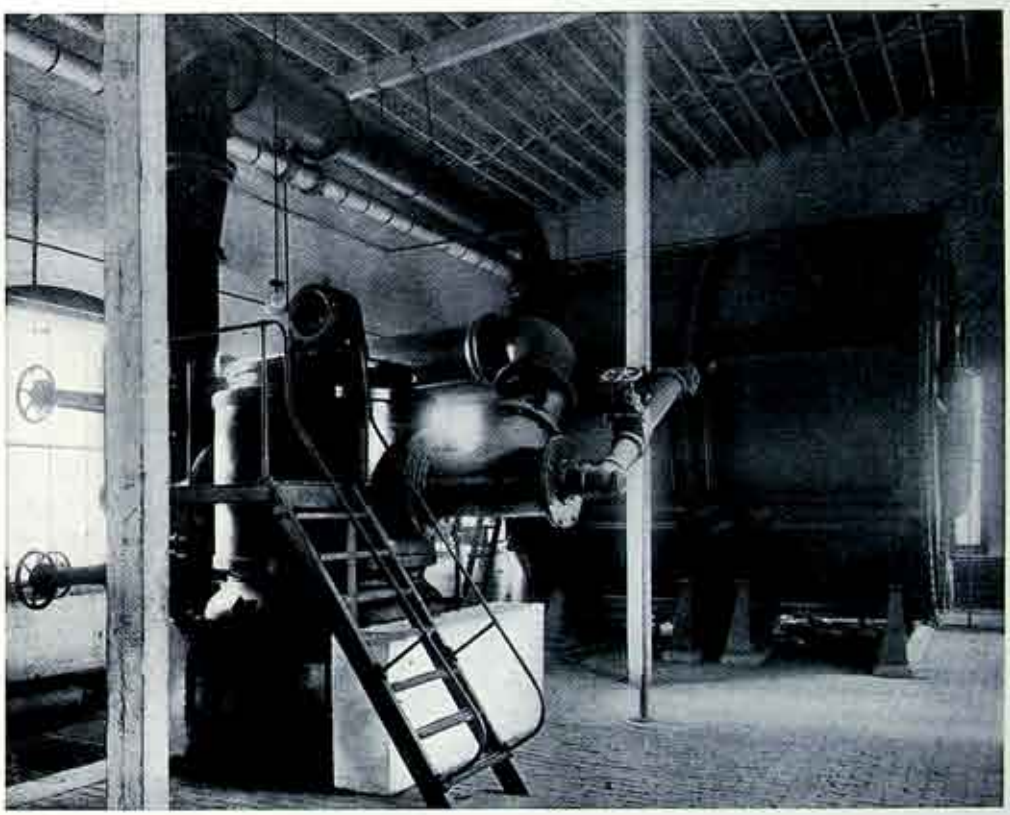
Vol. 3 JANUARY, 1916 No. 7

The Thomas Electric Gas Meter

BY WILLIAM H. EARLE

THE unit for measuring gas is one cu. ft. taken at a temperature of 60° F. and under a pressure of a column of mercury 30 in. high.

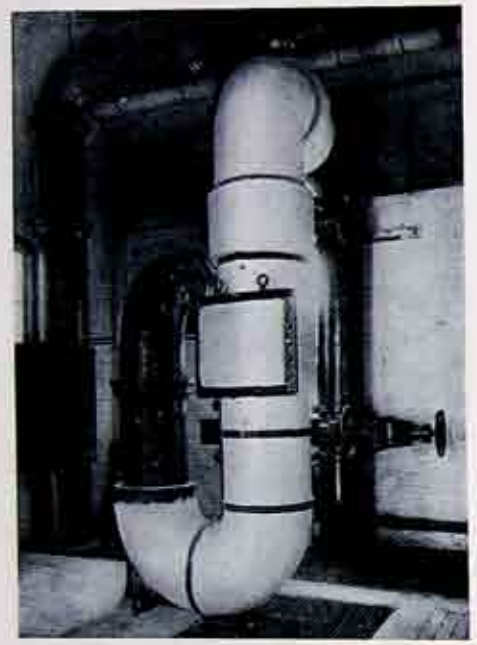
The first method of measuring gas was by displacing an equal volume of water. This method is extremely accurate and reliable, but is limited in its use to very low pressures. The high first cost and the massive structures for the ever increasing volumes to be handled indicate its limited use. This method was followed by measuring the velocity of the gas in passing an opening or orifice of known size, and computing its volume from the data obtained. This venturi type was cheap but required a fairly constant flow of gas to insure any reasonable degree of accuracy. The anemometer and pitot tube employ principles similar to those used in the venturi meter and require certain limited conditions to give ideal results. The types of meters mentioned up to this time



Rotary and Displacement Gas Meters

required careful, accurate, and frequent readings of the temperature of the gas and also barometric readings. With this information the observed readings were corrected in accordance with a table or curve derived from a well known law of physics.

The third method of measuring gas, discovered by Prof. C. C. Thomas, takes into account the fact



Thomas Electric Gas Meter

that the thermal capacity of industrial gases (coal, water, oil or natural) varied over a limited range. To compensate for these variations an analysis of the gas must be made to arrive at its constituent parts The sum of the heat capacities of its component parts thus obtained gives a check on the thermal capacity of the mixture as found by experiment.

The thermal capacity of a substance is the amount of heat necessary to raise one unit (in this instance one standard cubic foot of water gas) of the substance one degree Fahrenheit.

A unit volume of gas at constant pressure is confined in a steel cylinder equipped with a thermometer and an electric heater. This heater consists of a coil of resistance wire similar to that found on an ordinary household electric toaster. The resistance is connected with a source of electrical supply and in series with a carefully calibrated and adjusted watt hour meter. The gas pressure is maintained constant. Repeated tests have demonstrated that it requires 0.0127 watt hours to raise the temperature of one cubic foot of gas from 60° to 62° F. and for each additional two degree rise the amount of current consumed remains constant. The heating process causes the gas to expand without changing its thermal capacity. When this same known volume of gas is held at a constant temperature, and the pressure gradually increased to correspond to natural gas pressures of several pounds per square inch, the original volume is decreased although the thermal capacity remains constant. Based upon the principles of these established physical laws, the Thomas meter was designed and built.

The commercial form of the Thomas meter consists of two parts, namely, the housing and the recording panel. The housing, which is installed in the pipe line, conveys the gas. This is equipped with two electrical resistance thermometers of equal value located above and below

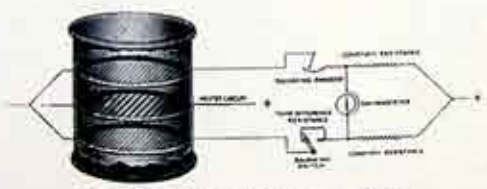
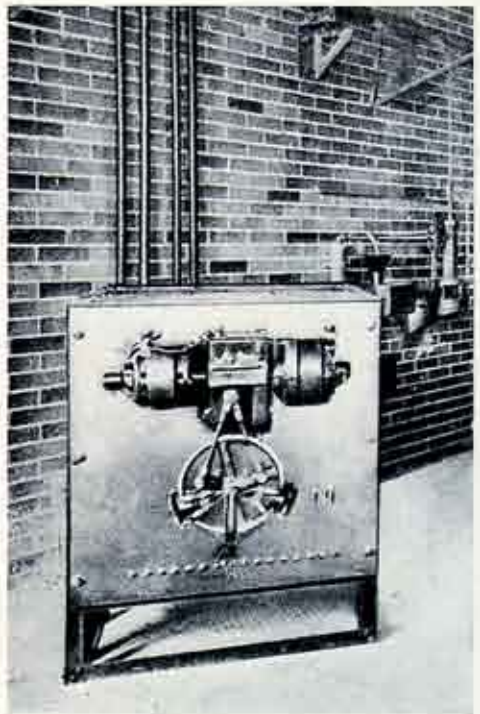


Diagram Electric Connections

the heater unit. The gas passes upward through the housing, as it must act as a heat dissipater. These thermometers, whose resistance increases as the temperature increases, form two sides of a Wheatstone bridge, and as long as they are equal

the galvanometer needle does not deflect from its mid position. The lower or inlet thermometer has inserted in series with it an electrical



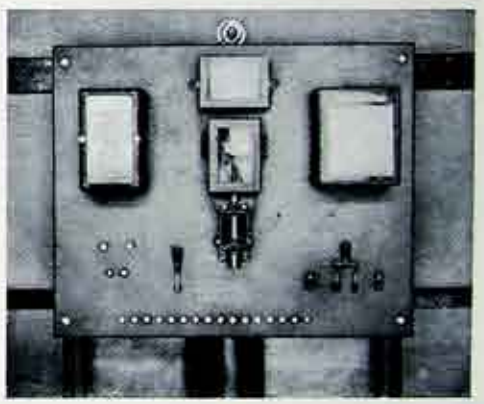
Balancing Rheostat

temperature difference coil to give two degrees rise. This temperature difference coil is designed for the thermal capacity of the particular gas to be measured, from the gas analysis as above mentioned.

The motor driven balancing rheostat increases the heater current when the galvanometer needle deflects to the right and decreases the current when the needle swings to the left. With no current in the heater and the temperature difference coil switch open the two thermometers are equal and the galvanometer needle is neutral. When the temperature difference coil is in series with the inlet thermometer the upper and lower legs of the Wheatstone bridge are unbalanced by an amount corresponding to two degrees of temperature. The galvanometer needle swings to the right and actuates the balancing rheostat which starts and supplies the necessary heat in the form of electric current to re-establish the balance.

The current so consumed is indicated, graphically recorded and converted to cubic feet of gas corrected to standard units. The panel as shown has an indicating watt hour meter on the left which reads in cubic feet of gas corrected to a temperature of 60° F. and a pressure of 30 inches of mercury. On the right there is an indicating and graphic meter in series with the watt hour meter. The galvanometer box in the center contains the terminals of the constant resistance electrical thermometer, the galvanometer, and the terminals of the temperature difference coil which is operated by the single pole switch. The double pole switch is for the operation of the motor driven balancing rheostat.

This meter is guaranteed to read



Recording Panel

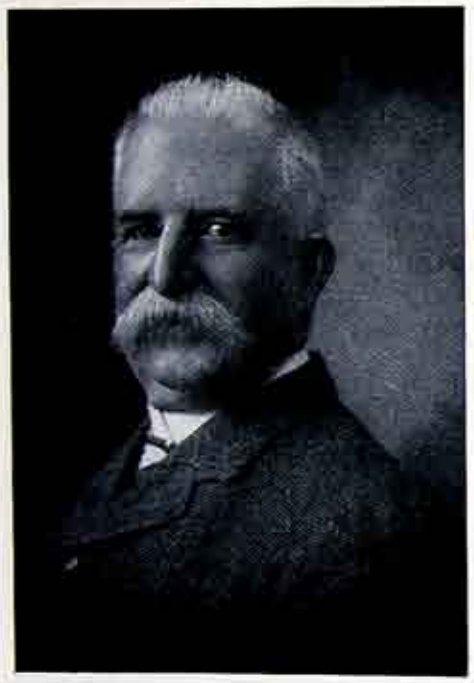
within two per cent. of actual flow when operating between the rates of 50,000 and 300,000 cubic feet of gas per hour, and when tested against a holder under proper conditions. This method of testing and the preliminary results derived will be presented at some future time after the elimination of difficulties attendant upon the installation of new apparatus.

George Ambrose Redman

BY T. H. YAWGER

The death of George Ambrose Redman marked the passing of one of the pioneers in the electric light industry in Rochester.

Mr. Redman was born April 10th, 1847, in New Orleans, and came to Rochester in 1858, entering the employ of the New York and Albany Telegraph Company, later the Western Union Telegraph Company. He remained with that company



George Ambrose Redman

until 1882, about which date he founded the American District Telegraph Co. of this City.

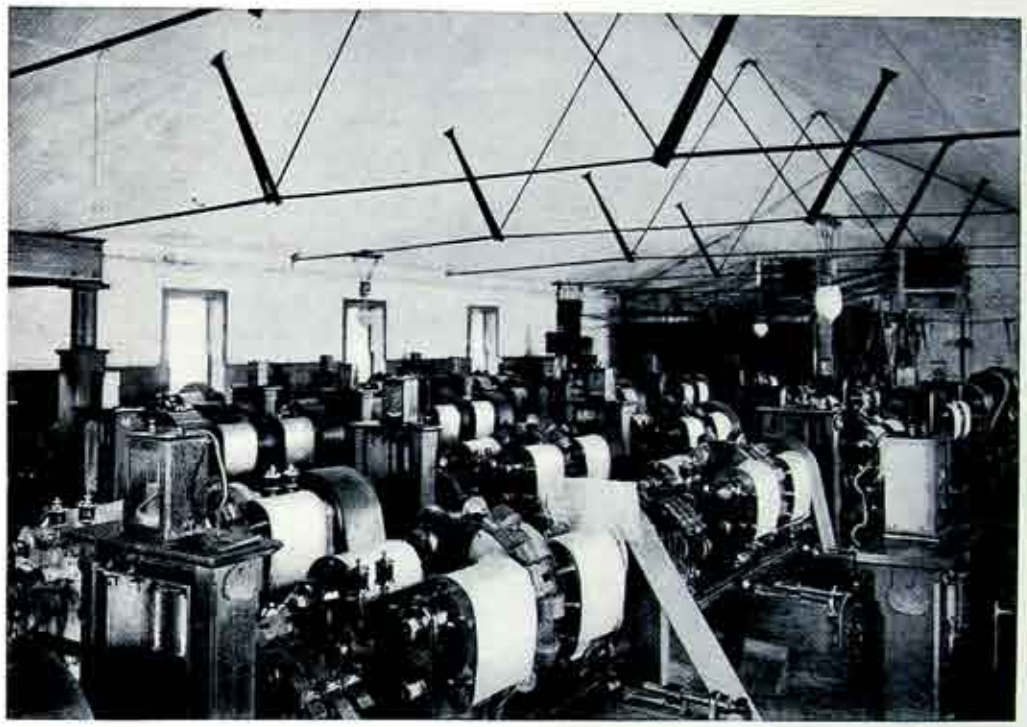
About this time, the possibilities of electric lighting began to be apparent, and he assisted in the organization of the first electric light company in this City, called the U. S. Electric Light Company, and he was a director in this company until he resigned to accept the superintendency of the newly formed Brush Electric Light Co. During the following years, other electric light companies were formed, notably the Rochester Electric Company and the Edison Electric Illuminating Company. These various companies were in sharp competition with the existing gas company. In 1891 a combination of all these was formed and this brought into existence the Rochester Gas and Electric Company. Mr. Redman was then appointed General Superintendent of all its electrical properties and he remained in that capacity until his resignation in 1905, shortly after the formation of the Rochester Railway and Light Company.

In the early days of the industry, he was one of the most progressive men in adopting and applying new developments then springing up; a notable example of this being the series motor which is known as the C. & C. arc motor. This motor was operated on circuits which were run from the Brush Arc machines. This motor seemed to fill a long felt want in small power industries, and the demand for this type of power continued to increase until the year 1891 when there was a total of 2600 of these motors operating in individual small shops throughout the City.

We can look back at these installations with wonderment, that such things could be possible—to have these high tension arc circuits run into buildings and not have fires and deaths resulting from their use. However, there are no records of any such accidents occurring.

Mr. Redman was directly responsible for the development of the Lower Falls plant, No. 5 Station; starting with one arc machine, the equipment was gradually increased until there was a total of 45 arc machines driven by fifteen water wheels. In the light of present day advance, this looks very crude, but

must be considered from the proper point of view, which is, that this Brush electric machine was practically the only electrical machine which had been developed. Methods of drive had also to be developed, and as the state of the water wheel art was also in its infancy, it will probably explain why an installation of this character should be installed and



Old Arc Machines, Station 5

successfully operated for the number of years that it was. All of this equipment has long since been replaced by modern apparatus.

As early as 1884, Mr. Redman perceived the wonderful possibilities of development in the future of electricity; at that time he said, "Fifty years hence telegrams will be sent for one-fifth of present rates, and one hundred different messages will be transmitted on a single wire, and at the same time, without interference.

Telephones will be in universal use, and we will be able to converse with friends in foreign lands; telephones will also have phonographic attachments, which will record all conversation.

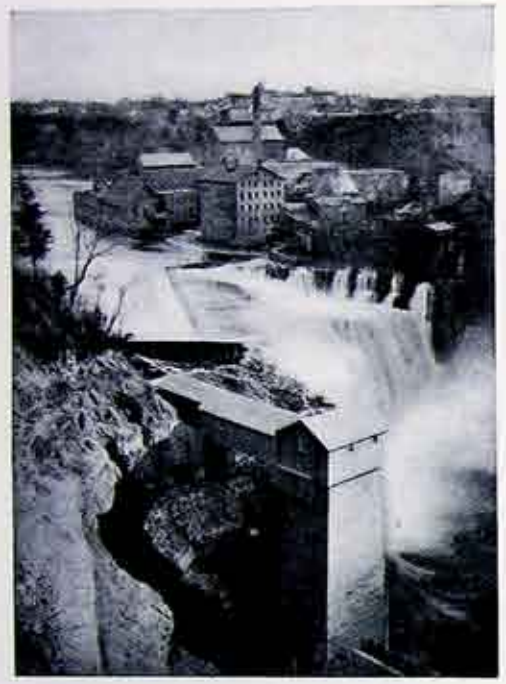
By means of phonoscopes with selenium plates, we will be able to photograph objects from a distance.

Electric lighting will be used without stint, wires will be under ground, and electricity will be stored in large reservoirs, to be drawn therefrom at will. The lights will be perfectly steady and white, and the lamps will last a year without any attention.

Electricity will be our motive power in steamships, railroads, etc."

Mr. Redman had been a member of the Christ Episcopal Church since 1868. For a number of years he was a director of the Hahnemann Hospital. He was a member of the Oak Hill Country Club, the Masonic Club, Rochester Lodge, F. and A. M.;

Ionic Chapter, Royal Arch Masons; Monroe Commandery, Knights Templar; and Damascus Temple, Nobles of the Mystic Shrine. He



Old No. 5 Headworks

was an active member for several years of the American Institute of Electrica' Engineers, and of the

Old No. 5 Station

Executive Committee of the National Electric Light Association.

The Telephone System

BY GEO. T. COLEMAN

The telephone has become one of the most important factors in the successful operation of every business. This is particularly the case in this Company, where business relations are carried on with more than 80,000 consumers, and where there are many properties all of which are dependent upon each other. These multitudinous activities would not be possible without the telephone, but, useful servant that it is, instantaneous in action and capable of almost unlimited extension, its usefulness can be seriously curtailed by thoughtlessness in its use.

Rochester has two telephone systems known as the "Bell" and the "Home." The "Bell" is a subsidiary of the New York Telephone Company, and the "Home" is the Rochester Telephone Company. The Railway and Light Company maintains private switchboards for each system in the Clinton Avenue Office. These switchboards consist of a primary or receiving board and a secondary or information board subsidiary thereto. All calls are received on the primary boards and are switched by the operators either to the office or station desired, or to the information boards. The information boards receive complaints, orders relative to installations, turning on and shutting off meters, etc. The office telephones are of the usual desk type and many of the stations have double door booths, containing wall telephones.

Some idea can be obtained relative to the use of Company telephones by noting that there is an average number of 170 calls per hour, between the hours of 8:30 a.m. and 4:30 p.m. During storms, many more than the average number of calls are received. There are two telephone peaks during the day. These occur approximately at 9 a.m. and 3 p.m. The service is

maintained 24 hours per day throughout the year, requiring the concentrated attention of eight operators.

Until recently the information boards were not located adjacent to the receiving boards. In the interests of better service both for the Company and the public, the telephone room was enlarged by the addition of some space from the auditing department, and the boards were all placed together.

The writer, who reports directly to the Assistant General Manager, is in charge of the entire telephone system and is endeavoring to provide courteous and satisfactory service. It is suggested that information relative to vacations and absences of employees be promptly given to the operators on duty, to the end that useless connections and inquiries for those absent may be avoided. It is also highly desirable to answer the telephone promptly, to answer by giving the name of the person speaking, and to cultivate the habit of speaking distinctly. It is a useless waste to install extra equipment to provide fast service, when a very small amount of thoughtfulness on the part of each employee using the telephones will accomplish the same result. It is further suggested that in most cases the Turner interior telephones which are installed in the general offices will be quicker and more satisfactory for the office calls, and will at the same time relieve the general telephone system to a great extent.

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The Kiddies Party

BY MISS FRANCES E. MOORE

On December 15th, the Gas and Electric demonstrators of the Domestic Sales Department joined forces and presided over a Railway and Light Company party to the kiddies of Rochester. The object of the entertainment was primarily to interest the children in the Hughes Junior Electric Stove. It was the intention to limit the party to future housewives, but the boys came without special invitation.

Some of the little girls with their dolls presided at the toy ranges. Biscuits, raisin and custard pies, and tiny cup custards came from the midget ovens perfectly baked, until the children were wild with enthusiasm.

Not the least interesting feature was the refreshments. Ice cream, animal and Tom Thumb cakes and hot chocolate were served to the some 200 young guests. Some side lights on the affair might be of interest. One young miss walked primly in and with a very grown-up air said to one of the demonstrators, "Is this where you serve refreshments." Another said "good-bye," and then added, "When are youse going to have another party?"

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Mr. F. H. Klein has secured the following interesting information from the local Fire Department, relative to fires caused through the use of gas in 1914.

Fires caused by open flame burners	15
" " " gas irons	4
" " " clothing near ranges (to dry)	4
" " " defective gas fixtures	3
" " " looking for leaks	3
" " " cooking on gas ranges	3
Total fires causing loss	32
" " not causing loss (smoke from cooking, etc.)	17
" Gas fires	49
" fires (all causes)	1185
" gas fire loss	$6680.00
" fire loss (all causes)	$306,832.00

In one fire caused by leaving clothing too near a gas range to dry, the loss was $3,200.00, and in another fire caused by an overheated tailor iron, the loss was $2,500.00. This leaves a sum of $980.00 to cover the losses caused by 30 gas fires.

Gas is undoubtedly the safest fuel.

Gas and Electric News

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Vol. III JANUARY, 1916 No. 7

As we go to press, the figures for the accidents of 1915 are not all available, inasmuch as all the men injured during 1915 are not back at work, and all the doctors' bills have not been presented.

We do know, however, that in 1915 there were 138 accidents, 29 less than last year, and that the percentage of accident is 12.6, there being an average of 1096 employees throughout the year. This means that the percentage of accident has been reduced to the lowest figure since accident records have been kept by the Company, a period of eight years, as the table shows.

As usual, during 1915 the so-called careless accidents predominated. Why? Probably because, as a writer of fiction, Mr. Richard Matthews Hallet says:

"There are careful men and there are careless men. And in each man there is a careful time and a careless time, determined by his moods, by the rise and fall of bodily vigor. The tides of caution have a high and a low water mark.

A chain is no stronger than its weakest link. The caution of 99 men avails nothing against the carelessness of one man."

We have made a record in 1915 of which we have no reason to be ashamed collectively. Why not make an individual resolve that in 1916 there will be fewer accidents?

Percentage of Accident 1908-1915

Year	No. Employees	No. Accidents	Percentage
1908	872	118	13.5
1909	902	165	18.3
1910	800	176	22.0 *
1911	860	164	19.1
1912	1050	203	19.3
1913	1284	308	24.0 **
1914	1041	167	16.0
1915	1096	138	12.6

* Safety Committee started.
** Year of Extra Heavy Construction.

Classification of Accidents 1915

Careless handling of material and tools	41
Falls and slips	25
Particles in eye	16
Struck by falling material	11
Bitten by dog	9
Injured by trench caving in	3
Injured by moving or shifting machinery	3
Stepped on nail	3
Bumping into machinery, etc.	3
Injured by moving wagons or automobiles	4
Strains in lifting and pulling	2
Slivers in finger	2
Burns:—	
Flashes	7
Gasoline	1
Head of match (Company not responsible)	1
Hot solder	1
Thrown from automobile	1
Injured by flying piece of steel	1
Injured by back-firing of automobile	1
Death caused by fall	1
Miscellaneous (Company not responsible)	2
Total	138

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General Manager James T. Hutchings and family spent Christmas in Philadelphia, Pa.

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Assistant General Manager Herman Russell and family spent the holidays in Manistee, Mich.

Savings Plan Established

It remained for General Manager James T. Hutchings to inaugurate in this Company a plan whereby systematic saving on the part of the Company's employees is rendered easy.

Realizing better than the average man the necessity for careful and systematic saving, in order that old age or misfortune will not bring want or suffering, Mr. Hutchings has during the past few months given the subject very careful study. The plan outlined below is based upon extensive experience, and will be eagerly embraced by many of the Company's employees who have hitherto neglected to make this very important provision for their future.

The following is taken from a circular which will be distributed to all the Company's employees. It is self-explanatory, and is another very gratifying instance of the interest in this Company's employees which is taken by the Management.

In order to give its employees the opportunity to set aside each week for deposit in a bank smaller sums than they might perhaps think warranted their making special trips to the bank to deposit, the Company has made the following arrangements with the Rochester Savings Bank:

Commencing on January 1st, 1916, employees may have a certain sum set aside weekly from their pay envelopes for deposit in the Rochester Savings Bank. The Rochester Railway and Light Company's Paymaster or Assistant Treasurer will attend to all the details of opening the accounts, securing the pass books, and making the deposits.

All employees who wish to have deposits made for them, should sign and leave with the Asst. Treasurer or Paymaster the attached form, stating the amount they wish set aside weekly or monthly for this purpose. If there are any employees now having accounts with the Rochester Savings Bank who wish to take advantage of this plan, they should likewise sign the attached form and deliver it to the Paymaster or Asst. Treasurer, together with their pass books, as the bank can have but one account with an individual.

When the Asst. Treasurer or Paymaster has received from any employee authority to make deposits under the plan as herein set forth, he will on the following pay day, and thereafter each week, unless the employee withdraws from participation under this plan, deduct the stated amount from the employee's weekly pay envelope, indicating on the pay envelope the amount which has been deducted, and later deposit same to the employee's credit in the bank. 25c or more per week will be received for this purpose, but no pass book will be issued by the bank until the sums set aside amount to $1.00. The Asst. Treas. will hold the pass books so that they can be sent to the bank regularly with each deposit monthly.

Money cannot be withdrawn by anyone but the employee in whose name the account is kept, except by his or her written order. Employees wishing to make withdrawals may make arrangements with the Asst. Treas. to receive part or all of their deposits at any time upon due notice.

Employees wishing to obtain their pass books can obtain them from the Asst. Treas. at any time, except when they are in use at the bank. Employees leaving the employ of the Company will, of course, receive their pass books at the termination of their services.

The money will be carefully handled, and an accurate record kept by the Asst. Treas., who will see to it that the sum is properly credited, and the pass books will be safely kept in the Company's vault. Every three months a statement will be furnished direct from the bank to each employee, showing the amount on deposit.

The Company well understands that employees would wish to have such matters considered as of a strictly confidential nature and all may rest assured that they will be so treated. No one will have any information as to these matters except the few whose duties it will be to see that the transactions are properly carried out.

We feel sure that this plan will result in a good many employees having permanent savings accounts which will grow from month to month and year to year until they become substantial sums. All of the deposits will carry interest—the present rate is 4% per annum—from the first of the following month. The table below shows what deposits of from 25c to $2.00 per week will produce with interest compounded twice a year at the present rate:

	25c. Per Wk.	50c. Per Wk.	75c. Per Wk.	$1.00 Per Wk.	$2.00 Per Wk.
6 Mos.	$ 6.56	$13.12	$19.68	$26.23	$ 52.46
1 Year	13.25	26.49	39.74	52.98	105.96
2 Years	27.02	54.04	81.06	108.08	216.16
3 "	41.35	83.71	124.06	165.42	330.86
4 "	56.26	112.52	168.78	225.03	450.06
5 "	71.77	143.54	215.31	387.09	574.18
10 "	159.26	318.52	477.78	637.45	1274.10

The following table shows what you may accomplish if you deposit monthly sums from

$1.00 to $20.00 in one to ten years with interest at four per cent per annum, compounded every six months.

Years	$1	$2	$5	$10	$20
1	12.26	24.52	61.30	122.60	245.20
2	25.01	50.02	125.07	250.14	500.28
3	38.28	76.57	191.42	382.84	765.68
4	52.09	104.18	260.45	520.90	1041.80
5	66.45	132.90	332.27	664.54	1329.08
10	147.46	294.92	737.30	1474.60	2949.20

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Starting Automobiles Easily

Supt. Yawger is passing along some good advice on the starting of gasoline driven automobiles in cold weather, which is new to many.

The new method consists in opening the carbureter as usual, opening the throttle very little, and cranking the engine for a few turns before putting in the starting plug. When the plug is put in place the motor starts promptly and runs as smoothly as in warm weather.

Mr. Yawger's explanation is as follows: The magneto, which is simply an electric generator, is short circuited at every contact of the commutator to produce the firing spark. When the engine is being cranked at slow speed, the magneto likewise runs at slow speed, and it is a longer process to build up voltage when short circuited at frequent intervals than upon open circuit. Consequently when the firing pin is put in place, after a few turns on open circuit, the voltage of the magneto is sufficiently high to produce the fat hot spark required.

Mr. Searle suggests that through almost closing the throttle, the mixture of gasoline and air is richer on account of the increased suction through the carbureter mixing chamber, and that after the engine has been turned over a few times, there will be a condensation of gasoline within the cylinders and upon the spark plug terminals. This condition of course facilitates easy ignition.

Empire Gas and Electric Association Meeting

BY H. C. NEEFUS

The semi-annual meeting of the Gas Manufacturing Department of the Empire Gas and Electric Association, was held in the offices of the Chuctanunda Gas Light Company at Amsterdam, New York, on Friday, December 10, 1915, with thirty members present.

In the discussion on pyrometers Mr. Jennings of the Westchester Lighting Co. stated that from his own experience, by placing the pyrometers at the bottom of the superheater he was able to govern the operation of water gas machines entirely from the pyrometer readings. He also brought out the fact, as a matter of economy in regard to fuel and oil, that the Westchester Lighting Co. was in the habit of taking the candle power every hour, figuring up the amount of oil burned and air used, and running the succeeding hour accordingly, increasing or diminishing the amount of oil used to raise or lower the candle power. It seemed to be the general experience that the best location for the pyrometer in a water gas set was about four courses of checker work up from the bottom of the superheater, as in this location it best recorded the heat of the entire machine, being located in the passage of the gases after complete combustion had taken place. The introduction of the pyrometer into gas manufacture put an end to guessing at the heat, and a great saving in fuel was obtained as a result. It has become a regular part of the equipment of nearly all the member companies.

The experiences on holder heating were for the most part widely different, due principally to the varied climatic conditions. The experiences of the Mohawk Gas Co. of Schenectady and the Rochester Railway and Light Co. were nearest alike. These companies supply their holders with steam at about 120 lbs. boiler pressure, introduced through syphons which use about 4½ to 5 horsepower each.

Most of the companies agreed that it was good practice to draw the water for the syphons alternately from the bottom of the pit and the halfway depth, thus setting up a current throughout the entire body of water in the pit. The cups are provided with syphons that operate on the same principle as those in the pit. The Railway and Light Co. is the only one that covers the cups with a heavy canvass belting. This protects the water from being blown out, keeps out snow and ice and also tends to retain the heat in the water.

There had been practically no experience among those present with anchor ice. One or two of the members had found ice on top of the water in the pit. A novel and apparently practical way of discovering anchor ice in the pit was suggested by Mr. Jennings, which consisted of suspending a sash weight on a cord near the bottom of the pit. It would be a good indication of anchor ice if by lifting on the cord, the cord refused to raise the weight.

A Mr. Crosby who has patented a system of heating holders by the use of hot water, gave the meeting some very interesting facts in connection with his experience in heating holders both by steam and hot water. The principal advantage claimed for the hot water system, is the saving in the cost of heating.

The experiences with the use of boiler compounds were as varied as the number of compounds on the market. It developed from the discussion that boiler compounds will generally act as a preventative but rarely if ever as a cure for the scale in boilers. The only adequate way of preventing boiler scale is by treating the water before using, but the boiler plant of the average gas company is far too small a unit to justify the expense of a treating system, and consequently the more or less detrimental compounds are relied on. One of the members stated that after using a certain compound for six months he had been obliged to renew the ent re feed water line, and put new seats in all valves due to the action of the compound.

After the meeting adjourned the members went in a body to see the Safety First Film of the American Gas Institute.

The writer together with Messrs. Earle, Sugden and White from the Gas Works made a flying visit to the new Woodall Duckham System of the Mohawk Gas Company, where an inspection of the new vertical retort benches was made. The Mohawk Company is just completing its second year of operation with these benches and it has worked out some very interesting data in connection with this experience. The main advantage of vertical retorts over the horizontal type is in the cost of operation. Where the Rochester Company employs 30 men the Mohawk Company accomplishes the same results with 9 men.

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The Smallest Central Station

The hamlet of Clayton, population 220, is perhaps the smallest community in Wisconsin having an independent central station plant generating its own electricity. The Clayton Electric Company has an operating force of one man, and its generating equipment consists of a 12 horse-power gas engine belted to a 5 kilowatt direct current dynamo. The street lighting load consists of eight incandescent lamps, and commercial lighting is given from dusk to 11 p. m.—*Public Service.*

Women's Club Christmas Tree

BY MISS CHARLOTTE B. ATKINSON

On the evening of December 23rd the Women's Club of Rochester Railway and Light Company gave a Christmas Tree and Entertainment to one hundred poor children, each member of the Club having been asked to find and bring to the Tree one poor child who otherwise would not have a visit from Santa Claus.

The entertainment began at 7:30, the following being the program:

A Welcome by the President of the Club.

The Lord's Prayer, led by Mr. J. Harry Stedman.

Singing of the Carol—"Oh come, All, Ye Faithful."

Reading of two stories—Mr. J. Harry Stedman.

Vocal Solo—Mr. Ralph Scobell.

Violin Solo—Mr. I. Lundgaard.

Carol—"Little Town of Bethlehem."

As the last verse of the carol was being sung the lights were dimmed, and the jingle of sleigh bells was heard in the distance. Just as the last notes died away, Santa Claus came out of a cleverly improvised chimney at the back of the room. After greeting the children, he picked up one small boy whose beaming countenance was clear indication of his enjoyment. With the happy little lad in his arms Santa Claus had the other children fall in line behind him, and they all marched round and round the tree which was decorated with pretty ornaments and presents, and illuminated with many colored lights and a beautiful star at the top. Then began the distribution of presents midst exclamations of delight, each child receiving a present, a stocking filled with candy and nuts, and an orange.

The women of the Club went into the preparations for this tree and entertainment with the finest kind of enthusiasm, which, added to the many contributions of service and money received from the men employees of the Company, made it the

splendid success it was. The money donated was used for the purchase of toys for the children invited to the tree, and for clothing and food provided for a few destitute families.

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Convention of the National Commercial Gas Association

BY I. LUNDGAARD

The Convention of the National Commercial Gas Association met at the New Willard Hotel in Washington, D. C., Tuesday, November 30th, with approximately 1,000 members present.

It was the first convention of the Association that I have attended, and I was very strongly impressed with the enthusiasm and spirit of optimism that prevailed from the first hour of the convention to the close. Those having devices to show at the Exhibit held during the convention were like boys with new toys and just bubbled over with enthusiastic sales talk and tales of what they had done and what they were going to do. The sky seemed to be the limit. Washington is an ideal convention city. Those who kept in touch with the ladies told me that the program provided for them was the best ever.

The Rochester delegation, headed by "Pop" Dowd, consisted of J. P. MacSweeney, Frank Hellen, J. B. Eaton, B. B. Yeomans, L. J. Sullivan, V. C. Hoddick and myself. Mr. Searle spent at least fifteen minutes at the Convention Wednesday morning, when he found that a discussion on Gas Rates had been called off. Many interesting papers were read and the Association showed that it had been active during the year in many ways. The Industrial Fuel Committee has prepared pamphlets describing different kinds of gas appliances for the different industries. These pamphlets contain very complete and thoroughly up-to-date information and will be a great aid in sales work. The exhibit contained many types of gas ranges, heaters, and special devices, as well as furnaces.

Mr. and Mrs. Will Croston were at the convention and wished to be remembered to their Railway and Light Company friends. "Senator" Tillman made his appearance Wednesday morning, and Wednesday afternoon I went to Baltimore with him in his Hudson Six, in order that I might see for myself some of the things that the "Senator" is doing in the industrial line in Baltimore.

All the Rochester delegates agreed that the convention was most enjoyable.

The New Soot Blowers at Station 3

BY R. D. DEWOLF

One of the 875 h. p. Bigelow-Hornsby Boilers was fitted with a special soot blower designed and manufactured by the Diamond Power Specialty Co. of Detroit, Mich. The blower consists of seven units, each unit being located at such a point in the boiler that the streams of steam coming from the blower can effectively remove the soot from the boiler tubes.

Each of these units consists of a pipe, extending across the furnace, fitted with special nozzles turned out of high carbon steel and so designed as to discharge the steam at a high velocity. These pipes may be rotated about their own axes thus swinging these nozzles through the arc of a circle. The steam issuing from the nozzles strikes the boiler tubes tangentially—very thoroughly removing the soot deposited on the tubes. Care is taken in the location of these nozzles to prevent the steam issuing from the nozzles, from striking directly on the surface of a boiler tube. This is done to prevent cutting of the tubes by any drops of moisture which might be entrained in the steam. As long as the steam issuing from the nozzle strikes the tubes tangentially and not at right angles to the surface of the tube no harm will be done.

The soot blower units just to the rear of the first set of boiler tubes are exposed to a temperature between 1500° to 1800° F. These tubes are made of a special high temperature resisting material, which the manufacturers claim will not burn out. While the blower has not been in operation long enough to thoroughly test out this material, the indications are very promising. A few minor difficulties have been encountered all of which have been satisfactorily corrected by the manufacturers.

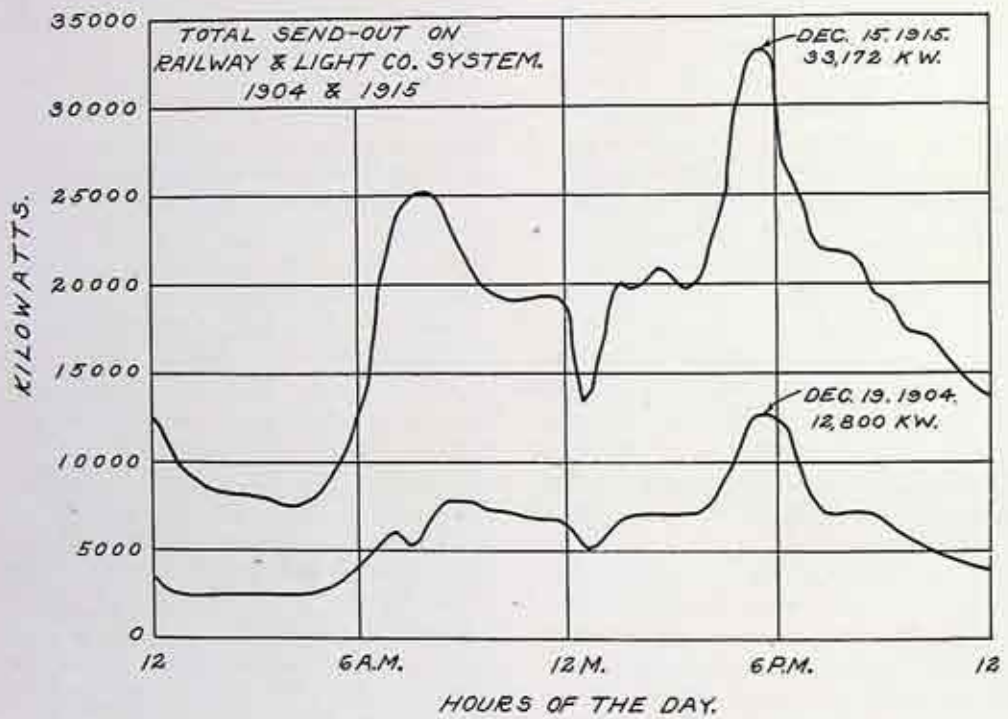
The Peak Load

BY T. H. YAWGER

A curious paradox of the Company's electrical business, is that the one thing on which we spend the most time and study, and make special rates to keep down, should be the cause of great pride in the organization, i. e., the Peak Load. Wagers are made, and a rumor is around that a "pool" has been formed between men of varying opinions, as to just how high the peak will be for this year.

Technically speaking, the "Peak Load" is that load which the generating stations have to carry over the period of greatest demand, usually occurring in this City during the latter part of November and the first two weeks in December, and lasting about one hour between 4:45 and 5:45 P. M., with the extreme peak occurring at 5:20.

The Peak Load for the year, multiplied by the number of hours in the year and divided into the kilowatt hours generated, gives a figure which is termed the "load factor," and although the peak is growing greater year by year—with the exception of the years 1913 and 1914—it is gratifying to note that the load factor is also becoming greater, and the greater the load factor, the smaller the investment in equipment needed for a given sale of current.



Peak Load Diagram

The peak loads for the last five years, and the corresponding load factor are shown in the accompanying table:

Year	Peak	Load Factor
1911	26800	44 %
1912	31100	43 %
1913	29861	51 %
1914	26700	52 %
1915	32500	44 % (Est.)

Now, in order to carry this increasing load successfully from year to year, the Company has to spend considerable time in making plans as to the amount of generating, transforming and distributing equipment that it is necessary to purchase. After this matter has been decided and purchases made, every department starts work preparing for the new installation, with the view of having it ready for operation the following November.

The average power and light company generates by steam, hence there is only one method of increasing its capacity. This Company, however, has three ways at present, viz, The Genesee River, Niagara and Auxiliary Steam. The possibility of obtaining more power from the Genesee River, will be realized some day; but for immediate needs, it will be necessary either to purchase more power from Niagara, or to increase the steam plant. The latter is the way in which the capacity for 1916 will be increased, by the installation of a new 10,000 kilowatt Turbo-Generator at No. 3 Station for which orders have been placed with the General Electric Company, with a promise of delivery in time for the "Peak Load" of 1916.

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Basket Ball

The Railway and Light Company Basket Ball Team played a practice game with the reserve team of the J. Y. M. A. in the gymnasium of the latter on December 13, 1915. The Company team won by a score of 22 to 16. It was a game that had plenty of vim and was decidedly interesting to the spectators as well as the players.

Mr. Friedman of the Main Office is putting forth every effort to develop a strong team. He wishes everyone who plays basketball to get in touch with him or with Mr. John B. Stokes. Those who do not play will be welcomed and given every opportunity to learn this fascinating game.

An Appreciation

The following letter from Mr. George J. French of the R. T. French Co. to Vice-President Searle is self-explanatory and is, in Mr. French's apt phase, "a luxury, and like luxuries a thing of expense and not to be trifled with." It is presented intact, for sincere appreciation of honest and successful effort affords an almost unlimited amount of satisfaction and produces an equally large amount of inspiration for better performance.

Rochester, N. Y., 11-15-15.

Mr. R. M. Searle,
Rochester Railway & Light Co.,
Rochester, N. Y.

My dear Mr. Searle:

I feel constrained to write you, congratulating you upon your connection and the very excellent services which it is at present rendering. I had an experience with the gas men some years ago, which still causes me to see pink when I think of it.

In consequence, while I wanted very much to get the service in my garage, I hesitated for some time, owing to the fact that it would be necessary for the men to go through my lawn, and, believe me, a lawn is a luxury, and like luxuries, a thing of expense and not to be trifled with, and I had visions of past experiences and the resulting wear and tear on "Yours truly," which caused me to hesitate.

After a very pleasant interview with your Mr. Lundgaard, I gave instructions to the boys to go ahead, and the reason I am writing you, is, that I have yet to receive in my home, or in my property, or in my factory, as careful service as I did from the gas men who laid that trench and made the connection from my house to the barn; the men were polite, kindly and careful, and I am pretty critical, and when they left, everything was cleaned up and in perfect shape, and unless we had been told, we would not have known they had been there. The thing was such a pleasant surprise, and altogether so agreeable, that we are looking forward with some anticipation, to another experience, and we are trying to find where we can lay the gas, so as to have these young gentlemen with us again.

After the many criticisms that have been made, and perhaps some few of my own, I think you ought to know this, and I, therefore, take the liberty of writing you as I would want you to write me under similar circumstances, in regard to my own young men.

With kind regards, believe me,

Very truly yours,

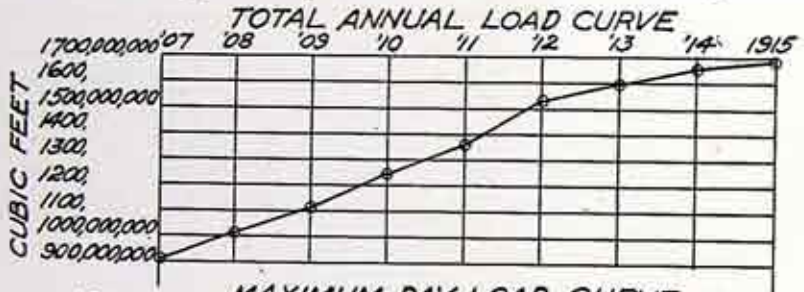
GEO. J. FRENCH.

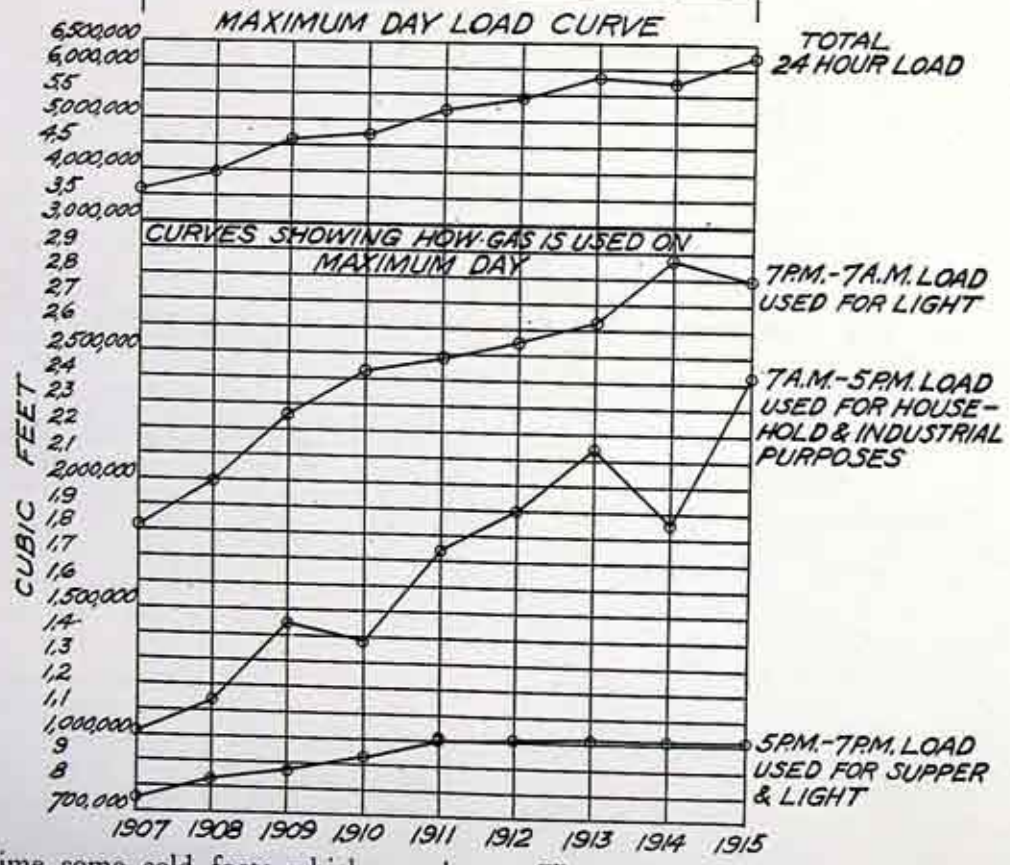
The Growth of the Gas Business

BY J. P. HAFTENKAMP

The notion is entertained by many people that the Gas Industry is deteriorating. This has no doubt been caused by the meteoric rise of the Electric Industry, and it will not be out of place to present at this time some cold facts which can be overlooked but not changed by enthusiasm.

The accompanying curves give all the essential facts relating to the Gas Industry without the perusal of an almost endless array of figures. The total annual load curve shows the cubic feet of gas sent out in Rochester each successive year from 1907 to 1915 inclusive. The rising curve indicates a healthy inclination to continue its upward direction and speaks volumes for the efforts of the Gas Sales Department.



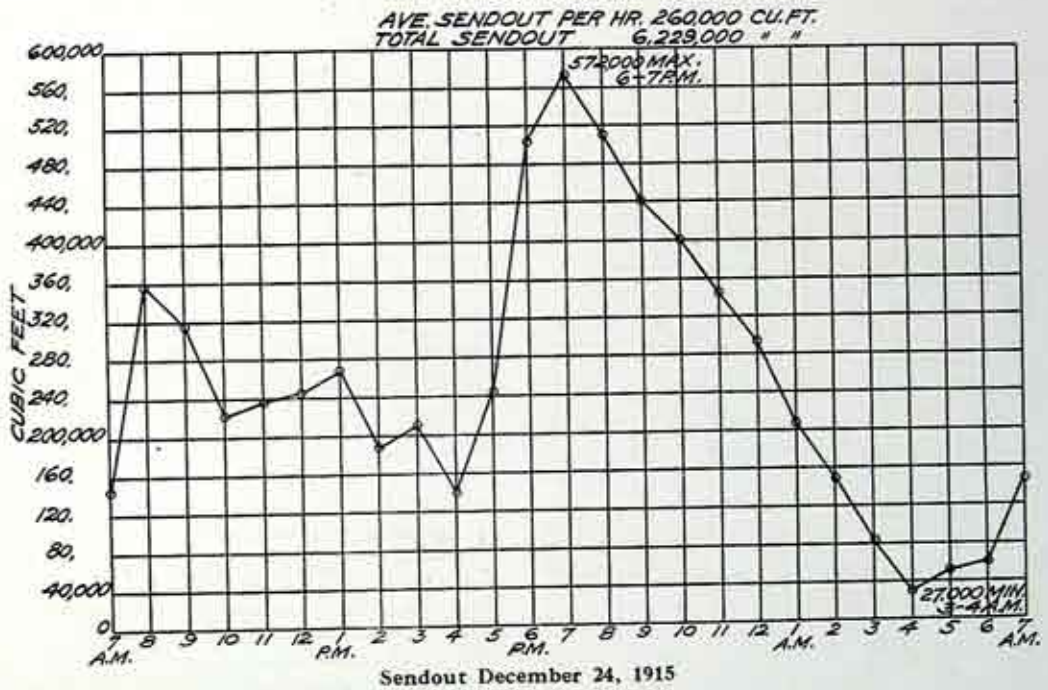


The maximum day or 24 hour load curve represents a condition that has always occurred on the day before Christmas. Just how long it will continue is problematical, as the increased use of gas for cooking is causing the secondary maximum loads

to occur during the September canning season. The maximum day load curve shows the same rising tendency with but one exception and that on December 24th, 1914. This condition may have been due to any one or all of the following facts: depressed business conditions, lack of work, war in Europe or a general spirit of thrift.

The three superimposed curves show subdivisions of the maximum daily load and give a general idea of the uses of gas. The 7 P. M. to 7 A. M. curve is typically a lighting load and shows a steady rise until 1915. This drop in 1915 undoubtedly indicates the one point in which gas is being replaced by electricity. The 7:00 A. M. to 5:00 P. M. curve shows the same upward tendency with two exceptions; Dec. 24, 1910, and Dec. 24, 1914. The cause for the former is unexplainable, although the latter indicates that household economies and suspended industrial uses were largely responsible for the 1914 depression in the 24 hour curve. The 5:00 P. M. to 7:00 P. M. supper and lighting curve shows a constant condition since 1912.

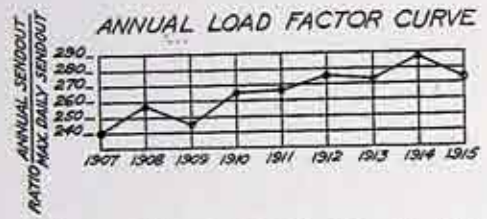
It is of interest to show the hourly sendout as it occurred on Dec. 24, 1915. In all probability the people at home ate their noonday meal at one o'clock. There is every indication that the dishes had to be washed, and possibly the cooking and baking was not all completed until between 3 and 4 o'clock in the afternoon. Gas for lights was required shortly after 4.00 P. M., and for supper shortly after that. At 7:00 in the evening the load dropped off at a gradual rate until midnight. The additional drop in the use at this point indicates that users of gas are of a stable type and keep respectable hours. At 6 A. M. there is every evidence that a great many people in Rochester do not keep bankers hours. This curve still indicates a large use of gas for lighting, otherwise the breakfast and supper peaks



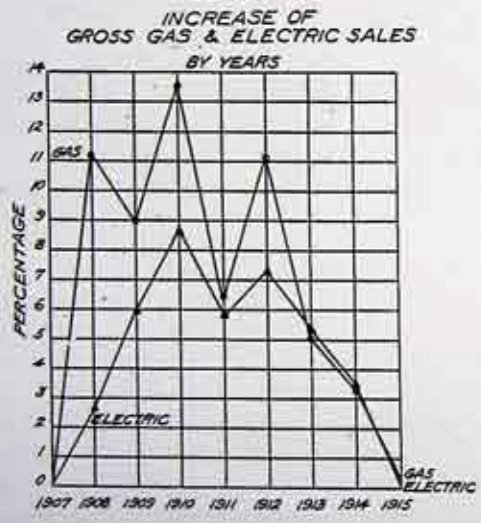
Sendout December 24, 1915

would not so greatly overshadow the dinner or noon peak.

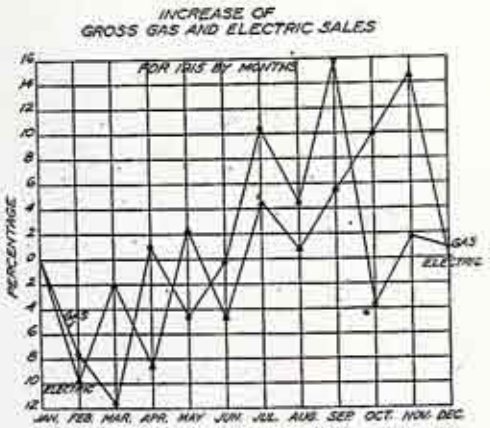
The annual load factor curve shows the ratio of the annual sendout to the load of maximum day. If this ratio gave a quotient of 365 it would indicate an equal daily load throughout the year. However, as we have 52 Sundays and 12 to 15 holidays each year, an annual load factor of 300 represents good con-



ditions. The unusual rise in 1914 is due to a good annual and a low maximum daily sendout. The war had a depressing effect from Sept. 1914 to June 1915 and consequently the load factor dropped during 1915 because of a fair annual sendout and a high maximum day.

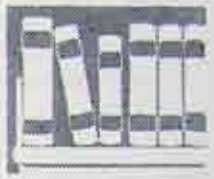


An important question is the relation these curves show as to how the gas business is contributing its share of the returns to the Company. This I have endeavored to show by a curve giving the increase gross gas and electric sales, not including appliances. From a glance one would get the impression that both branches of the Company's business were rapidly falling off, but this however, is not the case. In using a percentage curve both branches are reduced to a like basis for comparison. Any business may grow at a certain rate per year but each succeeding year its percentage of increase is less. For this reason a younger business usually shows the greatest percentage of increase. The gas curve is unique in that its percentage of increase far overshadowed the electric curve up to 1912, one hundred years after the discovery of gas. For the years 1913 and 1914 the electric industry was in the lead, but at the end of 1915 it was again forced to relinquish its



claim, and the gas industry is again maintaining its reputation for stability. This curve does show, however, a low ebb in business conditions and there is every reason to believe that future indications are more encouraging. I am therefore showing a similar curve for 1915 by months, which indicates the low point to have occurred where the years 1914 and 1915 merged. The upward tendency of the monthly curves show a falling off towards the end of 1915.

Auditing



Monthly Report on New Business

Net Gain in Consumers in Eleven Months to November 30th 1915

	Dec. 31 1914	Nov. 31 1915	Gain in first eleven mos. of 1915
Gas	67,763	68,868	1,105
Electric	16,687	19,693	3,006
Steam	36	43	7
	84,486	88,604	4,118

Net Gain in Consumers in Twelve Months to November 30th 1915

	Nov. 30 1914	Nov. 30 1915	Gain in twelve months
Gas	67,671	68,868	1,197
Electric	16,026	19,691	3,665
Steam	33	43	10
	83,730	88,602	4,872

Statement of Consumers by Departments as of November 30th

Nov. 30th	Gas	Electric	Steam	Total	Increase Each Year
1908	40284	5638		45922	
1909	44695	6363		51058	5136
1910	49985	7598		57583	6525
1911	54703	9150	19	63872	6289
1912	59352	11233	19	70604	6732
1913	64335	13896	23	78254	7650
1914	67671	16026	38	83735	5481
1915	68868	19691	43	88602	4867
Gain in 7 years	28584	14053	43	42680	

Increase by Months

	1914	1915
Gain in January	227	42
" " February	231	311
" " March	281	241
" " April	469	470
" " May	566	314
" " June	451	508
" " July	426	366
" " August	617	426
" " September	653	436
" " October	681	457
" " November	574	547
Net Gain in eleven months	5176	4118

Miscellaneous Data

	Nov. 30 1914	Nov. 30 1915	Gain in 12 mos.
Miles of Gas Main	421	432	11
Miles of Underground Cable	945	1032	87
Miles of Overhead Line	1621	1694	73
Miles of Subway	199	232	33
No. Incandescent Street Lamps	3400	4212	812
No. Arc Street Lamps	4367	4250	117 (Dec.)
Total No. of Street Lamps	7767	8462	695
No. of Employees	1037	1128	91
Amount of Payroll (Month)	$73599.46	$85882.29	$12282.83

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Commencing January 3, 1916, the meter readers are making the subtraction of the previous month's from the current month's reading on the meter read books. This innovation has been inaugurated to assist the billing clerks on the new Burroughs Billing Machine, and to provide an additional check to guard against errors in subtraction which are possible under the old system.

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In order that consumers may be given more prompt attention in the Application Department during the noon hour, the schedule of lunch hours of those in charge has been rearranged. This greatly reduces the "peak load" at this time of the day.

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During the month of November, 1915, the Department of Duplicate, Delayed and Mailed Bills handled 15,995 bills.

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A Todd Billing Machine is now in operation in the Billing Department.

Employees' Benevolent Association

Statement to Nov. 30th 1915

Receipts		
Dues and initiation fees from members	$ 271.34	
Dues and initiation fees from company	267.65	
Sale of buttons	0.25	
Balance of old "Association Benefit" uncalled for and returned to cash	7.50	
Total Receipts for November	$ 546.74	
Receipts of previous months	4101.14	$4647.88
Disbursements		
Sick benefits	$ 102.42	
Accident benefits	34.50	
Doctors' examinations	42.00	
Total Disbursements for November	$ 178.92	
Disbursements of previous months	1690.21	$1869.13
Cash balance on hand Nov. 30th 1915		$2778.75

Note: Sick and accident benefits for November, as above, covered 112 working days off duty.

Balance Sheet November 30th 1915

Assets		
Cash on hand	$2778.75	
Rochester Railway & Light Company bond	975.00	
Interest accrued on bond	12.50	$3766.25
Liabilities		
None		
Surplus	$3766.25	$3766.25

Membership

October 31st 1915, number of members	664
Affiliated during November 1915	15
Unaffiliated during November 1915	6
November 30th 1915, number members	673
June 1st 1915, number members	602
Increase in six months	71

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Notice of Special Meeting of Employees Benevolent Association

A special meeting of the Employees Benevolent Association will be held at Masonic Temple, at Mortimer St. and Clinton Ave. North, Thursday evening, January 27th, 1916, at 8.00 P. M., in accordance with the required thirty days notice of proposed changes in the constitution, which has been given.

Members will be asked to vote on proposed amendments to provide for "Group Life Insurance."

All employees of the Rochester Railway and Light Co., together with their families are cordially invited to attend.

Mr. H. P. Brewster, President of the Rochester Savings Bank, will talk on the subject of, "Saving."

Light refreshments will be served, and dancing will take place after the meeting.

H. P. Gould, *Secretary.* W. C. Gosnell, *Superintendent.*

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Mr. H. J. Culliton, of the Credit Department, reports that Mr. Angus MacKay has nearly completed the revision of the credit files. This work entailed a review of the applications of all the consumers of the Company, and the discarding of numerous duplicate cards which had accumulated during the past years. Mr. MacKay has been engaged on this work for several months.

Mr. Frank Houlahan states that Christmas week, as usual, has been the lightest week of the year at the Application Counter, due to the fact that but few people change their residence during the holiday season.

Mr. C. Teller held an old fashioned family gathering at his residence, 328 Melville Street, on New Year's Day, which was attended by all the immediate relatives.

Miss Mary Nolan was the recipient of a beautiful Christmas gift from the gas solicitors.

Mr. Fred Minges has resigned his position to accept one with Zeitlers Orchestra.

Mr. J. I. Lewis and his colleagues of the Entering Order Department, entered 1612 orders during the week ending Dec. 25th, 1915. This work involved the opening of new ledger sheets in connection with the setting of new gas and electric meters, the closing of accounts, the issuance of final bills, and other relative matters.

According to the experience of Mr. L. W. Layman, the Yuletide season has produced a benevolent effect on the feelings of consumers, and thereby the number of complaints show a decided decrease compared with previous weeks.

Among those who spent the Yuletide season out of town are: Miss A. M. Rice at Brocton, Mass; Mrs. M. L. Clum at Clifton Springs; Mr. I. F. Brady at Churchville and Mr. A. W. Sturrock at Ithaca.

Mr. Raymond Patton and Mr. Ward K. Angevine, Jr., have been working on a night schedule, 12 P.M. to 8 A. M., tabulating codes on the addressograph plates.

Among those who have been absent through illness are: Miss Frances Katsky, Mr. G. Henderson and Mr. James Ward.

Mr. James Culligan is the proud owner of a new "Cadillac 8," which Leon Newman says is of the, "vintage of 1812."

Miss Irene McDermott has been transferred from the Telephone Department to the Collection Department.

Mr. A. S. Baker has resigned to accept a position with the Pfaudler Company, at Lincoln Park.

Mrs. Theresa Sheldon, mother of Mr. Frank Sheldon, died December 13, 1915.

The Department is pleased to welcome Mr. James W. Ward back to work after a severe illness.

"Looking Inside"

BY A. FRANK YATTEAU

Many people are surprised when shown the reports of meter tests. It is beyond their comprehension that a gas or an electric meter can be tested to one-hundredth of one percent. Yet, it is done every day by the Meter Department. Questions are often asked as to methods of procedure in testing meters, and those who wish to be shown are taken to the small room adjacent to the Complaint Desk, where a set of gas and electric meters are connected up for demonstration purposes. Burners and other appliances connected to these meters are lighted and as the meter casings are of glass instead of metal, the interior mechanism is plainly visible to the curious consumer. It is common to hear such remarks as "Well, I never saw the inside of one of those things before." Explanations as to the workings of the meter are made and questions are freely answered. For instance,—a Bray burner is lighted and the two foot test dial on the gas meter watched with interest—sometimes the consumer even asks for a Bray burner that it may be tried at home.

When a consumer is interested in an electric meter, a bank of lamps of probably an even kilowatt load is turned on. The constant of the disc is given on a printed card, beside the meter, so that the number of revolutions may be counted by the consumer. This has not only proven a satisfactory exhibit as far as the meter is concerned but has also demonstrated the economy of the Mazda Lamp over the common carbon type.

❖

Improvements at Searle Park are proceeding through the co-operation of Mr. H. C. Neefus and Mr. C. C. Laney, Supt. of Parks. A row of trees was recently set out along the Blossom Road frontage, and the orchard has been trimmed.

Gas Distribution

As a protection to the drip pipes on all unpaved and rough stone paved streets, a stone properly cut to receive an iron cover, has been used instead of an iron roadway box which would be speedily broken by traffic.

Early in the year 1915 the Company decided to make a reinforced concrete block for this purpose. The

block is 18-in. square and 6-in. thick. The concrete is of the proportion of one part cement, two parts sand and four parts crushed stone. The block is reinforced by expanded metal (3 in. x 8 in. mesh). The wooden form used for making the block is so constructed that no further work is necessary to fit the iron cover.

The cost of the cut stone block is $2.75 each, and of the concrete block $0.75 each. During the three years 1912, 1913 and 1914, 362 of the former were used. If as many of the latter are used during the next three years a considerable saving will be made, for the concrete block is cheaper and equally satisfactory in appearance and durability.

❖

Supt. Frank Hellen reports an economy in the use of holder oil in the gasoline automobiles. This oil is worth at present 8 cents per gallon, and when mixed half and half with gasoline seems to give the same power and mileage in both Fords and motorcycles, as straight gasoline. The chief objection to the mixture is that the cars are harder to start in the morning.

❖

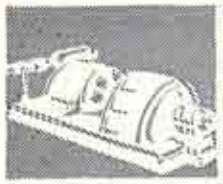
Mr. William S. Wallace of the Domestic Sales Dept., states that owing to the increased expense of running gas services in cold weather, a charge of 20 cents per foot will be made for this work, until further notice. This regulation took effect on December 15, 1915.

❖

The Bausch & Lomb glass plant is again in operation. Foreman James Fahy of the Gas Street Department has run an 8-in. gas main into the building for the gas making furnaces, and a 6-in. main for the pot houses. Provision was also made for twenty No. 5 Sprague meters.

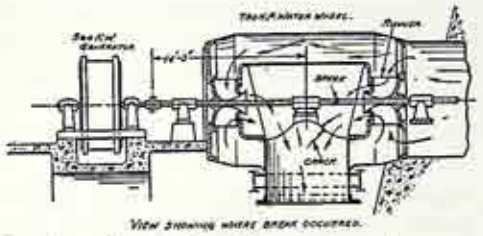
❖

Mr. Frank Kowiak of the Gas Shop was visited on Christmas morning by the stork, who left Mr. and Mrs. Kowiak an eight pound baby girl.



Electric Generation

One of the unexplainable problems of mechanics was presented by the breaking of the shaft of the No. 1 turbine at Station 15 recently. This is a 750 horsepower turbine, driving a 500 kilowatt generator on the A. C. system. The sketch shows that the shaft broke between the runners, and at a point where it was carrying only one-half of the total load, viz., the load from the outside runner. After



the break the inside runner kept on operating the generator at half load until the wheel was shut down. The draft tube casing was cracked by the broken shaft which dropped down on it. The shaft was of 8-in. diameter, and 20 feet long, and the turbine makers were fortunate in finding a piece of shafting in one of the steel mills suitable for making a new one.

❖

A very peculiar accident happened to the No. 3 turbine at Station No. 3 on Dec. 29th, 1915. At 7:15 A. M. there was apparently a breakage of a part of the moving mechanism of the governor, which resulted in smashing the entire governor. The extent of the accident was soon ascertained, and at 10:30 Mr. DeWolf had the General Electric Co. at Schenectady on the telephone, making arrangements for a new governor. Mr. Howard Bacon of Station No. 3 was sent to Schenectady that night, to ensure that the proper mechanism was sent and that there would be no misshipment. Strenuous work on Saturday and Sunday completed the repairs, so that the turbine was in commission again Monday, Jan. 3rd, at 9:00 A. M. The General Electric Co. furnished an entirely new governor in record time, and in fact the whole repair job was done in record time when its magnitude is considered.

❖

Mr. L. V. Begy, Foreman of Station No. 4, says that while many people may be superstitious about "13" being an unlucky number, it does not impress him in this way. On December 13th when water was again flowing in Station 4 turbines after a long shut down of the race, the generators carried a load of 1300 K. W.

❖

The Bausch & Lomb Optical Company recently installed a private telephone in Station No. 34, connected with telephones in the factory dining-room and engine room. This insures prompt communication between the operator at this station and the night watchman and engineer of the factory at all hours.

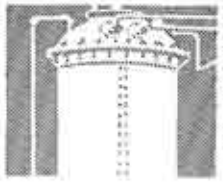
❖

In the record for new recruits at Station 3 this past month, we find Patrick William James Scharet, a healthy twelve pound baby, born to Mr. and Mrs. Amos Scharet on the 19th of December. Judging from the size of papa Amos, we can probably look forward to a new, "White Hope."

❖

Mr. and Mrs. F. A. Johnson recently welcomed the arrival of a fine baby girl to their home. Mr. Johnson is one of the force at Sta. 2A.

Electric Distribution



The Distribution Department takes pleasure in announcing the promotion of one of the oldest employees in the Rochester Railway and Light Company's service.

Mr. Patrick Martin who, for a period of thirty-five years, has held the position as Line Department Foreman in direct supervision of all overhead construction, has been made General Line Inspector.

Mr. Martin's first experience in overhead line construction began in the employ of the Western Union Telegraph Company in 1874, when at the age of sixteen years he was employed as a groundman. Several months later he was advanced to the position of first-class lineman and in this capacity had some very unique experiences. In installing a telegraph line from New York to Buffalo, along the New York Central tracks, Mr. Martin walked the entire distance and climbed every pole on one side of the railroad Company's right-of-way. This trip he made three times.

His introduction into electric light and power construction, was in 1880 with the Brush Electric Company whose station at that time was situated at the Lower Falls, and during the time he was associated with this Company, he installed the first street lights in Rochester. These were situated on Main, Exchange, Water and St. Paul Streets. At that time, the line department consisted of three or four men, and Mr. Martin says that he can very well remember carrying everything that was necessary for installing lamps, even to running a wire through the coil of a reel of line conductor, and pulling it down the street as one would pull a big wheel.

Mr. Martin superintended the installing of the Rochester Railway and Light Company's first 3-phase, 4-wire, alternating current system, which ran from station No. 3 on the west side of the river bank, to a point where the Rochester Brewery was situated, and then to State and Main Streets. In comparison with the present distribution system, the old circuit appears infinitesimal, but it was the heart from which the hundreds of miles of high tension and secondary electrical arteries radiate at the present time.

❖

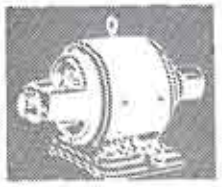
A marked economy in the operation of the street lighting on Culver Road has been recently made.

The old system consisted of 2300-7.5 ampere series enclosed carbon arc lamps, consuming 480 watts each, and giving about 300 effective candle power. These were changed to the same number of mazda nitrogen 600 candle power incandescent lamps, which are installed in connection with a compensator.

These lamps do not require trimming, which does away with lowering the lamp and consequent cut out troubles. The light is steady, the undesirable wandering of the arc being eliminated. The lamps are also quiet, which is a desirable feature, especially in summer when people spend some time in the evening on their porches. The street also receives approximately twice as much light as under the old system.

❖

Mr. Andrew Burkhardt of the Underground Department died December 14, 1915.



Sales

Mr. Royal Parkinson, General Manager of the Despatch Heat Light & Power Company reports that the front office of the Company at East Rochester has been converted into a "Gas Goods" display room attractively decorated with laurel rope and plants. An opening week was advertised with literature distributed to houses in order to create interest in gas service which is to be introduced in East Rochester next Spring. Victrola music was furnished and five hundred celluloid novelties were given away to ladies visiting the display room.

❖

Mr. J. P. MacSweeney while on a recent visit to New York City was indebted to Mr. Joseph F. Carney, Superintendent of the Hotel McAlpin for information relative to the use of gas in the Hotel McAlpin and for many personal courtesies. Most of us have faith in our products, gas and electricity, but all of us do not appreciate the extent to which they are being used, so that Mr. MacSweeney's information is very pertinent.

The Hotel McAlpin very frequently accommodates 1440 guests per day, coming and going, or at the rate of one per minute throughout the 24 hours. It employs 1500 people, including a sanitary inspector, and a chemist. It subjects all employees to a periodic physical examination. It makes chemical examinations of the milk and water-supply, makes its own butter and candies, plates its own silverware and repairs its own furniture. Every endeavor is made to provide for the health and comfort of both guests and employees, and, naturally the problem of fuel and appliances for cooking receive very careful consideration. The magnitude of the cooking installation can be appreciated from the following list of appliances.

Main Kitchen—9-section hot top, two broilers (ordinary).
Help Kitchen—2-section bank of 6 ovens.
Buffet Kitchen—14 burner range (lunch room type), 2 broilers (ordinary).
Banquet Kitchen—6 sections (ordinary hotel range), bank of 4 ovens.
3 Butler's Pantries—2 bunsens in each.
Officer's Kitchen—3 section (ordinary hotel range), double deck broiler—1 cake griddle.
Main Restaurant—7 sections Garland hot top, 2 large Rex Ray Surface Combustion broilers 1 section restaurant range top, cake griddle & ordinary broiler.
Cafe—2 6-burner stove tops, 1 4-section double deck broiler with ovens on top.
Tailor Shop—2 Hoffam pressing machines in which steam is superheated by gas.

The above totals up to 100 lineal feet or 30 sections of gas range, 13 broilers, 6 electric salamanders and 2 Hoffam pressing machines. The main kitchen is only 22 ft. x 38 ft. in size, but through the use of gas appliances can feed 550 people. Gas is used in the hotel because of (1) economy of space, (2) readiness to handle, (3) flexibility of control, (4) cleanliness, and (5) speed. The operating cost compares very favorably with coal when all factors are considered. Due to the subway construction in the neighborhood which rendered a break in the gas mains possible, 4 sections of coal range and one charcoal broiler are retained for emergency use.

Consider that this hotel is a $13,500,000 business proposition, which in its successful endeavor to satisfy its guests, relies on gas almost entirely in the preparation of the food.

A new factory lighting installation has just been completed and put into operation at the Davis Machine Tool Co. on St. Paul Street. This plant at the present time is working both day and night, and the work consists of a variety of machine operations which require a high degree of accuracy, so that good lighting is absolutely essential.

The former installation consisted of gas arcs supplemented by local gas jets and this was unsatisfactory, not only because of insufficient illumination but also because of flicker. The new installation consists very largely of general lighting with 150 and 200 watt tungsten lamps; some local lighting being supplied by 60 watt drop lights for a few of the machines. A somewhat unusual feature is the use of lights in angle reflectors for illuminating that part of the shop directly under the crane, which has a span of forty feet.

❖

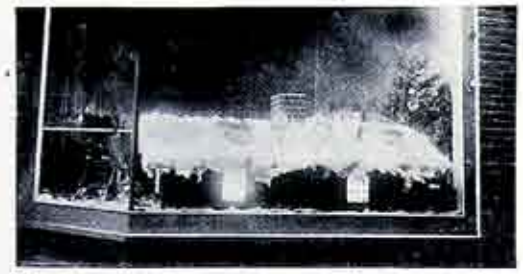
The General Railway Signal Company is building four enamelling ovens for baking the enamelled coating on the inside of 10-inch schrapnel shells. Four ovens, each of a capacity of forty shells, will be used. These ovens were designed by the Industrial Department and will be built by the General Railway Signal Company. They will be equipped with automatic control for the maintenance of a temperature of 300° F. They are of an indirect forced circulation type, but the details of design are believed to be new.

❖

Mr. I. Lundgaard, Manager of the Industrial Department, and Mr. A. E. Crockett, Assistant Secy. of the Chamber of Commerce, made a trip to New York during the middle of December to induce new industries to come to Rochester. They were definitely assured that one of the prospects interviewed would take advantage of the splendid facilities of Rochester as a manufacturing city.

❖

Mr. Sidney Swanson, Foreman of the Despatch Heat Light and Power Co., designed and built the very clever Christmas window decorations



shown by that Company in its office at East Rochester.

❖

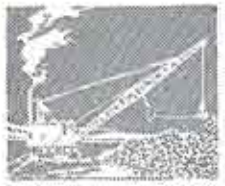
Mr. W. P. Webber, who operates a meat market at 894 West Main Street, has decided to install a 4-ton refrigerating plant. Mr. Webber will build an additional refrigerator and will also have refrigerated counters. The cost of operation will be much cheaper and more satisfactory than his present cost of ice. It is interesting to note that there is a well on the premises and water for condensation purposes will be pumped from this well, making a large saving in cost of water.

❖

At the coffee roasting plant of the R. T. French Company, Mr. B. B. Yeomans is experimenting with an indirect type of gas burner. The gas flames play against small pieces of fusil earth, which, when heated to incandescence, radiate heat to a revolving coffee roasting drum placed above the incandescent bed.

❖

The rapid increase of business has caused Rosenberg Brothers and Company to rearrange certain factory departments, and move one of the shops into a new building on Central Park. Several new motors and considerable additional lighting have been installed.



Gas Manufacture

A preheater has been installed in connection with the ammonia still. It consists of a section of 24-inch cast iron pipe, 12 feet long, plugged at one end, and containing three concentric coils of 1¼-inch pipe, 105 lineal feet per coil, connected in series. The waste liquor from the ammonia concentrator enters the bottom of the preheater at a temperature of about 212 degrees F. and overflows at the top to the sewer. The weak ammonia liquor circulates through the coils, entering at a temperature of about 60 degrees F., leaving the preheater and entering the still at about 160 degrees F. Based on average conditions, the economy effected by the preheater amounts to 450,000 B.T.U's. per hour, which would otherwise have to be supplied by live steam in the still proper, or a saving equivalent to considerably more than a ton of coal per week.

❖

On December 14, 1915, there were nearly 9000 tons of gas coal in storage at the Gas Works. As a gas making commodity, this is sufficient to make, in general figures, 86,400,000 cubic feet of coal gas, 45,000 pounds of ammonia, 126,000 gallons of coal tar and 11,700,000 pounds of coke. The ammonia yield will amount to four car loads, and the coal tar yield to 13 car loads. Of the coke, 2,700,000 pounds will be consumed in the producers of the coal gas plant. The remaining 9,000,000 pounds will provide fuel for the generation of 257,000,000 cubic feet of water gas. The total gas, both coal and water, is equivalent to approximately 60 days supply for the city of Rochester.

An interesting contrast between old and modern equipment developed last fall, when within a month, two of the iron or old type purifying boxes in the purifying house and the entire series of new type outside concrete purifiers were emptied and refilled. In the case of the enclosed iron purifiers, 22,000 bushels of material were handled at an average cost of 2.0117 cents per bushel. In the case of the outside purifiers, 32,000 bushels of material were handled at an average cost of 1.084 cents per bushel a difference in favor of the outside boxes of 0.9277 cents per bushel of material.

❖

The Christmas Eve peak sendout always creates great interest among the employees at the Works. This year it reached 6,197,000 cubic feet. Of the estimates made before that date, that of Mr. W. H. Earle, of 6,258,000 was closest. Others were 5,812,000; 6,050,000; 6,070,000 and 6,355,000 cubic feet.

❖

Periodical readings of holder tank temperatures are being made with a Taylor maximum and minimum thermometer.

❖

Mr. Michael Donovan, water gas maker, fractured his jaw on Christmas day, when he fell on an icy curb stone.

Mr. Vittorio Barrenti announces the birth of a daughter on December 15.

Mrs. Mary Hummel, mother of William Hummel, died on December 6.

Mr. William Mitmesser was ill for a week in December.

Engineering and Construction

Mr. Herman A. Irrig who operates a meat market at the corner of Parsells and Webster Avenues, has decided to reduce his ice bills and get better service by installing a 4-ton electric refrigerating plant. Mr. Irrig will bring his market absolutely up to date by installing the latest fixtures. He intends to give his customers the benefit of the new arrangements by installing a refrigerating counter, in order that he may give them better service. Mr. Irrig will also take advantage of his opportunities by renting one of his refrigerators to a grocery store adjoining his market. In this way Mr. Irrig will save a large amount on his refrigerating costs.

❖

The Rochester Stamping Company has installed two furnaces built according to design by Mr. L. J. Sullivan of the Industrial Department. These furnaces are exceptionally large, having a heating space 108 in. x 60 in. x 28 in., and will be used for annealing copper at a temperature of 1400° F. They will be equipped with automatic pyrometer control, so that the temperature will be maintained within five degrees of the pyrometer setting. Air blast will be supplied from a 4-horsepower centrifugal blower delivering 300 cubic feet of air per minute at 1½ pounds pressure. This company is ordering five more of these furnaces.

❖

A new siding has been added to the Rome, Watertown and Ogdensburg division of the New York Central Lines at the Company property, footing on Ambrose Street.

Three of the high pressure steam expansion joints at Station No. 3 have been broken within the past three weeks. The joints were made by the Alberger Co., which, after an inspection of the broken joints, agreed to furnish joints of a new and improved design, free of charge for the entire high pressure system.

❖

The Shongo Construction Co. received a Christmas present in the form of a flood which stopped all river deepening work. The water is being pumped out with three electrically driven pumps having a capacity of 9000 gallons per minute, and requiring 160 horse power.

❖

John Castlereagh Parker, 3rd, arrived at the home of Mr. and Mrs. John C. Parker of Ann Arbor, Mich. on Dec. 20th, 1915. "John's" ears must burn, judging from the congratulatory remarks of his friends in this Company's offices.

Mr. James Wishart has been employed by the Drafting Department to do special mapping of arc circuits, under the direction of Mr. Montignani. Mr. Wishart comes to this Company from the General Railway Signal Company.

Mr. Henry Gesell of the Drafting Dept. made an artistic design of the decorations for the Christmas entertainment of the Sea Breeze Christian Association.

Mr. John T. Heckel, who has been with an architect in this city, is assisting on subway plotting and permit work in the Drafting Room.