GAS AND ELECTRIC NEWS

PUBLISHED BY

THE ROCHESTER GAS & ELECTRIC CORPORATION

VOL. 7 MAY, 1920 No. 11

Are you on the road

Invest

The way to secure one of the above certificates:

Payment in full with accrued dividends at time of subscription

or

$1.00 per week for 100 weeks *or*
$5.00 per month for 20 months.

One share will return $7.00 per year in dividend.

Interest is allowed on all sums paid while completing payments for stock.

For further information and blanks see the Paymaster at the Treasury Department.

Save as you Earn and Safeguard Your Future

7%

We Have An Easy Savings and Investment Plan for You

Make Your Investment—Then Save to Pay for It

Most people try to save money the wrong way. They buy what they want with the idea of saving what is left. Usually nothing is left to save.

The right way is to make a definite plan, calling for the saving of a certain amount periodically—and to make your savings investment first before starting to spend after each pay-day.

This is the way success is attained, financial independence achieved, comfort and security insured for old age. Our plan of profit-sharing partnership is sure, simple, and has no red tape. Come in and learn how easy it is.

Are you on the road

to

A Firm Financial Basis?

START NOW!

Invest In Your Company's Stock

GAS AND ELECTRIC NEWS

Vol. 7 MAY, 1920 No. 11

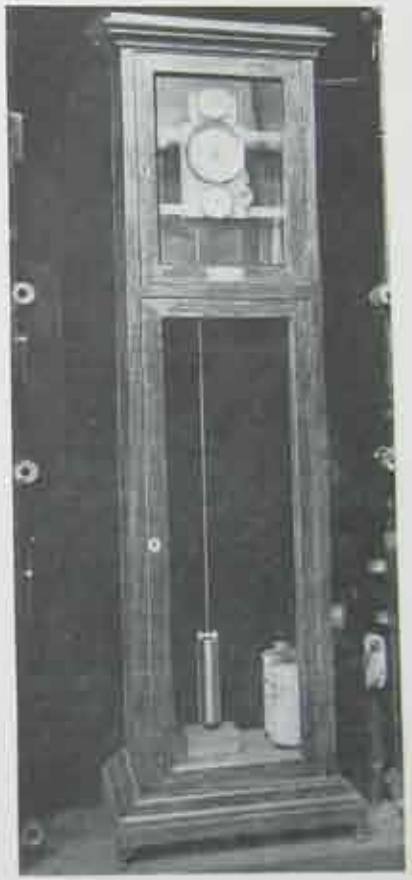
Frequency Via Wireless

H. J. KLUMB and F. C. FRENCH

THE control of frequency with reference to indicating and graphic frequency meters has never been thoroughly satisfactory due chiefly to the fact that no really reliable meters were to be had, and that continued juggling of the control apparatus was necessary to maintain the proper frequency. This trouble was aggravated by our having two generating stations each trying to maintain proper frequency and having only their indicating meters to follow. The Electric Meter Department found steady employment in checking and recalibrating the meters and could give no assurance that their accuracy would obtain for any definite period of time. Consequently the system could not be controlled satisfactorily. Difficulties of this sort, especially those due to meter inaccuracies have been practically eliminated by the Warren System of frequency control which system has been adopted by this Company. Briefly, the Warren System consists of controlling the frequency with the aid of an accurate standard clock, two of which have been added to the station equipment, one at Station 3 and one at Station 5. Since most of the frequency regulation is done at Station 3 our remarks will be confined to the clock installed there. The Warren System is by no means perfect, since it involves the human element and the possible chance of clock inaccuracies, the most important of these being the former, since station operation, or we might say the diligence of the switchboard attendant, is the determining factor in successful operation under this sytem. Clock inaccuracies are to be considered, but present day standard clocks have been developed to the point where they are quite reliable.

For the benefit of the uninitiated it may be well to explain briefly what is meant by frequency and also when we speak of our alternating current system as being operated at a constant frequency of 60 cycles to show of what importance this is to our customers and ourselves. In an alternating current system the electricity does not always flow in the same direction but instead it first travels in one direction then reverses and flows in the opposite direction, this reversal taking place many times in a second. The rate of speed at which the current reverses is called the frequency and when 60 cycles is mentioned it means that the current makes 60 complete reversals in one second. We find an analogy for this in the swinging of a clock pendulum, the pendulum traveling in one direction, then in the other. We know in the case of the clock that the speed of the clock hands depends upon the number of swings or reversals the pendulum makes in a definite period of time. The same principle obtains in nearly all types of alternating current motors, i.e., the speed of the motors varies directly as the frequency varies, hence if motors are required to run at a constant speed the frequency must always be the same. Many manufacturing operations depend for success upon constant motor speeds, especially is this true of the textile and paper industries. As for ourselves a constant frequency is very important in obtaining smooth operation of generators when they are electrically connected since a variation in their respective frequencies causes a continual transfer of load from one to the other and this load shift may even become serious enough to damage either the machines or other apparatus which may be connected to them.

The Warren clock installed at Station 3 is a very high grade standard clock with a 60 beat pendulum and an accuracy of about one second variation from absolute standard time in seven days. This clock, which is shown in Fig. 1 carries three dials, the usual time dial, a larger five minute dial having a black and a gold hand and a small five minute dial at the top with a single gold hand. The gold hands do not appear in the photograph. The black hands are all driven by the clock while the gold hands are each driven by a small synchronous motor, the motors being electrically connected to the 60 cycle system. The large dial carrying the black and the gold hand is used for frequency control. Gear ratios in the clock are so chosen that when the system is operating at exactly 60 cycles and the clock keeping perfect time, these two hands will travel at the same rate of speed. It is apparent then that it is only necessary for the switchboard attendant to so manipulate the control apparatus as to keep the two hands one over the other in order to maintain a constant average frequency of exactly 60 cycles. Should the gold hand lead the black hand the frequency is high; should the gold hand lag behind the black one the frequency is low, but in either case the operator must make the necessary adjustment to bring the hands together. In actual operation the hands should never be allowed to separate for any great length of time since a continued separation gives a frequency other than 60 cycles and consequently results in large errors in any synchronous motor driven clocks



Warren Clock at Station 3

which may be connected to the system.

With a constant average frequency of 60 cycles the way is opened for the substitution of synchronous motor driven clocks for the conventional spring driven variety and the practical elimination of the many ills to which the latter are subject. A very important field is found for such clocks in the timing devices used on demand indicators and also in paper driving mechanisms on graphic meters. Constant frequency also finds an application in driving synchronous motor driven clocks, in fact such time pieces are already on the market. They never require winding and only need

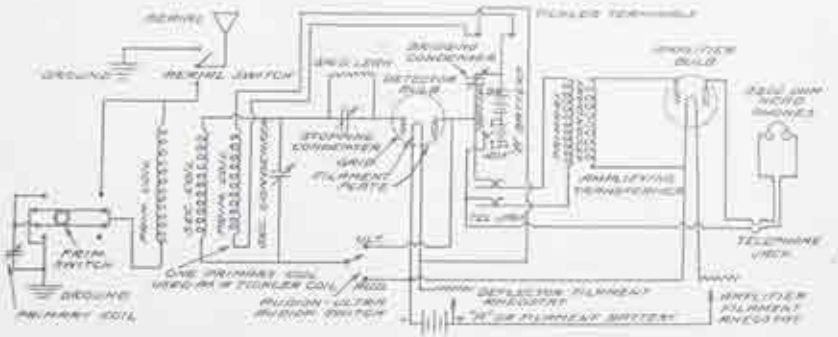


Fig. 2. Schematic Diagram of Connections of Wireless Set

to be reset in the case of a service interruption. One of these clocks is shown in the upper left hand corner of Fig. 3. This clock is connected to our 60 cycle system and is checked daily against the wireless time signals, which means that any accident to the standards at Station 3 and Station 5 are detected and also the station operation for the preceding twenty-four hours is checked up.

Since the maintenance of a constant average frequency of 60 cycles is dependant among other things upon an accurate standard clock, it is of prime importance that this clock be checked frequently against some absolute standard. The absolute standard for the United States is sun time carried on the clock in the United States Naval Observatory and since this time piece is checked by astronomical observations it is absolute. Every day at noon-time signals are sent out from this clock both over wire and by wireless. Wireless signals are sent out at noon and at 10 P. M. by the great Arlington wireless station at Radio, Va., and also by Annapolis, Md.; Key West, Fla., and Great Lakes, Ill. Wave lengths of 2500, 15,000 (undamped), 1500 and 1512 meters respectively are used. Time signals start at five minutes before the hour, each tick of the standard clock being transmitted as a dot, omitting the 29th second of each minute, the last five seconds of the first four minutes and finally the last ten seconds of the last minute. A dash is sent at the instant the standard clock is at the hour.

To receive these signals and upon recommendation of the writers, a wireless set has been installed in the standards room of the Electric Meter Department. The apparatus is quite elaborate, in fact, more so than is necessary for simple time reception from near-by stations but it was felt that the possibility of future extensions would justify a slightly increased initial expenditure. Consequently the apparatus was selected to admit

such an extension as the transmission and reception of wireless telephone messages. In receiving distant stations, such as San Diego, Cal. (which station sends time at 1:00 P. M.) very close tuning is necessary to cut out interference from near-by high powered commercial stations.

The set consists of the usual, antennae or aerial, a tuner, detector one step amplifier and head phones. It is a De Forest audion detector three coil differentially balanced tuner outfit with honeycomb inductance coils for wave lengths up to 20,000 meters and is capable of receiving the big station at Nauen, Germany. A single wire aerial is used approximately 200 feet long and 60 feet high, placed east and west with the lead-in at the west end. The tuner is shown at the right of Fig. 3 and consists of two movable primary coil mountings, a stationary secondary coil mounting, primary condenser with series parallel switch and secondary condenser. The primary condenser has a capacity of .0015 microfarad and the secondary condenser has a capacity of .001 microfarad. All are mounted on a bakelite panel and set into a cabinet. The condensers are the vernier type admitting very close adjustment which is a necessary feature in wireless telephony. Inductance coils of 25 to 1500 turns are provided and are interchangeable. They are placed in circuit by simply plugging them into the mounting. The detector panel carries also the amplifier which is the right hand bulb in the photograph. The stopping and bridging condensers, grid leak, filament rheostats, audion-ultraudion switch, "B" or plate battery switch and telephone jacks also appear on this panel. Current for lighting the filaments is obtained from a 6 volt storage battery. The "B" battery is a 20-40 volt combination and consists of the necessary number of small dry cells moulded in one block and placed inside the detector cabinet. The amplifying transformer is also inside this cabinet. Reference to the diagram will show the position in circuit of all these parts.

The method of proceedure in receiving time signals from Arlington is as follows: The aerial is first connected to the apparatus. A 150 turn coil is placed in each of the two primary receptacles and a 250 turn coil in the secondary coil receptacle. The primary condenser is now set at 28 on the white dial and the secondary at 33, the former being placed in parallel with the primary coil by turning the series parallel switch to "shunt." This completes the tuner settings. The filament rheostats are turned until both the detector and amplifier bulbs are buring at the proper brilliancy, the audion-ultraudion switch turned to "aud," and the "B" battery switch set at 40 volts. Two buttons on the stopping condenser dial switch (shown at the left center on the detector panel) are cut in and all but-

Fig. 3. Wireless Set with Mr. F. C. French.

tons on the bridging condenser cut in. Plugging the phones into the amplifier jack completes the settings. All these settings have been found by experiment, there being no accurate method of calculating them unless all the characteristics of the various circuits are known. Slight changes in the above condenser settings are quite often necessary in order to obtain the maximum strength of the signal. At 11-55-0 A. M. the first dot is heard in the receivers and 28 more follow until the 29th is reached which is omitted; 26 dots starting at 11-55-30 are sent, then the 3 second pause is noted. The above is repeated up to 11-59-50 when the long pause warns us the hour is almost at hand. Just as the standard clock reaches the hour we hear a dash and this dash gives us the final check on our watch or clock. The "as found" accuracy of the time piece being checked is obtained in the first few minutes, adjustments made if necessary and the "as left" accuracy noted when the dash comes in at the hour.

The addition of a De Forest "Oscillion Telephone Transmitter" to the present set is all that is necessary to enable us to transmit and receive wireless telephone messages over distances up to 40 miles. The time may not be far distant when wireless telephony will be as common as wire telephony is today and then we will in all probability see our present wire intercommunication system replaced with the more flexible wireless. In fact one power company in the Southern states has already applied wireless apparatus to it's daily operation.

The Warren System of frequency control is and has been in use in the city of Boston for a considerable period of time. Our Corporation is, however, as far as the writers can determine, the pioneers for New York.

Front Street Restaurant

Mrs. G. E. Hough

IN August, 1918, the Management authorized the installation of a commissary at the West Station Gas Works where employees of East and West Stations and Station 3 could secure good wholesome food for the noon meal at a reasonable price. This proved very gratifying and economical as the employees were in a measure isolated from the restaurant district. A year's successful operation prompted the Management to open another restaurant at Andrews Street, on a larger scale where it would be much more convenient for employees of all departments. Thus, the Andrews Street commissary was put in operation.

In planning the dining room and kitchen and purchasing the equipment it was the aim to equip them in a manner that would furnish an attractive dining room, save time and labor and make working conditions in the kitchen the best possible. The dining room, which is roomy and well ventilated, with four large windows on two sides, has eighteen tables with a seating capacity of one hundred and eight. The capacity however is not an indication of the number of employees served daily. The lunch period ranges from eleven-thirty until two eliminating any congestion that might occur during one hour and enabling the staff to serve promptly and carefully. Beautiful indirect lights swing from the ceiling, adding needed illumination on dark days and for parties in the evening. Electric fans bordering the room are of the oscillating type.

Like the West Station lunch room the self-serving plan is adhered to. The counter is twenty-five feet long, built of wood and steel upon which is serving equipment consisting of drinking fountain, steam table, coffee urn, milk container and a cash register. Food is taken to the tables on trays, which are returned at the end of the meal to a window convenient to the dish washing machine, thus keeping the tables clean and assisting in reducing help to a minimum.

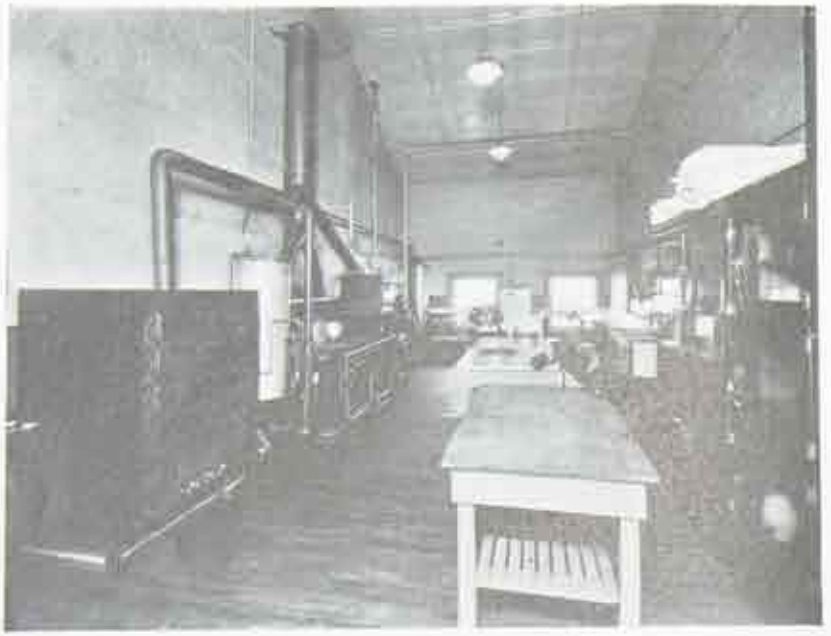
The kitchen is equipped as follows: needs; 1 Vulcan pastry oven with pastry cook's stove attached; 1 Sterling meat slicer; 1 bread slicer; 1 cook's table with sink; 1 butter cutter; and 1 Jewett hotel refrigerator.

In planning the kitchen care was taken to see that adequate ventilation could be had when hot weather rolled around. Four large windows, two oscillating and one 16" exhaust

Andrews Street Lunch Room Ready for the Noon Meal

1 Crescent electrically operated dish-washing machine with necessary tables for clean and soiled dishes; 1 double pot sink; 1 Sterling potato peeler and masher electrically operated; 1 25 gallon steam jacketed kettle; 2 sections of Garland all hot top hotel ranges and one broiler; 2 50 gallon boilers equipped with gas heaters, thermostatically controlled, which gives abundant hot water for all fan will supply a steady flow of fresh air at all times.

Food supplies that are bought in wholesale lots are stored in an adjacent building. This keeps the kitchen free of supplies not in the process of preparation and assists in greater cleanliness of operation, which is the slogan of the entire commissary staff. They invite inspection at any hour of the day feeling with pride that only



Modern Equipped Kitchen at Andrews Street Commissary

the most sanitary conditions will be found.

The commissary has been instructed to buy the best food the market affords and serve it carefully prepared. To this end expert meat and pastry cooks are employed and the results of their efforts have been highly satisfactory. One would naturally think that with the prevailing high prices of food stuffs the cost per meal to the employee would be as great as regular restaurant prices. The reverse is true! A dinner consisting of meat, potatoes, butter and bread, a vegetable, desert and beverage costs but 35c and any additional dish, in like proportion. Each dish is served generously and often employees request smaller servings that no food may be wasted. "How do you make it pay for itself" is sometimes asked? The commissaries do not pay for themselves; the return for the meals just about pays for the food and the Company bears the overhead expense including service, rent and fuel, the latter being gas and electricity, which is used exclusively in both commissaries.

The popularity of the new commissary is attested by the fact that in March 4610 meals were served to employees of the Company, and since the opening of the dining room a number of the girls have had delightful little dinner parties.

Much credit is due to Messrs. Yeomans and Kimpal who were responsible for the layout of the kitchen and for the design and purchase of equipment; Mr. Davidson planned the repair work on the floor and roof, Mr. Taylor the lighting and Mr. Histed was in charge of the actual construction work.

The Distribution of Commercial Steam

HARRY J. TAILLIE

THE commercial steam business is divided into two classes, i. e. industrial steam service and heating steam service. It is promotd by the Industrial Sales Department in the same manner as the gas and electric business and its operation is carried on by the Steam Distribution Department which is a branch of the Electric Department. The places in which our steam is available are principally made up of manufacturing plants and offices requiring both classes of service near Stations 3, 26, 34 and 35.

The uses made of industrial steam are varied and generally demand that it be furnished at high pressures ranging from 50 to 100 pounds gauge. The most common applications are in heating dry rooms, kilns and ovens and heating water used for general purposes about the factories and offices. It is also used extensively in the manufacture of optical goods, photographic supplies, shoes, shoe polishes, paper and pasteboard boxes, leather, candy and confections. The demand for this service is continuous throughout the year.

The heating steam service is only supplied during the colder period of the year from the latter part of September to the first of June. It is used at low pressures, approximately one to five pounds gauge for the heating of factories, offices, warehouses and stores.

This Company operates three steam generating plants located at Stations No. 3, 26 and 35 which were originally built for the purpose of generating electricity, by the use of steam driven engines and turbines. At present a large proportion of the steam generated at Station 3 and the entire production of Stations No. 26 and 35 is delivered to consumers for commercial purposes.

The first and most important item in the distribution of this steam from the generating station to the consumer is the pipe which is more commonly known as the "main." In designing the steam main there are several important things to be considered, such as its length, the maximum amount of steam it may be required to carry and the pressure available at its source. These fixed factors are used in determining the proper pipe diameter and the pressure drop or pressure values at any point along the main to its extremity.

The method of running the main depends upon the nature of its course. When an outside right of way is available the main is usually carried overhead upon steel towers called "A" frames or supports made from old pipe. This method of construction is probably the least expensive. If the main runs through a congested district and parallel to a street where overhead construction is prohibited, permission is obtained from property owners to carry it through their premises. In this case it is generally placed in basements and sometimes under the sidewalk. When both of these methods are impractical or impossible the main is placed in a trench or tunnel through the street. This last method of construction is the most expensive.

The main is never run perfectly level but slightly pitched, first up and then down so that the moisture or condensation from the steam will collect at the low points where it can be drained off.

The mains are constructed of steel pipe, the joints of which are usually welded together except at the valves and fittings where flanged connections are used. For the purpose of sectionalizing the shutting off of the steam

in case of trouble or repairs, valves are installed in each main at the station and at intervals to its extremity.

When a main has an exceptionally long run of straight pipe, a serious break or buckling may result from the excessive expansion and contraction of the pipe due to the varying load conditions and temperatures. To avoid this danger expansion joints or U bends are installed at intervals in such a long section. One of the types of expansion joints commonly used by this Company consists of a short corrugated copper pipe with flanged ends. The expansion or contraction of the pipe connected to the ends of this device produces an effect upon it similar to the action of an accordion bellows. The U bend consists of a length of pipe of the same diameter as the main, bent in the form of a large U and incorporated in the main by welding the joints. There are other expansion joints whose fundamental principle is that of one pipe slipping within another.

A great deal of the heat value of the steam in the main will be lost through radiation if the pipe is bare. In order to retain as much of this heat as is possible the main is covered with an insulation. The insulation most commonly used consists chiefly of magnesia, a material having high heat resisting properties. The magnesia is mixed with asbestos and moulded into semi-circular blocks about 1" thick and three feet long, two such blocks completely encircling the pipe. Occasionally when additional insulation is desired a hairfelt cloth about one inch thick is wrapped around the first insulation. The latter has very good insulating properties but cannot be placed next to the pipe because of the damage of charring or burning due to the high temperature of the steam passing through the pipe, especially on high pressure mains. Another good insulating material called Sil-O-Cel was recently used in the construction of an 8" main from Station 3 to Station 34. An article appearing in the October, 1918, issue of Gas and Electric News (Vol. 6 No. 4) describes this particular material and its application.

Where the mains are carried outside and exposed to the elements, it is necessary to protect the insulation by covering it with a good grade of galvanized sheet iron or roofing felt. The latter has been used quite extensively on new main construction because while its cost is less, its durability is as great as sheet iron. It also has another advantage—that of possessing an insulating property which sheet iron does not have.

From the main a pipe called the service line is carried into the consumer's premises and connected to his system. At the point of connection to the system a service valve is placed in the line and sealed open.

In a previous paragraph the fact was mentioned that a great many of our consumers required both high and low pressure steam. This statement may bring up the question of the ability to serve a consumer with both pressures from one distributing main. This is only possible when the main is carrying high pressure steam, in which case a reducing valve is placed in the service line from which the steam for heating is to be taken. As the steam passes through this valve its pressure is reduced to a point where it can be safely used in the heating system. The pressure value of the steam in a low pressure or heating main cannot be increased for use in industrial services and for these reasons most of the mains carry the steam at high pressure, although in a few instances there are low pressure mains laid parallel to high pressure mains. A large proportion of the steam delivered at low pressure is the exhaust from engines or turbines used for electrical generation.

Public utility regulatory bodies gen-

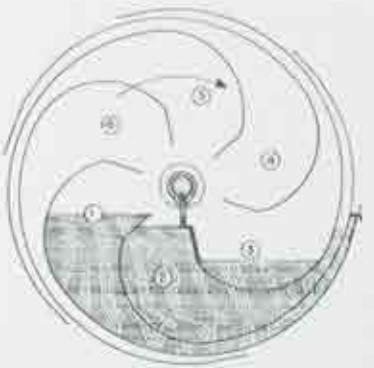


Fig. 1. Diagram of Detroit Condensation Meter showing Compartment No. 2 ready to empty; No. 2 full and overflowing into Compartment No. 3

Fig. 2. Detroit Condensation Meter with cover removed

erally have recognized that the most equitable method of charging for electric and gas service is by meter. This is also true of steam service and has been made possible by the development, to a commercially satisfactory point, of the steam condensation and flow meters.

The steam condensation meter does not measure the steam directly but as its name implies, it measures the condensed steam, i.e. water by its weight in pounds. This meter is generally used on heating systems and where all the steam used is returned in condensed form for metering.

There are different types of condensation meters on the market today. Probably the most widely used type in this Company is the Detroit meter. The mechanism of this meter consists of a cylindrical copper drum divided into six scroll-shaped compartments, which is mounted in a cast iron case. This case is split horizontally at the middle and each half flanged for bolting together. The drum is supported in bronze rollers which revolve on polished nickel alloy pins. The parts are practically non-corrosive. The registering device or counter which is a clock-work mechanism is placed in the center of the front of the meter and connected to the drum. It records the water passed through in pounds. The inlet or spout is introduced axially at the center of the drum from the rear.

In operation the water is admitted through the spout and discharged downward into each compartment successively as the drum rotates. The rotation is caused by the water flowing to one side of the perpendicular center line of the drum, due to the peculiar shape of the compartments. In the diagram (Fig. 1) the end section of a drum and compartments is shown. Here we find compartment 1 full and ready to empty. Compartment 2 is also full and overflowing to compartment 3. As more water is passed through, the drum will revolve further allowing the water out of compartment 1 and filling compartment 3 so that it will spill into the fourth compartment. The water is discharged from the drum into the the outlet at the rear and bottom of the case.

In a great many cases it is impossible to measure all of the steam that enters the consumers' premises by means of a condensation meter. This

is due to the fact that a number of manufacturing plants in using high pressure steam, blow this steam out into the atmosphere after it has been used in industrial processes, thereby making it impossible to return all the condensation for measurement. Where such conditions exist it is necessary to measure the quantity of steam as it enters the consumers' systems. The instrument designed for this is the steam flow meter which supplies a direct means of measuring the total quantity consumed.

Like the condensation meter, there are several types of flow meters. The type most frequently used by this Company is called the G.E. "F" Type Flow Meter. It operates upon the principle of a mercury U tube. The body of the meter consists of an iron casting so designed as to form the legs and well of a U tube system. A mechanism consisting of an iron float attached to a circular rack rests on the surface of the mercury in the large leg of the U tube. As the level of the mercury changes, this float and rack rises and falls. This motion is transmitted mechanically through a rack and pinion to a horseshoe magnet inside the tube. Another magnet outside the tube is connected to the indicating needle and recording pen on the face of the meter. By means of the horseshoe magnets this motion is transmitted magnetically from the inside or sealed portion of the meter to the outside or recording devices. By means of tables supplied by manufacturers of these meters the value of the flow in quantity or rate can be computed for any meter of this type.

Fig. 1. G.E. Indicating recording Flow Meter equipped with integrating attachment

In operation the two legs of the mercury tube are incorporated in the steam line by means of a nozzle plug, orifice tube or flow nozzle. A difference of pressure is caused by the action of the steam flowing through any one of these devices which is transmitted to the U tube system of the meter and causing the mercury to rise and fall. This difference of pressure varies in intensity according to the rate of flow.

The general practice of the Steam Distribution Department is to read the condensation meters twice a week. The flow meters are visited and inspected every day as it is necessary to change the recording charge every 24 hours. During the summer months very few of the condensation meters are used. During this period they are disconnected from the consumers' systems and brought to the steam meter test room for a thorough overhauling, repairing and testing. The steam flow meters cannot be disconnected and tested in the shop so a general inspection and test is given them at least twice each year to insure proper functioning.

The following past issues of Gas and Electric News contain articles dealing with steam distribution and its use industrially in the City of Rochester: November 1912, February 1914, March, April and June 1916 and October 1918.

New Boilers at Station 3

HOWARD HARDING

"TWO new boilers are to be installed at Station 3 during the coming summer to meet constantly increasing demands for steam."

Such an announcement probably does not mean much to the average reader and certainly does not give any idea of the amount of detail involved in either the construction or planning departments. It may be interesting to make a somewhat sketchy analysis of the procedure followed by the planning department in order to insure that such an installation will be completed in ample time to meet the expected demand.

First of all it must be appreciated that "two new boilers" means not only the boilers, but also such auxiliary equipment as stokers, forced draft apparatus, soot blowers, economizers, etc. To be sure that all necessary items are included it is a pretty good plan to make a check list following some sort of an orderly, logical scheme of analysis.

In boiler operation we are concerned with the movement and transformation of three different materials, namely, coal, air and water which flow toward each other until the boiler is reached where they undergo chemical and physical changes and then go their several ways in the form of ash, flue gas and steam. The coal and air meeting in the boiler interact with evolution of heat in the chemical change known as combustion. The water in the boiler, after receiving a large percentage of the heat evolved by transmission through the tube walls, is changed into the gaseous physical form called steam and passes upward into the boiler drum, thence outward to the steam main or other point of utilization.

It seems reasonable to suppose that if we follow each of the primary materials in turn in its passage to, through and beyond the boiler and note as we go along the various elements encountered, we shall have a fairly complete check list.

Let us start with the coal, beginning at the bunker outlet and assuming that all necessary equipment preceding that point is already provided for, then our list of items would be somewhat as follows:

Coal gate at bunker outlet, coal chutes to coal scales, coal scales, motors for coal scales, coal chute to stoker hopper, stoker, stoker motor, power dump, boiler, boiler blow-off and drainage; soot blower; structural steel supports; brick and brickwork; cinder hoppers and clean-outs; ash chutes; ash hopper and grinders; and an ash washout trough.

A similar list based on following the flow of air and avoiding duplication of elements noted in the first list, would be as follows:

Forced draft fans, turbines to drive fans, steam and exhaust piping to turbines, main air duct, auxiliary air duct, any wind box changes, balanced draft apparatus, draft gauges, smoke flue to economizer, economizer, economizer motors, economizer setting, cinder pit and cleanout, blow-off and drainage piping, and valves; smoke flue, economizer to induced draft fan; induced draft and cinder catcher fans; foundation setting, etc.; cinder hopper and cleanout; drive for cinder catcher fan; smoke to stack.

Finally, we make up the list based on the flow of water:

Is water treating equipment adequate? Is there sufficient water heater capacity? Is any additional pumping equipment needed? Are water mains adequate? Feed water pipe; main to economizer. Necessary gate and check valves in above line. Feed

water pipe—economizer to boiler. Feed water pipe—auxiliary line to economizer. Gate valves, check valves etc., for above lines: Feed water regulating valves, separator, superheater, non-return stop valves, steam line, boiler outlet to steam main; steam flow meters; motor operated gate valve in steam lines.

Having made the lists as suggested, it is a good general rule to consider the job as a whole; to get a sort of bird's eye view and see if any essential detail has been overlooked. Such procedure will frequently show that some such item as soot blower, balanced draft or steam flow meter has been skipped.

With the check list and some sort of preliminary layout at hand, it is desirable to order all equipment and material which can be definitely decided on as to size, type, make of material, arrangement, etc. It is also desirable to send out to manufacturers as early as possible invitations to bid on all apparatus which is to be bought on a competitive basis.

During this time the Drafting Department is making the final drawing of everything that can be definitely detailed, and preliminary drawings of the general arrangement and co-ordination of apparatus to be supplied by the manufacturers.

As soon as possible after the bid of a manufacturer on a piece of equipment is accepted we are furnished with the builder's drawings of such equipment, and incorporate the information thus secured into our own general and detail drawings. The progress of our plans is very largely dependent on our ability to secure prints from the manufacturer. For instance, it is easy to see that we cannot lay out an air box to connect to a fan and the stoker until we have prints showing the details and dimensions of the fan and stoker. The ordering of some of the material, such as piping, depends upon our completing and bringing up to date our general preliminary layouts by means of the information given by manufacturers' prints. When receipt of such prints is too long delayed, it becomes necessary to order material from approximate preliminary layouts and make the necessary changes in the field when it is assembled.

From the inception of the work until its completion the check list is used continually. As we pass from item to item we ask, is the necessary material ordered? Will it be delivered on time? Have we the necessary manufacturers' prints? Have our drawings relative to the item been completed? And a host of other equally pertinent questions occur, all tending to produce the desired result.

Ignoring entirely the plans and schedules which the department doing the actual construction work have to make, the above is a brief skeleton outline of the planning phase of the work lying back of the simple announcement "Two new boilers are to be installed at Station 3 during the coming summer."

"The man who succeeds in the greatest degree today, is the man who surrounds himself in his work, and becomes a part of it, thinks it, believes it, talks it, feels it, acts it, lives it and dreams it."

GAS AND ELECTRIC NEWS

Published Monthly by the
ROCHESTER GAS & ELECTRIC CORPORATION
34 Clinton Ave. N., Rochester, N. Y.

FREDERICK W. FISHER . . . . . *Editor*
CLIFFORD PENLAND . . . . *Assistant Editor*
DWIGHT C. ROCKWOOD . . . . *Photographer*

Department Correspondence Staff

Sales

FRANK C. TAYLOR . . . . . *Industrial*
JOSEPH P. MACSWEENEY . . . *Domestic*

Electric Operation

GEORGE A. BAILEY . . . . . *Generation*
HENRY A. DAVIS . . . . . *Distribution*

Gas Operation

FRANK HERRING . . . . . *Distribution*
WILLIAM H. EARLE . . . . . *Manufacture*

Auditing

FREDERICK H. PATTERSON

Engineering and Construction

HOWARD HARDING

Athletics

FLOYD OWEN

Housekeeping Suggestions

MISS FRANCES F. MOORE

Material may be copied provided proper credit is given.

Vol. VII MAY, 1920 No. 11

Know What You Are Doing

SUCCESS is to an appreciable extent dependent upon self-esteem. To grow one must analyze his work and understand it so that he can if possible give it his wholehearted support. It is necessary of course to obey instructions with cheerful and uncompromising fidelity, even if the instructions do not receive one's intellectual approval. The point is that the situation must be studied so that one does not become an automaton, and that when the emergency comes wherein the one who has been executing orders has to give them he has the situation well in hand and can act intelligently.

Constructive criticism is one of the surest avenues of progress. Simple, "knocking," benefits nobody. Honest criticism based upon an intelligent analysis of the facts, with the moral integrity which creates a desire to do what is right as a background or underlying motive, is at least educative and is often helpful.

✣

Success in Directing Others

THE real organizer is always free to accept new responsibilities. A capable leader always trusts his helpers. Success is in all cases a co-operative effort. Every organization depends upon team work, and team work means that all pull together for a common purpose. The greatest efficiency is secured when each is permitted to and is willing to work up to the limit of ability.

These are all ancient truths but even today in the modern world of business many fall short of what they could achieve because they do too much themselves. One of the big lessons of big business is that it teaches reliance upon others. Within proper limits everyone concerned is benefited; the supervisor in having an opportunity to study the work under his jurisdiction and become broader and more useful in other fields; the helper in learning to handle the business detail and accept greater responsibilities; the organization in becoming stronger through having more self reliant members and the Company through all these factors.

Pass on, not up, some of the responsibility.

✣

Doing One's Best

ALL are born with equal rights but not with equal ability or inheritance. Equal rights give equal opportunity while unequal ability and inheritance prevent equal use of opportunity.

Accomplishment in life depends upon inheritance of health, friends and financial resources, and upon ability consisting in the main of intellectual capacity, humanity and will power. These resources permit the creation and utilization of opportunity. Accomplishment therefore is a matter of degree, depending in each case upon what the individual had to work with, and is measured by how well he used it.

Success consists in accomplishment and is complete when one has done the best he could, or in other words, made the most of opportunity with his personal and material equipment. This applies to everyone.

The best is all we can do and the least we should do—Doing it makes us successful.

✣

Keep Your Eyes on the Goal

CONCENTRATE on what you want to do or become. It avails little whether we have or lack certain qualities or characteristics. Just go ahead. When you throw a ball do you think of the muscles you are going to use?

As in throwing a ball, so it is with work. Just keeping everlastingly at it in one's own way brings perfection and success.

✣

Good Things That Cost Nothing

IN THE morning when you come in to start a day's work, a cheery, "Good Morning," will make not only you, but whoever you say it to, feel a lot better.

No matter who it is that does anything for you, and no matter how small a thing is done, a "Thank you" will make things so much nicer.

If some one has done anything that is good, encourage a repetition of the good deed, by telling the doer of it what you think of it. The right kind of encouragement is never wasted, and one can never give too much of it.

When you feel cross and you don't feel like being agreeable to any one, why don't say anything at all until you get over your cross feeling. There's no use spreading gloom; it has never accomplished a good thing yet. Spread sunshine instead, and notice the difference.

Don't stop at being nice to only the people that you know and like; be nice to every one that you come in contact with. If a new employee comes into your department, go out of your way to be nice to him or her, and make them feel at home.

In other words, just try your level best to treat every one as you would like them to treat you.—*Selected.*

✣

The Winning Way

If you put a little lovin' into all the work you do,
And a little bit of gladness, and a little bit of you,
And a little bit of sweetness, and a little bit of song,
Not a day will seem too toilsome, not a day will seem too long;
And your work will be attractive, and the world will stop to look,
And the world will see a sweetness, like the tinklin' of a brook,
In the finished job; and then the world will turn to look at you
With a world's appreciation of the thing you've found to do.

—*Anon.*

✣

Luck is ever waiting for something to turn up. Labor, with keen eyes and strong purpose, will turn up something. Luck lies in bed and wishes the postman would bring him the news of a legacy. Labor turns out at six o'clock and with busy pen or ringing hammer lays the foundation of a competence. Luck whines. Labor whistles. Luck relies upon chance. Labor upon capital.—*Colden.*

Annual Masquerade Dance

THE annual masquerade dance given by the ladies of the Company for all employees as a benefit for the little adopted French war orphan was once again a brilliant success. The evening of April 15th was wet, exceedingly wet—What? Oh No! We are speaking of rain, and by way of showing contempt for one J. Pluvius a large proportion of the Gas and Electric family was on hand when the first Saxaphone whined through the hall. It was just a great big family party where there was much to warm the cockles of your heart and make you glad you belong to a company with such a fine esprit de corps.

Any attempt on our part to adequately describe the party would be presumptuous and prove disappointing to those who were there and saw it all but as a matter of record and for the benefit of those who were unable to attend, we will endeavor to hit only the high spots of one of the best parties in the history of the Company.

The stage was worthy of the brilliantly costumed assemblage. Masonic Hall never looked prettier. Flags, bunting, streamers and evergreens artistically arranged gave an effect surpassingly beautiful and impressive.

The strange cast began to arrive at nine o'clock. We say strange advisably after seeing a pirate with a peg leg and a witch cuter the hall alongside a Chinese mandarin, a Spanish torreador and a colored boy bent on a game of galloping dominoes. Still they came, in dress of rich and poor from the East, West, North and South and foreign lands. Truly the melting pot of the world.

Flashlight at Masquerades April 15th. Winners Grouped in Front

There was dancing until 10 o'clock, the time set for the Grand March from which would emerge the six prize winners decided upon by the judges consisting of Mrs. Howes, Mrs. Wilder, Mrs. DeWolf, Mrs. Russell and Mrs. Collins. Their task was not an easy one and not until the column had passed in review many times were they able to reach an agreement. Their decision was a popular one and as the winners were announced and called to the center of the hall they were greeted with much applause.

Following this came the unmasking and disillusionment for many who had wondered who this one was and that one was, so clever were the costumes and disguises. "On with the dance" was the cry and until one o'clock jazz, dispensed by Damon's orchestra, reigned supreme.

Most Original Costume, Lady, Mrs. G. Hough (Commissary); Most Original Costume, Gentlemen, Mr. J. P. Haftenkamp (Gas Department); Most Comical Costume, Lady, Mrs. Jane Tucker (Consumers Bookkeeping Department); Most Comical Costume, Gentlemen, Mr. David Deegan (Mailing Department); Most Attractive Costume, Lady, Miss Edith Burlingham (Electric Distribution); Most Attractive Costume, Gentlemen, Mr. James Peachy (Gas Works); Door Prize, Miss Templeton, (Stenographic Department).

New Rate Schedule for Large Power Users

Owing to the continued increase in the cost of labor and supplies, increased taxes and money rates, a new schedule of alternating and direct current rates has been issued, going into effect the first date of meter reading after March 20.

The new rates represent a very moderate increase when viewed in the light of the comparatively much larger increase in general cost level. The Company is bending all efforts toward utilizing its resources as to be able at serve at the minimum cost.

Employees in Accident

As the result of an accident on Tuesday, April 27th, in the Booth Building, near Brown's Race, three employees of the Company, Messrs. Histed, Blakeslee and Bramer, received injuries that might easily have been much more serious. Mr. Histed is still confined to the hospital suffering from internal injuries but we are glad to say his condition is much improved and to all appearances he is on the road to recovery. Mr. Bramer received a sprained shoulder which though very painful is fast getting well. Mr. Blakeslee, who was the more fortunate of the three, caught a pipe line as he fell and came out with only bruises and a bad shake-up.

The accident occured when the three men accompanied by a representative from the Crescent Foundry stepped on a rotten floor which gave way, throwing two of the men down into a dark old wheel pit estimated to be 60 feet deep. While falling Mr. Bramer grasped a ladder just in time to save himself and in spite of a badly sprained shoulder scrambled back to the main floor where he immediately telephoned the Fire Department. A few minutes later the fireman rescued Mr. Histed and Mr. Blackeslee who were unable to help themselves.

Much credit is due Mr. Bramer for his great presence of mind in a critical situation. He fought his way up two flights of stairs through the dark and acted very wisely by calling the Fire Department and the ambulance. The men were given immediate medical attention and their friends are very gratified to know that they are improving rapidly.

Annual Meeting of Employees' Benevolent Association

THE annual meeting of the E.B.A. which was postponed from April 1st, was held at Masonic Temple Auditorium April 30th, 1920, at 8:15 o'clock.

The first hour was given up to motion pictures, which were appreciated and very much enjoyed by the audience. After the pictures were shown the business meeting was opened by the Superintendent, Mr. F. W. Fisher, who asked the Secretary to report on the activities of the Association for the year ending December 31st, 1919. After stating that the year 1919 ended the fourth Association year, the Secretary emphasized the fact that the year 1919 would always be remembered as the year during which the membership increased from 722 to 942, a gain of 220. Credit for this increase in membership was given to the department heads and assistants. The Secretary then set a membership mark of 1,000 and after that "every employee a member." The membership ending April 30th, 1920, was 988, which lacks 12 of the desired 1,000.

The actual cost to the members of the Association for the year ending December 31st, 1919, was—Dues $7,830.41, Assessments $2,440.00, Total Cost $10,270.41.

The total benefits paid on the above costs to the members of the Association were—Death benefits paid by Association $3,800.00, death benefits paid by Insurance Company $6,600.00, Sick and Accident Benefits $7,266.01, Total $17,626.01.

Payment of Accident Benefits per average member was $1.77. Payment of Sick Benefits per average member was $6.59. The average days lost by all members on account of disability due to sickness and accidents was 4.89%. The average membership of the Association for the year was 865.

Last year the Surplus account showed a slight decrease, this year it made a gain of $2,200.00, which should be very gratifying.

Under our Group Insurance Policy most members can secure additional insurance of $2,400.00, the cost of which is very low. The officers of the Association will be pleased to explain all about this additional insurance if you are interested.

The Treasurer's Report showed a cash balance of $4,412.93.

The next order of business was the election of Trustees. The Secretary was instructed to cast one ballot for the present board, as follows:

V. C. Hoddick, Gas Shop; *Harry D. Donovan, East Gas Station; G. A. Bailey, Electric Station No. 33; W. H. White, Shop; P. J. O'Neill, Electric Station No. 3; W. J. Consler, Electric Meter; Seth Creighton, Electric Distribution; Miss F. Russell, Main Office.

*Appointed to fill out term of W. J. K. Sutherland, resigned.

The vote to change the By-Laws was then carried.

The Superintendent called on General Manager Russell to appoint officers for the coming year. Mr. Russell reappointed the following:

Superintendent, F. W. Fisher; Treasurer, C. A. Tucker; Secretary, H. P. Gould.

Upon adjournment of the business session the hall was thrown open for dancing and refreshments which were served in army fashion. A "chow line" formed and filed through the kitchen where everybody received a plate of ice cream with cakes. Punch was served throughout the evening.

The Committee on arrangements consisted of: R. M. Farnham, Chairman; Mrs. G. E. Hough, Mrs. Hamblet, Misses Mona Pratt and Mary Killeen, L. A. Newman, Arthur Whitley, Oscar Augenstein and Walter Consler.

Housekeeping Suggestions

EGGS, like milk is a food, containing all the elements necessary for the support of the body in a form easily digested. Their nutrition exists in such a concentrated form, however, that it is necessary to combine eggs with food of more bulky nature such as bread, potatoes, etc.

In food value it takes about nine eggs to equal a pound of sirloin steak; so that even at a moderate price per dozen, eggs cannot be regarded as an inexpensive food. Eggs make a satisfactory meat substitute, one which is generally relished because of the variety which they furnish in the diet.

The color of the egg shell has no relation to the nutritive value of the egg. Analysis has shown also that light and dark color yolks have the same food value, their color being determined largely by the food which the fowl has eaten.

Decomposition of eggs is due to two causes; (1) Germination of fertile eggs which is a natural cause, and (2) the growth of molds and bacteria due to an outside cause. Some producers make a speciality of infertile eggs for storage purposes. Such eggs are desirable when they may be had. Whether it be commercial storage or home storage, the aim is to prevent decomposition. In commercial storage, decomposition is prevented by keeping the eggs at a temperature so low that life will not grow. In home storage decomposition is prevented by keeping the air away from the egg by a method of preserving. This prevents the entrance of molds or bacteria as well as the growth of those already present.

We are giving some good "egg" recipes and in our next article will give directions for proper home storage.

Cooking at a high temperature hardens the albumin of the egg making it difficult to digest and for that reason, eggs or egg mixtures should be cooked at a moderate temperature. If eggs are to be baked, the baking should be done in a rather moderate oven and if they are to be boiled or poached, it should be done in water at simmering point—about 175 degrees F. The terms "soft boiled" and "hard boiled" eggs, are gradually giving way to better ones—"soft cooked" and "hard cooked" eggs. The proper way to boil eggs is to pour boiling water over the eggs and place the pan where the water will keep hot but not boil. Five or six minutes is sufficient time for soft cooked and 40 to 45 minutes for hard cooked eggs.

A Few Good Recipes

Omelet

Separate white from yolk. To each yolk add 1 tablespoon of cold water and beat until thick and lemon-colored. To this add white beaten until stiff and dry, cutting and folding them together carefully. Heat omelet pan with about one teaspoon of butter to each egg. Turn in mixture and cook slowly until the omelet is delicately browned underneath, then place pan in oven to finish cooking on top. The omelet is cooked if it is firm to the touch when pressed by the finger. If it clings to the finger like the beaten white of egg, it needs longer cooking. Fold and turn on platter.

Omelets are varied by pouring over different sauces or folding in vegetables or fruit. Some of the things used are jelly, oranges, tomato, spinach, peas, cauliflower, asparagus tips.

Stuffed Eggs

Cook eggs under the boiling point for 40 minutes. Cut in halves lengthwise, remove yolks and mix well with deviled ham or tongue moistening with a little salad dressing.

Refill the whites, press together and wrap each egg in oiled paper.

Cheese Souffle

2 tablespoons butter
2 tablespoons flour
½ cup scalded milk
½ teaspoon salt
Few grains cayenne
¼ cup grated Old English or Young American cheese
Yolk 3 eggs

Melt butter, add flour, and when well-mixed add gradually scalded milk. Then add salt,

cayenne and cheese. Remove from fire; add yolks of eggs beaten until lemon-colored. Cool mixture, and cut and fold in whites of eggs beaten until stiff and dry. Pour into a buttered baking-dish, and bake twenty minutes in a slow oven. Serve at once.

EGGS A LA GOLDENROD

3 hard cooked eggs	½ teaspoon salt
1 tablespoon butter	⅛ teaspoon pepper
1 tablespoon flour	3 slices toast
1 cup milk	Parsley

Make a thin white sauce with butter, flour, milk and seasonings. Separate yolks from whites of eggs. Chop whites finely, and add them to the sauce. Cut four slices of toast in halves lengthwise. Arrange on platter, and pour over the sauce. Force the yolks through a potato ricer or strainer, sprinkling over the top. Garnish with parsley and remaining toast, cut in points.

EGGS A LA BUCKINGHAM

Make five slices milk toast, and arrange on platter. Use recipe for Scrambled Eggs, having the eggs slightly underdone. Pour eggs over toast, sprinkle with four tablespoons grated mild cheese. Put in oven to melt cheese, and finish cooking eggs.

PICNIC SANDWICHES

½ lb. cooked ham	6 small sweet pickles
2 or 3 hard cooked eggs	½ cup salad dressing

Put first three ingredients through food chopper. Mix with dressing and spread between thinly cut and buttered slices of white bread.

ECONOMY IN EGG BUYING

Housewives can save many pennies by purchasing eggs when they are cheap and preserving them for use in the winter when the market goes up. Eggs are now as cheap as we can expect them to be in these days of high prices of poultry food.

To buy eggs to the best advantage, the housewife should be familiar with the source of supply. A generation or two ago each locality depended on nearby farmers for eggs but with the growth of cities and the resulting increased demand, conditions have changed, making it necessary to draw our supply of eggs from greater distances. Get in touch with the farmer, Mrs. Housewife, and buy your eggs in larger quantities. If you cannot use a full crate of eggs, get a neighbor to go in with you and divide them. Probably the best method of preserving eggs is the water glass method.

Following you will find direction from the Government Bulletin on the Water Glass Method of Egg Preservation, Extract from Cornell Reading Course, Food Series, Lesson 11.

PRESERVATION OF EGGS IN WATER GLASS

Eggs preserved in water glass can be successfully kept for as long as a year. They are practically as good as fresh eggs for all cooking purposes.

Water glass is on the market in the form of a commercial solution that can be obtained from drug stores. One and one-half quarts of this commercial solution should be thoroughly mixed with 10 quarts of boiled water. A stone jar is the most suitable vessel in which to preserve eggs in water glass. Two six-gallon or three four-gallon jars are sufficient for thirty dozen eggs, using the amount of solution prescribed. After the water glass is thoroughly mixed, it should be poured into the jars, which must be absolutely clean. The eggs should then be placed in the water glass, or the eggs may be placed in the jars first and the water glass solution poured over them. Those at the top should be covered by at least two inches of the liquid. The jars should be covered in order to prevent evaporation, and should be put in a cool place where they will be undisturbed during the year. If the solution evaporates or becomes thick and jelly-like, water may be added.

Only absolutely fresh eggs should be preserved; stale eggs will not keep in any preservative. The preservative should be ready for the eggs as they are received. If there is any doubt as to the freshness of the eggs, they should be candled or tested in a dish of salt water, ½ cupful of salt being used to 1 quart of water (10 per cent solution). If an egg sinks, it is reasonably fresh. Candling is a very simple operation that consists of looking thru an egg toward a bright light. A shield containing an opening about one inch in diameter placed around an oil lamp or an electric bulb will serve to concentrate the light so that in a dark room the contents of an egg may be easily observed. A fresh egg should appear clear inside, with an air cell not larger than a nickel. Blood clots, development of the embryo, or other such imperfections will appear as dark spots. Eggs showing imperfection should not be preserved.

Dirty eggs or eggs that have been washed should not be preserved. Spring eggs will keep better than summer or fall eggs. Infertile eggs are better for preserving than those that are fertile. Eggs should not be left in the preservative longer than one year. The same liquid preservative should not be used more than one year. The eggs should be rinsed with water after removing them from the preservative. Those in good condition when removed from the water glass solution will usually remain so for at least two weeks.

If it is desired to boil eggs that have been preserved in water glass, a small hole should be pricked thru the large end of the shell before they are placed in the water. The pores of the shell have been sealed by the water glass solution, and without the pinhole, the expanding air within the shell would burst it.

Employer: "Well, Brown, you've been with us 30 years; Wouldn't you like to have a pension and take life easy from now on?"

Brown: "Well, if I'd known this wasn't going to be a steady job, I'd never have taken it in the first place."

Gas Manufacture

Several years ago a new process for gas purification was proposed by Mr. J. G. O'Neill, then chemist for the Empire Coke Company at Geneva, which was fully described in the A. G. I. proceedings for 1913. At about the same time, the process was tried at the old gas works at East Station with partial success, but was later abandoned. Similar experiences followed its attempted use at other plants and it was finally dropped pretty much from the average gas operators mind.

However, at Geneva the process has been in continuous and successful operation and is so operating at the present time. It would seem as if eight or nine years success at one plant were of more conclusive evidence as to the merit of the process, than several failures after a few week's experimentation. It would furthermore appear that the Geneva process of gas Manufacture can not be so utterly different from processes elsewhere, as to render the O'Neill system universally inapplicable, save at Geneva.

From that point of view we have revived a study of the system with a view to its adaptability to West Station. R. E. Kruger of the Gas manufacture Department recently spent several days in Geneva by courtesy of the Empire Coke Company, studying their operation of the O'Neill process in detail. To say the least he was able to confirm from his own observation and tests, all the statements made for the process and was unable to discern any details radically different from our own operation.

In brief, the scheme is to wash the unpurified coal gas with weak ammonia liquor, which unites readily with hydrogen sulphide to form Ammonium sulphide. By heating the liquor the hydrogen sulphide is liberated and escapes through a vent pipe, leaving the ammonia free to return to a contact washer and extract another load of hydrogen sulphide.

The process is thus one of continuous circulation of weak liquor through a gas washer thence to a heater where the H_2S is driven off, thence through cooling coils and back to the gas scrubber.

The layout at West Station seems particularly adapted to the method, and readers of this magazine will probably hear further details of this process in a later issue.

❖

What we believe to be a very satisfactory equipment for testing purifying material is now in use at the East Station Gas Works. Eight galvanized iron boxes, of approximately two bushels capacity each, are set up in the meter room and a common header supplies the boxes with unpurified coal gas and the boxes discharge into a common collecting header. Each box is equipped with a dry meter for recording the quantity of gas passing through that box while suitable drains carry off the condensation. When all boxes are working at the usual rate of 40 cubic feet per box per hour (this rate being proportional for the small boxes to the usual rate through the works purifiers) 320 cubic feet of gas passes through per hour or 7680 cubic feet per day. This sometimes reaches 10,000 cubic feet per day. In order to prevent the loss of

this gas the outlet header is carried on and tied into the outlet line of the water gas relief holder, or the inlet of the water gas exhauster, and goes on through the water gas system. It could not be carried back into the unpurified coal gas main because there would not then be any pressure differential to drive the gas through the small purifiers, and it could not be discharged into the purified coal gas, because the gas coming from the small boxes is not always entirely free from hydrogen sulphide.

We believe that this system enables us to make practical comparative tests of various materials under operating conditions, with greater satisfaction than any present laboratory method offers.

Gas Distribution

The Company's gas service installation has been delayed to date due in a measure to labor unrest. The latter, coupled with existing high prices, will probably have an effect on the building situation upon which new main work and gas service installation is dependent.

Plans were made during the winter to supply sections of the city where the greatest development was expected but a curtailment may result in view of the present situation.

Electric Generation

About March 1st the A. C. 60 cycle light and power distribution circuits, Nos. 380, 381 and 382, and two street lighting circuits, Nos. 101 and 102, were connected to the equipment recently installed at East Rochester Sub-station 52. Previously these distribution circuits were connected directly to the out-door sub-station through out-door type oil and plug switches.

The secondary current from the out-door sub-station is now brought inside the new building to a distributing bus, then through automatic oil switches, protected by overload relays, to the various circuits, thus affording greater protection not only to the Company's property but to the customer's as well.

The distribution circuits furnish light and power to East Rochester and the surrounding district.

The street lighting circuits light the streets of East Rochester, Pittsford, and the intervening territory. Current for Station 52 (East Rochester) is supplied over 11,000 volt, 60 cycle circuit 625 from Station 1.

❖

The regular monthly meeting of the Electric Generation Department was held on Monday, April 26th, at 11 A. M. in the Assembly Room, 34 Clinton Avenue North. The meeting was called to order by Mr. A. S. MacDowell who introduced Mr. Patterson, Assistant Auditor of our Company. Mr. Patterson explained in a very comprehensive manner the necessity for the keeping of detailed records and the proper use of job and account numbers in connection with station maintenance, also of the necessity for complete co-operation with the departments principally concerned with the station maintenance. A very interesting and instructive discussion followed.

❖

The increased water flow during the month of March has swung the burden of electric generation from the steam to the hydraulic generating equipment. The total amount of generation by water was 13,209,981 K.W. and by steam 1,810,777 K.W., showing that about 95% of the total load of 15,020,758 K.W. was generated hydraulically.

Electric Distribution

The largest bank of overhead transformers in the city was recently installed at the plant of the Ritter Dental Mfg. Co. on West Avenue. This bank of three transformers has a capacity of 450 K. V. A. In addition the Ritter Company has installed a synchronous motor rated at 450 horsepower which operates from the 4150 volt system direct. The combined load at this plant is about 750 K. V. A. which is equivalent to about 125 amperes at 4150 volts. The installation is supplied from station 35 over circuit No. 343.

Industrial Sales

The East Rochester Laundry has been converted from steam to electric drive. A 10 H.P. motor will operate the laundry.

❖

Hopeman Brothers, Lyell Avenue, are operating a shaving exhauster in a woodworking plant with a 20 H.P. motor.

❖

Terry & Tench Company has resumed operations on the East Main Street bridge. Power is supplied with a 35 H.P. motor.

❖

The Don-O-Lac Company at 251 Sanford Street has installed a new grinding machine which requires 15 H.P. to operate it.

❖

The Vogt Manufacturing Company is installing a 50 H.P. motor to operate its place of amusement at Sea Breeze.

❖

The Powelson Machine Company, 304 Franklin Street, is opening a new plant which requires 50 K.W.

The Graves Elevator Company has leased the F. L. Hughes Company's building and will require about 30 H.P. in motors.

❖

I. M. Ludington Sons Company has a contract with the Standard Oil Company for building a barge slip to be used for unloading oil. They are using 85 H.P. in motors on this contract.

❖

The Ritter Dental Company, Inc., recently installed a 400 H.P. synchronous motor, directly connected to a Sullivan angle-compound air compressor. The initial air compressor installed consists of a horizontal and a vertical cylinder, but provision is made for installing a duplicate to be driven by the same motor. The motor used is a primary motor and is of ample capacity to bring the power factor of the combined load of the plant up to unity.

❖

Luigi Di Paolo is starting a new bakery at the corner of Frank and Smith Streets. Approximately 25 H.P. in motors and 2 K.W. in lights will be installed.

Engineering and Construction

At Station No. 3 work preparatory to the installation of two new Coxe stokers under boilers 1 and 2 in the old house is well under way. The Coxe stokers are especially suitable for the efficient burning of anthracite screenings, coke breeze and similar cheap fuels.

As this is written the removal of the present stokers and other necessary demolition is nearly completed and in a short time the work of making the necessary changes in the air ducts, steel supports, ash chutes, blowers, etc., preliminary to the actual placing of the stokers, will be started.

Domestic Sales

This Company was represented among the exhibitors at the Food Show recently held at Convention Hall. A booth was maintained under the direction of the Domestic Sales Department where various gas and electric appliances were displayed and the Branston Violet Ray High Frequency Generator was demonstrated throughout the period of the show.

❖

Within the past month the Domestic Sales Department has added to its activities the merchandising of a new line of portable electric lamps. The assortment consists of four very attractive styles, each of rich and artistic design which harmonize with any decorative treatment and cover practically every need of the home. There is a Library or Table lamp, 22" high, with a large curved metal and amber glass shade; a Boudoir or small table lamp with shade of curved amber glass, mounted in a gracefully designed metal overlay frame; a small utility lamp with parabola shade, useful as a desk, reading or student's lamp; an adjustable floor lamp 52" high with parabola shade, which with its double-jointed arm may be fixed in any desired position, making this a very useful reading lamp beside a chair or bed. Each style is furnished in two or more of the following finishes; Antique, Gold, Florentine Relief, Old Ivory, Statuary Bronze, Old Brass and Grecian Antique.

Included in these portables is one gas library lamp of a design similar to the electric library or table lamp.

❖

A new line of White Cross electric vibrators manufactured by Lindstrom Smith Co. have been added to the Domestic Sales Department.

Personals

According to Mr. Crofts, purchasing agent, his Department is now ready to furnish all data relative to quotations and deliveries for any material any Department may need.

Mr. Harry Goodland, of Station 1, has been absent from work for several days suffering from a severe attack of rheumatism.

This issue of The News insists that we say something about Miss Daggs' costume at the Masquerade Dance. Since Miss Dagge was disguised as "Miss Gas and Electric News" we feel that it will be entirely appropriate to compliment her taste in selection as well as the costume itself.

An itemized bill of material purchased recently came to Mr. Haftenkamp's attention. On checking it over he noticed one item was listed as: "One Baby Scrubber - - - - $78.50." He immediately wrote opposite "F. W. Fisher" and forwarded the bill.

Mr. Frank Rich, formerly of West Gas Station, writes from Gibralter that he is well and enjoying his trip home. His destination is Italy where he will visit his people.

On Wednesday, April 14th, 1920, the girls of the Electric Distribution office tendered a Farewell Luncheon at the Commissary in honor of Miss Margaret Sutorius, who is leaving for a position with the Goodyear Tire and Rubber Company. Covers were laid for thirteen and the table was attractively arranged with rosebud favors and carnations, pink and white being the color scheme.

Miss Bess Masters, a former employee of this Company, was in the city recently from New York and called on her old friends and associates at the Main Office.

Miss Olga Schaffer has resigned as Librarian of the Company to accept a position with the West Penn Steel Co. at Brackenridge, Pa.

Mr. Melvin Anderson, of the Gas Street Department, has been chosen Choir Leader for the Safety School, Rochester Safety Council. Mr. Anderson's ability as a "musicer" is fast becoming recognized in new fields and we say "more power to him."

Training in the Signal Corps during the war was a valuable asset to Messrs. Sidney Swanson and William Murray, of the Line Department, while tagging circuits emanating from Station 5. In ascertaining the wire to be tagged a Lundin detector was used. Mr. Murray was stationed at the bottom of the river gorge and by use of the army wig-wag signals notified Mr. Swanson, who was on Driving Park Ave. bridge, which circuit was connected to the Lundin detector. Mr. Murray and Swanson would make good partners in a game of pinochle.

Twelve girls from the main office organized a club on the evening of April 21st. It was decided after a hundred and one suggestions and twice that many arguments to call the club the O. F. C. (mystery). Mary Prindeville was elected president and Esther Wheeler Secretary and Treasurer. At six o'clock the girls met in the Assembly Room to partake of a most delicious luncheon, during which a motion picture called "Little Mary Mix-Up" was shown. The evening was spent playing Five Hundred and dancing. The club will meet every other Wednesday evening.

Mr. and Mrs. C. A. Tucker have returned from a two weeks trip at Altantic City.

Miss Alma McIntyre of the Meter Reading Department is spending her vacation in Albany, N. Y.

W. W. Whitney has been ill during most of April with quinzy. Mr. Whitney's new address is 300 Field Street.

Mrs. Pechie, wife of James Pechie, of West Station, died April 10th after a week's illness. Besides her husband Mrs. Pechie leaves four children the youngest a baby of five months.

Stanley Van Ryan and Charles L. Henry, formerly of the Gas Manufacturing Department, now students at the University of Pittsburgh visited the works during the Spring vacation.

One of the stars at the Masquerade was the little son of "Bill" Peachey of the Gas Manufacturing Department. He was dressed in a very elaborate Chinese costume.

At the Friday morning meeting April 30th a motion was made and carried changing the hour of meeting from 11 A. M. to 10:30 A. M.

New Employees of The Company:

Arlington Schlenker, Record Drafting Department; Mrs. Clara Hagerman, Office; Jos. Moore, Collection Department; Leo Martin, Garage; L. T. Moore, Meter Reading Department; A. F. Williams, Station 35; Miss Rosalie DeBorger, Tabulating Department; Leon White, Station 3; T. S. Campbell, General Construction Department; Geo. J. Smith, Storehouse; Miss B. Lebowitz, Clerk; Walter W. Wolf, Station 4; P. N. Winne, General Construction Department; S. J. Mohan, Electric Construction Department; Robt. D. Waite, Garage; Robt. Marshall, Garage; Irving Smith, Gas Shop; Loren D. Webb, Meter Reader; B. J. Burke, Mailing Department; Alfred Hill, Garage; Miss Alice Waltuck, Relief; Miss Frederica J. Warren, Appliance; Arthur Miller, General Construction Department; Wm. Leacy, Garage; Daniel Marafuco, Meter Reader; Chas. Strable, Line Department; F. B. Smith, General Construction Department; Clement Versluys, Garage; Chas. E. Knowlton, Garage; Miss Ruth Clark, Collection Department; W. W. Webb, Garage, E. Crane, Sr., Gas Shop; A. J. VanReypen, Coke Sales Department; Miss C. Chidsey, Electric Distribution Department; Walter Radnor, Transportation Department; D. F. Finkle, Transportation Department; Raymond Winans, General Construction Department; J. J. Sellinger, Electric Construction Department; Edward Gutzer, Transportation Department; Wm. T. Mackee, General Construction Department; Wm. Freitag, Line Department; W. T. Strickland, Office; Earl Wolcott, General Construction Department.

Athletics

New Tennis Court

Dame Fortune has deigned to smile favorably upon this Corporation's enthusiastic tennis followers. There are probably more followers of this sport than any other Corporation activity with the possible exception of bowling. From the management down, nearly everyone who has played or seen a game has pronounced it a very wholesome sport.

Last year the Company courts at Station 33 and the Gas Holder were used practically every playing day and very often it was necessary to reserve the courts one week in advance. It was out of the question to decide to go to Station 33 on a minute's notice and expect to find the court vacant. The need of an extra court at 33 was only too evident. After discussing the matter with Mrs. Castleman, the owner of the property adjoining Station 33 on the east, she very generously and kindly gave us permission to use the extra ground for a new court. Plans have already been started to push this work for early completion. The new court will be adjacent to the old court on its eastern side and will be 9 ft. longer.

Those who enjoyed night playing last year will be glad to hear that the new court will also be lighted for night playing.

✦

Tennis Court Reservations

Owing to the long and severe winter just past, it is expected that there will be an unusual participation in outdoor sports this summer. Tennis will undoubtedly draw a great following. For this reason it is requested that employees wishing to use the courts at Station 33 and No. 10 Holder make their reservations from four to six days in advance.

Reservations for No. 10 Holder court can be made by calling the Holder on the Home phone, Park 598 and for reservations at Station 33 call George Bailey at the main office.

✦

The Industrian

Have you seen it? Do you realize that it is your paper, backed by your concern, and containing all the news from the forty odd companies affiliated with the Association? The Industrian contains news from the sporting circles of some of the largest cities in the United States and if you want to keep in touch with the activities of the Association, announcements, schedules, etc., this is your best bet.

✦

Baseball Prospects Good

As this issue of "The News" goes to press our baseball squad has had several work-outs and two practice games. The Gleason Works and the Henry Likely Co. were both taken into Camp, the former by a score of 8-1 and the latter 9-5. Rathbun of West Station had both teams fanning the air, averaging seventeen strike-outs in the two games. The team is fast rounding into shape for the opening game of the I. A. R. A. Season on May 15 when our men will have their first opportunity to show their metal.

The squad has some real pill swatters in the line-up, judging by the number of extra base hits to its credit. In general the outlook is mighty good for a winning team.

ARE YOU GOING TO BE A PRIZE WINNER?

Prizes for Sale of 7% Stock

$100.

To the employee whose sales total the largest in amount

$50.

To the employee whose sales total the second largest in amount

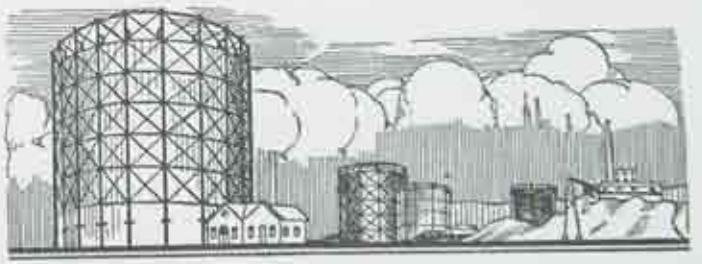
$100.

To the employee who makes the largest number of sales
(EACH SUBSCRIBER CONSIDERED ONE SALE)

$50.

To the employee who makes the second largest number of sales
(EACH SUBSCRIBER CONSIDERED ONE SALE)

Above prizes apply only on sales to others than employees and are in addition to the commission of one-half of one percent. Only signed orders brought in personally by the employee are recognized. —*Treasury Department.*



Make A Garden this Summer

and lessen the cost of living

A decrease in production of produce is certain, due to shortage of farm labor

The necessity for every family, therefore, to raise as much as possible of the food they consume is just as imperative this year as it was during the war when immense quantities of food were being shipped to Europe. There is no doubt about this. The situation is more serious than most of us realize, and it has an important bearing on every Rochester industry.

If you haven't a Garden Spot at Home of soil worth cultivating find one near home! It will be profitable for the following reasons:

1. Lessens the cost of living.
2. The vegetables are cheaper, cleaner and better.
3. Provides outdoor exercise for all members of the family.
4. Surplus vegetables may be put up for the winter.
5. If we don't grow vegetables we may go without them.
6. More gardens mean better health.

A limited supply of government instruction booklets are available for those interested. Call at the Employment Department.