

# GAS AND ELECTRIC NEWS



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**Never**

**Put off until  
tomorrow  
what YOU can  
do today.**

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SEPTEMBER, 1913

*Published monthly by the*  
**ROCHESTER RAILWAY AND LIGHT CO.**

ROCHESTER, N. Y.

*For the Information of Its Employees*

# GAS AND ELECTRIC NEWS

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Vol. 2

SEPTEMBER, 1913

No. 5

## New Gas Holder One of Biggest in Country

By HAROLD C. NEEFUS



Readers of this magazine will be interested in the fact that our Company is at present constructing in Brighton one of the largest gas holders in the United States.

When completed it will rank with the big gas tanks of New York City, Chicago, Boston and Providence. Ground was broken January 29, 1913, for the new structure which will hold six million cubic feet of gas. The tank is located on Blossom

holes were sunk on the outer circumference to determine the depth of rock, which fortunately was at an average depth of four and one-half feet. Figure 1 shows the condition of the land when the work was commenced. Figure 2 shows the excavation full of water at the time of the spring thaw. Figure 3 shows the completed excavation with its rock foundation and the start of the concrete pancake, which was laid over the entire excavation to afford a level foundation for the tank to rest on.



Figure 1. Condition of Ground When Excavation Started, January 29, 1913.

Road, directly east of the city line. The construction of the huge tank was begun as follows: After locating a spot which was to be the ground center of the holder, test

Five thousand, eight hundred and sixty cubic yards of earth were removed and one thousand, sixty-nine cubic yards of rock. It took one thousand, four hundred and fifteen

cubic yards of concrete to form the pancake. Before the erection of the holder a side track was run into our property from the New York State

Company in part payment of the holder. A repair shop is also located in this building, with a lathe, power punch and shears, grind-



Figure 2. Part of Excavation After Spring Thaw Set In.

Railways' storeyard, thereby greatly facilitating the receiving of material directly from the New York Central Railroad. The contracting firm also erected a 30 x 100 ft. building for the

stones, etc. There is also a blacksmith shop in connection with the plant. The material was unloaded from the cars by a 20-ton steel derrick, the mast of which is 90 feet



Figure 3. Average Depth of Excavation 4 Feet. Below This There Is a Solid Rock Foundation, Levelled on Top with a Concrete Pancake.

air compressor which they purchased from Ripton & Murphy Company of Rochester. This compressor is run by a 200 H. P. motor, the current for which is furnished by our

high and the boom 85 feet long.

Work on the bottom started May 21, 1913, with the placing of the center plate of the tank bottom. (See Figure 4.) The bottom is built up

of  $\frac{3}{8}$ -inch lap-riveted plates, except in the outer annular course where the metal is  $\frac{5}{8}$  of an inch thick. Around the rim is an 8 x 8 x  $\frac{7}{8}$  inch

courses of steel plates varying in thickness from  $1\frac{19}{32}$  inches at the bottom to  $\frac{7}{16}$  of an inch at the top, and is 219 feet in diameter by 37

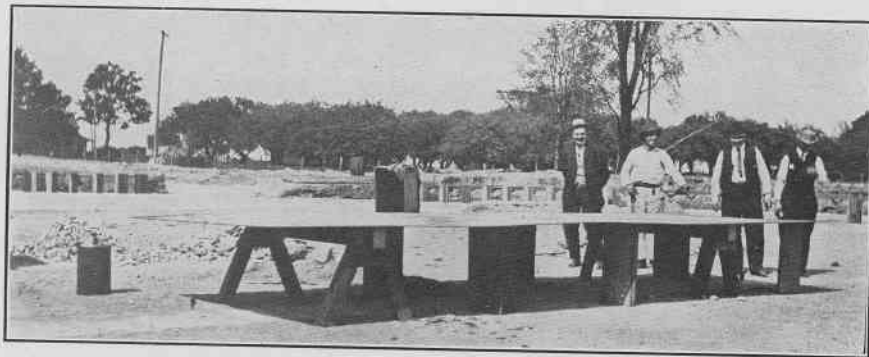


Figure 4. First Piece of Steel Set in Place, May 21, 1913.

curb angle for connecting the bottom and the first course of wall plates. Figure 5 shows the bottom assembled and ready for riveting. On June 14, 1913, the bottom was lowered into place by the use of 162 lowering screws distributed around the rim and at 15 x 20 foot intervals over the entire bottom. Figure 6

feet 6 inches high. The rivets in the tank vary in size from  $1\frac{1}{2}$  inches to  $\frac{3}{4}$  of an inch. During the erection of the tank work was carried on in two shifts by 76 men.

Figure 8 shows the 150-ton hydro-pneumatic riveter used in driving the rivets on the tank with a pressure varying from 30 tons per square



Figure 5. General View of Bottom, Showing Size. Circumference About 220 Feet.

shows the nature of the lowering screws and the method of operating same with 162 men.

The steel tank will contain, when filled, more than ten million gallons of water of sufficient depth to submerge the sections of the gas holder proper when the sections are not filled with gas. It is built of seven

inch at the bottom to 10 tons at the top.

The gas holder proper consists of five cylindrical steel shells located concentrically within the tank, the inner section being covered with a spherical crown. Each section, except the outer one, has a circular cup constructed around its lower

edge, and likewise each section, except that the inner one has a grip formed around its upper edge, the cup of one section being proportioned to engage the grip of the next outer section, the union being made gas tight by means of the water con-



Figure 6. Lowering Bottom of Tank, June 14, 1913. 162 Men Required for This Job.

tained in each cup which forms a water seal.

As the gas is pumped into the holder, the inner section rises until the cup around the lower edge of that section engages the grip around the top of the next section, when it too is lifted. This action continues



Figure 7. 150 Ton Hydro-Pneumatic Riveter at Work.

until the entire holder is filled with gas and the outer section remains submerged in the water to form a seal against the escape of gas. The shells are guided in their telescopic action by rollers spaced around the lower edges of the shells, which act

upon vertical rails on the interior of the shells and tank.

The general dimensions of these shells are as follows:

I section of holder 204 ft. 3 in. diameter by 36 ft. 2 in. high.

II section of holder 207 ft. 2 in. diameter by 36 ft. 2 in. high.

III section of holder 210 ft. 1 in. diameter by 36 ft. 2 in. high.

IV section of holder 213 ft. 11 in. diameter by 35 ft. 8 in. high.

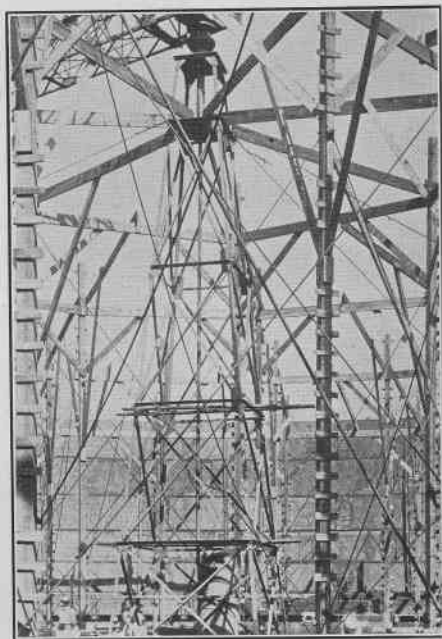


Figure 8. Showing Steel Center Mast and Permanent Frame.

V section of holder 215 ft. 11 in. diameter by 35 ft. 8 in. high.

The shell sheets are 6 feet by 3 feet and vary in thickness from  $\frac{3}{16}$  of an inch to  $\frac{3}{8}$  of an inch.

The crown is made up of steel plates varying in thickness from 1 inch at the outer edge to  $\frac{3}{8}$  of an inch at the center, and is spherical in shape, forming the segment of a sphere with a central rise of twelve feet. When all the shells are rest-

ing on the bottom, the crown is supported by a permanent frame of timber. (See Figure 8.)

The guide frame is constructed entirely of steel and consists of 22 standards, each of which extends 180 feet 6 inches above the top of the tank, six rows of channel struts and six sets of eye bar diagonals in

In connection with the holder there will be a boiler and gate house of ornamental design. The boilers, of which there will be two of 300 horsepower each, will furnish steam to operate a centrifugal pump for pumping the gas into and out of the holder, and also furnish heat to keep the water in the tank and cups from

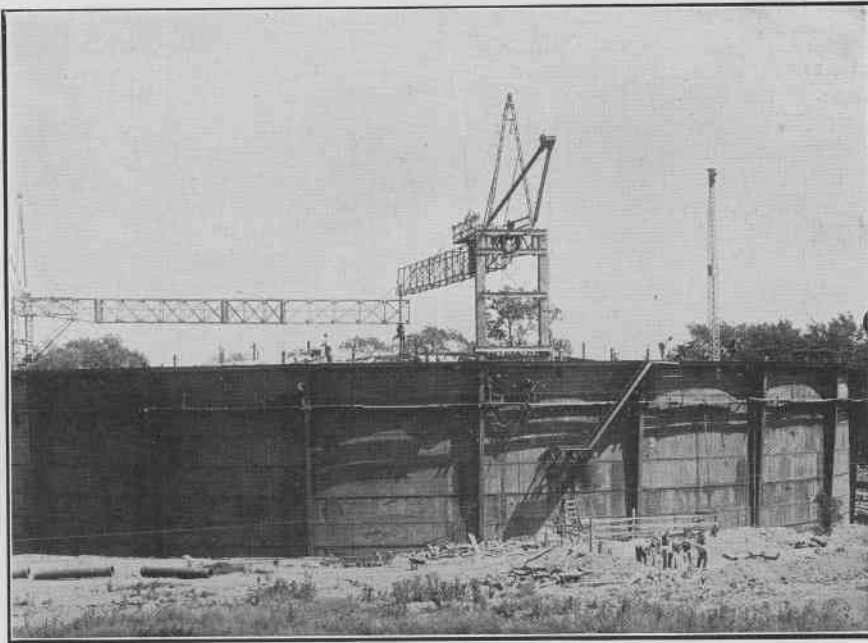


Figure 9. View of Tank, Taken August 1, Showing Big Derricks.

each panel of guide frame. The total weight of metal in the holder is about 3,000 tons.

The gas connections of the holder consists of three 30-inch cast iron pipes which pass through the concrete foundation and turn upward, connecting to the bottom of the tank. From this point a steel pipe of the same diameter extends upward to a point above the high water line.

Did it ever occur to you that nearly all of your mistakes are self-made?

freezing in winter. At the present time the gas will be conveyed into and out of the holder by a 16-inch high pressure pumping main and the holder will float on the distribution system.

The Company purchased ten acres more land than was required for the holder, and will fence this off and lay it out into a park as recommended by the Town Board of Brighton.

There are nearly 400 different electrical companies operating in Japan.

## Making Concrete Poles and Lamp Posts in Rochester

By J. O. MONTIGNANI



The concrete pole is no novelty. In parts of the world where timber is scarce and transportation of bulky wooden poles a serious difficulty, engineers in charge of the construction of wire lines many years ago hit upon the plan of applying reinforced concrete to the manufacture of poles and even crossarms in the field ready for service. It is only within recent years, however, when good wooden poles have become scarce and therefore more expensive, as the enormous drain on the timber lands of the country has made itself felt, that the attention of engineers in the

In the spring of 1911 our Company, after extensive experiments to determine the strength, durability, cost of handling, etc., of concrete poles for the distribution of electricity in and around Rochester, decided to abandon the use of wooden poles up to and including 35 feet in length, and substitute concrete poles therefor. Following out a plan adopted a few years ago of removing wherever possible the poles and wires from the city streets and placing them in the rear lot line between streets, a pole 25 feet long was decided upon by the two telephone companies and the Rochester Railway and Light Company—which three companies jointly occupy them—as a standard pole for such

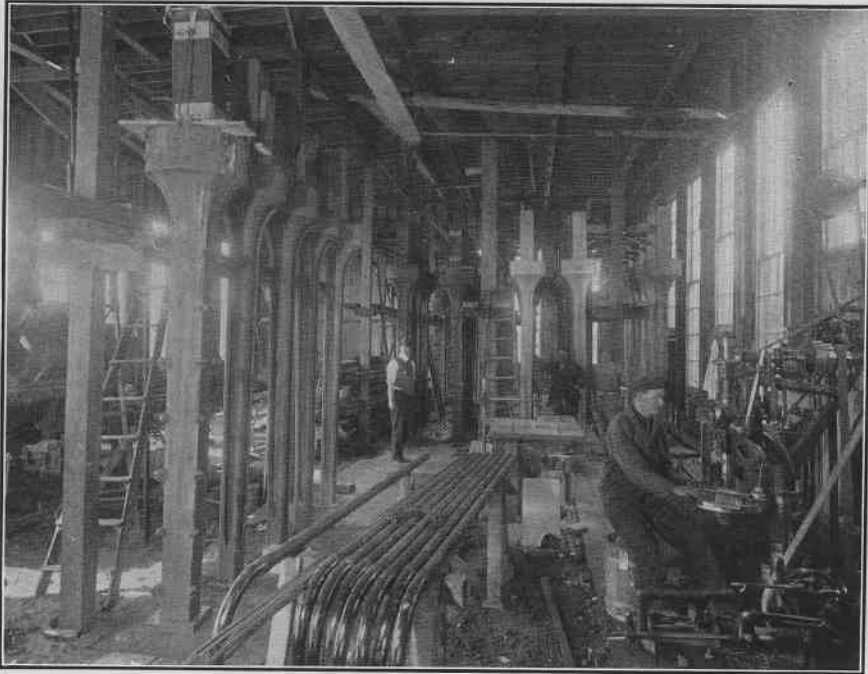


Exterior of Concrete Pole Plant Showing Mr. Quinn and His Men.

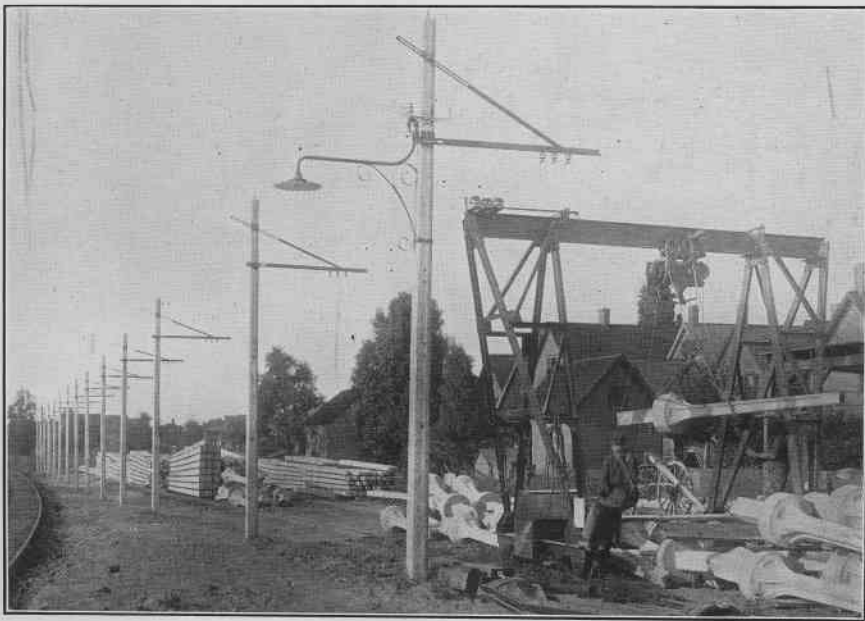
United States has been seriously directed to providing a substitute for the wooden pole. The Rochester Railway and Light Company was one of the pioneers in this country in the development and use of reinforced concrete poles and lamp posts.

construction. Each company has a certain portion of the pole allotted to it for its attachments, so that all construction is uniform.

In some cases where trees or other obstructions have to be cleared, poles 35 feet long have been used. These poles are provided with cast



Interior of Plant Showing Rows of Posts Which Are Cast in a Vertical Position.



Trolley line and traveling gantry in pole storage yard. This gantry is equipped with a 3-ton electrically operated hoist which lifts the poles and posts from the former and conveys them to finishing shed.



iron steps bolted to the pole. The 25-foot poles are not provided with these steps, as they are easily accessible by a ladder carried in the repair wagon.

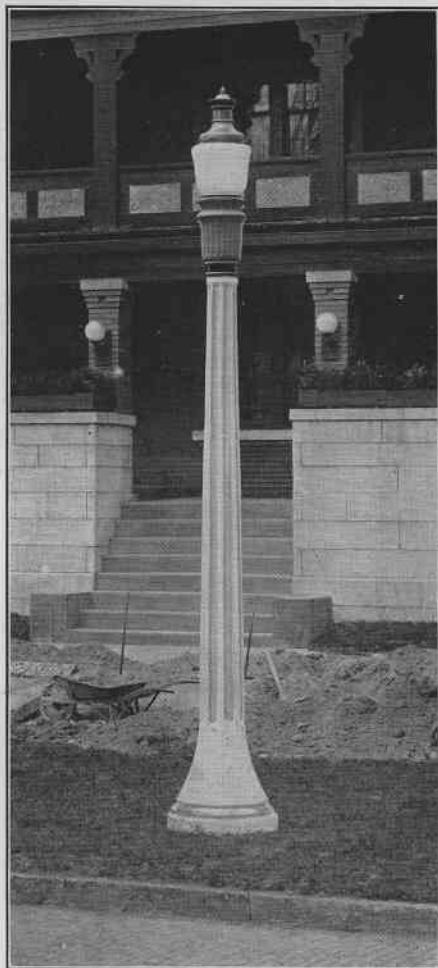
Our Company has also gone quite extensively into the manufacture of concrete lamp posts, several different designs having been made and installed. The latest design has been made to support the inverted type of luminous arc lamp, shown in one of the accompanying pictures.

In all, about 2,500 line poles and 1,200 lamp posts have been made to date. The Company is just completing the construction of a new plant in which this work will be carried out. It has a capacity of 6 line poles and 6 lamp posts per day, and is fitted with all necessary facilities for making and handling the poles at a minimum of labor and expense. All machinery including hoists, bush-hammering machines, etc., used in connection with the work are electrically operated.

### Line Poles

In the manufacture of line poles the forms used are made of Georgia pine creosoted and covered with a heavy galvanized iron. Each form makes two poles. It consists of two bottom pieces, one center partition and two outside pieces which are securely joined and bolted together by clamps which draw the sides and bottoms securely together. The forms are oiled thoroughly before placing the steel, after which four twisted  $\frac{5}{8}$ -inch steel rods 25 feet long are placed in the forms on blocks of wood to keep the steel from coming in contact with the oil. Then square bands of  $\frac{1}{4}$ -inch round steel are inserted every two feet for the first fifteen feet of the pole and every three feet thereafter and the rods are wired securely to the corner of these bands. The blocks are

then removed from the bottom and the re-inforcing unit is hung from the top clamps of the form and wired accurately in place. The pipes to take the telephone connections are then inserted and the bolts

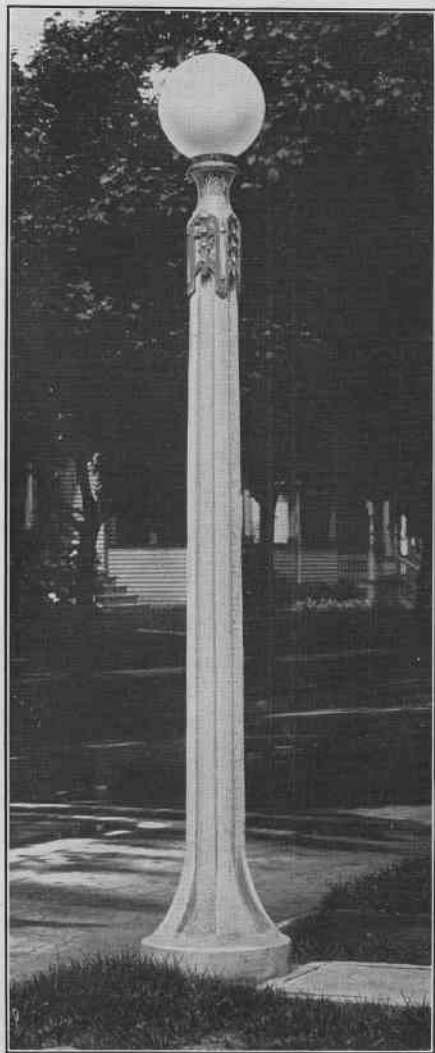


Concrete Pole for New Magnetite Lights.

for the cross-arms and insulation pin at the top are then placed in their proper positions and the form is filled with concrete.

The forms are tiered three high, the bottom one resting on skids in the ground, the second one resting

on blocks fastened to the sides of the bottom form and the third or top one resting on blocks fastened to the side of the second form. The above operation is continued until six poles are made in one nest of forms.



Design of New Concrete Lamp Post.

The following day the same operation is continued with another set of forms, the first ones being permitted to remain in the forms throughout the day without being

removed. On the next day, forty-eight hours after being made, the side and center forms are removed from the first poles and an "I" beam is tied with ropes to the pole, including the bottom part of the form. This is picked up and carried to a stock pole where the pole is turned over, the bottom of form being released and the operation is continued until all six poles are removed. The forms are then available for six more poles. These poles remain in the stock pile for at least thirty days before they are permitted to leave the yards, and during that time they are sprinkled thoroughly.

The mixture used in the manufacture of the pole is one part cement; two parts sand, maximum size  $\frac{1}{4}$ -inch; and three parts LeRoy sand or gravel, maximum size  $\frac{3}{4}$ -inch, minimum size  $\frac{1}{4}$ -inch. The mixture is of very wet consistency. The bolts and pipes used in the pole are galvanized.

### Lamp Posts

The form for this type of lamp post is in four segments, which are bolted together so that the inner surface conforms to the outside lines of the lamp post. The segments are made of cast iron, and the form is in a vertical position while the concrete is being poured.

The re-inforcement which is used consists of four  $\frac{1}{4}$ -inch twisted steel square rods which run the entire length of the pole, and are wired to a 2-inch black iron pipe which also extends the entire length of the pole above the ground and far enough below the ground to connect with the underground wiring.

In assembling the re-inforcement, each rod is wired separately to the 2-inch pipe, and proper distance from the pipe is observed in order to give the rod its proper location in the section of the pole. The four -

rods being wired to the 2-inch pipe, three of the sides of the cast iron form are put together with a small end which corresponds to the top of the lamp post, resting upon a wooden pallet in which there is a small circular depression large enough to take the 2-inch pipe. One side of the form being open, the steel and pipe are properly placed and the fourth side is bolted onto the form. The whole form is then fastened securely to timbers about 7 feet above ground, and concrete is deposited in the form from above, of consistency thin enough so that with very little tamping the form is completely filled. The portion of the pole which goes into the ground is a straight, square section about 30 inches long and 8 inches square. The wooden form to make this is fastened securely to the cast-iron form, and then the concrete is poured in. After 24 hours the forms are removed in segments and shifted along to the place where the next pole is to be made and assembled as before. The post remaining is securely fastened

to the runway timbers and permitted to stand there from 6 to 10 days, and is sprinkled with water every day. At the end of this time it is taken down and put in the storage yard. At the end of about two weeks the panel is dressed with a tooth chisel, which cuts into the surface of the concrete, leaving the aggregate exposed in a pleasing manner. The rest of the pole is rubbed smooth to remove any imperfections or marks which may have occurred from the forms.

The concrete for lamp posts is made of a mixture of one part Portland cement, two parts sand, maximum size  $1/16$  of an inch; three parts fine gravel, maximum  $5/16$  of an inch, minimum  $1/16$  of an inch. The mixture is soupy and flows freely in and around the reinforcement in the forms.

T. M. Quinn is in charge of the plant and he and his force of competent workmen deserve considerable credit for the good work they have done in developing this new branch of our business.

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Mr. Rockwood had a very interesting illustrated article on "Street Lighting in Rochester" in last month's issue of "The American City."

Now, Mr. Rockwood, we must insist on an article for this magazine. Charity begins at home.

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J. G. Cross, of the Philadelphia Electric Company, was in Rochester August 5th, and accompanied by Mr. Yawger inspected the new magnetite lights on the streets here. Mr. Cross was greatly pleased with Rochester's splendid lighting system, and said that probably the Quaker City would adopt the same lighting scheme as Rochester.

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A little cork fell in the path of a  
whale,  
Who lashed it down with his angry  
tail.

But in spite of his blows  
It quickly arose  
And floated serenely before his  
nose.

Said the cork, "You may flap and  
sputter and rap,

But you can never keep me down.  
For I'm made of the stuff  
That is buoyant enough  
To float instead of to drown.

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No, Cordelia, your husband's  
brain fag is probably not due to  
thinking of you while you were  
away during the summer.

## Less Complaints and More Business

By L. W. LAYMAN



To-day many of our consumers who in the past were always looking for an opportunity to complain, are boosters. It seems difficult for some consumers to appreciate the fact that our Company is interested in complaints and the economical use of electricity and gas; in other words, that we are "selling service." The Company realizes that satisfied customers are valuable advertising mediums, therefore it wants the consumer to get a dollar's worth of results for every dollar of his money. This policy is making friends for the Company every day.

When the three-rate schedule was put into effect and our consumers were notified by letter of a reduc-

tion of approximately 10 per cent., in the cost of power, many came to our office to sign the new rate schedule; others wrote letters or 'phoned for one of our representatives to call and explain.

"Why do you do this?" was the question usually asked. Now these same customers sometimes remark in a pleasant way—"why does my bill run as high as before?" When informed that if they refer to their bills they will see they have been using more electricity than before, they invariably reply: "Well, that's right, I am burning my lights and using my power longer—I guess that bill is all right." All of which goes to prove that among the majority of our consumers there is to-day less complaints and more praise for our Company's electric and gas services.

### My Father's Dinner Pail

I found it in the attic in a corner  
dark and dim,  
'Twas dented on the cover, and 'twas  
broken on the rim,  
Yet it thrilled my heart with pleasure  
as I took it from the nail,  
That simple link of girlhood's days,  
my father's dinner pail.

It was dusty, it was rusty, it was  
broken on the rim,  
Yet it thrilled me for the moment  
with sweet memories of him.  
Of the bloom upon the orchards,  
and the fragrance in the gale,  
As I walked through shining  
meadows, with my father's dinner  
pail.

I can see the garden pansies and the  
sunflowers by the wall,  
And, through the woodbine covered  
porch, I hear my mother call,

"Come, Janey, quick, put on your  
hat; there comes old Father  
Kail;

You're none too soon; come in, my  
dear, and take the dinner pail!"

I pass beside the woodbine where  
the tender violets grow,  
And through the pleasant meadows  
where the honeysuckles blow,  
Across the bridge, along the brook,  
and through the broken rail,  
Where some one waits to help me  
with my father's dinner pail.

I can hear the wild birds singing  
and the drone of humming  
bees,

And the voices of my children play-  
ing 'neath the shady trees.

Yet memory comes crowding like a  
pleasant fairy tale,

And once more I trip through  
meadows with my father's dinner  
pail.

## The Nature and Use of Explosives

CONTINUED FROM LAST ISSUE.

By PHILIP F. STEPHENS



When thawing small quantities of dynamite lay the sticks in a tin box or pail, cover with sawdust and then set in a can or tub of water the temperature of which is about 105° F. There are thawing kettles on the market that operate on this principle. They are simple in construction and meet every requirement for efficient operation and safety. In capacity they range from 20 to 60 pounds.

As soon as a quantity has been removed, the compartment for the dynamite should be carefully wiped to remove any nitro-glycerine that may have leaked from the thawing cartridges. To reheat water in the can or kettle, never place either on a fire or near steam pipes while dynamite is thawing. Remove dynamite with its container, reheat water and then continue the thawing.

Another simple thawer may be made by building a box about 3 feet long by 2 feet wide and 2.5 feet deep. Place a compact bank of green manure 2 feet thick about this. Also put some in the bottom of the box to a depth of one foot. A ventilator made from a 3-foot piece of stove pipe is placed in the cover. The dynamite may be placed in this thawer in its case or it may be laid loosely in the bottom of the thawer. The cover is put on and 1.5 feet of manure packed on top. The manure in the bottom of the thawer acts as an absorbent for any nitro-glycerin that may leak out, and it therefore must be changed frequently. When the outside temperature is 32° F. a complete thaw

will be effected in four or five hours, and in zero weather about eight hours will be required.

Where large quantities are used a small thawing house should be constructed, the size of which will depend on the magnitude of the work. This would have the same construction as a storage magazine. Racks with draws of convenient size are provided for the dynamite. These racks are about 2.5 feet from the walls. The heat is supplied by hot water radiators which are placed on the walls and these are connected by a 1-inch pipe to the heater which is at least 50 feet away. The temperature to be maintained is 80° F. and it should never be allowed to rise above this. High temperatures must be avoided because nitro-glycerin evaporates at 104° F. Under no circumstances is steam or a stove to be used to heat the building.

When dynamite is properly thawed the cartridge will give when slightly squeezed between the fingers.

### Dangerous Methods of Thawing

The following methods of thawing are exceedingly dangerous and therefore must never be used: **PLACING DYNAMITE NEAR AN OPEN FIRE; ON OR NEAR A STOVE OR BLACKSMITH FORGE; IN HOT WATER; HOLDING IT NEAR A STEAM PIPE OR IN A JET OF STEAM; LAYING IT ON HOT SAND OR STONES; HOLDING IN A CANDLE FLAME, OR COMPLETING THE THAWING BY RUBBING WITH THE HANDS.**

Setting the cartridges on end in a pail of hot water is a common offense. The nitro-glycerine is likely to settle to the lower end of the

cartridge, and part of it be replaced by water as it leaks out. The nitro-glycerin that has leaked out is liable to be set off if it receives a sudden shock or the water in the pail is reheated to thaw another charge. Innumerable accidents have resulted from this. It is also uneconomical to use this method of thawing because much nitro-glycerin is lost by leakage.

### Signs of Danger

If a stick of dynamite is greasy to the touch it is evident that the nitro-glycerin has leaked through its paper covering. As a test for safety place a stick of the explosive on a sheet of brown paper and keep it at about 80° F. for 12 or 15 hours. If at the end of that time the paper has a spot that looks like grease, the explosive is of inferior quality and is to be considered more or less dangerous to handle. When a cartridge has a greenish hue, as is often the case with old dynamite, its safety is in question. When an efflorescence, a white salt, is found on the exterior of a cartridge it indicates that potassium chlorate, potassium nitrate, or sodium nitrate has separated out, thereby rendering the explosive very sensitive to shock and therefore unsafe. Dynamite that is leaky or has characteristics such as those mentioned above should not be accepted from the manufacturer or from the distributor.

### Loading and Firing

In freezing weather dynamite should be taken from the thawer, carefully protected against the weather by wrapping in an old blanket or be placed in a box insulated against the cold, carried to the place where it is to be used and the blast holes loaded and fired in the shortest possible time. Since the freezing temperature of nitro-glycerin is near 50° F. it does not require a long exposure to the low temperature of the air or the rock before becoming ineffective.

WHEN TAKING THE DYNAMITE FROM THE MAGAZINE IT MUST BE CARRIED SEPARATELY FROM THE CAPS, FUSE, ELECTRIC FUZES, BLASTING MACHINE, METALLIC TOOLS, ETC. On the work it must also be kept at least fifteen feet from above tools and from electric wires.

In loading the charge, the cap and fuse or electric fuze is placed in the first cartridge in the following manner: The fuse is cut straight across and at length according to time required to get to a safe distance before explosion takes place. If the fuse is too large for the cap, whittle it down, if too small, wrap a small piece of paper around it to make the fit; then slip the cap on the fuse. Do not twist or force the cap on the fuse as the explosive in the cap is very sensitive and does not require a heavy shock or much friction to explode it. The cap is then crimped about  $\frac{1}{4}$  inch from the fuse end with a cap crimper. Never do the crimping with the teeth, by pounding or with a pair of plyers. A hole is then punched diagonally into the dynamite cartridge with a pointed stick and the cap end of the fuse inserted and held in position by fastening or wiring to the cartridge.

Another method is to open and make a hole in the end of the cartridge, insert cap and tie paper of cartridge securely about fuse just above cap. This is probably the better method. It is bad practice to wind the fuse about the cartridge because the latter may be set on fire by the former and burned up before the cap is exploded. When an electric fuze is used to explode the blast, it is applied to the cartridge in the same manner as the fuse. The lead wires are usually fastened by making a half hitch about the cartridge rin is near 50° F. it does not require with them. In doing this great care must be taken not to break the insulation on the wires or loosen them

in the cap. The better method is to tie or wire the leads to the cartridge. The cartridge is then carefully pushed to the bottom of the drill hole with a stick; a little loose sand is tamped about it, other cartridges then follow and more sand or pellets of clay are tamped in to fill up all irregularities between these and the sides of the hole, care being taken not to injure the fuse or the insulation on the lead wires. Tamping should be by direct pressure and not by strokes or blows. When it is necessary to cut a stick of dynamite, use a knife made of brass or copper; the cutting should be done slowly so as to avoid any violent action that might explode any free nitro-glycerin in the cartridge.

It is of the utmost importance to have the fuse properly timed or the lead wires sufficiently long that the men doing the work can be in a safe place when the blast takes place. **THE MAN IN CHARGE OF THE WORK SHOULD MAKE SURE THAT EVERY ONE IN THE VICINITY IS IN SAFETY BEFORE LIGHTING THE FUSE OR CONNECTING THE LEAD WIRES TO THE BLASTING MACHINE.**

When powder is used it is transported to the work and blast holes charged with the same care as is dynamite. When the blast holes are dry the powder is poured into them and tamped. The fuse or electric fuze is inserted at least two inches into the charge, and sand or clay carefully tamped in until the hole is filled. Firing is done in the same way as dynamite. As has been previously stated the detonation is by heat instead of percussion.

When the blast holes are wet, long tubes are made from paper and well waterproofed by dipping into hot paraffine. These are of a diameter that will enable their insertion into the hole without distorting the tube in any way. They are loaded with

the powder, detonator inserted and securely fastened, then lowered into the hole and sand tamping placed as before described, and fired.

### Misfires

Misfires are usually due to fuses of inferior quality, a fuse that is cracked from being too dry and water getting into it, a broken powder train, by attempting to waterproof it by using an oil or thin grease; or insulation broken on lead wires, the wire becoming loose in the detonator; or to inferior caps or fuzes, a weak blasting machine, frozen dynamite or wet powder. If a misfire occurs in an electrically fired blast it is safe to make an examination in four or five minutes. The lead wires are to be first examined for short circuits; if they are found to be alright, carefully remove the tamping to the top of the first cartridge, place another carefully primed on this and fire. On large works a drill hole is put down a foot from the one in question, is heavily loaded and fired. **NEVER DRILL OR PICK AT A CHARGE THAT HAS FAILED TO EXPLODE.** When fuse is used and a misfire takes place no examination should be made for at least an hour. When examination is made proceed as above.

Occasionally some powdermen become careless and do not tamp the charge well or not at all; the result is that some of the dynamite near the top of the charge is blown out without exploding. This is lost in the debris and later a shock from a sledge or pick may explode it and more victims of carelessness are added to the list that is already too long. Though no one were injured, this is a very uneconomic method as only about 25% of the explosive is effective under such conditions.

On tunnel or deep excavation work drillers are warned against drilling into old holes so as to avoid the remains of any misfires.

Mudcapping or "doby shooting" is the method used to break boulders, or blow rock from the face of a ledge. The cartridges are placed on the surface of the rock, being held in position by a prop and then a heavy pat of wet clay or mud is plastered over them, the former being preferable, and the charge fired in the usual way. In this work it is well to observe the precaution of removing any small stones that may be mixed in the material of the cap. On explosion these fly like bullets for a long distance and often inflict serious injuries.

Men handling dynamite cartridges with barehands often experience severe headaches. Nitro-glycerin is absorbed through the skin and taken into the blood and, being a powerful stimulant, it produces the above malady. This may be avoided by wearing leather gloves doing the work. As the gloves become saturated with nitro-glycerin they should be replaced by new. The gases from the explosion are more or less poisonous and when inhaled also cause headaches.

Men employed on blasting operations should be competent, thoroughly experienced, and ever zealous in exercising the greatest care in preventing accidents in their work. While thus engaged they should never smoke nor be under the slightest influence of liquor. In addition to the foregoing precautions the following should also be strictly observed:

**NEVER CARRY BLASTING CAPS NOR ELECTRIC FUZES IN THE POCKETS NOR IN METALLIC CONTAINERS; CARRY THEM IN THE ORIGINAL PACKAGE, OR IN A PAPER OR WOODEN BOX.**

**DO NOT ATTEMPT TO REMOVE CAPS FROM A BOX BY USING A PIECE OF WIRE, A NAIL OR A SHARP INSTRUMENT.**

**A BLASTING MACHINE SHOULD**

**NOT BE STORED NEAR BLASTING CAPS OR ELECTRIC FUZES.**

**NO PRIMING OF CARTRIDGES SHOULD BE DONE IN A MAGAZINE OR THAWING HOUSE, NOR MORE CARTRIDGES CARRIED THAN ARE REQUIRED FOR IMMEDIATE USE.**

Don't attempt to draw the wires from an electric fuze.

**NEVER HANDLE NOR STORE EXPLOSIVES IN OR NEAR A RESIDENCE.**

**WHEN A THUNDERSTORM IS APPROACHING OR IN PROGRESS AVOID PRIMING CARTRIDGES OR CONNECTING WIRES FOR ELECTRIC FIRING; ALSO KEEP AT A SAFE DISTANCE FROM MAGAZINES.**

**A BLASTING MACHINE SHOULD BE OPERATED WITH FULL FORCE TO GIVE GOOD RESULTS.**

There are federal, state and local laws that regulate the shipping and storage of explosives. The laws of New York are very strict in this matter. As they are too voluminous to be given here, the reader is referred to the Laws of 1912, Chapter 453, Sections 358 to 368, inclusive.

In the use of explosives, the Railway and Light Company complies with all legal requirements and all precautions enumerated above are strictly observed. The men engaged in the work of blasting are to be highly commended for the careful manner in which they are conducting it and the results they have obtained.

**CORRECTIONS**—In last article the following printers' errors should read:

Wherever the term "electric fuses" appears, "substitute "electric fuzes."

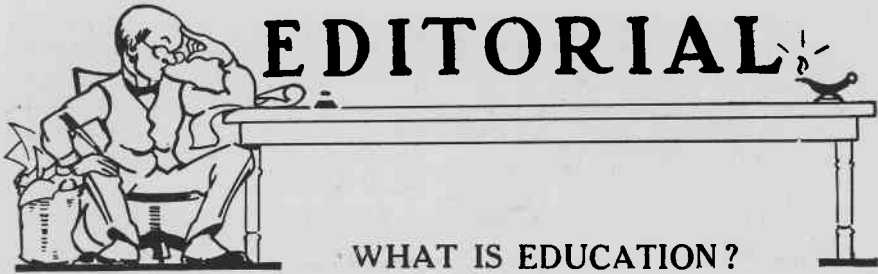
Page 79, first column, lines 7, 8 and 9 should read: "kieselguhr (an earth of vegetable fossil remains) or an explosive base of the nitrate class to make it safe"—

44th line should read "Detonators. Safety use is"—

2nd column, line 15, substitute "fuzes" for "fuses."

Page 80, 2nd column, 41st line, substitute "that" for "real."





## WHAT IS EDUCATION?

A professor in the University of Chicago told his pupils that he should consider them educated in the best sense of the word when they could say "Yes" to every one of fourteen questions that he should put to them. The questions are full of meat, and are worth careful reading:

"Has education given you sympathy with all good causes and made you espouse them? Has it made you public spirited? Have you learned how to make friends and keep them? Do you know what it is to be a friend yourself? Can you look an honest man or pure woman straight in the eye? Do you see anything to

love in a little child? Will a lonely dog follow you in the street? Can you be high-minded and happy in the meaner drudgeries of life? Do you think washing dishes and hoeing corn just as compatible with high thinking as piano-playing or golf? Are you good for anything to yourself? Can you be happy alone? Can you look out on the world and see anything except dollars and cents? Can you look into a mudpuddle by the wayside and see a clear sky? Can you see anything in the puddle but mud? Can you look into the sky at night and see beyond the stars? Can your soul claim relationship with the Creator?"

## Please Send Us News

Once more we wish to draw the attention of our readers to the necessity of keeping us supplied from month to month with articles, news items and "personals" from the various departments. We are anxious to make our little publication as instructive, helpful and interesting as possible. This we cannot do without the co-operation of our family of readers. So please keep us supplied. We would particularly like to hear frequently from the various

departments at Front Street, the Gas Works and the Stations. If every department will help us each month the task of publishing "Gas and Electric News" will become very much easier. In this connection please note that all practical jokes find their way into the waste paper basket.

To those who have co-operated with us from month to month we wish to express our sincere appreciation.



So they all say—it was some picnic.

Bunko experts say that black sheep are the hardest to fleece.

Shedding tears over spilled milk only adds more water to it.

You may be justified in blowing your own horn, but not in going on a toot.

Did you ever see a man who could arrange the furniture in a room to suit a woman?

It takes a romantic girl to write a love letter that means the same thing over and over again.

A man may be said to have horse sense if he declines to mortgage his home to buy an automobile.

Sculptors are wise. Not one of them has ever modeled a statue of a great man with a silk hat on.

Little minds are hurt by little things, while great minds ignore them.

Men exist for the sake of one another. Teach them, then, or bear with them.—Marcus Aurelius.

The occasion is piled high with difficulty, and we must rise with the occasion.—Abraham Lincoln.

A girl who screams when she's kissed may hold to the theory that there are other methods of advertising besides the use of printer's ink.

There's meters of accent,  
There's meters of tone,  
But the best of all meters,  
Is meet her alone.

The man who does his best may never lead the procession, but the man who does less than his best is fore-doomed to be a "tail-ender."

The only true conquests—those which awaken no regrets—are those obtained over our ignorance.—Napoleon.

Through every clause and part of speech of a right book, I meet the eyes of most determined men.—Emerson.

Ozone is to take a prominent part in the campaign against the deadly house fly. All disagreeable odors that attract flies are caused by tiny particles of decaying organic or vegetable matter floating in the air. Ozone attacks and burns these particles, removing the odor and destroying the food which would nourish flies.

## GENERAL SAFETY

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Herman Russell, Chairman

John C. Parker

Thomas H. Yawger

H. P. Gould

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J. W. Morphy, Adjuster

Frank Hellen

Victor T. Noonan, Secretary

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## COMMITTEE

**What the Accident Reports Show**

During the months of April and May a diagram showing the number of accidents for a period of six weeks was made. Among an average of 1,250 employees in that time there were 53 accidents. The Arc Lamp and Meter Department headed the list with 9 accidents; then followed the Line Department with 8, Construction 8, Underground 7, Gas Street 4, Gas Shop 4, Gas Works 3, Subway 2, Collection 2. The following departments had one accident each: Transportation, Drafting, Stations 3, 15 and 1, Concrete Pole. Total 53.

On the opposite page please notice the latest diagram covering a six weeks' period from June 25th to August 8th. The upper heavy black line opposite each department indicates the increase or decrease from June 25th to August 8th. The black line underneath shows the same for the April-May period.

In the diagram on the opposite page the following facts show: First: More men (1,369) were employed during this period than last, and there is a decrease of eleven accidents. Second: Slight increases will be noticed in the lines opposite Gas Shop, Offices, Construction, Stations, and Transportation. Departments showing decreases are: Line, Underground, Gas Works, Subway, Arc Lamp and Meter Departments. Total accidents 42.

The Arc Lamp and Meter Departments stand at zero. This fine showing is due to the fact that safety regulations are being rigidly observed by Mr. Durfee's men.

Live Fish Swim Up Stream—Dead Ones Float Down.

Accident charts like the one below will be made out every three months and put on the Bulletin Boards. Study them carefully and see how your department stands. Your efforts may be making a good record.

*R. R. & L. CO.*  
*ACCIDENT REPORT. FROM JUNE 25, '13 TO AUG. 8, '13*

LOCATION	MAX. NO. EMP.	NO. OF ACCIDENTS	0	2	4	6	8	10	12	14	16	18	20
STA. 3 CONST.	88	THIS PERIOD LAST											
		"											
		"											
GAS SHOP	80	THIS LAST											
		"											
		"											
OFFICES	244	THIS LAST											
		"											
		"											
CONSTRUCTN	95	THIS LAST											
		"											
		"											
STATIONS	103	THIS LAST											
		"											
		"											
GAS STREET	271	THIS LAST											
		"											
		"											
LINE	66	THIS LAST											
		"											
		"											
UNDERGROUND	37	THIS LAST											
		"											
		"											
TRANSPORTIN	17	THIS LAST											
		"											
		"											
GAS WORKS	106	THIS LAST											
		"											
		"											
SUBWAY	103	THIS LAST											
		"											
		"											
ARC LAMP-METER	86	THIS LAST											
		"											
		"											
TOTAL	1369	THIS PERIOD LAST	42										
		"	53										
		"											

REMARKS - LARGEST NO. WEEK AUG. 1 - AUG. 8 - 12  
SMALLEST " " JUL. 25 - " 1 - 1

The last period was April-May. Top line opposite each department shows increase or decrease over last period. Arc Lamp Department stands at zero, showing no accidents from June 25 to August 8. Slight increases in following departments: Gas Shop, Offices, Stations, Transportation. All other departments show decreases.

It is the little accidents day by day that make the fearful total of America's casualties. It is not the catastrophes that you read about in the papers. And most of these little accidents are preventable.

## **Crank With Your Left Hand**

Fully 50 per cent of automobile accidents are due to cranking accidents. If, therefore, the users of automobiles would crank their cars with their left hands instead of their right, accidents of this kind would be reduced fully two-thirds.

Cranking is responsible for a continuous stream of claims for dislocations, fractures of the wrist and forearm and for contusions of other parts of the body, particularly the face. Accidents have been reported where death occurred as the result of the user of the car being in front of it during the cranking operation. The mechanism being out of order, the car has started and run the cranker down.

This is an unusual accident, and is generally due to carelessness on the part of the chauffeur, who does not properly set the brakes when leaving the car.

There is this to be said about cranking with the left hand: Any reflex action which occurs is not apt to do any damage, as it is the front instead of the back of the hand which would be in the direction of the "kick." The person cranking, therefore, can let go much more readily. Besides, his body is not in a position which would cause serious injury in case anything went wrong.

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## **A Word About Goggles**

The records of one large steel company showed that no less than 250 men had lost their sight through simply permitting other workmen to remove foreign bodies from their eyes. The loss of sight in these cases was caused largely by the perforation of the cornea, and by the transmission of infection by fingernails and other means. Goggles, therefore, must be worn by employees in any department where there is the slightest possibility of injury to the eyes.

Goggles should always be kept thoroughly clean. By boiling them in hot water or immersing them in an antiseptic solution, they can be put in a sanitary condition, and this precaution should always be taken. Where goggles are handed in with the workmen's tools they should be cleaned daily.

Cheap hammers and chisels of poor quality are frequently the cause of eye accidents to mechanics. Care must be taken in all departments to have such tools carefully inspected each day and the burrs on the chisel heads ground off to prevent them from flying off and striking the user of the tool or a fellow workman.

A supply of Saniglas Safety Goggles has just been ordered from the Julius King Optical Company, New York City. These may be obtained from the Store Room. They are the neatest and very best goggle made, and under the most severe tests prove a splendid protection to the eyes. With the constant use of these goggles we hope absolutely to eliminate all accidents to the eyes of our employees. The value of the goggles as eye protectors has been amply demonstrated recently in the Arc Lamp and Meter Departments, where no accidents have occurred in several months.

## Employees' Benevolent Association

Just as we go to press, we are pleased to announce the organization of an "EMPLOYEES' BENEVOLENT ASSOCIATION," which took place at a meeting of foremen and other employees held in general offices Monday, evening, August 25. For a number of years such an organization has been often discussed. Recently Foreman Pat. O'Neill laid the matter before Mr. Noonan, who, with the approval of General Manager Hutchings and Chairman Russell of the General Safety Committee, called the employees meeting. There was not a single objection offered by those at the meeting. On the contrary, all the foremen and others present declared themselves enthusiastically in favor of a benevolent association.

In the next issue of the magazine we hope to publish in full detail all the plans, which so far have not been fully completed.

The officers elected were as follows:

President, William White, foreman Gas Works.

Vice President, A. H. Lamey, foreman Cons. Station 3.

Secretary, William T. Nolan, General Offices.

Financial Secretary, George Bailey, foreman Station 33.

Treasurer, Thomas Nash, foreman Transportation Department.

Trustees, Pat. O'Neill, A. D. Rees, George Bailey, Pat. Martin, W. J. Sutherland.

Advisory Director, Victor T. Noonan, Secretary General Safety Committee.

Meetings will be held on the first Tuesday of each month at 8 p. m.

All employees are cordially invited to become members of our E. B. A. Attend the next meeting on the first Tuesday evening in October and join.

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## Brief Comments

The whole idea of our Company's safety movement is co-operation with the men.

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Men, the prevention of accidents is one of your most important duties.

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Make it your personal duty to make regular inspections of your department and see that the safeguards and signs installed to promote safety are always in good condition.

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It is important to report accidents, but it takes less time to prevent them. Two minutes' work or care will often prevent an accident that you can't gather all the evidence about in two days.

## Among the Picnicers



Top Row: Left, Freddie Klein with John Bunny's smile; Right, Even the little folks had a good time. Center: Yatteau and Gosnell; Middle, The Misses Gosnell, Geen and Harkness; Right, the office boys. Bottom: The men were always where the pretty girls were!

## "Best Picnic Ever"

The seven hundred employees who attended the annual picnic at Manitou, August 9th, have unanimously declared the event the most successful and enjoyable in the history of our organization. Fun and frolic prevailed all day, and there was a beaming smile on every face. The various committees worked hard to make this year's outing a big success, and their efforts secured the desired result. The dinner was particularly good, and during the day there was a plentiful supply of

the kind of music his men played at Manitou for our picnic.

In the field sports the Gas Team defeated the Electrics by a score of 14 to 1, the latter being almost suffocated by the gasoline efforts of the former. It was the "awfullest" game we ever witnessed. May it never happen again!

Hundreds of picnicians gathered round the open air platform in the afternoon to see the wonderful airship flights, high diving and swim-



Picnic Chairman Hoddick on Left, Souser's Safety Band Center, John Bunny's Rival on Right.

light refreshments, sandwiches and ice cream. Souser's Safety Band caused no end of amusement when it paraded the grounds, each member in grotesque uniform carried an instrument just as grotesque from which came forth the wierdest kind of music. No accidents happened to the band, and so it has been engaged to play again at next year's picnic. In the meantime, the conductor says he will visit Kalamazoo and Hong Kong, and try also to inspect "Davy Jones' Locker" for new players, as he was not satisfied with

ming stunts by the "world's greatest," Yawger, Hellen, O'Neill and White. But the crowd waited in vain and Circus Manager Hoddick said the four actors were suffering from a severe attack of "cold feet," and had taken themselves into the woods to hide.

The athletic events were won by the following: 100 yard dash (men), P. Ogden, J. Wright; 50 yard dash (women), Tress. Murphy, Rea Teller; Time Race (women), Anne Slattery, Lillian Slee; fat men's race, J. Gallagher, Frank Kelly;



ball throwing, Florence Dodson, Gabrielle E. Gay; shoe race (men), L. Marshall, George Smith; hop, step and jump, F. Curtis, J. McGurn; 100 yard dash (women), Tress. Murphy.

### Committees

General: Vincent Hoddick, Chairman; William Gosnell, Treasurer; W. T. Nolan, Secretary; George L. Ernst, Thomas Kewin.

Entertainment and Dancing: Ivar Lundgaard, Chairman; A. S. McDowell, L. W. Layman, Victor T. Noonan, Walter Drew.

Dinner and Refreshments: James B. Eaton, Chairman; Henry C. Marquadt, L. W. Layman, Earl Harrington, Joseph Quinn.

Athletics and Games: Walter Drew, Chairman; J. Logan, Chauncey Alcott, H. Hoagland, C. Johnson.

Transportation: J. W. Morphy, Chairman; Thomas Christie.

Music: Jack Cox, Chairman; James Downs.

Printing, Programs and Badges: Victor T. Noonan, Chairman; William Gosnell.

Nearly six hundred telephone circuits radiate from Chicago.

Out of 14,000 houses in Duluth, Minn., no less than 12,000 or about 86 per cent of the total, are wired for electricity, a still more remarkable fact being that the number of houses using electricity exceeds by 2,000 the houses connected to the water supply and by 5,000 those using gas.

### Gee! But This Sounds Good

I want room so I can go out in my own back yard and yell and not attract attention nor the police. There are other essentials; a fireplace—no lares and penates will roost on a radiator, and no love and inspiration breathes out of a grilled hole in the floor—I want to see wood burn. I want trees, big, scaly ones, planted before I was born and to flourish after I'm gone, yet toward which I can indulge in the fool satisfaction of owning them; a hound pup to wag his tail at me and look at me with worship; a cat to sit by the fire and look comfortable; and, when spring comes, hyacinths in the garden and fuzzy little peeping chickens around the doorstep; kittens doing somersaults; a whole ham cooked at once; a table full of my kind of folks to eat and drink with; babies; young folks sparking and sparkable; a neighbor with whom I can sit on his back porch and smoke and find fault with the universe; an enormous bathroom; slippers; no end of clean things such as towels, napkins and tablecloths; no wall paper, only books everywhere; a den where I can be alone; to travel often enough to appreciate my own harbor.—Frank Crane.

Sure things are sometimes uncertain.

### ON THE VALUE OF MEMBERSHIP IN THE N. E. L. A.

"I think the day may come when membership in the Section will be naturally viewed by the officers of the company as the first evidence of a man's desire to improve himself, and consequently improve his usefulness to the company, and as a result improve his usefulness to himself; or in other words, improve his earning power for his own benefit."—Samuel Insull.

# ELECTRIC DEPARTMENT



## Wins Diploma

William Edwin Hill, in charge of the Arc System at No. 6 Station, has just completed a five year course and has received his diploma as an electrical engineer from the International Correspondence School, Scranton, Pa. The course included 59 subjects, and Mr. Hill is to be congratulated on his success. William has been an employee of this Company for more than four years, three years of which he spent at No. 15 Station. This little news item ought to have a special interest to all our young men who would desire to broaden their knowledge and experience.

## Business is Good

The Company's installation report for July shows a marked increase in the use of electricity in this city. Twenty-six motors of an aggregate capacity of 340 horsepower were installed last month in manufacturing establishments and were connected with the Company's lines. More than 6,000 incandescent lamps were added, while there was a decrease of fifteen in the number of city arc lamps. The city's incandescent lamps were increased by eighty-six.

The increase in the number of private automobile charging stations was nine, which shows both an increase in the electric business and in that of selling electric vehicles. The total power increase for the month for 724 horsepower. Who says business is on the decline at present?

## Elm Street Lights

The new plan of suspending the new magnetite lights from the steel trolley poles in streets where the trolley poles must remain has been worked out in Elm Street, where the new lights are now turned on.

With the exception of the new method of suspension the Elm Street lights are the same as the Main Street lights and to add to the general appearance there is scroll work between the light and the pole and an ornamental design is placed at the top. The lights are three feet distant from the poles out over the street.



### To Build New Gas Works

One of the most modern gas plants in the country will shortly be erected by our Company, on property adjacent to the present gas works on Vincent Street. Plans for the new plant, which will cost between a quarter and a half million dollars, are now being prepared by Mr. Russell. It will be modeled after the most up to date gas plants in Europe and this country.

In May Mr. Russell accompanied Mr. Searle to Europe, where both officials inspected gas lighting plants in London, Birmingham, Manchester, Bournemouth and other English cities. The Gas Works in Belfast, Ireland, were also inspected, after which the big gas plants in Berlin, Paris, Vienna, Cologne and other continental cities were looked over for ideas to be worked into the plans for the new gas works here.

When plans are fully completed and the work commenced, we hope to publish Mr. Russell's own story of the new gas works. In the meantime, we wish him success in the development of his plans. We are sure the new plant will be one to be proud of—another proof of Rochester's wonderful growth.

Of 3,875 known causes of fire in Chicago in 1910 nearly a third were caused by the careless use of matches.

### A Fellow's Mother

"A fellow's mother," said Fred, the wise,  
With his rosy cheeks and his merry eyes,

"Knows what to do if a fellow gets hurt,  
By a thump or a bruise or a fall in the dirt.

"A fellow's mother has bags and strings,  
Rags and buttons and lots of things.  
No matter how busy she is, she'll stop  
To see how well you can spin your top.

"She does not care—not much, I mean—  
If a fel'ow's face is not quite clean,  
And if your trousers are torn at the knee  
She can put in a patch that you'd never see.

"A fellow's mother is never mad,  
And only sorry if you're bad,  
And I'll tell you this—if you're only true,  
She'll always forgive you whate'er you do.

"I'm sure of this," said Fred, the wise,  
With a manly look in his laughing eyes,

"I'll mind my mother every day,  
A fellow's a baby that won't obey."



Miss Teresa Bayard, of the Electric Meter Department, spent two weeks in Syracuse last month.

Miss Edna Brasser, of the Electric Meter Department, enjoyed a pleasant trip through the Thousand Islands the week of August 17th.

Miss Edna J. Wilber, of the Electric Meter Department, spent a pleasant vacation in Toronto. Edna says August was a fine month to go sailing on the bay.

Our thanks are due the Electric Meter Department this month for some "Personals." Keep sending them. What has happened to the Gas Works, Gas Street, and W. T. N.'s departments this month?

We received a couple of cigars last month from the switchboard men at No. 3 Station in honor of the birth of a nine pound baby girl at the home of Mr. G. E. Robinson. Congratulations! Glad to smoke cigars any time for similar events. Many thanks, boys!

On his appearance in General Offices last month on his return from Europe, Mr. Searle received a hearty welcome from all the officials, office assistants and stenographers; even the office boys and janitors gave him the hand of welcome.

Roger De Wolf, who is an ensign in the Engineering Division of the Naval Militia, enjoyed a short cruise with the local naval men on a big battleship last month. Roger has been very reticent about his experiences, hanging over the side of the ship's rail.

V. Hoddick, J. Hohman and J. Gallagher, of the Gas Shop, spent a week fishing on Lake Laborough, Canada, last month. While on his way to the bass grounds, Mr. Hohman was pulled out of the boat by some strange monster of the deep. Joe had a narrow escape, so this fish yarn declares.

Night Watchman S. Quick, of the Front Street yards, spent his vacation at Cranberry Pond. August 23rd he invited Vincent Hoddick out fishing. Vincent returned (so report goes) in an ambulance, and the doctor who saw him said Vincent was suffering from "Americana Dilemma," a sickness caused by a prolonged expectation of a fish bite.

### Picnic Wins a Vote of Thanks

The employees of No. 5 Station who attended the picnic August 9th wish to express a vote of thanks to the various committees who worked so hard to make it a howling success. In our opinion it was the best picnic we ever had.

Signed:

William Julian,  
Foreman,  
J. E. Hughes,  
Dan. Keeler,  
G. W. Howell,  
John Ingersoll,  
A. H. Pendlebury,  
John Black,  
Ben Langhan.

Pekin, one of the largest cities in the world, is without a street car system.

Electric smelting and refining processes are said to produce steel that is denser and more homogeneous than open hearth steel of the same general composition.



## AMONG OUR EXCHANGES

### The Ambassador, Lockport, Lockport, N. Y.

A man once paid \$20 for a pair of glasses when all he needed was a dose of salts. The optic nerve is frequently blamed when the trouble is entirely alimentary.

### Current News—Phila. Pa.

"Put your fingers on the consumer's pulse! There's no such thing as absent treatment in the practice of business."

"If each man threw his whole heart into his work, what a mighty organization ours would be."—"Gas and Electric News," Rochester, N. Y.

### Magazines Received

Among other exchanges received we beg to acknowledge with thanks the following: Eastman Kodak Bulletin, Gas Institute News, Edison Monthly, Edison Round Table, Safety Engineering, Ford Times, Edison Current Topics, Pacific Service, National Commercial Gas Association Monthly Bulletin, N. E. L. A. Bulletin, Union Electric Bulletin.

We trust that "Gas and Electric News" is received regularly by all our exchanges. If not kindly notify us.

### B. R. & P. Magazine, Rochester, N. Y.

#### TO OUR FIREMEN

If you were under contract to furnish FUEL as well as labor and skill required to generate the NECESSARY amount of steam on your engine, WHAT WOULD YOU DO?

YOUR CO-OPERATION IS ESSENTIAL TO SUCCESSFUL OPERATION. A high standard of efficiency cannot be attained until you use Company supplies with the same degree of conservation that you practice at home.

YOUR SUCCESS is largely dependent upon this COMPANY'S SUCCESS.

WE cannot afford to waste a single OPPORTUNITY.

There are many OPPORTUNITIES to save COAL.

### "Y & E." Idea, Rochester, N. Y.

There is no law against your hustling freight on the docks while you're waiting for your ship to come in.

### Business Builders, St. Paul, Minn.

A fellow manager of mine returned the other day after a two weeks' absence from the city. The first thing he did was to take a walk through the plant to see how things were going. I was in his office when he returned, whistling a snatch of the latest comic opera and smiling cheerfully.

"It was a real pleasure going through the factory this morning," he remarked, "a real pleasure. For everywhere I went I met only smiles and happy faces and heard only pleasant words. Not a single scowl or a bit of grumbling all the way round. I started out feeling a bit low spirited and now I feel happy as a lark."

Happiness breeds happiness. And the best of it is that happiness makes for better work and more abundant work.

Put cheerfulness into your every-day business life—put it into your correspondence—put it into your sales talk—put it into your advertising.

It is a sunshine that will bring you greater crops.

### Current News, Phila., Pa.

One of our readers, an ambitious young man, writes us a letter on the subject of success. He informs us he works hard from day to day; he does his very best, because he wants to succeed and, failing, as he thinks, to get recognition, writes that he has become discouraged.

To that young man, we say, keep on, brother. Don't allow your enthusiasm and ambition to be sapped by discouragement. Persevere and some day you will surely win success. Personally, we wouldn't give a finger-rap for the man who never gets discouraged. Occasional discouragement is one of the best indications that the young man or woman who suffers thus has a strong, ambitious spirit. The most successful men have all had their times of discouragement, yet they rose above discouragement; they conquered every obstacle and won the battle of life.—"Portland Carman."

Above exchange quoted by Current news with credit to the Portland, Oreg., Carman, is part of our editorial which appeared in March "Gas and Electric News."