

GAS AND ELECTRIC NEWS



A Friend

Is one who knows all
about you and likes
you just the same

JULY, 1913

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ROCHESTER RAILWAY AND LIGHT CO.

ROCHESTER, N. Y.

For the Information of Its Employees

GAS AND ELECTRIC NEWS

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Vol. 2

JULY, 1913

No. 3

Our Industrial Engineering Department

By IVAR LUNDGAARD



The central station business of to-day, having reached the age of a little more than thirty years, presents to the casual spectator a view of most bewildering growth and complexity. The man who has watched the times need not be a prophet to predict a still greater future for the central station art; and we who are engaged in the work may safely give it whatever faith there is in us, and devote to it all our ability, energy and enthusiasm. We shall never have a surplus of these qualifications. New problems ever arising have to be met and mastered, and the experience gained preserved and applied. Old problems are continuously being solved in new ways, and the one thing we are not permitted to do is to remain satisfied with the past.

In practically all phases of the business, financial, executive, legal, commercial, and practical, the engineer is called upon to aid the non-technical specialist. As in many other lines of business to-day, the engineer has come to figure largely in the commercial organization, and

I believe the Rochester Railway and Light Company occupies a unique position among central station companies in regard to the extent to which the engineer is being employed to aid in commercial lines.

When the present officers assumed the management of the Company, they conceived the then unique idea of adding an industrial engineering department to the Company's organization, and it was left to Mr. John C. Parker in 1907 to work out this departure from old time traditions in the commercial work of the Company. From a small beginning, the industrial division of the Engineering Department has increased in size, and I trust, ability. It now employs fifteen engineers, to which will be added four more during the summer.

It is part of sound business building to be fair and honest, and it is part of true honesty to be wise. The problems encountered in the commercial work of selling electrical energy are so largely technical that only men of a specialized training and experience can do them full justice. Considering the enormous extent to which electric power is at present being made use of in every

civilized community, and the almost infinite variety of applications, it is easy to understand that there are many chances of making mistakes which might seriously interfere with the good standard of the Company and its product. On the other hand, electrical equipment has reached such a stage of perfection that when properly applied the failures should be rare, and wise management will not permit a small number of failures to interfere with the good will of the Company's clientele and the continued sale of the Company's product.

The task of the Industrial Engineering Department is, therefore, largely to select proper equipment, and to apply it properly to its duty. If any trouble occurs, it is of vital importance to eliminate it as expeditiously as possible.

When general satisfaction among consumers has been established, the work of adding new business is greatly facilitated. The basis for new business must be mutual advantage to the Company and consumer alike, and business thus acquired will always stand on a lasting foundation.

Rochester is a city of varied industries, and of its hundreds of manufacturing plants very few are large enough to employ specialists in such branches of the engineering science as I have attempted to outline below, and the opportunity for our department to render real service in this field is large. It would be impossible in a brief article to more than outline the work that is being done, and the activities of the department extend much beyond the few principal divisions mentioned. Nor does the space at my disposal permit the mention of more than a very few of the results accomplished.

In order to obtain the desired results, it is often necessary to side

step the traditions and customs of former times. This is clearly exemplified in the

Steam Business

The power customer who formerly used exhaust steam heating never spent a moment of thought on economy of steam, and was, of course, perfectly justified in this neglect, for what steam he could not use in the heating system he had to exhaust into the air. With the advent of electric power in his factory, his exhaust steam supply ceases, and he has to obtain steam for heating either from a live steam boiler or by purchase, and economy in the use of steam becomes just as important as economy in the use of any manufacturing raw material. It developed early in the history of our Department that it was necessary to give heating problems close and careful attention, and after Mr. DeWolf had completed the initial studies, the work in this field was turned over to Mr. E. L. Wilder, assisted principally by Messrs. Stephens and Binder. Among the results accomplished I may mention a saving of about 40 per cent of the steam consumption of the immense manufacturing plant of the Bausch & Lomb Optical Company. The officials of the Optical Company co-operated generously in Mr. Wilder's efforts, and it is a source of great satisfaction that they were rewarded by such gratifying results. Mr. Wilder and his assistants have made plans and specifications for a number of heating systems, so as to make sure that an unsatisfactory installation of heating equipment will not make it impossible to use electric power from our lines.

Refrigeration

Artificial cooling is in many respects related to heating. Like heat, refrigeration is a most elusive arti-

cle and has a way of escaping from its proper place that puzzles even the experts. The man who is paying for refrigeration is, as a rule, not a refrigerating engineer, and our Department has been able to effect substantial economies in operation and installation of refrigerating plants.

A few years ago electric refrigeration was "in bad" with a great many people, but we may now count users of electrical refrigerating equipment among our most satisfied consumers. We may take some pride in the fact that almost without exception the recent refrigerating installations in our city have been designed and installed under our supervision. One of the first plants that gave our Department an opportunity to show what could be done by careful study and suitable alterations was the plant of the Big Elm Dairy Company, where a saving of 60 per cent was accomplished.

Illumination

In order to fully grasp the problems of this science it is necessary to understand the difference between light and illumination. An example will perhaps best illustrate this difference: Undoubtedly you have enjoyed the magnificent display of light at Ontario Beach Park on some clear night when on a steamer or in a boat some distance out on the lake. The view is as beautiful as it is brilliant, and yet you see no more of the park itself or its merry throng than you would if every light were turned out, in spite of the fact that there is sufficient light in the park to give almost daylight illumination. If every one of the thousands of lights were hidden from direct vision and so arranged that their light would be thrown on the fantastic buildings and on the grounds, the establishment with its light-hearted population would appear in the night as a

sun-illuminated spot, and you could see its people and alluring attractions as if in full daylight.

The art of illuminating engineering consists in placing and directing light so as to make the light itself as inconspicuous as possible, and to give a maximum of illumination on the object that we desire to see. Mr. Stewart has devoted a very large amount of his time to the study of illumination, and Messrs. Wilder and Taylor have also devoted time to the art. Mr. Wilder described in these pages the astonishing results obtained in the case of St. Patrick's Cathedral, and since that installation was made similar results have been obtained in Christ Church, and a new installation has been designed by Mr. Taylor for the Unitarian Church. Proper illumination in factories is very important. It promotes efficiency and preserves the eye-sight of the workers. Proper store illumination offers many intricate problems for taking care of displays, color matching, et cetera.

Electric Vehicles

Mr. Burch has recently been assigned to the study of electric vehicles, in the hope that he may be of material assistance to the users of electric trucks and pleasure cars. The electric vehicle is decidedly a case where an ounce of prevention is worth a pound of cure, and proper education of the operator very necessary.

Contracting Work

Some years ago the conviction that contracting work offered a very desirable field for the sale of electricity led to the construction of several electric hoists for the use of contractors. These hoists immediately became popular, and we have now eight constantly in use. We have also purchased for rental to the con-

tractors about one dozen centrifugal pumps. These are good revenue earners, as well as being just about what the contractor wants. From hoists and pumps it was a short step to the application of electric motors to the concrete mixers, buzz saws, air compressors, and other machinery that the contractor employs, and some of the largest contracting jobs in the city have recently been accomplished by the use of electric power.

Among our large contracting jobs

are Lane Brothers Contract No. 21, and H. S. Kerbaugh Company Contract No. 63 on the Barge Canal; and Ripton & Murphy, who have just completed the work on the new sewer system. Whitmore, Rauber & Vicinus are still operating electrical machinery on the sewer contract along the Summerville Boulevard. Messrs. H. O. Stewart and Sydney Alling are in charge of this work and deserve credit for the excellent showing made.

(To be continued in next issue)

Say Something Good About Him!

Pick out the folks you like the least and watch 'em for a while;

They never waste a kindly word, they never waste a smile;

They criticize their fellowmen at every chance they get,

They never found a human just to suit their fancy yet.

From them I guess you'd learn some things, if they were pointed out—

Some things that every one of us should know a lot about.

When someone "knocks" a brother, pass around the loving cup—

Say something good about him, if you have to make it up.

It's safe to say that every man God made holds trace of good

That he would fain exhibit to his fellows if he could;

The kindly deeds in many a soul are hibernating there,

Awaiting the encouragement of other souls that dare

To show the best that's in them, and a universal move

Would start the whole world running in a hopeful, helpful groove.

Say something sweet to paralyze the "knocker" on the spot—

Speak kindly of his victim if you know the man or not.

The eyes that peer and peer to find the worst a brother holds,

The tongue that speaks in bitterness, that frets and fumes and scolds;

The hands that bruise the fallen, though their strength was made to raise

The weaklings who have stumbled at the parting of the ways—

All these should be forgiven, for they "know not what they do;"

Their hindrance makes a greater work for wiser ones like you

So, when they scourge a wretched one who's drained sin's bitter cup;

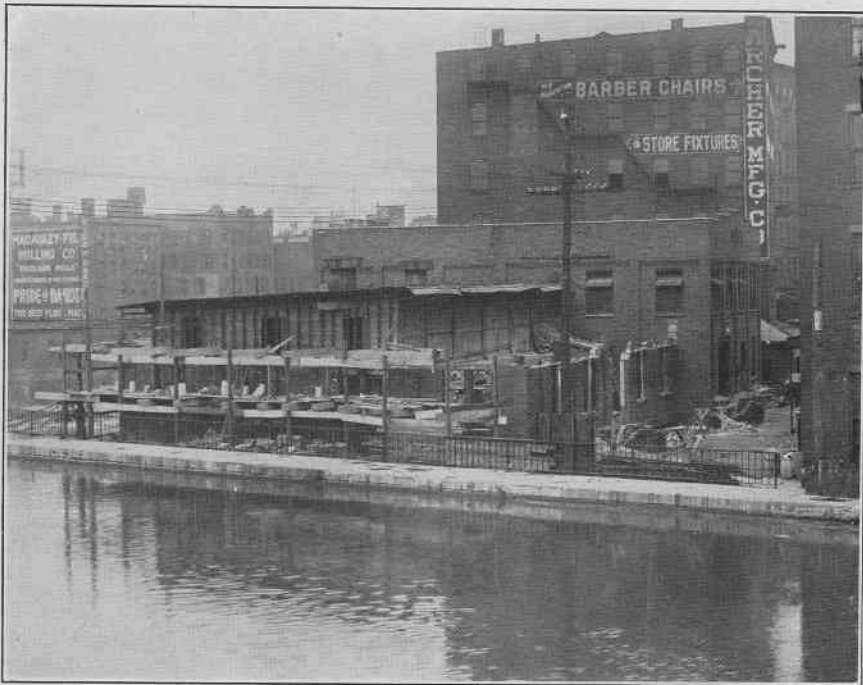
Say something good about him, if you have to make it up.

The New Station Six

By ANDREW S. MacDOWELL

An old land mark, No. 6 Station, at the foot of South Water Street, is rapidly disappearing before developments which are rapidly changing it into a thoroughly modern substation. This old building, erected as a flour mill, nearly a hundred years ago, was constructed along lines which might suggest that it had been also intended to resist Indian attacks, as the walls are three feet thick and the windows small and few in number. Several years ago this Company's predecessors purchased the old mill as a power house site and installed a couple of 60 KW. Edison BiPolar dynamos,

station increased steadily with the growth of the city until four years ago, when it had reached a generating and transforming capacity of 4,500 KW. It was then found necessary to add a wing to the old building to allow for the installation of a storage battery and larger rotary converter, increasing the capacity to 7,500 KW. Two years later another addition was made for new apparatus, which raised the capacity to 11,000 KW., and at the beginning of this year it was found that still more sweeping improvements were required to keep pace with the rapidly increasing load demands.



The old and the new, showing erection of walls for new No. 6 Station outside old building.

belated to heavy shafting driven by archaic water wheels. On account of its location in the heart of the business section the output of the

As the available land around the old station in any one direction was too limited to build a new addition, and as it was impossible to shut

down the station or in any way interfere with its daily operations, it became necessary to erect a new building around the old stone structure, shoring up the roof trusses and rebuilding two of the old walls with an extension on the third side, as shown in the photograph. When completed, the new sub-station will have practically twice as much space as the old one on account of the additional height available for roomy galleries, and will be light, cool, uncongested and safe, quite the opposite of conditions in the old building. A large locker room with shower is included in the plans, and all the most modern developments in electrical control will be installed for the convenience and safety of the operators. The capacity of the completed station will be 14,000 KW. this year with an ultimate capacity of over 20,000 KW. and it is safe to predict that within a few years as the Main Street sky line changes from three and four to ten and twenty story buildings, 20,000 KW.

The General Electric Company has started its mammoth plant and industrial city near Erie, Pa.

Walter Wellman's airship, in which he hoped to cross the Atlantic, was equipped with electric lights.

Ultra-violet rays are being used to sterilize water and milk. These rays of light kill the microbes.

All the alley-ways and dark corners in the city of Washington are to be lighted at night for the suppression of crime.

The estimated available water-power in New York State is one and a half million horse-power, of which only two-thirds has been developed. In one of the large steel mills at Stafford, England, is located a huge electric motor which weighs 250 tons and will develop more than 15,000 horse-power.

will be found inadequate to meet the load conditions.

The successive installations of electrical apparatus in this station have kept pace with the development of the art, always tending toward larger units of greater efficiency and this is particularly apparent in the case of the 2,000 KW. Edison rotary converter to be installed this fall. This converter has an efficiency of from six to ten per cent more than the present 500 KW. motor generator sets and will effect an economy of many thousand dollars a year, thereby justifying the substitution of similar units for all Edison motor generator sets in the near future.

When completed the new sub-station, with its greater degree of safety, freedom from possible service interruptions, improved efficiency, augmented capacity and reduced insurance rates will be another splendid example of this Company's progressive policy.

Wireless is being adapted for submarines.

Siberia and Russia will be connected by wireless.

The Tauren tunnel in Austria is to be ventilated by electric fans.

Chicago is installing telephones at the rate of about 2,500 a month.

Electric ore hoists are being installed in some of the largest mines at Goldfield.

There are more than three hundred thousand telephones in Greater New York.

Asia Minor abounds in good water-powers suitable for electrical development.

The Wanamaker stores in New York and Philadelphia are to be connected by wireless.

Our Company's Accounting System

By F. H. PATTERSON



It is impossible in the short space allotted to give any more than a brief outline of the fundamental principles of accounting. In the formation of a company the first requisite is that there must exist the necessary field of operations from which to earn a certain return on the money that is invested. When such a field is selected a number of individuals band together for the purpose of promoting the enterprise. They sign their names to what is termed "Articles of Agreement" and they bind themselves to take the number of shares of stock set opposite to their names. The money paid in as a result of the issue of these various amounts of stock is used for the purpose of building the company's plant and equipment with which it intends to conduct its business. Later, bonds may be issued for the further extension and improving of its property, and this is accomplished by giving a mortgage on all or part of the property to a certain trustee for the bond holders. A bond is a printed instrument stating that the company promises to pay at a certain definite date a certain sum of money and it is guaranteed by the above mortgage. The entire mortgage may be made up of a certain sum, say \$300,000, and 300 bonds of \$1,000 a piece would constitute the issue. The people would pay in cash for these bonds, which would mature in the year stated within the bond and would then be repayable by the company. In the formation of companies and in the issuance of securities there are legal requirements which must be complied with, but this aspect of the case is passed over. There are other se-

curities used in financing an enterprise but the above two are representative ones and explain the operation.

Commencement of Operation

The company's plant and equipment being complete and ready for operation, it is now necessary to secure customers to take the current generated or gas manufactured and the amounts realized from the sale of these commodities is termed "revenue." In the procuring of this revenue there will be certain operating expenses. First of all, the electricity and gas must be produced, which means that wages of men employed at the plant must be expended, and oil and coal used. There will also be incidental expenses of various natures in such production. Furthermore there will be the cost of distributing the electricity and gas through wires and mains; and any expense in repairing such wires and mains also constitute an operating expense.

In addition, there will be the overhead expenses such as general office clerks and other expenses. Then there are certain fixed charges such as taxes and interest on the bonds outstanding.

The Bookkeeping Necessary

All transactions of the business should be recorded, and the more carefully such transactions are made part of the records so much more will the books reflect the facts regarding the state of the company's affairs. The issuance of the stocks and bonds and the building of the plant and equipment for the purposes of operation should all be fully recorded on the books, and when such entries have been made and entered in the ledger they will constitute what are known as Asset and

Liability Accounts. Assets are resources; liabilities, as their name implies, are amounts for which the company is liable, or, in other words, debts, either contracted or contingent.

The expenses of operation are known as Expense Accounts, or charges against revenue—or Profit and Loss Accounts. They are derived from three sources; namely, the payroll, material and supplies, and miscellaneous vouchers for services rendered. Considerable time of a careful accountant is directed in making proper distribution of vouchers between the divisions of construction and expense. By construction is meant the amount of money invested by a company in improvements and extensions, and in Public Utility Companies a great deal of it is incurred during the time that it is also conducting its business. Great care must be used to see that the two divisions are carefully observed.

This company makes a practice of issuing a work order for all work contemplated. That is, if the Line Department wish to make a repair of certain lines a request will be made to the Order Department for an order to do the work, and that order will bear an operating account number to which all time and material expended must be charged. In doing this work the time of the man on the job is charged to the account number stated on the order. The man's pay roll slip is made out, showing the different accounts to which his wages should be charged, and his pay roll slip comes up along with all the others of the department. From it the Pay Roll Department compiles a distribution of charges, which means that all amounts of a given account are totaled and these several accounts are charged and Cash ultimately gets credit for the amount paid out.

Our materials for operation and

construction when purchased are charged to the Stores Department where a record is made on the stores ledger, showing the quantities received, disbursed and on hand, of any article at any time. To procure articles from the Stores Department it is necessary to make out a store-room requisition, which requests the storekeeper to deliver the article stated; and this form bears the approval of the Superintendent of the Department as well as the name of the person receiving it. This store-room requisition is priced and extended and forwarded to the General Office, where the Stores Department receives credit, and the account, which represents the branch of the company's operations which was benefited, is charged. The Miscellaneous Vouchers above referred to might be for insurance, taxes or any other item not coming under the caption labor and material.

A ledger consists of a number of captions called accounts under which are posted, or entered, the above charges for labor and material and miscellaneous items, and the idea of the book is simply to summarize under these definite headings the various amounts of expense and construction which have been incurred in conducting the business. From these ledger accounts the Profit and Loss statement and Balance Sheet are prepared. The construction of a Profit and Loss statement is simply the logical stating of certain accounts under the main divisions of that statement. The first division is that of Revenue and represents the amounts received by the company for the sale of gas and electricity and any other product or by-product of manufacture. This division is further sub-divided so as to show certain classes of revenues, such as Commercial Metered Electric Lighting and Prepaid Gas Sales.

The next division of a Profit and Loss statement is the expenses. There are usually four or five main divisions covering such items as Production, Distribution, Utilization, Commercial, General and Miscellaneous, and these divisions are further sub-divided according to certain accounts, such as Fuel for Steam in the electric branch under Production and Repairs of Gas Meters under the gas distribution expense. The more finely a Profit and Loss statement is detailed as to sub-divisions and accounts, the more easy it is to quickly pick out those items which have been responsible probably for a loss on operations or at least a serious drain.

After these Expense items are stated there are also such items as taxes and interest on the bonds to be deducted before any amount can be paid out for dividends on the capital stock. Dividends on stock are nothing more than a division of the profits of the company among the share holders for a given period, and it is usually stated as so much per cent of their capital stock holdings. For instance, a Company has a capital stock of \$100,000 and has profits of \$6,000. That would represent a dividend, if paid out, of 6 per cent, and a man holding one share of \$100 of that total issue would receive \$6 as his proportion.

For the sake of clarity we will give the following illustration to further explain the remarks regarding the Profit and Loss statement. A company has revenues of \$50,000 for a year. Its expenses which are made up of production, distribution, etc., amount to \$25,000, leaving \$25,000 from which may be deducted taxes of \$3,000 and interest on bonds outstanding of, say \$300,000 at 5 per cent, which would amount to \$15,000. This would leave for division among the stockholders \$7,000. If the total

stock issue was \$100,000 and a dividend of \$6,000 was paid there would still be a net surplus of \$1,000. This amount would probably be transferred to Surplus Account, and the aim of a company is to produce dividends and create a large surplus, as that represents strength.

The Balance Sheet is a statement of the assets and liabilities of a company at a certain moment of time. On the debit or left hand side are arranged in logical sequence all the resources of the company and on the credit or liability side are arranged the liabilities or debts of the company, together with its capital stock and bonds outstanding and its surplus reserve created to date. The Profit and Loss statement and Balance Sheet are so related and interlocked that the debit and credit sides of a balance sheet when totaled should be equal.

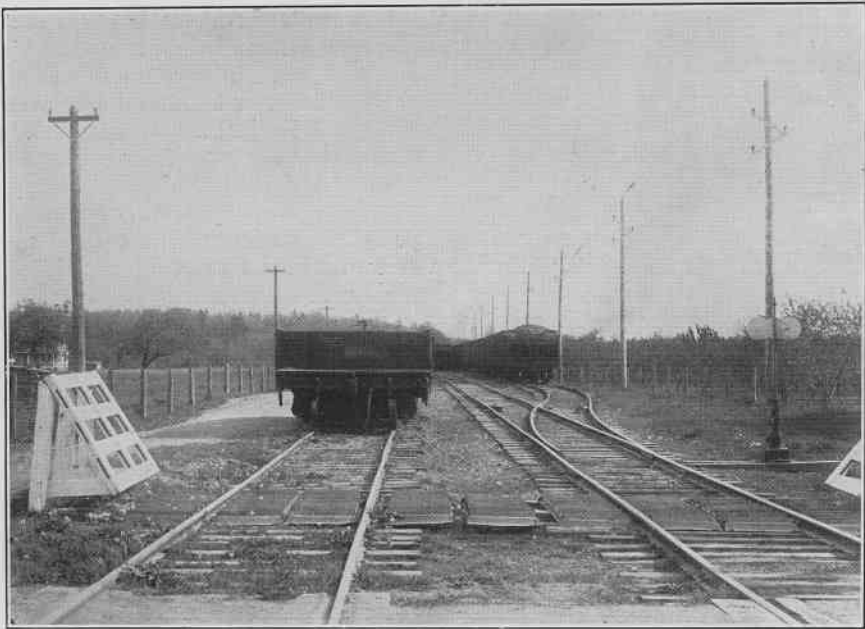
In a business such as ours which produces gas, electricity and steam for sale and on account of the very elaborate system of accounts required to be kept, the accounting structure of the business is to some extent complex. The fundamental principles of accounting, however, are quite simple and the keynote of the whole system should be simplicity.

In conclusion it should not be necessary to emphasize the necessity for the prevention of waste and extravagance in the company's operation. If these elements enter largely into the affairs of a company its expenses may exceed its revenue, in which case a deficit in the Profit and Loss account is incurred. This means an impairment of the capital and may result in bankruptcy. Every member of the organization, therefore, no matter how humble his position, should endeavor to prevent the smallest items of waste and extravagance from creeping in.

New Transmission Line

Under Mr. Montignani's supervision a new transmission line has been completed along the right of way of the Buffalo, Rochester and Pittsburgh Railroad, between Lin-

points along the line will also serve to decrease the number of interruptions. The line connects the following stations and plants: No. 33, Symington Plant, Charlotte Sub-



"The Ring System" of transmission along the B., R. and P. Note the unusual construction of channel iron "wishbone" crossarms.

coln Park and Charlotte, known as the "Ring System" of transmission. The new line is designed to prevent interruptions to service due to line breakdowns. Switches at different

station, Charlotte Pumping Station and No. 5 Station.

The construction of this line has been very favorably commented on by visiting electrical engineers.

"I've Got the Mumps!"

By a Girl in W. T. N.'s Office

I ain't been to work now for most
a week,
I've got a big lump on my left hand
cheek.
Mr. Nolan said not to come in again
until I got well around the
chin.
No work till I'm well again.

Don't get up till nearly ten,
Don't get too near, for then
You'll have the mumps, mumps,
mumps.
No visitors allowed when you look
so well,
But flowers, thank you, will do very
well.

Some of Our Veteran Workers



CHARLES MCGAVERN,
Arc Lamp Dept.,
24 years' service.



J. G. HILBERT,
Arc Lamp Dept.,
22 years' service.



Thomas Kewin,
Arc Lamp
Dept.,
20 years'
service.



CHARLES GEIMER,
Arc Lamp Dept., 20 years' service.



CASPAR GABLE,
Arc Lamp Dept., 20 years' service.



EDITORIAL

THE KING'S CANDLES

With the present installation of the new magnetite lights on East and West Main Street there comes to us the thought of the wonderful progress made in the art of lighting. A little over half a century ago the streets of Rochester were feebly illuminated with oil lamps, and when gas lights were installed the people marvelled that coal could be burned in a big plant, gas stored in a tank, then carried through iron pipes to light the stores, residences and streets. And finally when the electric arc was installed there was still further cause for astonishment at the mysterious way in which the wires carried this most wonderful of all artificial illuminations.

When King George II of England was crowned in 1727, the coronation chamber was illuminated by forty chandeliers, each carrying thirty-six wax candles, or a total of 1,440 candles. The sight of so many candles, even for a king's coronation, was regarded at that time as a most wonderful scheme of illumination. What

a marvellous transformation in the art of illumination has been made in the one hundred and eighty-six years since George II ascended the throne of England in the flickering light of wax candles. Napoleon amid all his power never had at his finger tip a single one of the wonderful conveniences that at the pressure of a push button lie within reach of the average citizen in our own city of Rochester. Press a button and behold the humblest home illuminated as the palace of Napoleon never was illuminated. Lift a little instrument to the ear and we are at once able to speak to friends a thousand miles away. Pull a small lever and instantly we can set a hundred wheels revolving in the biggest industrial plant.

When the new magnetite lamps are set blazing in Main Street that thoroughfare will rival anything we have ever read of in the "Arabian Knights." To all who think, the path of human progress is marked by signs and wonders.

Friendship Owns No Ledger.

The Lesson of the River

Have you ever stood on the river bank and watched the waters flowing over the falls? And, realizing the value of its tremendous force, have you not regretted that so much of all that power must go to waste? So it is with the river of time. For ever unceasingly it sweeps onward, a remorseless current that waits for neither millionaire nor beggar. There are hours when we would give all that we possess if we could but check the flow of life's river. Likewise there are other hours when we long that time should speed more rapidly, but desire and effort alike are futile. Whether we work or sleep, are earnest or idle, play or suffer, the river of time flows on with the same resistless flood; and it is **only when the water of the river of time flows over the mill-wheels of to-day's life that we can utilize it.** Other opportunities may come, other waters may flow, but that which has slipped by unused or wasted is lost forever.

The moral to all this is, that we must not stand on life's river bank idly dreaming of what might have been. Get busy, keep busy and secure the very highest efficiency out of the work that you have to do in life. Let every moment count as another stepping stone to better living and nobler achievement. You may sit behind a desk, dig in the busy street, or toil amid the hum and roar of machinery, but no matter how humble or important your work is, no matter how insignificant it may seem in your own eyes, remember that your every effort counts for the betterment of humanity. We are all needed in this great big busy world, and there is no man who can say that he is sufficient for himself. The river of time keeps flowing on, bearing all of us on its breast, but while we go, we may clasp hands, and that united clasp for our common good will not leave behind a blank record when we, too, have gone onward with the river of time.

Thomas Casey

Thomas Casey, one of the most popular linemen in the Line Department, was accidentally killed by an electric shock at Sea Breeze on June 10th. His funeral was held from the Immaculate Conception Church, and was attended by all the employees of the Line Department. To Mr. Casey's relatives we extend our heartfelt sympathy.

Mrs. Joseph Doyle

Mrs. Joseph Doyle, mother of Jimmie Doyle of No. 3 Station, died after a brief illness on June 15th. Among many floral pieces at the funeral there was a very beautiful one from the employees at No. 3 Station.

We extend our deepest sympathy to Mr. Doyle in his great loss.

GENERAL SAFETY

Herman Russell, Chairman

John C. Parker

Thomas H. Yawger



**HELP
US PREVENT
ACCIDENTS**

J. W. Morphy, Adjuster

Frank Hellen

Victor T. Noonan, Secretary

COMMITTEE

The Safety Campaign at Convention Hall

The most remarkable series of safety meetings ever held in this city was held at Convention Hall, June 24-26, under the auspices of the Chamber of Commerce. There were four meetings altogether. The first, known as "Industrial Night", was devoted to the various manufacturing plants in the city, and the talk, illustrated by lantern slides, was given by Mr. J. A. Barker, Safety Engineer, National Association of Manufacturers, St. Louis.

The second meeting, held in the afternoon, was given to the children of the public and parochial schools. Mayor Edgerton presided, and brief addresses were made by Bishop Hickey; Superintendent of Public Schools, Herbert S. Weet; Principal A. C. Clarke, No. 15 School; R. E. McDougall, New York State Railways; Ralph Barstow, Assistant Secretary of the Chamber of Commerce. The keenest interest was shown by the children when Mr. Noonan distributed to each child a button bearing our Company's safety emblem. Among these buttons were 100 prize numbers, and the boys and girls securing these were awarded beautiful watch fobs with a pendant bearing the universal danger sign, the red disk, with the words, "Help us Prevent Accidents." The children were entertained with motion pictures and lantern slides showing the dangers of the streets.

The third session was known as "Kodak Night", and about 2,500 employees of the Eastman Kodak Company pretty nearly filled the hall. Mr. J. A. Robertson, Manager of the Camera Works, gave a talk and showed some very instructive motion pictures, illustrating safety work in their organization.

The fourth and last session, known as "Public Service Night", was devoted to the employees of the New York and Rochester Telephone Companies, various steam and electric railroads, New York State Railways, and the Rochester Railway and Light Company. Our Company's lantern slides and a number of motion pictures on Accident Prevention were shown by Mr. Noonan.

The hall was decorated in a unique way with hundreds of mottoes and slogans on safety, all of which were printed on colored cards suspended on the walls and balconies. Our Company donated the use of a large electric sign which was hung above the stage, bearing the words "For Greater Safety". Another electric sign with the words "Safety First" was suspended above the main entrance on the exterior of the building.

Much credit is due Chairman W. Roy McCanne of the Accident Prevention Committee of the Chamber of Commerce for the active and sympathetic interest he has taken in the preparation for these meetings. Our best thanks are also due Mr. J. A. Robertson of the Camera Works for the courtesies and many kindnesses extended the Secretary of our Safety Committee before and during the meetings. We wish also to express a word of thanks here to Mr. Wallace, Mr. Bodie and their assistants; also to Mr. Vosburg, who had charge of the pulmotor at Convention Hall, for their co-operation, all of which helped to make Rochester's first safety rally a great big success.

Rochester has had the honor in these safety meetings of having the first Accident Prevention campaign of its kind held in any city in the country.

Regarding Ropes and Tape Measures

A lineman was killed in Chicago last month when his hand came in contact with a fine steel wire which had been woven into a rope to strengthen it. The rope fell across a live cable, that little wire in the rope picked up the current and carried it through the rope, and when the unsuspecting lineman picked it up, he received a shock that killed him instantly.

All ropes in our line department should be carefully inspected, with a view of preventing any similar accident here. Care is also urged in the use of steel or metal web tape measures, which should not be used at all in or around power stations, or near electrical apparatus or wires.

On this occasion, we urge all our linemen to be CAREFUL rather than reckless. Always use your rubber gloves, belt and rubber shields. Never put your spurs into a pole without assuring yourself that they are in good condition.

A CAREFUL LINEMAN is the bravest kind of workman, for his good example encourages his fellow-linemen. Be careful, boys! Your efforts will save lives.

Inspect Your Ladders

Heads of departments and foremen are kindly urged to inspect all ladders and tools to see that they are in safe and sound condition. It is not economy to use either ladders or tools until they are in such condition that they are no longer safe. It will be cheaper in the long run to keep ladders in so safe a condition that they will prevent accidents, for it is better to expend money in procuring safe appliances and tools than to pay out the Company's money to doctors and lawyers for accidents.

Foreman Fahy Pleased

Foreman Fahy of the Gas Street Department is well pleased with the way his men are co-operating in the Company's safety work. "I am greatly pleased with the men in my department," said Mr. Fahy, who paid us a visit the other day. "The Gas Street men are certainly co-operating as well as they can in the careful habit; they are doing fine."

Saved by "First Aid"

A story of heroism which illustrates the practical benefit of educating industrial workmen as to the best means of preventing accidents, occurred recently at Bartholomay's Brewery, Rochester, N. Y. Toby Martin, the company's electrician, while installing transformers, came in contact with a switch carrying 440 volts of alternating current. His hands contracting about the connection, he was immediately rendered powerless to let go or make an outcry. Raymond Flaherty, of the Rochester Railway & Light Company, working near by, saw the unfortunate man's plight and first tried to pull him away. Failing in this, he picked up a wooden ladder and struck Martin a heavy blow across the legs, removing their support so that in falling the latter's hands were pulled clear of the contact. Martin fell to the ground apparently lifeless but Flaherty immediately began the prone method of artificial respiration and finally succeeded in restoring the injured man to consciousness. The employees of the Rochester company are drilled once a month in the prone method of artificial respiration, and to this, as well as to the heroic endeavor of Raymond Flaherty, Martin undoubtedly owes his life.—Human Factor Magazine.

About Matches

Never buy any but "safety" matches.

Never allow matches to lie around loose; put them in their box or match-case.

Never scratch matches in a place where there is much paper or rubbish.

Never throw lighted matches anywhere; put them out first.

Never allow a lighted match to lie on the floor or street; step on it and put it out at once.

Never carry matches loose in your pockets.

Never play with matches.

When you get a safety suggestion from a workman, you not only get a suggestion but you know that you have a man that is boosting safety.

Electricity Still a Mystery

Electricity is still a mystery even to those who have discovered how to use it in lighting our homes and streets, in communicating with persons thousands of miles away, over land, under seas and through the air, in driving machinery in factories, and in moving cars about the streets of cities so easily and rapidly.

Nevertheless, the same force that works so well when harnessed by intelligence will kill just as quickly if handled carelessly. For this reason, it is well to remember that wires that have broken loose and hang down in streets, sometimes after a storm, may be "live" wires charged with electricity that will instantly kill anyone touching them. Young people who are interested in electricity frequently experiment with the lighting fixtures in their homes, but this is a very dangerous habit. Never put a piece of metal, such as a screwdriver or a knife blade, into an electric light socket in an effort to find out why an electric bulb will not light. Never, also, stick a pin into an electric light wire.

Praise for the Company's Safety Work

The April issue of the "Manufacturers' Bulletin", of New Jersey, contains a two-page article on the "Safety Work of the Rochester Railway and Light Company. The article is from the pen of Mr. F. C. Schwedtman, Vice-President of the Racine-Satley Company, Springfield, Ill., who is also chairman of the Accident Prevention Committee of the National Association of Manufacturers.

Referring to our big safety rally at Powers Hotel in February, Mr. Schwedtman writes:

"That the Company's employees were interested was clearly evident by the large attendance of men who came from every department in the organization. The Rochester Railway and Light Company is among the leaders in the country to take up a systematic campaign against accidents. At the meeting nearly 100 lantern slides were displayed showing the Company's safety devices; also illustrating safe and dangerous methods of working in power stations, careless habits, safety devices in the gas works and Gas Street Department. Everything was included in the pictures which were thrown upon the screen, from a lineman climbing a pole without his safety belt to a bookkeeper turning the ledger leaves in the wrong way."

Mr. Schwedtman has an international reputation as an authority on accident prevention, and it is said of him that he has his whole heart in this great cause of safety. His references, therefore, in the above article to our Company's safety work and to the splendid co-operation we get from all our own men comes to us as a compliment which we gratefully appreciate.

**Every employee should always report every unsafe condition.
Such suggestions are appreciated, and due credit is given them.**

Brief Comments

Don't relax the careful habit during the summer months.

Foremen and men, keep your eyes and ears open in and around all construction work—ordinary care, that's all!

Sixty thousand gas and electric bills will go out this month with our new safety emblem—the red ball—on them.

Acquire the safety habit. It is the only habit that will never injure you.

Haste makes waste, and may cause an accident.

All injuries, no matter how trivial, should be immediately reported and receive attention. It is the neglect of the small injuries that makes trouble.

The careless workman, who does things in an unsafe way, is a menace to his fellow workmen as well as to himself.

Nothing is easier to lose than good health, so do not hesitate to consult a physician when you do not feel well.

Whatever you do, always do it in the safe way.

Always take care, instead of taking chances.

If you look where you are walking, you will find the shortest way to be the safe way.

The safe way may seem longer, but it is really the shortest way in the long run.

Pat Rooney, having been to the fair, was driving home when a great drowsiness overcame him, and he lay down in the cart and went to sleep.

The horse, finding himself free to do as he wanted, promptly kicked through the traces and ran away.

When Pat awoke he found no horse. While he was wondering

over the situation a stranger came up.

"Am I Pat Rooney or am I not?" asked Pat.

"I'm shure I dunno," answered the stranger.

"Well," said Pat, "if Oi'm Pat Rooney Oi've lost a horse, an if I'm not Oi've found a cart."

FOREMEN

The more you insist upon carefulness on the part of others, as well as exercise it yourself, the safer it will be.



It is easier to rest too much than work too hard.

The first time a young man falls in love he doesn't fall on his feet.

Strange to say, too many eye-openers will close a man's eyes.

Learn to laugh—your smile will help the other fellow.

Give a man string enough and he will construct his own tangle.

Give us contentment and we care not who invents perpetual motion.

One man's poison is another man's bread—if the latter is a doctor.

Railroad time tables and steamboat guides are now the most popular form of summer literature.

The wise man bottles his wrath and then proceeds to lose the bottle.

The world takes off its hat to the man who gets results.

And reward follows every true effort as the needle points to the pole.

The more a man practices economy, the less popular he will be. There is blame both ways.

Some men like to be in front of the bars—and some men hate being behind them.

When a man gets engaged to a girl all the other fair maids of his acquaintance begin to talk about his poor taste.

If the suffragettes applied the hunger strike to the cost of living, they would be doing something worth while.

Grasp an idea and work it out to a successful conclusion. That's about all there is in life for any of us.

Every man should make up his mind that if he expects to succeed, he must give an honest return for the other man's dollar.

There isn't much good in the man who can see no good in others, and there's plenty of good in the other fellow if we only give him half a chance.

There is no happiness in mere dollars. After they are acquired one can use but a moderate amount. It is given man to eat so much, to wear so much, and to have so much shelter, and more he cannot use. When money has supplied these, its mission, so far as the individual is concerned, is fulfilled, and man must look further and higher. The greatest good a man can do is to cultivate himself, develop his powers, in order that he may be of greater service to humanity.

ELECTRIC DEPARTMENT



Construction work on the new Station No. 2-A is now being rapidly pushed forward.

The work of remodeling No. 6 Station on South Water Street is also fast nearing completion.

As we go to press we notice that all the poles for the new magnetite lights on Main Street are now in place, and we understand that these beautiful new lights will be ready to be turned on in time for the opening of the big Elks' convention.



Glen Knight, one of the veteran employees at No. 3 Station, was operated on for appendicitis at Dr. Lee's Hospital last month. We are glad to hear that Mr. Knight is now well on the road to recovery.

Lewis A. Lewis of the Spokane Power Company, Spokane, Wash., paid General Offices a visit on June 17th. Mr. Lewis said that the lights on East Avenue exceeded anything he had seen in any of the large cities which he had visited on his trip.

Mr. Yawger has had a force of men working in the river between the Falls and Platt Street bridge removing boulders and other obstructions. By keeping the river bed clear of such impedimenta the flow of water into the stations is increased about 1 per cent.

A booklet entitled "Farm Help", written by John C. Parker, attracted considerable favorable attention at the Convention of the National Electric Light Association held in Chicago last month. Mr. Parker's clever little treatise describes the uses to which electricity can be put on the farm. The booklet, we understand, will be circulated among lighting companies in all parts of the country.

Foreman Pat O'Neill and the men at Station No. 3 are never too busy to forget the sick. When any of the boys are ill, Pat and the other boys make a visit to the sick man, bring him flowers and fruit, and do all they can to comfort their sick fellow-worker. We are proud to refer to this, for surely such thoughtfulness is the expression of true sympathy and brotherly love.



Mr. Hellen and his men have been unusually busy during the past few months laying pipe in various sections of the city and suburbs, more than 52,000 feet of pipe being laid recently. Foreman J. Fahy, of the Gas Street Department, and his men have laid 4,000 feet of 6-inch pipe on Denise Road in Charlotte; 3,500 feet of 6-inch pipe have also been laid on Beach Avenue, Charlotte. On Blossom Road 3,500 feet of 16-inch gas mains are being laid at present, and in other sections of the

city more than 10,000 feet of 6-inch pipe have been recently laid.

One of the biggest jobs that this Company has handled in a good many years is that of laying pipes on Lake Avenue from Lyell Avenue to Benit Terrace, Greece, a distance of more than four and one-half miles, about 26,000 feet having been laid; all of which goes to show that the Gas Department is looking into the future with an eye for big business.

Improbable But True

The most remarkable accident that has ever happened in a manhole in this city occurred on Friday, June 13th, when a horse attached to one of the Rochester Carting Com-



Diagram illustrating how horse fell through 30-inch opening in manhole and position he remained in until hauled out by a derrick.

pany's trucks caught his shoe in the cover of the manhole at Clinton Avenue South and Howell Street. As the animal lifted his fore foot he pulled the cover up and his hind legs sank down into the manhole, which is only 30 inches in diameter. With many kicks and struggles he broke loose from his harness and gradually sank into the manhole in the position illustrated in the accompanying picture, until there was nothing visible of the animal's body above the street. A derrick was secured, and after considerable difficulty the horse was hauled out, ropes being attached to his front feet and neck, and with the exception of a few scratches he seemed none the worse for his close contact with a number of 2,500 volt cables in the manhole.



Engineer A. S. MacDowell is in charge of the new construction work at No. 6 Station. We expect to see a model plant when he completes the job.

Will Earle of the Gas Works, we understand, is engaged to a very attractive young lady. Perhaps that is the reason we haven't heard from Will lately.

Ralph Scobell of Room 10 has gone away on an extended vacation on account of ill health. We trust that rest and change will quickly restore Ralph to his former good health, and that we will soon see him back at his desk again.

Operator H. Pasley of No. 4 Station became the father of a 10-pound baby boy on May 29th. Congratulations, Duke.

J. Stokes of Mr. Nolan's department was picked out of 200 local players for a charity soccer football game played June 28th at Keefer's field for the benefit of the Infants' Summer Hospital.

Twenty-eight girls of the main office held what they called an "Accident Prevention Picnic" at Westminster Park on the Genesee River, Wednesday evening, June 25th. The party hired a tug boat, which they decorated with safety flags, gas bills and other paraphernalia picked up at the General Offices. Mrs. Gay presided and furnished the eatables, and we understand that the Captain of the tug had a very pleasant evening.

THE LAST DEBT

("Faith, hope, charity and the gas bill; these must you ever owe."—Wisdom of Epictetus.)

When the very last debt has been settled,

And all have been paid out of hand—

When the grocer no longer is nettled,
And the butcher smiles broadly and bland—

When publican, tradesman, and menial

Have taken their dole from your brass,

You'd think it is time to be genial,
But it isn't—you owe for the gas!

O, the tradesmen, like Time, are relentless

And ever stand by for their toll—

A commoner, sadly defenceless,
Does little in life but to dole!

And pay! For in truth they will run you

'Til peace and its treasures shall pass;

But, settle as oft as they dun you,
You can never catch up with the gas!

When the last of these nettlesome worries

Are checked by an auditor grim,
And an eloquent dominie hurries

To the last special rites and the hymn,

Then search me—I surely won't mind it

When all of these things come to pass—

And somewhere about me you'll find it:

"A Memo—Remember the gas!"

—John D. Wells.



AMONG OUR EXCHANGES

NEW YORK STATE RAILWAYS

267 State Street

Rochester, N. Y.

Copy of "Gas and Electric News" received to-day. Thank you for your courtesy. Your live and nifty little magazine is very much appreciated by

Yours very truly,
DON BYRNE,
Cashier.

ROCHESTER BUTTON COMPANY

Makers of Buttons

Rochester, N. Y., June 2, 1913.

Through the kind thoughtfulness of Mr. Parkinson I am in receipt of a copy of the Railway and Light magazine for May, '13, and assure you I am delighted; also with the assurance of receiving succeeding copies.

Respectfully,
GEORGE BAXTER.

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON.

Boston, Mass.

We are glad indeed to receive a copy of the "Gas and Electric News," Rochester, N. Y. Your magazine has a mission similar to our own, to spread information to the employees, and it does this in such an interesting manner, the News from Rochester will make a welcome addition to our Exchange list.

We have placed you on the mailing list for Edison Life.

Very truly yours,
C. E. GREENWOOD,
Editor, "Edison Life."

In the way of avocations several of the officials of the Rochester Railway and Light Company have turned to farming. It was to be expected that Electrical and Mechanical Engineer John C. Parker, chairman of the electricity on the farm committee of the National Electric Light Association, would be something of an agriculturalist, but some surprise was expressed to-day when remarks on farm conditions were made, following the return of most of those concerned from the Chicago N. E. L. A. convention.

"I've got the best dahlia bed in the country," Purchasing Agent James B. Eaton remarked, "and I'm willing to bet money on it."

"When it comes to weeds, Schick has you beaten," remarked one of those present.

"Well, I'm specializing on chickens," Mr. Schick rejoined. "But when darkness comes to-night, there will not be a weed in my garden." Mr. Schick is the Company's commercial agent.

Assistant Treasurer C. A. Tucker is raising what is said to be a very fine bed of petunias, but is specializing on his lawn on Reservoir Avenue, which is said to be one of the finest lawns, age considered, in the southern part of the city.

"Parker is raising peas," one of those present said, "and he was at work yesterday with a slide rule and a sheet of paper a rod square, trying to calculate how many peas he would get from the vines, the number of plants and blossoms and the length of rows being known."

"And I did it," Mr. Parker said.

"But the worst of it was that when Parker bought the peas he was asked what kind he wanted," somebody said, "and he said, 'Oh, any kind, so that they are sweet.' What is bothering us is the question whether his peas will be good to eat or look at."

General Manager James T. Huchings is raising beans, and he said to-day that they were the real Boston kind, guaranteed to grow fully baked. Assistant Refrigeration Engineer Ivar Lundgaard said he was starting a porch box and somebody else said he was trying to raise an ice plant.—Rochester Post Express.

Mr. Herman Russell arrived back from Europe on July 8th. Needless to say he received a hearty welcome from everybody in the General Offices and at the Gas Works.

The Electric Light Meter

Most of us look upon the electric light meter with suspicion and distrust. How little this delicate mechanism deserves such adverse criticism and calumny is best shown by the recent reports of the New York Public Service Commission, which found only a very few meters running too fast, out of several hundreds examined, and not a few running far too slow.

The longer an electric meter is used the slower it runs. If common steel bearings were used they would wear out in a little time and the friction would slow up the meter and consequently the consumer would be paying for only a small fraction of the electrical energy really used. In order that the meter shall be accurate there must be practically no friction in the bearings, therefore the main bearings are all made of diamonds and sapphires. The diamond is the hardest substance in the world and the sapphire is a close second. Bearings made of these precious stones have a very long life and although they originally cost more they are the cheapest in the long run.

The largest manufacturer of electric meters, the General Electric Company, does a handsome trade in precious stones. None of the stones have any great value although in the aggregate they amount to thousands of dollars yearly. It takes but a small tube an inch long to hold \$200 worth of meter jewels in the rough.

A temperance lecturer was enthusiastically denouncing the use of all intoxicants.

"I wish all the beer, all the wine, all the whisky in the world was at the bottom of the ocean," he said.

Hastily Pat arose to his feet.

"Sure, and so do I sor," he shouted. "I wish every bit of it was at

The diamonds are being constantly shipped from Brazil, Paris, London, Holland and New Zealand. The sapphires come sewn in heavy canvas sacks from far away Ceylon.

The tiny gear wheels for the meter are all made by automatic machinery which turns them out in rapid succession as nearly perfect as human ingenuity can devise.

Nearly every householder stands ready to convict the meter of dishonesty without a fair hearing, and it must be said in its defense that the meter is just as honest as it can be made and when in the course of time the bearings begin to wear and the friction begins to retard the tiny meter the consumer really gets more electricity than he is paying for.

It is well enough for the consumers of electrical energy to bear in mind that within the iron body of the meter is a little motor which begins to spin when the first lamp is turned on and continues to run until the last one is turned off. With every additional lamp the meter runs faster and faster, revolving the relentless dials which point the way for heavy light bills at the end of the month if the user isn't careful. By remembering that the meter is spinning and trying to make it go as slowly as possible by not burning any more lamps than necessary, the amount of the bills can be kept down and the character of the faithful little iron servant kept unimpeached.

the bottom of the sea."

As they were leaving the hall the lecturer encountered Pat.

"I certainly am proud of you," he said. "It was a brave thing for you to rise and say what you did. Are you a teetotaler?"

"No, indade, sor," answered Pat. "I'm a diver."