

Volume 4 Number 1

GAS and ELECTRIC NEWS

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An Interesting Geological Study
of the High Banks of the Genesee

The vital force in business life is the honest desire to serve. Business, it is said, is the science of service. He profits most who serves best. At the very bottom of the wish to render service must be honesty of purpose, and, as I go along through life, I see more and more that honesty in word, thought and work means success. It spells a life worth living and in business, clean success.

—GEORGE EBERHARD.

At Last, a Completely Electrified Typewriter

IN the following pages we detail some of the many assets and potentialities of the electric typewriter, special emphasis being given the Remington Electric, the power unit of which was developed in Rochester by the North East Electric Company.

It is not strange that a company with the substantial industrial-electric background which the North East Electric Company possesses, should have been the first to develop and place in satisfactory use, the first completely electrified typewriter.

Rochester is proud of this engineering achievement which is to accomplish so much for industrial progress and which will add efficiency and quality to an essential business operation while greatly enhancing the welfare of thousands of office workers throughout the country.

Now that the electric typewriter is here, we wonder how we ever got along without it for it has such a broad field for potential accomplishment. We are glad that the power drive for the Remington Electric was originated in Rochester; it comprises still another

item in the long list of Rochester made articles which mean Quality.

This Company welcomes to its fold all electric typewriters; their mission is a very worthy one. It especially greets the Remington Electric for that machine, aside from being, in part at least, a Home Town product, makes possible a more complete utilization of electrical energy, thus releasing a greater proportion of human energy for more important office work or supervision.

Mark Twain was one of the very first persons to make use of the typewriter, about fifty years ago. He would sit back at ease in his rocker—he always did like to take life as easy as possible—and do his writing. But he finally said, in his own inimitable way, that he was going to 'swear off' writing on it to friends, for they all insisted upon asking him for details about its use and possibilities.

In giving prominence to the Remington Electric, we may be taking the same chances that Mr. Clemens did. But we are preparing for that and if any of our readers wish to send a copy of this number to persons who may be interested in its special articles, we will be glad to accommodate them.



The Influence of Electricity in the Modern Office

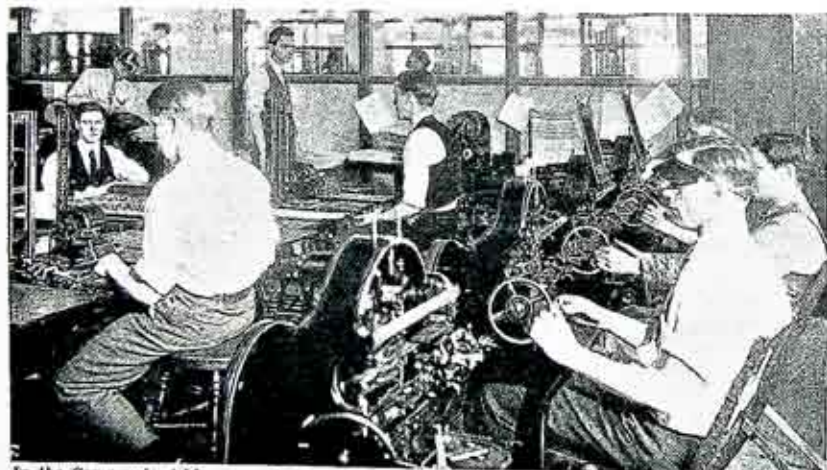
Automatic machinery has worked a revolution in the factory and today we can see a similar movement taking place in the sphere of office work. In this connection, credit must first be given to the introduction of electricity in the office. While it was first used for lighting purposes, its energy has now been directed into the running of machines, which, in many instances, handle the drudgery of classifying details, leaving the employee who is alive to his opportunities to control the results furnished by the machines and to place himself in a position to accept greater responsibilities. — Excerpt from speech of Cecil S. Ashdown, Vice-President and Comptroller of the Remington Typewriter Company, before The Franklin Institute.

IN this wonderful modern age we are surrounded on every side by the influence of electricity. At home, on the streets and highways, in our offices and public buildings and, in fact, everywhere we go we are constantly reminded of the great part that electricity is playing in our lives. It assists in the preparation of our morning meal, it is the motive power used in transporting us regularly and speedily to our places of employment, it operates elevators taking us to the floor in the Gas and Electric Building on which we work; and it is functioning increasingly in the many details

of modern business operation related to the activities and service of this Company and every other progressive industrial organization in this country and abroad.

The Pen Supreme in Olden Days

The mission of electricity, as wonderful as it really is, is such a commonplace and generally accepted one that seldom do we stop to consider how truly marvelous it is. Yet, there are many employees of this Company who can remember the time, only a comparatively few years ago, when all of the bookkeeping, tabulating, copying, letter writing, filing and a



In the Company's Addressograph Department, where more than 110,000 gas and electric bills are addressed each month. This is but one item of the almost countless jobs done in this department regularly and efficiently with the wonderful assistance of electrically operated machines and adequate illumination.

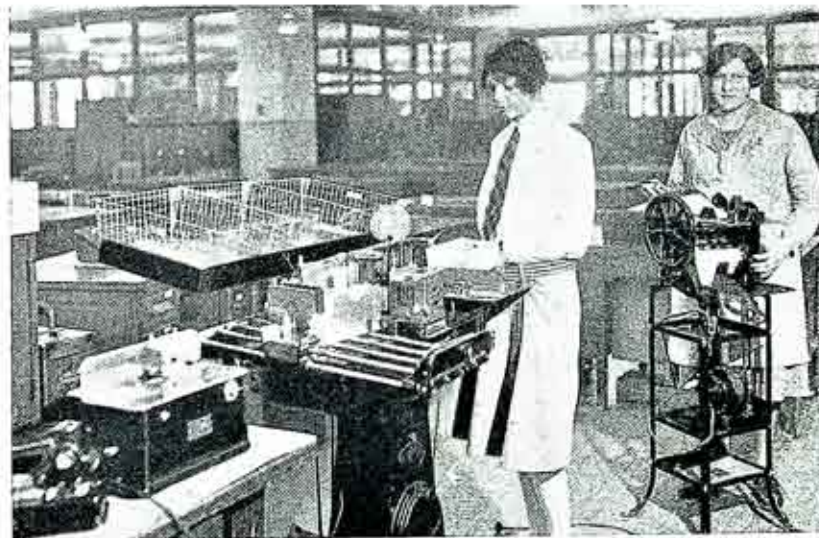
great variety of other office work was done entirely by hand.

Think of the painstaking manual labor connected with the operation of the Company's business in those days. Then compare with that picture any modern business office, where pen and ink is seldom utilized, practically everything being accomplished speedily, efficiently and ac-

column of figures was an operation of the human brain and hand alone.

Electricity Accomplishes a Transformation

But what a transformation has been effected in the past few years. A visit to the Company's Main Floor offices, where gas and electric bills are paid, or a jaunt through the ex-



A corner in the Mailing Department where electrical equipment is used to open and stamp the exact time at which letters are received; stamp, seal and meter out-going mail at the rate of 250 letters per minute, and nimbly fold statements in preparation for insertion in envelopes.

curately by a myriad of mechanical devices, most of them electrically operated.

A gas or electric bill in those early days was a hand written statement for most part, and was received in the same manner. All day books, ledgers, statements and other required records were kept by hand. And it was no small job to do all that. It meant lifting heavy books continuously, turning page after page to get the name and account desired, and of course, no little space was required for all the bulky incidental records used in daily transactions. Even the adding of column after

tensive Consumers Bookkeeping, Billing and Tabulating Departments and the Addressograph and Mailing Departments on the Second Floor will fairly amaze one who has not kept abreast of the service rendered daily by modern office appliances and equipment.

There one will observe detail after detail of Company business accomplished with accuracy and dispatch in the twinkling of an eye. The scratch of the pen is heard seldom, and in its stead is the whirr of device after device as they respond to the urge of electricity, at the command of employees trained in their use.



The marvelous electric proving machines receive the punched cards and "work" them, automatically showing the amounts of gas or electricity consumed by customers, in cubic feet or kilowatt hours, respectively; the exact amounts for which customers should be billed and the total number of cards passed through. All totals appear on indicators as the totals are clicked off.

Much of the Detail Work Done Electrically

Over 110,000 gas and electric bills are addressed each month by the Addressograph Department on electrically operated addressograph machines, and 20,000 merchandising accounts are prepared on Elliot Fisher billing machines. The gas and electric bills are run through Burroughs Subtracting machines that automatically print on them the items of current month and date and the meter reading, together with the same data for the preceding month; next, the machine accomplishes the subtraction, after which Todd Protectograph machines are manually manipulated to designate in printing on the bill the total of the amount due, most of this being accomplished electrically through the mere manipulation of keys or levers and the turning of a dial, strictly a mechanical process.

The young women comparers then compare these readings with the

meter readers readings after which the accounts are listed on long sheets of paper in Remington and Underwood accounting machines, the carriages of which are also electrically operated. This last process comprises the Company's record of accounts. And instead of being kept in a huge book, as in years gone by, there is a new set of accounts, maintained right up to the minute, each month. These accounts are listed by customers' addresses and show total sales and other data required.

Another great time and energy saver is the modern electric key punching machines which punch out holes in a card designating the amount of gas or electricity consumed, together with the amount of the bill, as well as a code which makes it possible to segregate at will the accounts of customers in any section of the territory served, or to sort them as to amounts of the products consumed and classify them otherwise if required.

Machines With College Educations

These sorting machines are truly phenomenal. They will manipulate hundreds of cards in just a few moments and if the cards should get shuffled inadvertently the machine may be set to automatically arrange the cards in proper sequence.

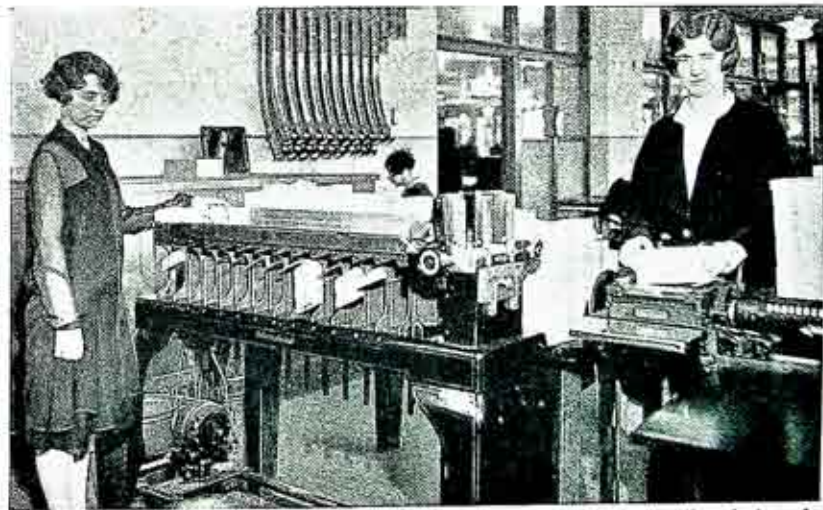
But the huge proving machine is perhaps the master mind of the lot when it comes to an uncanny capacity for verifying the amount of gas or electricity consumed by customers and showing the exact amounts for which the customers would be billed. The punched cards are bundled into its hopper and the machine is started. Then, as they pass through it, indicators begin to click, the number of the cards proved is shown, together with the totals in dollars and cents which they represent and the number of cubic feet of gas or kilowatts of electricity utilized. By comparing these totals with the sheets made in the billing

machines and totaled by its operator previously, any mistake made thus far is easily recognized and remedied.

But it is impossible in this article to fully describe the tremendous amount of detailed work accomplished daily in any one of the Company's departments by these modern office appliances.

Devices For Almost Every Operation

There are calculating machines for doing statistical work; and they know their 'math' to perfection. There are electrically operated cash registers that can easily handle 8,000 bills per day, listing and verifying the total amount of cash received in the Cashiers' Department on gas and electric bills, and numerous other machines keep over 107 girls busy all day on the Second Floor alone. Without these labor saving devices, approximately three times that number of employees would be required for its accomplishment and at least



The sorting machines manipulate hundreds of punched cards per minute, shuffling them dexterously into various combinations, as desired, to segregate the specific information required. If a bunch of cards arranged in alphabetical order or as to customers' addresses become disarranged, the machine will quickly arrange them again at the will of the operator.



three other floors of the same comparative space.

Then, electrically operated machines open the letters received in the Mailing Department,

stamping on them the actual time they were received and opened; others stamp and meter out going mail as well as seal it at the rate of 230 letters per minute, while another folds statements nimbly in preparation for insertion in envelope. There is scarcely an operation in the Consumers' Bookkeeping Department that is not accomplished partly, at least, through the medium of electricity functioning through modern office appliances.

One of the most recent additions to the conveniences utilized in this department is the electrically operated typewriter, which is also being quite generally used in the Stenographic Department and many other offices of the Company. The greater portion of our present issue of Gas

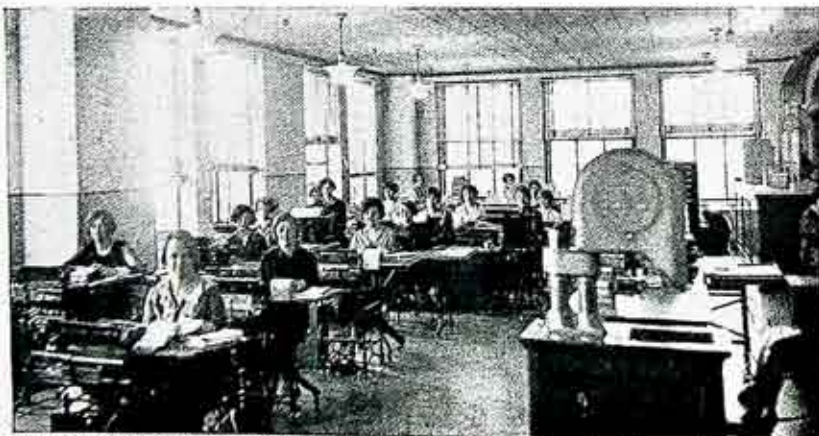
and Electric News in the following pages details the story of the Remington completely electrified typewriter. The Woodstock electric typewriter and the Underwood and Remington electric accounting machines are also used in Company departments, and all of these modern units as well as others mentioned in this article are giving excellent results.

The Trend Toward Complete Electrification

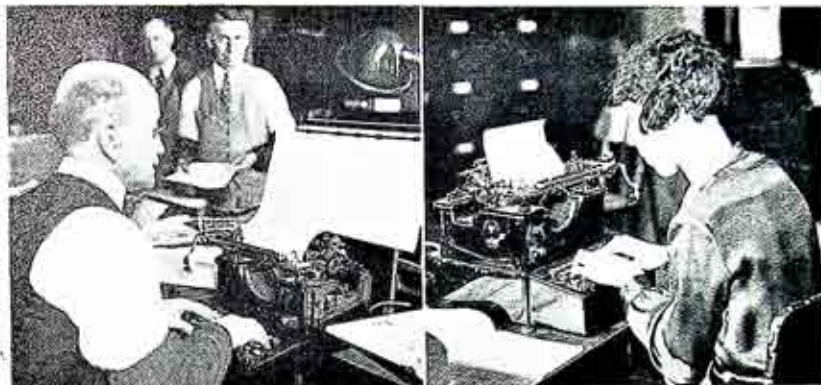
Many of the appliances used are partially electrified, and the advent of the new Remington leads us to believe that the complete electrification of other office appliances is not far off. The saving in energy, time and money to be accomplished through this more complete utilization of electrical energy in office practice is sufficient inspiration to warrant the best efforts of modern manufacturers. And it is, we believe, receiving their earnest attention.

The Human Factor

We have said nothing of the human effort connected with the transaction of the almost endless detail which has



A section of the Billing and Tabulating Department, where the scratch of the pen is never heard, all operations being carried on through the medium of modern labor saving devices, most of which are electrically operated. A single item in the routine work accomplished here is the billing of \$9,000 merchandising accounts monthly.



Left: Mr. Emil L. Combe, local improvement clerk in the Rochester City Engineer's office, who finds the Remington Electric a great time and energy saver. Right: Remington Electric as used in the office of the Thomas Holahan Contracting Company.

been sketched thus far. The personnel of the departments mentioned above is of a very high class, selected for more than average intelligence and adaptability. Its work is exacting and must be performed with consistent accuracy and skill, with almost uninterrupted continuity throughout the working period.

Assets of Electrical Devices

One of the greatest assets of electrical devices is the fact that they reduce the actual physical labor involved in the processes and release for a better purpose human energy that may be translated into a more complete and efficient mental supervision. In accomplishing this, electrical devices help to make office work less fatiguing and more pleasurable. Office employees may, through them, go through the day with less strain, maintain greater physical and mental poise and therefore obtain a greater enjoyment in their work and accomplish that work with a greater margin of accuracy.

In view of the numerous labor saving devices to be found in the homes of this country, it is but fair that office work should be placed on the same plane of possible satisfaction, through the utility of electricity. And the Remington Electric typewriter has gone a long way toward showing some of the potential possibilities in this broad field of utilization.

Either the Remington Company or the North East Company will be glad to furnish added information.



The smile of the satisfied, happy operator as demonstrated by Mrs. Crum, of the Company's Service Department, who is an enthusiastic booster of the Remington Electric.

The New Remington Electric Typewriter

The new Remington Electric Typewriter was made possible by the engineering skill and experience of the North East Electric Company of this City. Its intensive experimental studies in this field of electrical utilization are being rewarded by the great satisfaction which the new Remington Electric is giving. It is gratifying to reflect that these efforts will result in greatly reducing the physical effort connected with typing; it will make for greater enjoyment in office work on the part of thousands of women employed the world over in this capacity, and will add a welcome off-peak load to the loads already carried by the utilities of the country. And all this is in the interest of progress, the maintaining of satisfactory electric rates, personal enjoyment in office work, greater turnover, better wages and other benefits almost without end.

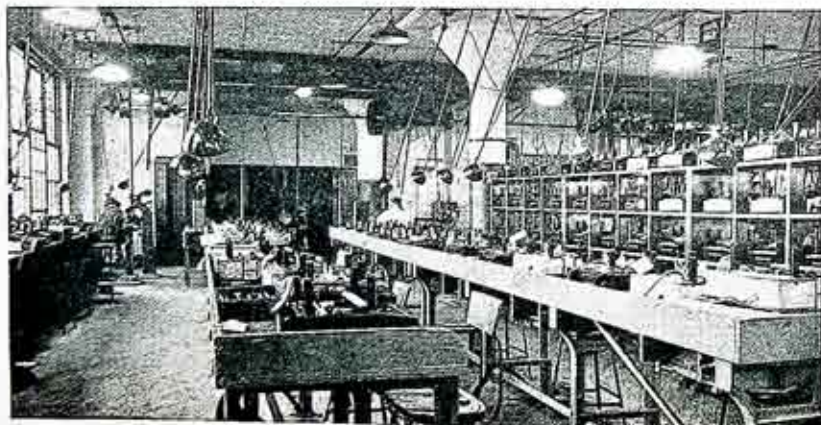


NINETY-NINE per cent of the work is done by electricity. This briefly describes the results obtained with the New North East Powered Remington Electric Typewriter. This complete electric typewriter saves time and labor, promotes accuracy and efficiency, and speeds production.

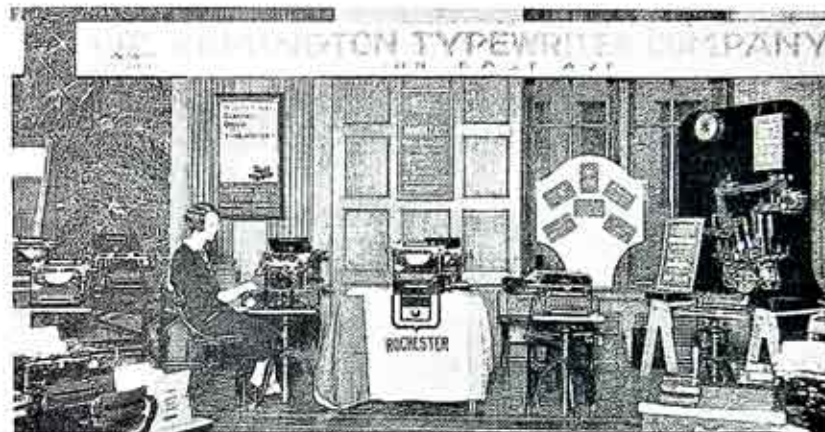
Modern Efficiency Depends on Electric Operation

Efficiency in the modern office demands electric operation of the mechanical appliances used. The complete electrification of the typewriter is necessary to establish the office on

the same efficient basis as that already attained in the factory by the use of electrically operated machinery. The substitution of mechanical power for human exertion releases physical and mental energy which is then available for improved production and for additional duties. Physical limitations determine the maximum quality and quantity of work which can be done with the manually operated typewriter and the limit of the typists' production is literally the limit of human endurance. With the electric typewriter, the typist can, without fatigue, write as fast as the mind can work, for electricity takes the burden from the typist's fingers.



A scene in the Typewriter Department of the North East Electric Company, Rochester, N. Y., where the North East power drive unit is assembled.



The Remington Typewriter exhibit at the Office Appliance Show, held recently at the Rochester Chamber of Commerce, where the new Remington Electric was featured.

Developed by the North East Electric Company

The development of the electric typewriter by the North East Electric Company forms a very interesting chapter in typewriter history. In January 1923, the North East Company began an investigation of the possibilities of completely electrifying the ordinary office typewriter, and in April of that year it was definitely decided to pursue this work to a suc-

cessful conclusion. An exhaustive study was made of different power applications, and cams with knurled faces, operating on a motor driven rubber covered roll, were found to give the best results. This principle was therefore adopted throughout the North East mechanism, all functions being performed through uniform interchangeable cam units.



An aeroplane view of the North East Electric Company's plants at Rochester.

Extended experiments were made in the North East factory, in order to prove carefully each feature before it was adopted for production. All parts were required to stand up on accelerated exercising and testing machines for a period corresponding to ten years office service. Then North East power drives were built into twenty-five machines of different makes, and these electric typewriters were placed in operation on regular work in the North East offices. The results obtained, under practical working conditions, were so successful that the North East Power Drive has been adopted by the Remington Typewriter Company, and the Standard Remington Typewriter, assembled on the North East Power Drive is now available commercially as the Remington Electric.

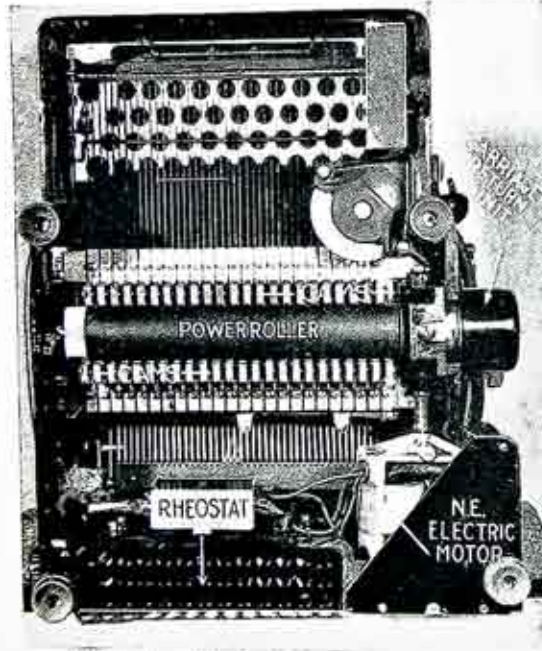
Complete Electrification

The specific purpose of the North East Electric Power Drive for Typewriters is to operate by power *all* the mechanisms on the typewriter which are now manually operated. The electric typewriter relieves the typist of the physical labor necessary to operate the ordinary manual machine. The typist, by lightly touching the keys and depressing them $\frac{3}{8}$ of an inch with two ounce pressure, releases the cams; the cams engage the roll and operate the typebar, carriage return, platen shift, escapement, back spacer, tabular and line spacer, without any further effort on the part of the operator. The typist plays the keyboard with an effortless touch, and electricity supplies the power for operating every feature. The fingers do not leave the keyboard, except to insert the paper.

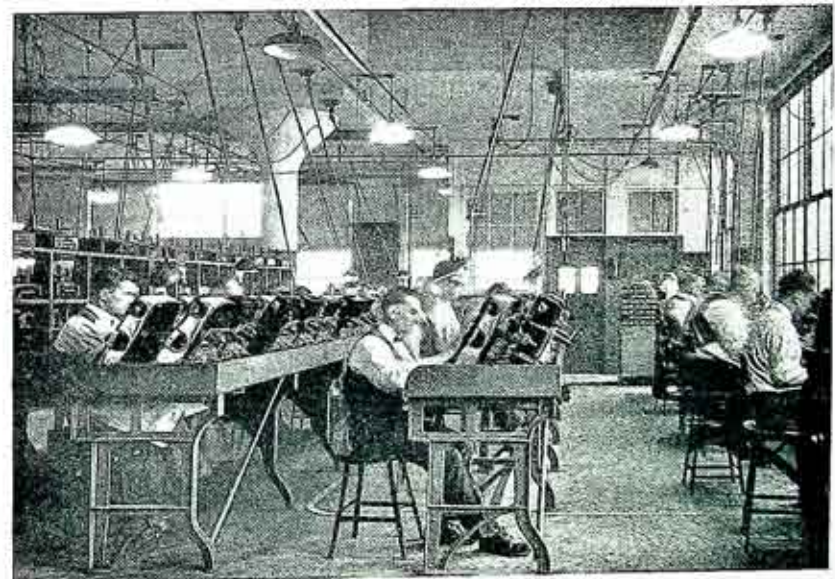
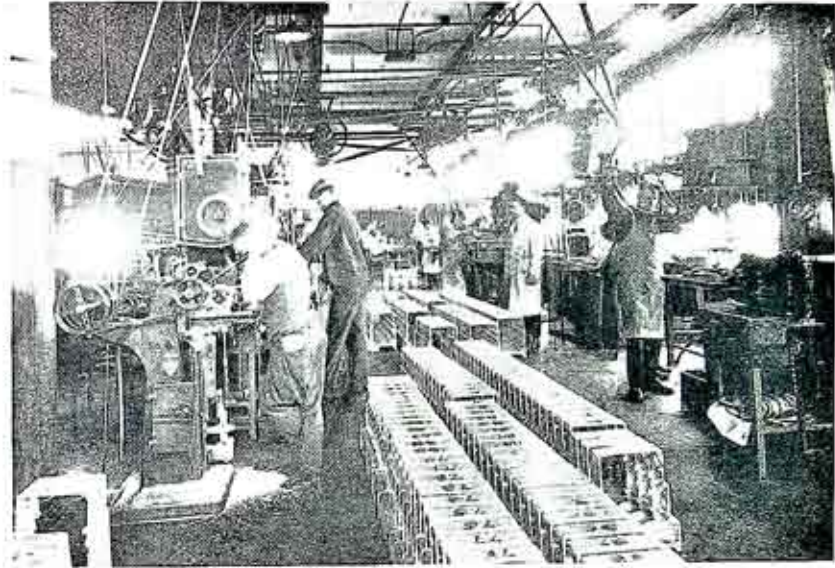
Form of Typewriter Unchanged

While an outstanding feature is the completeness with which the electric principle has been applied, yet the familiar operating features of the standard typewriter have been so completely retained that a machine equipped with the electric drive seems little different from the usual manually operated typewriter.

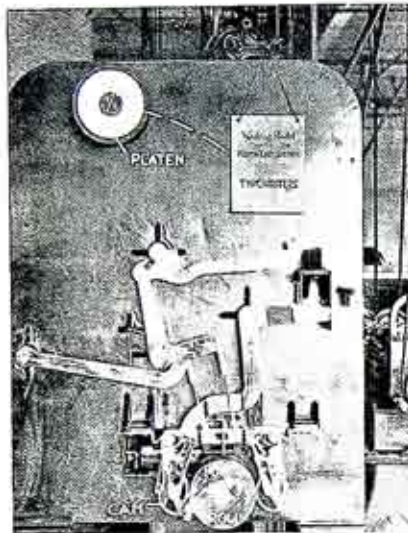
The electric power operating mechanism, however, has been so designed and fitted in with the rest of the parts that the electrification has been accomplished by connecting the standard typewriter parts to the cam units, without materially changing the form of the machine.



Bottom view of the Remington Electric typewriter.



The base casting machining department, top, and part of the typewriter assembling department, bottom, at the North East Electric plant, departments given over entirely to the production of the North East electric drive.



The working model, five times actual size, which was utilized in the development of the North East power drive unit.

Inside, at the back of the base, is mounted the North East Universal Motor, which drives the rubber covered roller extending across the base under the bell cranks, just behind the keyboard.

Motor Operates on Direct or Alternating Current

All features on the Remington Electric, equipped with North East Power Drive, operate equally well on alternating or direct current.

Unit Assembly Throughout

Unit assembly is the characteristic feature of the electrification of the typewriter as accomplished by North East. Each element is actuated by one of a series of similar, independently removable power units. Each typebar and each feature such as carriage return, back spacer, etc., is a complete operating mechanism by itself, entirely independent of all the other mechanisms. In case of necessity, the whole operating mechanism for one part can readily be taken out and replaced without disturbing any other part of the machine. Units for each operation are interchangeable and are definitely located in the machine by dowels or by accurate fits.

Yielding Action Permits Speed

The action of the Remington Electric is so fast that interferences between typebars is practically elimi-

nated due to the speed with which the typebars operate and spring back to their normal position. The master driving roll is covered with a special composition rubber, which yields in case there is an occasional crowding of typebars. The independent action of the typebars requires the return of each bar only a short distance from the platen before the impact of another type. Thus each operation can be started before the previous operation has been completed. It is, therefore, possible to have three or four typebars in motion at the same time without interfering with the operation of the typewriter.

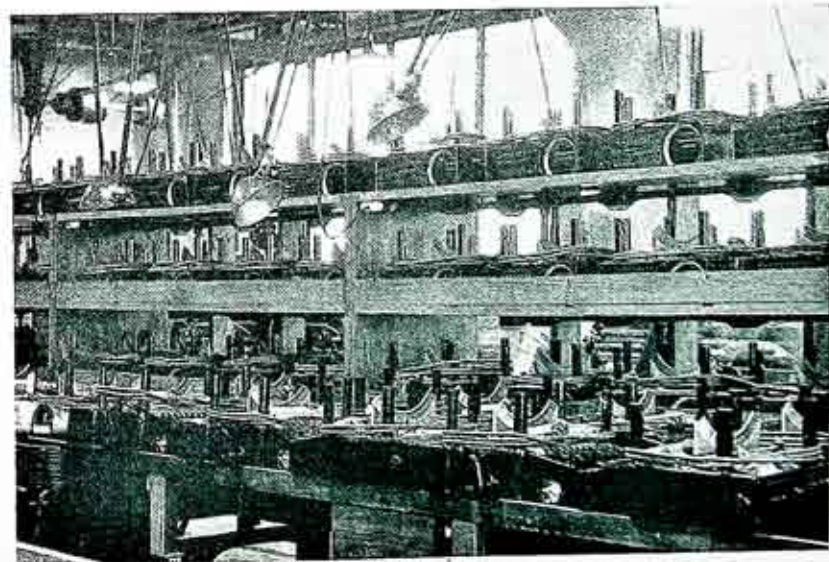
"Flat" Keyboard Reduces Finger Travel

The "Flat" keyboard reduces finger travel and arm motion and hence is a substantial improvement. The dip of the keys is five-eighths to three-quarters of an inch on conventional typewriters, and this makes it necessary to use a steep keyboard with one-half

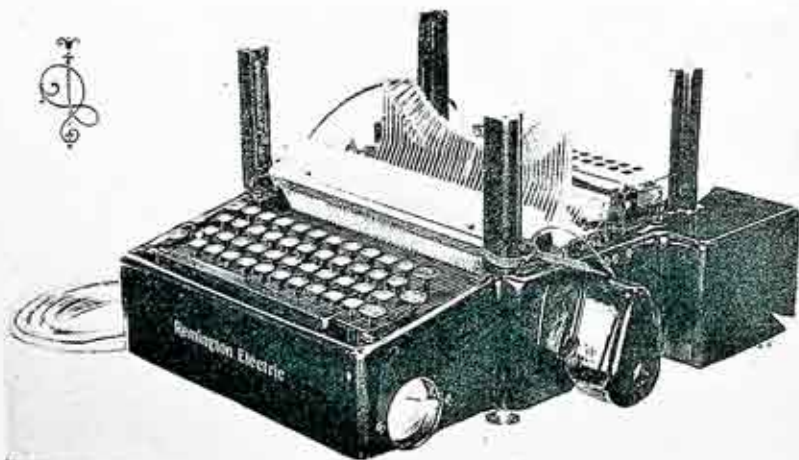
inch elevation between each row in order to prevent interferences between keys. The short key movement of $\frac{3}{8}$ of an inch permissible on the Electric Typewriter, makes possible the use of a keyboard in which the four banks lie almost on a horizontal plane with only one-eighth of an inch elevation between rows. On the electric keyboard the key levers extend to the front of the machine where they move between definite stops in a slotted guide comb. This construction gives a firm even keyboard and eliminates any tendency for the keys to "crawl" or move sideways.

Effortless Touch

The touch is uniform on all keys and differences in finger pressure have no effect on the uniformity of the impression produced. The strength of the several fingers varies but this variation has no influence on the power mechanism. Approximately thirty-two ounces pressure is required to operate the type key on the manual typewriter. Two ounces is the pres-



Typewriter assembly department, showing machines on the run-in racks.



Front and right side view of the North East electric drive unit. This unit is shipped to the Remington Typewriter factory at Ilion, for assembly with the typewriter mechanism proper.

sure required to release each of the cams which set the Remington Electric typewriter in motion, and the blow of the type on the paper, the speed of the carriage as it is returned, the platen shift, etc., are all entirely independent of the pressure of the finger on the key.

Uniform Type Impression Independent of Touch

Light, medium, or heavy impressions of the type on the paper are secured by adjusting the impression knob, conveniently located on the left side of the machine. At any given setting, a strictly uniform type impression is obtained on the paper, thereby insuring maximum neatness and legibility. Since each type receives the same power impulse, the type impression on the paper must necessarily be the same.

Carbon Copies and Stencils Bulletin Type

Successful manifolding and stencil cutting which are largely a matter of



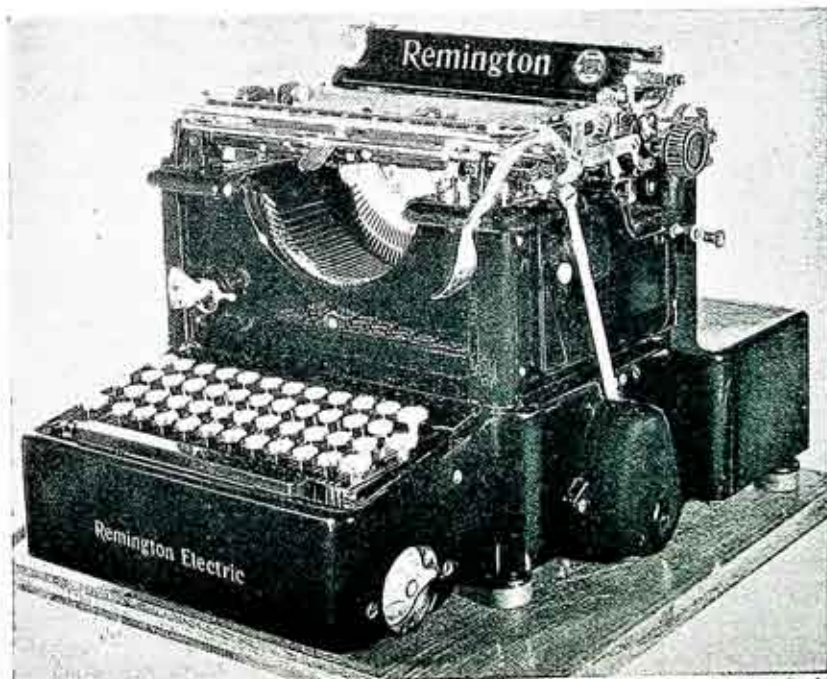
I feel that I have done something for the women who have always had to work so hard.—Statement of C. L. Sholes, inventor of the typewriter.

uniform type impressions, are no problem for the inexperienced operator, where the Remington Electric is used. This is one of the principal advantages resulting from power operation. From one to fifteen legible carbon copies can easily be made.

One particularly spectacular application is found in the offices of the Eastman Kodak Company where Remington Electrics, equipped with bulletin type, three-eighths of an inch high, are used for writing the titles for the Cine Kodak films. Each bulletin electric has replaced three hand operated bulletin typewriters. On these electric bulletin machines one touch of the key is all that is necessary to secure the desired type impression. On the hand operated bulletin typewriter it is necessary to strike the same key as many as six times to obtain the proper type impression. Remington Electric bulletin machines are also used to write the numbers for the New York State fishing license buttons. Typewriters with elite type, or with bulletin type three-eighths of an inch high, are operated equally well by the North East Power Drive.

Nerve Strain Relieved

The highly sensitive finger tips are not adapted to the continuous pounding of the keys which is required to operate the conventional manual typewriter. The nerve centers at the finger tips serve normally as delicate organs of touch. The working portion of the hand is the palm and not the finger tips. To subject the finger nerve terminals to the necessary hammer blows of manual typing results in excessive nervous strain, and a steady drain upon the whole nervous system. This shows up in pains between the shoulder blades, in headaches and nervousness, and a general slowing up in speed. This nervous strain is relieved by the use of the Electric Typewriter, as electricity does the work.



Top: One of the large display windows of The Rochester Gas and Electric Corporation, at Rochester, which are regularly used to advertise the merits of Rochester made products of quality. This Remington Electric exhibit was featured in conjunction with the Office Appliance Show, at the Chamber of Commerce. Bottom: A close-up of the Remington Electric typewriter, a machine of great mechanical beauty.

No executive would permit his secretary to carry in fifteen tons of coal in the course of a day's work, yet this secretary performs a comparable amount of work with the never terminals at her finger tips in operating a manual typewriter. Of course the executive does not realize the amount of manual labor done by the typist or this condition would not exist.

Carriage Returned by Power

No more effort is required to return the carriage and line space than to operate a typebar. To return the carriage by hand, the ordinary typewriter requires twelve thousand times as much energy as is necessary on the electric machine. This operation is accomplished by the slightest touch of the little finger on the key of the electric typewriter.

Fatigue Eliminated

Fatigue decreases speed and incurs errors. The electrically driven typewriter relieves the typist of the physical labor necessary to operate the ordinary manual machine. It has been proven through experiments that a good typist, in an average day's work on the conventional office typewriter manually operated, does work equivalent to lifting as much as fifteen tons a distance of one foot. The application of electric power to the typewriter relieves the typist of more than ninety-nine per cent of this labor. The relief from fatigue is particularly noticeable when the time available for a given amount of work is limited, as in the late hours of the afternoon when rush letters have to be written.

Favorable Reception

The union of Remington typewriter experience and North East electrical engineering skill has filled a generally recognized need. Reports from all parts of the world indicate that this latest labor-saving device is being enthusiastically received.

Railroads' Taxes Increase Faster than Earnings

INCREASE in the annual taxes of the railways has been greater within the last three years than the increase in their annual total earnings, in spite of the fact that the freight business handled in 1926 was much larger than in any previous year. Since the public pays rates to the railways and the railways pay taxes to the public, the result will be that the net cost of railway transportation to the public will be less than in 1923. The increase in the taxes of the Class I. roads in the first ten months of 1926 over the corresponding months of 1923 was \$51,300,000. The increase in earnings was only \$29,800,000, the excess increase in taxes therefore representing a net gain to the public of about \$21,500,000. The failure of total earnings to expand more has been due to various causes. While freight business has largely increased, passenger business has declined. Average freight and passenger rates also have declined. Some of those who have read so much about the increased prosperity of the railways may wonder where their enlarged net operating income has come from. With taxes increasing more than earnings, it had to come, if at all, from economies in operation. Operating expenses of Class I. roads in the first ten months of this year were about \$242,500,000 less than in the corresponding months of 1923, and, in addition, the debit balance of equipment rentals was about \$10,000,000 less. The taxes of all industries and classes of people, like those of the railways, have been increasing, but it would be interesting to know if any other industries have had to bear a three years' augmentation of their taxes exceeding the increases in their total earnings.

—*Railway Age.*

The Electrically Operated Typewriter as an Asset to Utilities

POWER and lighting utilities are obviously interested in any new electrical equipment or device which promises to add an attractive load, to their lines. And the utilities' point of view is not a selfish one, for they have long since discovered that the only entirely satisfactory and stable load is one founded upon the basic foundation of real service to the public in general and to the customer in particular.

Throughout the various articles in this issue dealing with the many specific merits of the electrical typewriter the reader will surely discover that this recently perfected commercial unit is even now fulfilling a long felt need in industry. It makes possible better work, more of it, insures greater ease to the operator and at the same time does add an attractive electrical load for the utility.

Results of Electric Tests

The North East Company made tests of the cost of operation entailed through the use of the Remington Electric Typewriter. And as the use of this machine has not yet become widespread, it was thought that many utilities, as well as many commercial organizations might be interested in a brief analysis of these findings.

It was discovered through the tests made in the Company's Industrial Sales Department, and on other machines in every-day continuous operation, that the Remington Electric typewriter uses approximately three-quarters of a kilowatt-hour of electricity per day or practically 225 kilowatt-hours per year. With operation based upon a regular eight-cent per kilowatt-hour rate, this amounts to \$18.00 per year, per machine. Sub-

stantially, this cost is parallel to the cost of operating a 100-watt electric lamp for the same comparative period of time. The graphic chart shown herewith indicates the amount of electrical energy utilized by the electrical typewriter in comparison with that required to operate other devices in common use today.

Will Increase Average Revenue

A hypothetical survey including in its scope fifty offices in Rochester, showed that the addition of electrical typewriters would increase the average revenue about 50%, when based on an eight-cent rate and one dollar minimum charge. The amount of

Data Given in the July 1926 Issue of the N.E.L.A. Bulletin

Appliance	Annual		Equiv. Hrs. use of Demand
	Max. demand Watts	Con- sump- tion	
Washer.....	300	20	66
Grill.....	500	34	68
Toaster.....	500	37.5	75
Range.....	5,000	1,500	300
Iron.....	575	67	116
Percolator.....	400	42	105
Cleaner.....	170	25	147
Radiator.....	600	96	160
Fan.....	40	31	775
Refrigerator.....	300	864	2,880
*Electric Typewriter	80	125	1,563

*Not given in N.E.L.A. Table. Data based upon metered consumption of typewriters used by Rochester concerns.

electrical energy consumed for other purposes was taken into consideration in estimating this percentage. This may be called the maximum increase in revenue possible from the use of the electrical typewriter. Under certain circumstances, a much more attractive rate, from the customers' standpoint, may be earned.

Possible to Earn Better Rate

Some industrial or commercial customers of the Company in downtown office buildings earn this more attractive rate through cooperating to reduce the Company's cost of service. This is effected, in some cases, by the common use of a large meter to register the combined load. Obviously, this accomplishes a substantial decrease in time, effort and money required in service, such as equipment, clerical work, meter readings, etc., which would be necessary with individual meters for each office.

Another survey made by Company engineers indicated that in instances where this special reduced rate could be effected, each electrically operated typewriter could be operated yearly for five dollars, the earned rate amounting to approximately two and seven hundredths cents per kilowatt-hour.

A fairly general use of electrical typewriters, among other things, will result in transferring to the credit side of the utility's books many present

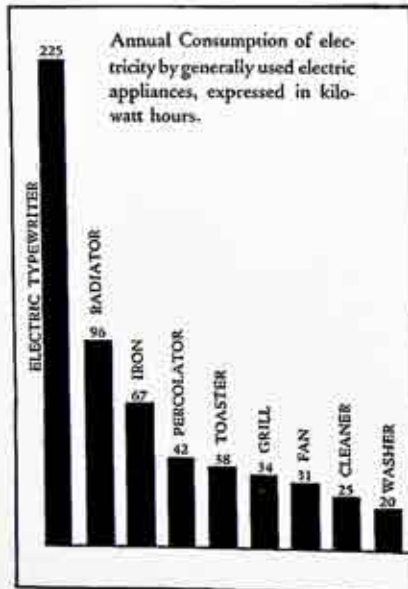
customers whose use of electricity is insufficient to make them a paying proposition. Just as hundreds of rural electrical customers comprise an actual loss to the Company until, through the more extensive use of current consuming devices, they become a Company asset, so hundreds of city customers in the smaller offices, through the addition of the electrical typewriter load may also be placed in the profitable group of consumers.

Increases Output, Decreases Fatigue

This is one of the services which the electrical typewriter will surely accomplish, for it is here to stay. And it is gratifying to know that, as usual the development of another electrically driven device will be accompanied by rewards to be enjoyed so generally not only by the utility, but the electric typewriter represents an appreciable increase in output without fatigue to the operator and at a very small cost for electricity.

An Attractive Load for Utilities

This Company's interest in the electrical typewriter is characteristic of its desire to boost anything that has large potential possibilities for industrial progress, the conservation of human energy, the general welfare of the community and the stabilizing of its rapidly increasing electrical load through economic adjustments. The Remington Electric typewriter, the first unit of the kind to be completely electrified, combines all these possibilities. The Company's findings in connection with its cost of operation are enthusiastically presented therefore for the benefit of other utilities and business organizations which may not yet have given it the attention which its many assets merit.



The Evolution of the Electric Typewriter

Like all great inventions which have consummated a silent revolution, the typewriter is not the product of a single brain. The idea of being able to write letters by means of a machine is probably as old as the art of printing itself.

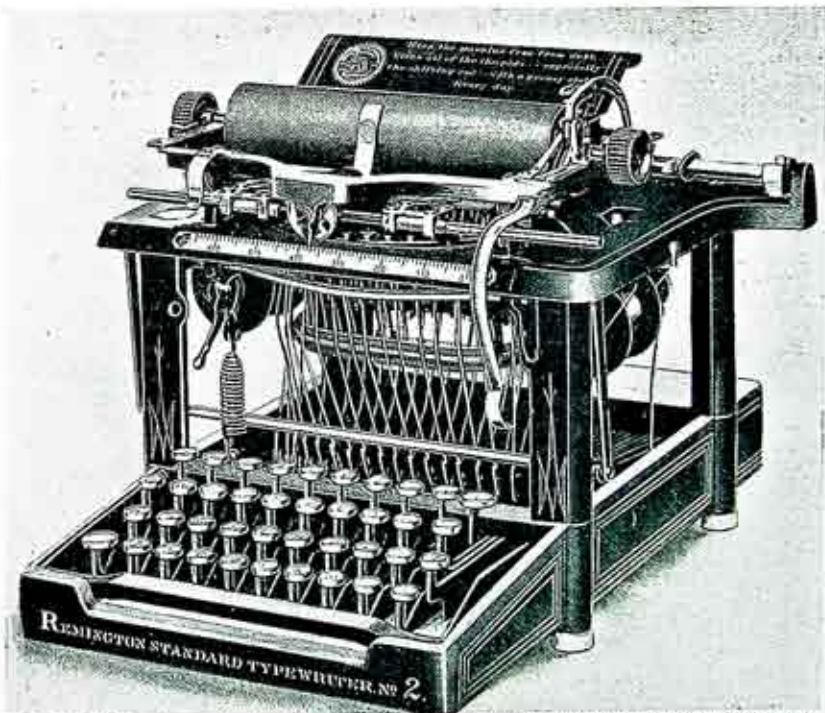


HE typewriter is the principal instrument of all modern business.

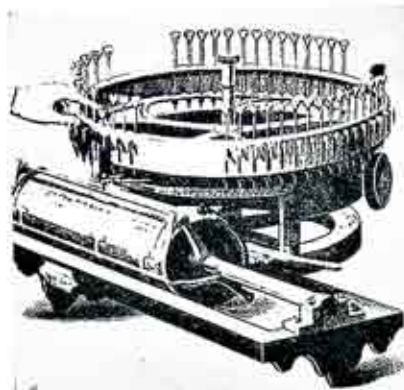
The application of electric power to the typewriter relieves the typist of more than ninety-nine percent of the labor required to operate the manual machine. Hence, the complete electrification of this indispensable business device takes its place in typewriter history as the greatest achievement since the invention of the first practical writing machine. The Electric typewriter

represents the results of years of effort to perfect the best means of written communication.

Man has always been an ingenious being, ever striving to accomplish more with less physical effort. Man's accomplishment in the realm of written communication forms one of the most interesting chapters in the history of our civilization. The principal part of this story is the epic of the typewriter which, taken in its broader sense, is the story of writing itself.



The first shift-key typewriter, brought out in 1878. Many persons will remember this model, which was extremely popular for a great many years. Its sturdiness and good work greatly encouraged the use of typewriters and brought great repute to the Remington Company.



Thurber's machine, of the 1843 vintage. This machine did excellent work, but was too slow and none were manufactured.

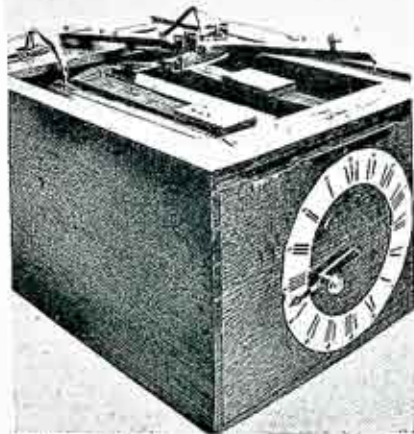
Ancient Methods of Word Picturing

The great story of writing goes hand in hand with the history of civilization. Our most ancient records show man's efforts to communicate by means of the written word. The earliest attempts at word picturing by primitive man, the stone monuments and clay tablets of antiquity, the cuneiform inscriptions of old Babylon, the hieroglyphics and papyrus of ancient Egypt, the wax tablets and stylus of the Romans, Chinese paper of the second century, the parchment manuscripts of the Middle Ages, the Chinese block printing of the eighth century, the Chinese movable type of the eleventh century, Chinese metal type in the fifteenth century, Gutenberg's printing press in the fifteenth century, the steel pens of the eighteenth century, the manual typewriter of the nineteenth century and finally the Electric Typewriter in the twentieth century, are all successive steps in man's effort to record thought in the quickest and easiest and most readable manner. Looking back over this record of development, it is easy for us to see the modern electric typewriter as the logical outcome.

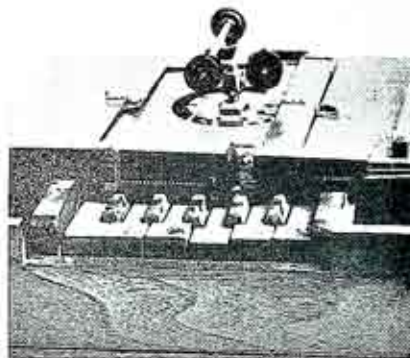
Speed, the Ultimate Goal

This development represents the natural attempts of man to record thought rapidly and to do it with the least possible effort. The art of recording thought has steadily improved as regards speed, visibility and legibility from the shorthand of Julius Caesar's time down to the Electric Typewriter of today. It was not until the nineteenth century, however, that man's thoughts turned seriously to machinery as a possible solution to the problem of speed.

The invention of printing has been described as the most important single advance in the history of civilization, and this handicraft of Gutenberg's served to increase the need for a writing machine. However, life was slow moving in those days of the Renaissance and four centuries were destined to elapse before the advent of the typewriter. It is interesting to note that when the typewriter did appear its influence on printing was immediately apparent and caused many improvements in typesetting devices.



William A. Burt's machine received the first American patent on a typewriter, in 1829. The title page of this patent was signed by President Andrew Jackson, and Martin Van Buren, Secretary of State. This machine, it was said, was "a simple, cheap and pretty machine for printing letters."



The Sholes, Glidden and Soule machine, patent of June 25, 1868. Mr. Sholes called his machine a typewriter, a name which has not been improved upon since that time. He received in his work the co-operation of Mr. Thomas A. Edison.

Necessity, the Mother of Invention

The typewriter, like every great advance in human progress, came when there was a real need for it. As education became more universal, as business expanded, as transportation became more rapid, all human activities increased and the need for speed and accuracy in written inter-communication made itself felt in like proportion.

In the electric typewriter we find the perfection of the process which had its beginning in the hieroglyphics of ancient times and the shorthand of centuries ago. The use of this machine has completely emancipated the executive from office drudgery and, at the same time, has made his work more efficient and more productive.

First Efforts of English Origin

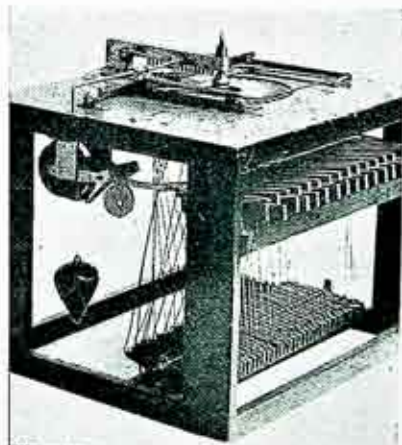
The first record of any effort to invent a typewriter is found in the British Patent Office. Henry Mill, a well-known English engineer, on January 7th, 1714, received "Royal Letters Patents for an artificial machine or method for the impressing or transcribing of letters singly or pro-

gressively, one after another." From that date up to the present time, patents on different types of writing machines are numerous. The first American patent was granted in 1829 to William Austing Burt of Detroit. His machine was called by various names, the most unique of which was "Burt's Family Letter Press."

Each of the different writing machines invented, that really worked at all, can be described by the phrase: "It did the work, but it was too slow." The superior legibility of type over script is undoubtedly an advantage, but the great outstanding merit of the writing machine is its time-saving service. Until 1867 manual writing was faster than machine writing.

The First Practical Machines Made in New York State

In 1867, Christopher Latham Sholes, working in a small machine shop in Milwaukee, Wisconsin, invented the first practical typewriter. This machine wrote accurately and rapidly. Mr. Sholes was assisted in this work



The Sholes, Glidden and Soule machine, patent of July 14, 1868. Although it came out but a month later than the other 1868 model, it was a great advance in typewriter evolution. Its up-strike pivoted bar was standard for many years in typewriter construction.

by Carlos Glidden and S. W. Soule. After making twenty-five or thirty experimental models, each of which was an improvement over the preceding machine, results of this work were taken to E. Remington & Sons, at Ilion, N. Y. The contract was signed March 1st, 1873, whereby Remington agreed to undertake the manufacture of the new machine.

It appears that Mr. Sholes did not take his machine to Ilion, but entrusted it to the care of two of his friends, James Densmore and G. W. N. Yost. Strange to relate, Sholes was doubtful as to the success of his machine and spoke of it as a mere passing novelty. He is said to have sold out his royalty rights to Densmore for \$12,000, a goodly sum in those days, but the only reward, so far as is known, that he ever received for his priceless invention and the years of labor he had bestowed upon it.

In the early part of 1874, the first production machines were completed. The machine was a clumsy affair compared to those of our present day and was known simply as "The TYPE-WRITER." The machine was mounted on a sewing machine stand, the carriage return was worked by a foot treadle and it had no shift key mechanism, hence it wrote capitals only. However, many of the fundamental features of the present day standard typewriter were present. Model No. 1 Remington with special mother-of-pearl finish, on which had been lavished all the splendors suggested by the decorative tastes of fifty years ago was exhibited at the Philadelphia Centennial in 1876. It was at this same Centennial that the telephone made its first public appearance.



This Sholes and Glidden machine, of 1873, was the model shown by Densmore to the Remingtons and resulted in the historic typewriter contract.



This model 1, Remington, lavished in mother-of-pearl finish, was exhibited at the Philadelphia Centennial Exposition, in 1876, when samples of its work were sold to visitors as souvenirs.

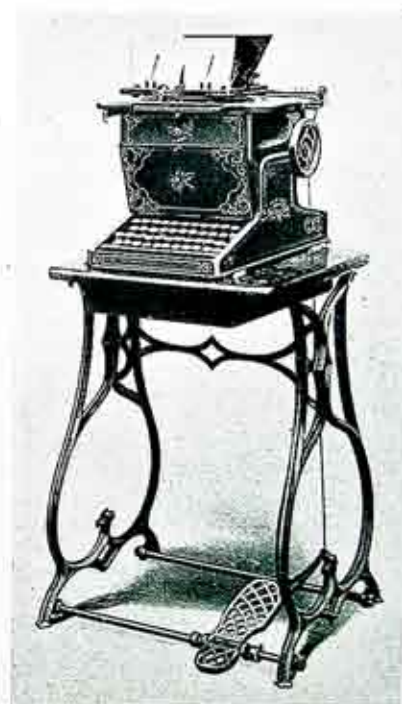
Mr. Edison Interested

It has been said that Thomas A. Edison's inventive genius has figured in some way in connection with nearly every development in the field of mechanical progress during the last half century; it is not surprising to find his name written into the story of the typewriter. Early in the seventies Edison had a shop in Newark, N. J., and he tells how Sholes came there to consult with him concerning his invention; a natural thing for Sholes to do, for even in those early days the fame of "The Wizard" was nation-wide. Edison was able to give Sholes some very valuable assistance. Later on, Edison helped D. W. Craig, a former general manager of the Associated Press, in the development of a machine, built on typewriter principles, designed to facilitate the transmission of telegrams. Edison also did some typewriter inventing on his own account. His patent of December 10, 1872, is for an electrically operated traveling wheel device, which was the forerunner of the stockticker printing machine in use today.

Typewriter Becomes Indispensable

The use of the typewriter increased from year to year, and this stimulated the development of a great many writing machines. Hundreds of different makes of typewriters have been manufactured and put on the market in the fifty-four years since the machine was introduced by Remington. The mechanisms employed in those machines to obtain the desired results have been of varied designs.

Originally, the two principal classes of machines were the typebar and the typewheel. In the typebar machine the types are carried at the ends of levers or typebars, which strike the platen when the keys are pressed



A model 1 Remington, the first commercial typewriter. The foot treadle operated the carriage return, which today is accomplished in the Remington Electric merely by touching a key.

DEAR BROTHER:
I AM TRYING TO GET THE HAND OF THIS NEW F
FANGLED WRITING MACHINE, BUT AM NOT MAKING
A SHINING SUCCESS OF IT, HOWEVER THIS IS THE
FIRST ATTEMPT I EVER HAVE MADE, & YET I PER-
CEIVE THAT I SHALL SOON & EASILY ACQUIRE A FINE
FACILITY IN ITS USE. I SAW THE THING IN BOSTON
THE OTHER DAY & WAS GREATLY TAKEN WITH
IT. BUSTIE HAS STRUCK THE KEYS ONCE OR TWICE,
& NO DOUBT HAS PRINTED SOME LETTERS WHICH DO
NOT BELONG WHERE SHE PUT THEM.
THE HAVING BEEN A COMPOSITOR IS LIKELY TO BE
A GREAT HELP TO ME, SINCE HE CHIEFLY NEEDS
SWIFTESS IN SAISING THE KEYS, THE MACHINE COSTS
125 DOLLARS, THE MACHINE HAS SEVERAL VIRTUES
I BELIEVE IT WILL PRINT FASTER THAN I CAN WRITE
ONE MAY LEAN BACK IN HIS CHAIR & WORK IT, IT
PILES AN AWFUL STACK OF WORDS ON ONE PAGE,
IT DONT HUSS THINGS OR SCATTER THE BLOTS AROUND
OF COURSE IT SAVES PAPER.

BUSTIE IS GONE.

WELL, I FANCY I SHALL MAKE BETTER PROGRESS,
WORKING THIS TYPE-WRITER RESEMBLES ME OF OLD
ROBERT BUCHANAN, WHO, YOU REMEMBER, USED TO
SET UP ARTICLES AT THE CASE WITHOUT PREVIOUS-
LY PUTTING THEM IN THE FORM OF MANUSCRIPT, I
WAS LOST IN ADMIRATION OF SUCH MARVELOUS
INTELLECTUAL CAPACITY.

LOVE TO MELLIE,
YOUR BROTHER,
DAV.

This letter shows Mark Twain's first typewriter letter, written on December 9, 1876, and has traces of his irrepressible humor.

down. Examples of these machines are Remington, Royal, Underwood, L. C. Smith and Woodstock. The other class of machine employed a typewheel, in which the types were arranged around the circumference of a wheel or segment, which rotated by the action of the keys until the proper type was brought opposite the printing point. The only present day survivor of this group is the Hammond, the principal difficulty being that all the operations are in series, which necessarily makes this a slower machine.

Twenty-five years ago, typewriters were divided into two classes, the visible and the invisible. Visible writing is a feature of all modern typewriters. Another distinction between machines was the use of three-row, four-row and eight-row keyboards, and of these three, the four-row keyboard is practically the only survivor.

The two principal classes of machines at the present time are the standard office machine and the port-

able, making use of an impact to do the writing, and the Remington Noiseless Typewriter, in which the writing is done by toggle pressure.

The Electric Typewriter

The electrification of the typewriter has been the goal ever since the first practical results of Mr. Sholes' work became known. As stated before, Mr. Edison pioneered in electric typewriter development by taking out a patent in 1872, covering the operation of a typewriter by electro-magnets. The stock ticker and Linotype which we know so well are also the results of early efforts to electrify the typewriter. There are literally hundreds of patents on electric typewriter, and millions have been spent in electric typewriter development.

The first electric machine which was placed on the market was the Blickenderfer, which made its appearance about twenty-five years ago. This was a typewheel machine and



A Samaritan High Priest and an old Pentateuch roll, or scroll, at Shechem, Palestine. This scroll is a priceless treasure and represents an ancient means of recording history through crude methods of writing. Photo by Underwood and Underwood.

The Hammond Electric made its appearance at the New York Business Show in 1926.

During the past year the Elliott-Fisher Automatic Electric has been introduced. The motor moves the machine forward and backwards, returns the carriage, and operates the line space. Other features are manual.

The Remington, the First Completely Electrified Machine

The North East Electric Company of Rochester, N. Y., has developed the first commercial electric drive for operating all the features on the typewriter by power. The lightest touch on the key releases the power which operates the typebar, carriage return, back spacer, platen shift, escapement, line spacer and tabular.

The North East power drive is now available commercially on the Remington Electric Typewriter, which machine was announced at the National Business Show in New York in October, 1925. The Remington Electric has been exhibited at the Sesqui-Centennial Exposition of Philadelphia, at the 1926 New York and Chicago Business Shows, the 1926 Rochester Industrial Exposition and many other business shows throughout the country.

The showing of the Remington Electric at the Sesqui-Centennial at Philadelphia was particularly significant, as just fifty years had elapsed since the first Remington Model No. 1, the "Ancestor of all Writing Machines," had been exhibited at the Philadelphia Centennial, which was held in the same city to celebrate the same historical event. The cordial reception given to the electric and the general appreciation on the part of the public of the labor saving qualities and speed characteristics of this latest addition to the already complete line of Remington products signify that another milestone in typewriter history has been passed.



A Jewish scribe of today, in Palestine. He writes your letter while you wait, emphasis on the last word. How he could boost business with a Remington Electric. Photo by Underwood and Underwood.

was given a cordial reception by the public. It was also utilized by the Telegraphic Mail Company of which much was heard at the time of its introduction.

The next electric machine which was placed on the market was the Mercedes, which made its appearance in 1921. This machine is now available in Germany, England and other foreign countries, but as yet is not being marketed in the United States. On this machine the typebars, carriage return, escapement and platen shift are by power. The tabular, line spacer and back spacer are manual.

For several years the carriages on the Underwood and Remington accounting machines have been operated by electric motors.

The Woodstock Electric was announced in the latter part of 1924, and this machine is now marketed all over the world. The typebars on this machine are the only parts on power—all the other mechanisms are manual.

GAS AND ELECTRIC NEWS

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89 East Avenue, Rochester, N. Y.

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Public Relations Department

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VOL. 14 APRIL, 1927 No. 10

Mental Backfiring

The mind wishes for what it has missed and occupies itself with retrospection, contemplation.
—PETRONIUS ARBITER.

QUITE frequently we find ourselves saying, "Why didn't I think of that sooner," as we discover that we have missed a good opportunity to save ourselves or someone else an increment of time, labor or money, mostly because we didn't have our 'wits about us.'

And, after a conversation is over, we discover that we had had some very clever utterances right on the end of our tongue, or perhaps just the right joke to have enlivened a certain friendly contact. But in these typical instances and in many others that occur, we often 'wake up' after it is too late.

But perhaps we lose most, because of our lack of perfect mental alertness, during the course of our routine daily work. How many steps we could save ourselves; and what a lot of real work our errors of intellectual resourceful-

ness cause us to pay for with duplicate energy.

And what does it all mean. Roughly speaking, we have 'backfired' mentally. The thought has been transmitted all right, but it was improperly timed. And as in the case of a gasoline engine, such after firing can do little good. It is comparable to water that has passed over the dam. But these fugitive thoughts may accomplish something for good in having made us cognizant of an apathetic state of mind, and in having given us a brief mental picture of what an improvement we could have accomplished had we been hitting on all four, mentally.

Equipment versus Performance

Perseverance is irresistible.—SEXTONIUS.

A ROCHESTER boy recently carried off first honors in a roller skating contest, using skates he had borrowed for the occasion. How is that for an exemplification of the rollicking spirit of youth that will not be denied?

If this boy had owned an expensive pair of skates and all the other accessories that go with a 'nifty' outfit, perhaps he would not have finished first in the race. He might have been thinking of his nifty clothes, or the effect he was producing on his girl friends.

But when a young man is out for victory, unadulterated, he stops not for fine trappings. He uses what he has or what he can get and enters the contest with a grim determination to win. Such spirit generally lands one well to the front in any field of endeavor.

Recently we overheard a father explaining to his son that it was not wise to invest in an expensive fielders' 'mitt.' It seemed that the youngster wanted the very best, mostly because some boy friend had one. The parent

explained that if his son would show some 'class' as a ball player, using the more or less ordinary equipment that he already possessed, he would purchase for him anything that seemed to be necessary for his continued progress.

And isn't this boy's attitude typical of many adult wants? We think we require many things that we actually don't want or need at all. Attics are full of such exhibits, ranging from archery sets to saxophones, as well as other paraphernalia that perhaps interested us for a few days, received little use and then were relegated to the realm of forgotten things. We sometimes let our premature enthusiasm run away with our check book.

How different it is with the boy who borrows skates to stride to victory; the boy who makes his own string ball and improvised bat that he may 'practice up'; or the boy who walks mile after mile as a caddy that he may earn some spare change and at the same time indulge his desire to master golf. Professional ranks are full of such boys, grown to manhood.

And after all, any old bat is good enough for the fellow who has the ability to knock a 'homer'; it is more skill than bat, of that we feel confident. And equipment is but part of the game, perhaps the smaller part. What seems to count for even more is grit, determination to win, and skill that constant practice will develop.

On Gaining a "Rep"

Men are seldom underrated; the mercury in a man finds its true level in the eyes of the world just as certainly as it does in the glass of a thermometer.—H. W. SWAV.

A DOCTOR called at our home some time ago and made a remark that has lingered in our memory. It was a stormy evening, and rather late, and he was anxious to call his wife on the telephone to inform her that he would not be able to take his accustomed late luncheon with her.

The doctor explained that he had one more call that he felt he should make. The patient, who was convalescing, lived outside the city limits, on a highway which was rather difficult to travel. He said that he could 'get by' nicely if he did not make this particular call. "But," said he, "those folks are apt to infer that I have been influenced by the weather in not calling upon them, and I am zealous of maintaining my reputation for 'coming across' in any kind of weather."

We have all heard of 'fair weather' friends, who are one hundred per cent when the serenity of blue skies is not marred by impending storms. Then, there are other friends who 'stick' through thick and thin, and are most in evidence when there is something really worth while that they may do to help us; and isn't this the kind of a friend, doctor or employee we would all like to have the reputation of being?

Like this doctor who passed up a warm supper with his wife to visit a convalescent patient on a stormy night, we all have opportunities to prove ourselves to those with whom we are associated. Sometimes we may be able to 'get by' without sacrificing any of our reputation for absolute reliability. But there are other times when some slight personal sacrifice on our part may comprise a worth-while demonstration to others of our sincerity.

And all this makes us reflect upon a caption we read recently in a 'movie,' in which one of the principal characters said, "I have discovered that my own personal happiness is not the most important thing in the world." Friendship and service are substantially cooperative efforts of give and take, and persons who are getting the most happiness out of life apparently are those who place a somewhat greater emphasis on the giving side of the equation.

Board of Directors Make Appointments

AT the organization meeting which was held in New York on April 12, 1927, the Board of Directors appointed Mr. Charles L. Cadle as General Manager, and Mr. Joseph P. Haftenkamp as Assistant General Manager of the Company. These appointments will tend to relieve President Searle and Senior Vice President Russell, who was formerly General Manager as well as Vice President, from many strenuous details of management, thereby permitting them to give their special attention to ever-increasing major problems.

For the benefit of many new employees of the Company, who have not had the opportunity of becoming reasonably familiar with the personnel of its Management, we will narrate a few pertinent facts.

Mr. Searle has been with the Company since 1906, when he became its General Manager. In 1914 he was elected Vice President, and six years later he assumed the responsibilities of President and has served faithfully and well in this capacity for the past seven years.

Mr. Russell, since his coming with the Company in 1905, as Assistant Superintendent of the Gas Works, has steadily advanced through the positions of Superintendent of Gas Manufacture, Assistant General Manager, General Manager and Vice President, to Senior Vice President.

Detailed biographical sketches of Mr. Searle, Mr. Russell and Mr. Cadle, have appeared in past issues of Gas and Electric News in volume 7, No. 10; volume 6, No. 10; and volume 13, No. 6, respectively, and copies of these issues may be had by persons whose file of Gas and Electric News does not include them. In an early issue of our magazine we will run a

biographical sketch of Mr. Haftenkamp, our recently appointed Assistant General Manager, tracing his advancement with the Company during the past twenty-two years.

As General Manager, Mr. Cadle will fulfill in practice the optimistic expectations expressed for him by his many friends. His excellent training and broad experience as an engineer, coupled with his intimate acquaintance with Company practice for the past three years as Assistant General Manager, especially fit him for good work. He will be well backed up in his important mission by Assistant General Manager Haftenkamp, whose expert knowledge of gas manufacturing and distribution practice coupled with natural adaptability and fitness for managerial duties will make for a well-rounded management.

Mr. Haftenkamp came with the Company in 1905, soon after graduating from Michigan State University. He has steadily advanced in experience and position, having been Superintendent of Gas Manufacture for the Company for some years. Mr. Haftenkamp is generally recognized as a leader in the gas industry, having served on numerous state and national committees during recent years, his last work being as Chairman of the Technical Section of The American Gas Association.

At this meeting, the Board of Directors increased the Executive Committee by adding to it the name of Mr. William H. Vanderbilt, the Committee now numbering seven men instead of six. With the exceptions we have mentioned herewith, the personnel of the Directors, Officers and Executive Committee remains as it appeared in the Company's 1926-7 year book, the February issue of Gas and Electric News.

Geologic Story of the Genesee

By HERMAN L. FAIRCHILD

CHAPTER 9. Upper Silurian; Salina Formation



NATURE has most generously provided a handsome and free exhibition of the Lower Silurian strata in the Rochester Canyon. In obedience to the mysterious force called gravitation the river Genesee carved the trench and thus dissected the rock formations described in the last two chapters. But the same geologic agent, in capricious mood, and with the aid of glacial processes, has entirely buried and concealed the middle and upper strata of the Silurian. As these do not appear in the channel of the river, nor in the adjacent portions of its valley, we are compelled to find the strata in more distant but yet neighboring areas.

The following table (8) gives the rock succession in New York. Their

position in the comprehensive geologic column is given in table 5, and in figure 25; while their geographic location is shown in figure 24.

Figures 24 and 25 indicate that the Salina strata lie between the two heavy limestone formations, with a width on the meridian of Rochester of about eleven miles. This belt covers the space from West Brighton to Rush and Honeoye Falls. The rocks are almost entirely obscured, except at the south border, by glacial drift and glacial lake deposits.

Detailed descriptions of the strata, with maps, are published in the N. Y. State Museum bulletins 114, 152.

It has already been stated that the shallow east and west depression between the two limestones is result of the weakness, or lack of resistance

TABLE 8

UPPER SILURIAN STRATA

TIME DIVISIONS	STRATA	THICKNESS	
Upper Silurian Cayugan	Manlius group	Absent in Western New York	
	Bertie group		85 feet
	Salina group	Akron dolomite Williamsville waterline Scajaquada shaly limestone Falkirk dolomite Oatka shaly limestone	
		Camillus shale and gypsum with salt lenses in base Vernon, red shale, with black shales ("Pittsford") in base	300

to erosion, of these Salina shales. This topographical feature, of inferior altitude, diverted the drainage during both Preglacial and recent time into either eastward or westward flow. The Genesee is the only stream which cuts entirely across the two limestones and the intervening Salina belt. The extensive Oak Orchard and Tonawanda swamps lie in the Salina depression; which also includes the low ground eastward to Syracuse, and beyond.

The old name "Salt Group" for the strata and the present name Salina express one salient character of the formation, the inclusion of the mineral halite, or rock-salt. And the upper member contains a large amount of sulphate of lime, or gypsum. All the workable gypsum of western New York occurs in the Camillus, and above the salt.

The varied physical and climatic conditions, and the oceanic invasions and retreats, gave such great complexity to the geologic history of the later Silurian that the present description must be incomplete.

All of the strata considered in the preceding chapters, the lower Silurian rocks in the Rochester canyon, were formed in oceanic waters. They are all marine sediments, laid in epicontinental seas that spread over the sinking portions of the continent. But the rocks of the middle Silurian, the Salina shales, are not wholly marine. They are partly continental deposits, which were formed either in lakes or beneath the air, when this part of the continent was above the sea.

Extensive deposits made in ancient lakes have long been recognized. Examples in America are the vast lake beds in the far west, of Tertiary time, containing the very abundant remains of the wonderful extinct mammals. And now geologists find that some formations which were supposed to be marine, or at least laid under water, as aqueous deposits, are really continental; and that some deposits were

made even on dry land. The latter are illustrated today in the arid regions, where torrential waters sweep detritus from highlands down to lower ground.

The beds of rock-salt, aggregating one or two hundred feet in thickness, were quite certainly formed by the evaporation of bodies of salt water. This implies an arid climate, and widespread desert conditions, in this part of the continent.

Today we see that North America has very different climatic conditions even in belts of the same latitude. The west slope of the Sierras is well watered, while the east slope and the Great Basin are arid and semi-desert. The climate of any region is determined not only by latitude but by the combination of the external physical conditions, as land relief, prevailing wind direction, and the resulting effect on humidity and precipitation. In mid-Silurian time some combination of physical factors produced in the wide region covering western New York, the Great Lakes area and southern Canada, a condition of climate similar to that of Utah at present. A Silurian Great Salt Lake, or lakes, or a Dead Sea, lay over central and western New York, Ohio, Michigan and Ontario. In the geologic drama of the Genesee Country this "Dead Sea" epoch was the most remarkable scene.

That ancient Genesee desert must have been a dreary place; but no animal land-life existed with intelligence sufficient to appreciate the barrenness. The arid regions of western America are very interesting today, with a variety of plants and animals well adapted to the dry climate. But the Silurian life was mostly in the waters, and whatever plants and animals had crawled out on the land and had become air-breathers were relatively low in rank. The Rochester and Genesee region of Salina time was the abomination of desolation.

The geology and geochemistry of the Salina formation, with its included salt and other minerals, is very complex, involving many physical and chemical problems. The rock salt occurs in several beds, at different levels, or horizons, and the beds probably are not continuous through the salt-bearing territory. And all the Salina strata are unusual in structure and composition, quite unlike ordinary bedded shales. The Vernon red shale, much of it mottled with green, is such a

number of minerals, the haloids, as chlorides, carbonates, sulphates, etc.

The large amount of salt in the Salina strata, and even in a single one of the thicker beds, would require a large volume of sea water, with the proportionate quantity of the associated gypsum and haloids. But in the strata, and beneath each bed of salt there is deficiency of gypsum and associated minerals, and the salt is usually very pure.

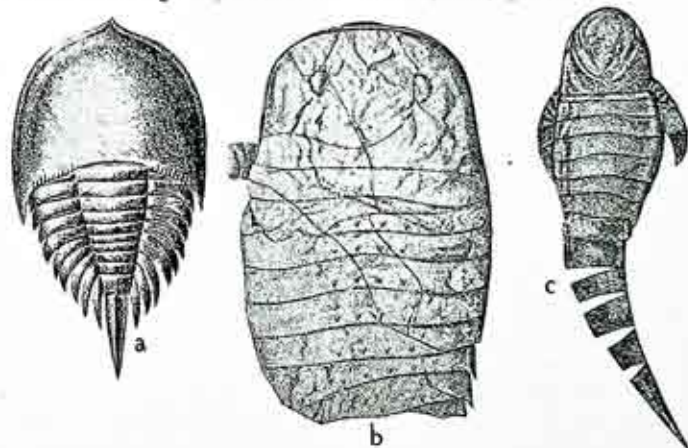


Figure 55. PITTSFORD FOSSILS.
a, *Pseudoniscus*. b, *Eurypterus*. c, *Hughmilleria*. b and c are reduced in size.

peculiar, homogeneous mud-like deposit that it has even been interpreted as a dust deposit, or loess. The overlying strata which include the salt are similar to the Camillus rock, which is a nondescript limey mud deposit.

Formerly it was supposed that the New York salt was deposited by the evaporation of oceanic water, but later studies indicate that the marine theory must be greatly modified, if not wholly abandoned. In evaporation of ocean water the many minerals in solution are precipitated in the reverse order of their solubility. Salt and gypsum are normal associates, and the less soluble gypsum is precipitated first, and the salt later and overlying. Beside these there should be associated a

The chemical difficulty is multiplied by the repetition of the salt beds, with their varied relations. This multiplication of salt beds would imply repeated incursions of the ocean, bringing in marine organisms for fossilization. But fossils are entirely wanting throughout the salt-bearing strata.

The other general explanation is that of salt lakes, as illustrated in the playas, salinas and lakes in the western Great Basin. Under this view the immediate source of the salt was the marine strata which had been just lifted out of the salt ocean. It was washed out of the widely-exposed and weathering Niagara limestones and carried down by the wet-season streams into the land-locked and evap-

orating basins. The process is seen today in the salt lakes and salinas of Utah, Nevada and southern California. Most rivers, even the Genesee, carry some salt, derived from the old marine rocks.

The primary source of all salt is the combination of the sodium and chlorine out of the primitive rocks which compose the globe. The ocean obtained it by the decay of the ancient rocks. All the clay, sand and lime of the stratified rocks were derived the same way.

Salt beds occur in the strata of many geologic periods, and undoubtedly the salt was withdrawn from the ocean. During all geologic time the ocean has been both receiving and losing its saline content. The Silurian salt, in the Salina, was originally in the igneous rocks; then washed out into the sea; then entangled in the deposits, shales and limestones, of Niagara time; and then during Salina time it was washed out of the uplifted and exposed Niagara strata and was carried into and precipitated in the Salina salt lakes, and buried in the clay deposits.

The sequence of events appears to have been the following. During Late Niagara time the Lockport-Guelph sea became disconnected from the ocean and was a salt lake. The Guelph fossils suggest abnormal salinity of the water. The rock beneath the lowest salt should contain the precipitated minerals which had been held in the sea water, plus some from the wastage of the land.

During the immensely long Salina epoch probably there were long-period fluctuations of climate. The eras of higher humidity and heavier river flow are represented by the clay-rock strata between the salt beds. The layers of salt represent the times of greatest aridity. The various minerals in the rocks, minor in amount, were derived, like the salt, from the exposed rocks of the surrounding dry

land, especially the Niagara limestones.

The unusual structure and composition of the Salina shales must be due to the effects or behavior of the excessively salt waters. The fresh and light river waters instead of immediately commingling with the dense lake water, spread far out over the heavy "dead sea" water. The fine river-borne silt was thus swept far out in the lake, instead of being dropped near shore.

Even if the lake waters were not deep the wave and current movements in the heavy salt-saturated fluid could not effectively reach the bottom so as to produce normal bedding and sedimentation structure. The river silts very quietly fell to the bottom, producing the peculiar, massive, non-laminated lime-muds of the Salina strata. The coarser shore deposits which must have formed along the north side of the extensive basin have suffered erosion like all the Silurian and Devonian strata (Chapter 5, figure 25).

It is possible that there were incursions of the sea during the long epoch of the Salina, but we have no evidence. Some fossils in the Camillus indicate later inflow from the ocean; and the overlying Bertie, with its many fossils and its highly laminated structure, shows restored and normal marine conditions.

One of our Rochester geologists, Professor Harold L. Alling, has made intensive study of the Salina problems, and it is anticipated that his paper will be published as a Bulletin of the State Museum.

It would be very interesting if we could know what were the physical conditions, in land relief and wind direction, that deprived this region of sufficient moisture. Certainly they were very unlike the present. It is probable that the highlands which supplied the detritus for building the Silurian strata lay off on the east,

northeast and north. The flow of the upper air should have been from west to east, as today, but in some manner the lower or local winds had lost their water, or else refused to drop it.

For the recognition of the Pittsford shale as a distinct and lowest member of the Salina series or at least as a phase of the Vernon, we are indebted to a Rochester geologist, Professor Clifton J. Sarle. During the deepening of the Erie Canal, in 1897-1898, Sarle discovered a new crustacea-like fauna in the fossil record. (Figure 55c). The locality of the "find" was by the "Spring House," a short distance east of the Brighton-Pittsford town line.

The stratum which held the new fossils is a black shale, about 20 feet above the top of the Guelph limestone. The important new genus of ancient merostomes was called by Sarle *Hughmilleria*. This group of animals, which includes the living horseshoe crab, *Limulus*, was formerly put with the crustaceans, but is now classed with the scorpions and spiders.

The name must be explained. Scientific names of plants and animals,

living or fossil, are commonly made by combining Greek or Latin words that express some feature, structure, or form of the organism. *Hughmilleria* is a wide exception. When Sarle was studying his new Pittsford fossils, at the State Museum, Albany, in 1902, the centenary of Hugh Miller's birth was near its celebration in Scotland. It was a bold conceit to name the ancient and homely scorpion after the famous Scotch geologist, who was unable to object.

During the excavation of the Barge Canal through the village of Pittsford, in the red Vernon shales, another find was made of marine fossils, partly like those found by Sarle in the Pittsford shale. These fossils at the base of the Salina, in the Pittsford or lower Vernon, are of special interest to geologists. The assemblage, or fauna, is of somewhat peculiar character, and its marine origin has formerly been in doubt. Another interesting fact is that practically no other remains of life are found up through the entire thickness of the Salina until near the top of the Camillus, and especially in the overlying Bertie waterlime, where another

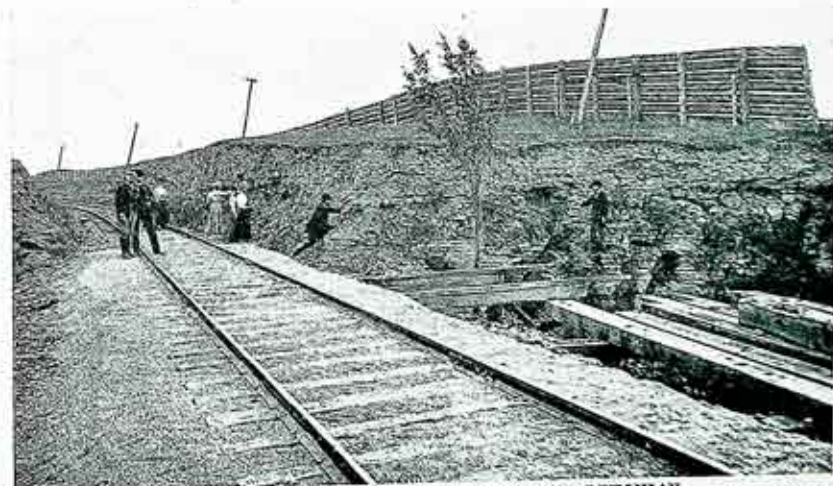


Figure 56. HIATUS BETWEEN SILURIAN AND DEVONIAN. Cut for Lehigh Valley R. R., one-half mile northwest of Honeoye Falls. Onondaga limestone on top, and higher Silurian and lower Devonian strata are missing. Looking south, 1899.



Figure 57. BERTIE STRATA.

Old quarry a short distance west of the place shown in figure 56. Looking southeast. 1899.

fauna occurs similar to the Pittsford. The interesting genus here is *Eurypterus*, (Figure 55b) related to *Hughmilleria*, but larger and of higher development. The fossil was abundant in the rock used by the Buffalo cement factories, and were unusually well preserved. The crustacea frequently moult or shed their hardened skins, and then commonly eat them or tear them to fragments.

The absence of fossils in the middle of the Salina formation is evidently because the waters were too salty for life to exist. But at the beginning of the long era of aridity, and of extreme salinity of the waters, and again at the close, the waters were fresh enough to favor either estuarine or marine life.

The Vernon is named after the village in Oneida County. The color is red, with some patches and bands of greenish gray. In color it suggests the fine-grained red shale of the Medina, or the Queenston, but is quite unstratified and structureless.

The precise conditions of origin of the Vernon and Camillus are uncertain. Some authorities think that

they were partly land-laid or even wind-blown or eolian. Certainly they were laid in or about the evaporating lakes. As they contain no sands or coarse material it is evident that the dry land which supplied the material was far away, and probably on the east.

Toward the close of the Salina era the land subsided, for open-sea waters returned to western New York, for a time, and produced the thin-bedded, shaly, drab-colored limestones of the Bertie formation. These sandy lime-mud sediments are suitable, especially the upper, for making natural or hydraulic cement.

Following the Camillus-Bertie episode of marine invasion the region was again lifted above the sea, and did not again drop below sea level for any great length of time until the middle of the Devonian period. During the long period of emergence heavy limestones were accumulated in the region from Syracuse eastward. This continental oscillation is indicated in the tables and in figure 25.

The reader will wish to know where these Salina rocks may be seen. The Pittsford black shale, described by Sarle, is formed only at the Spring House. Probably it is only a recurring phase of the Vernon. Search should be made for new finds of the characteristic fossils. The Vernon red shale, mottled with green, occurs in the Barge Canal banks at Pittsford, and on many valley sides eastward from Fairport through to Syracuse. One exposure is over a mile south of Henrietta station, on the north side of the highway bridge over the Lehigh Valley R. R., on the east side of the tracks.

The salt-bearing strata lie too deep to appear at the surface anywhere in western New York. But the Camillus lies at the surface, beneath the glacial drift mantle, extensively, and of course wherever gypsum is mined, as at Wheatland and Oakfield. As previously noted, all the workable gypsum

is in the Camillus, and above the salt beds.

The Bertie formation lies immediately beneath the Onondaga limestone (figure 56), and appear frequently in the belt of ground by Rush and Honeoye Falls. Stone fences built of the thin, board-like slabs of these limestones indicate the near occurrence of these highly laminated rocks. In their laminated structure these rocks are radically unlike the underlying strata, Vernon and Camillus.

The former hydraulic cement plants at Buffalo and Akron, now supplanted by "portland" cement, utilized the impure limestone, or waterlime, of the Williamsville. The Akron dolomite was the stratum called "Bullhead."

Figures 56, 57 show a good locality for seeing the Onondaga limestone resting directly on the Falkirk dolomite. Here is a major unconformity or break, or gap, in the rock

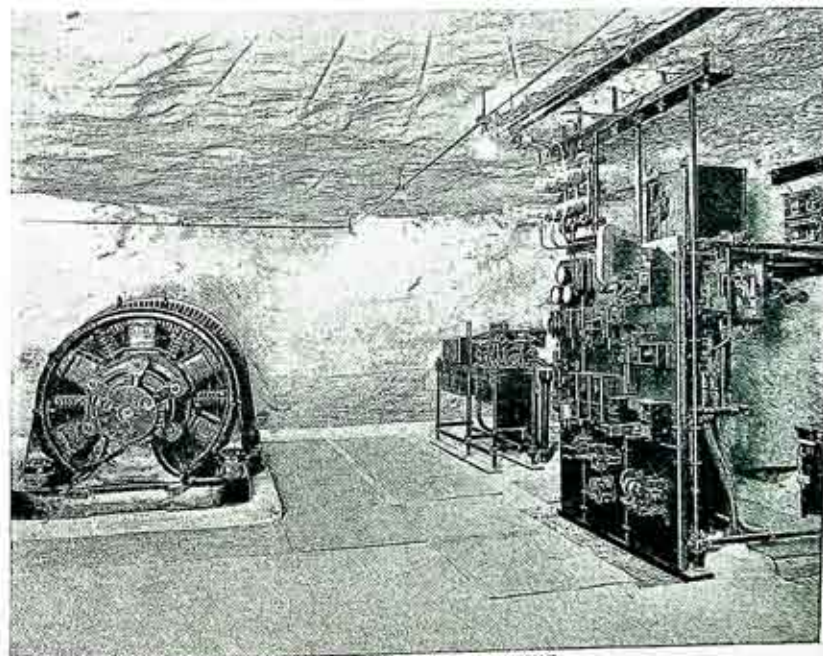


Figure 58. RETSOF SALT MINE.
Electric substation in salt bed, 1077 feet underground.

succession of western New York. In the Syracuse region and in the Helderberg highlands a great thickness of strata lies between the Falkirk (lower Bertie) dolomite and the Onondaga limestone (table 5). The lost members in western New York include the highest members of the upper Silurian (table 8) and several of the Devonian, which will be described in the next chapter.

This interval of deficient rock-record is however a real geologic record, but one of exposure and erosion. After the Genesee region had been depressed for the accumulation of the Bertie group it was again raised for long ages, excepting a brief drop in Oriskany time. The Salina was the first long period of uplift, with arid climate, and the late Silurian and early Devonian was the second period. But the submergence that separated these two periods was so brief, in geologic time measure, that the two might be considered as one long period of prevailing elevation for western New York.

The four mineral products of western New York are salt, gypsum, oil and gas. A word here about the salt and gypsum industries may be welcome. In 1788 the State purchased from the Indians the "Onondaga Salt Springs Reservation," and the industry on a commercial scale began in 1797. The Syracuse brine lies in the gravels, sands and clays of the deep and buried Onondaga Valley, being derived from solution of the salt in the rocks on the south. Until 1881 the solar evaporation from the Syracuse field had practical monopoly. Many readers will recall the acres of evaporating pans seen from the trains. Now these are all gone, for in 1881 a plant at Warsaw inaugurated a superior process, producing heavier brines by forcing water down into the salt beds and then lifting the saturated water by compressed air. The State gave up control of the Syracuse field in 1908.

Rock salt was discovered by the drill in Ontario County in 1865. Shaft mining began at Retsof in 1885. Today three mines are operating, Retsof, (Figure 58) Cuylerville and at Meyers north of Ithaca. Other shafts at LeRoy, Greigsville and Livonia have been closed by the salt interests.

The number and thickness of the salt beds are variable, and the beds may not be continuous. At Ithaca there are seven beds with total thickness of 248 feet. In Livingston County the total thickness is 50 to 80 feet, and in the Oatka Valley 75 to 80 feet.

The New York field is the most easterly in the country and therefore has marketing advantages. The eastern limit of the field is at Morrisville, Madison County. Westward the Salina deposits extend into Michigan.

The gypsum industry began, like other western New York industries, with the opening of the Erie Canal. The early use was as a fertilizer, the "land-plaster." This is now largely supplanted by lime and ground limestone.

Since 1893 gypsum has been chiefly used as a stucco in various forms of wall material in house construction. Since about 1905 it is used as a retarder in portland cement.

The gypsum mines are at Victor, Garbutt, Oakfield and Akron. In the mines the gypsum is not far below the ground surface; but going deeper the mineral becomes anhydrite. Gypsum is calcium sulphate plus water. Anhydrite is the sulphate without water. The relation suggests that anhydrite is the primary form, being changed into gypsum by absorbing water, or hydration.

It appears probable that the sulphate in the Camillus rocks was produced by the chemical action of sulphuric acid on the lime content of the shale. The source of the acid is attributed to decomposition of iron pyrite and other sulphides.



New Business				E. B. A. for March, 1927	
Net Increase in Consumers in Year Ending February 28, 1927				Balance 1st of Month.....	
	Feb. 28, 1927	1926	Incr.	\$ 9,907.46	
Gas.....	97,873	94,776	3,097	Dues—Members.....	1,452.24
Electric.....	91,075	82,147	8,928	Dues—Company.....	1,452.24
Steam.....	258	184	74	Fees—Members.....	18.00
				Fees—Company.....	18.00
Total.....	189,206	177,107	12,099	Assmt. No. 84—Members.....	.25
Statement of Consumers by Departments as of February 28th				Assmt. No. 86—Members.....	.25
Feb. 28th	Gas	Electric	Steam	Total	Incr.
1922.....	81,639	41,309	104	123,052	6,856
1923.....	84,396	50,207	115	134,718	11,666
1924.....	87,420	60,877	117	148,414	13,696
1925.....	90,332	71,824	143	162,299	13,885
1926.....	94,776	82,147	184	177,107	14,808
1927.....	97,873	91,075	258	189,206	12,099
Incr. in					
10 yrs.	22,250	65,409	210	87,869	87,869
Net Increase in Consumers by Months				Sick Benefits.....	
	1925	1926	1927	\$ 1,874.89	
Incr. in January.....	300	652	357	Accident Off Duty Benefits.....	67.26
Incr. in February.....	441	733	512	Accident On Duty Benefits.....	98.01
Incr. in March.....	920	729		Death Benefit No. 93.....	225.00
Incr. in April.....	1438	1083		Death Benefit No. 94.....	400.00
Incr. in September.....	1683	1603		Death Benefit No. 95.....	400.00
Incr. in October.....	1591	1444		Group Life Insurance.....	39.12
Incr. in November.....	1464	1042		Medical Examiner's Expense.....	7.50
Incr. in December.....	1258	829		Members' Add. Life Insurance.....	3.60
Miscellaneous Data				25 shares 7% Roch. Gas & Elec. Corp. Preferred Stock.....	
	Feb. 28, 1927	1926	Incr.	2,684.38	
Miles of Gas Main.....	624	614	10	Total Payments.....	5,799.76
Miles of Overhead Line.....	3680	3536	144	Balance on Hand.....	8,299.03
Miles of Underg'd Cable.....	2190	1920	270	Membership	
Miles of Subway Duct.....	1610	1357	253	Date	
No. of Street Arc Lamps.....	1061	1003	58	No.	
No. Street Mazda Lamps.....	16,359	14,312	2,047	Date	
Total No. Street Lamps.....	17,420	15,315	2,105	Date	
Number Employees.....	2,228	2,082	146	Date	
				Date	
Amount Pay Roll.....	\$311,620.27	Feb., 1926	Increase	Date	
K.W.H. Generated—Steam.....	9,467,990	Feb., 1926	\$32,591.80	Date	
K.W.H. Generated—Hydro.....	15,100,550	Feb., 1926	2,843,026	Date	
K.W.H. Purchased.....	5,886,688	Feb., 1926	675,510	Date	
M. Cu. Ft. Coal Gas Made.....	300,951	Feb., 1926	* 493,293	Date	
M. Cu. Ft. Water Gas Made.....	83,134	Feb., 1926	137,876	Date	
Tons Steam Coal Used.....	20,123	Feb., 1926	* 107,440	Date	
Tons Gas Coal Used.....	27,720	Feb., 1926	1,664	Date	
Gallons Gas Oil Used.....	109,310	Feb., 1926	11,861	Date	
Tons Coke Made.....	18,851	Feb., 1926	* 506,237	Date	
Gallons Bengas Made.....	65,100	Feb., 1926	7,811	Date	
			* 720	Date	
*Denotes Decrease.				Date	
*Electrical Refrigeration Data as of March 1, 1927				Date	
Horse-power in electric refrigeration on lines up to Dec. 1, 1926.....				\$,594 H.P.	
Added between Dec. 1, 1926 and March 1, 1927.....				892 H.P.	
Total Horse-power on lines to March 1, 1927.....				9,486 H.P.	

Bowling Season Closes With Dinner

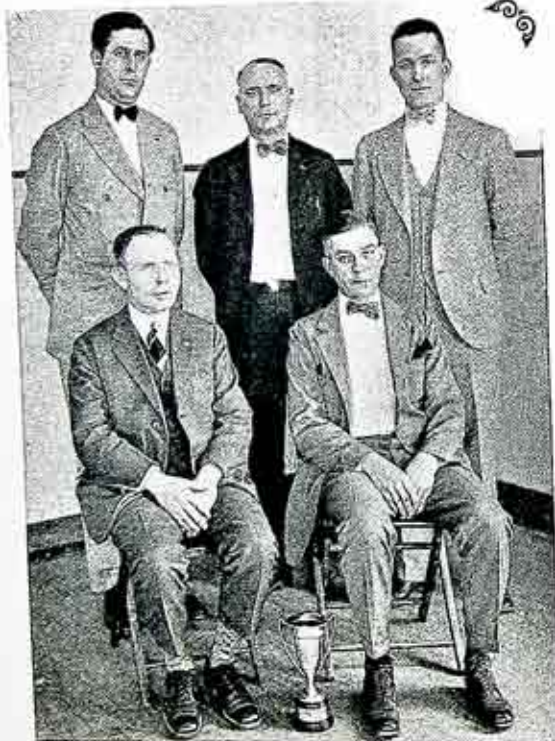
THE bowling season for the company bowlers was formally closed with a dinner at the German Club on March 29th, attended by ninety-five pin enthusiasts and friends.

The program, of which Mr. Ernest Scobell was general chairman, consisted of impromptu speeches and musical entertainment. The speakers were Mr. Scobell, Mr. F. W. Fisher, and the officers of the Bowling Club, who are Messrs. William Weaver, Earl Harrington, Ray Davis, and Howard Stebbins. The talks pertained to the bowling season in general, many of the amusing incidents being

brought out in an entertaining way. Mr. Scobell closed the speaking part of the program with the presentation of the awards to the winners.

Mr. Edward Pink was in charge of the entertainment and produced several attractive numbers. He selected Company talent with the exception of the orchestra which played during the dinner. Orin Wiley of the General Construction Department appeared in the role of a humorist, Thomas Weir of the Motor Department featured with songs, and Joe Barra and Cosimo Marfume, of the General Construction Department, gave a ukelele and song skit.

After the entertainment, those present indulged in card playing and sociable groups until late in the evening.



The bowlers from the Electric Stations, winners of the league championship. They are, left to right: front row, Messrs. Frank Kennedy, Fred O'Dell; back row, Messrs. C. V. Miller, Ernest Friday, James McGowan. Mr. Douglas Bruce is not in the picture.

Five Highest Bowlers for the Season with Average Pins per Game

GEORGE GALEN
190.82

HERMAN FICHTNER
188.28

FRANK KENNEDY
182.79

RAY DAVIS
182.75

CARL WINTERROTH
182.00

Season's Standings—October 26, 1926 to March 22, 1927

Team	Won	Lost	%	Team Av.
Electric Stations.....	52	11	.825	868
Office.....	47	16	.746	890
Electric Distribution.....	46	17	.731	879
Gas Manufacturing.....	26	37	.413	821
General Construction.....	25	38	.397	806
Storehouse.....	23	40	.365	796
Gas Distribution.....	18	45	.286	782
Transportation.....	15	48	.238	770

Leaders in Special Events

High Team 3	Game Total—2941—Office
High Team Single	Game Total—1022—Office
High Individual 3	Game Total—692—Galen—Office
High Individual Single	Game Total—267—Kennedy—Stations

Individual Averages of Players

Name	No. of Games	Ave.	Total	High 3 Game	
				High Game	Total
Galen.....	57	190.82	10,877	246	692
Fichtner.....	60	188.28	11,297	245	678
Kennedy.....	63	182.79	11,516	267	640
Davis.....	60	182.75	10,965	254	621
Winterroth.....	58	182.00	10,556	235	625
O'Dell.....	59	180.32	10,639	228	621
Kiefer.....	62	179.48	11,128	236	632
Stebbins.....	57	176.95	10,086	242	684
McGowan.....	44	175.18	7,708	224	613
Friday.....	42	174.69	7,337	222	584
Weaver.....	62	174.27	10,805	230	604
Mike.....	61	173.69	10,595	216	564
Phelan.....	53	173.11	9,175	233	607
Harrington.....	55	172.00	9,459	252	625
Ernst.....	48	169.95	8,158	214	561
Titus.....	30	169.77	5,093	221	577
C. V. Miller.....	61	167.48	10,216	231	562
Pierce.....	51	167.41	8,538	223	548
Edgar.....	57	166.95	9,516	204	583
Spears.....	53	166.77	8,839	207	592
C. H. Miller.....	41	165.36	6,780	236	599
Hauck.....	49	165.02	8,086	221	525
Bruns.....	57	164.58	9,381	223	552
Wierner.....	63	164.52	10,365	222	579
Hafner.....	53	164.06	8,695	228	565
Hall.....	54	163.10	8,807	212	583
Hughes.....	53	162.88	8,633	214	546
Pink.....	58	162.22	9,407	192	545
J. Ghysel.....	33	162.06	5,348	214	536
Haftenkamp.....	25	161.52	4,038	209	508
Wohlgemuth.....	56	161.14	9,024	204	551
Bruce.....	40	160.45	6,418	214	542
Bitzke.....	61	160.30	9,778	204	552
Nichols.....	55	160.06	8,803	231	596
Stewart.....	55	159.35	9,083	212	575
Kruger.....	36	158.22	7,120	223	554
Jennejohn.....	52	158.21	8,227	202	526
Natalie.....	42	155.95	6,550	208	544
Kling.....	46	155.26	7,142	200	514
Spall.....	58	154.19	8,943	213	548
Durfee.....	54	152.76	8,249	208	539
Adams.....	31	152.00	4,713	222	564
Levey.....	35	149.80	5,243	201	546
Palmer.....	43	143.42	6,167	203	495

Home Service Department



Unique Decorations Demonstrated

Special Class on Friday,
April 29th

TO instruct homemakers who desire to restore used pieces of furniture to a status of newness the Home Service Department conducted a home painting class on Friday afternoon, April 29, at 2:30 o'clock. Miss Irene Muntz demonstrated the application of color and distinctive design to various pieces of furniture.

Just at this time of year when Spring showers wash earth and sky crisply clean, every woman takes pride in bestowing an aspect of newness to costumes, furniture and home surroundings. But today the art of refinishing and painting furniture requires a feeling for decoration and design. Each piece is but a small unit in the scheme of interior decoration.

The home decorator must know how to pick out the right color in her decorative motive if she wishes to apply it as the inside decoration for dresser drawers or small open cupboards. Then she must know how to insert colorful touches on the kitchen and pantry shelves.

Kitchen chairs, dresser drawers and odd pieces of furniture were painted in this special class.

Spring Cleaning Calls for Practical Guides

SPRING cleaning points its finger at your own personal wardrobe just as much as at the rooms and furnishings of your home. Aren't you beginning to check over the outfits which can be cleaned and pressed for Spring wear? Perhaps you have been neglecting one entire costume because of some ugly spot or stain which you have unfortunately acquired.

Our Home Service Department is prepared to give you practical guides for removing stains from your clothing. A telephone message, a letter, or a visit to our Department will enable you to acquire the necessary information. In the meantime we are submitting a brief classification of stains with the ways and means of removing them.

Coffee, fruit and berry stains can be removed by stretching the material over a towel and pouring boiling water on the stain from a height of two feet. Coffee stains on non-washable material should be sponged with a cloth wrung from clear warm water. Fruit and berry stains on silk and wool may respond to an alternating treatment of oxalic acid and ammonia.

Cake Recipe Combines Chocolate and Spices

THE Home Service Kitchen is an experimental laboratory in which new recipes are tested and approved before they are recommended to you in our regular cooking classes.

So far we have recommended three recipes which have been submitted by our Home Service friends. This month's choice is Mrs. O. M. Humphrey's recipe for Spiced Chocolate Cake. Undoubtedly you are well acquainted with Mrs. Humphrey as she is a regular attendant in our Home Service cooking classes.

Spice Chocolate Cake

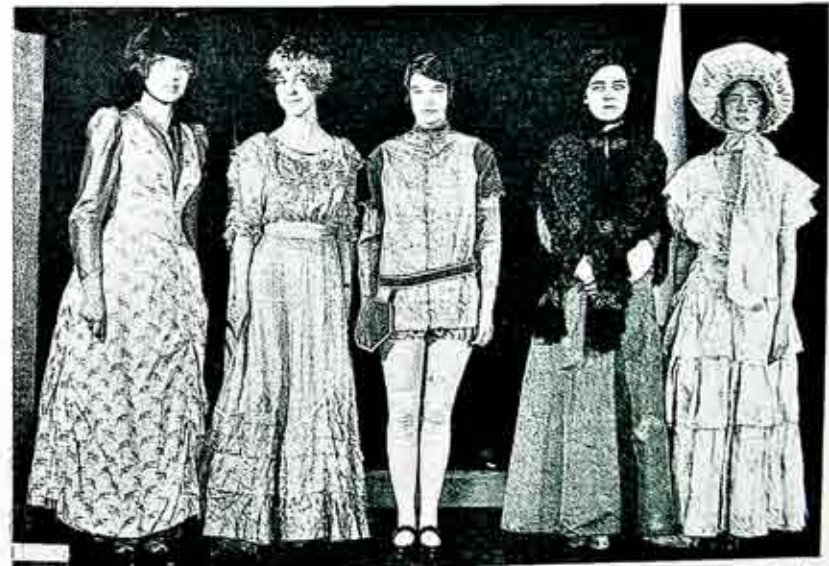
2 c. sugar	2 c. flour
$\frac{1}{2}$ c. butter	1 t. cloves
Yolks of 4 eggs	1 t. cinnamon
Whites of 2 eggs	$\frac{1}{4}$ t. salt
1 c. sour milk	1 t. soda
	2 squares chocolate.

Cream the butter, add the sugar gradually, and the eggs well beaten.

Mix and sift the flour, salt, soda, cinnamon and cloves together and add alternately with the sour milk to first mixture. Melt the chocolate, add to batter and beat well. Bake in a 350 F. oven for 40 minutes.

Evolution of Dress Begins With Ox Skin

AS exquisitely designed costumes representing all the periods in history promenaded before an enthusiastic Spring Fashion audience on Friday, April 8, 500 Rochester homemakers became aware of the evolution of costumes from that of the prehistoric cavewoman to the modern 1927 gown. The Spring Fashion party was given by students in the home-making and dress designing courses at Mechanics Institute under the auspices of this department. Miss Laura Duntz, supervisor of costume designing, was in charge of the fashion audience.



The Spring Fashion Party showed the evolution of costumes from the prehistoric woman to the modern one. These are some of the costumes, worn by Mechanics Institute Students in the show.

To Protect, Decorate; Duo-Purpose of Paint

SO many of us admire the surface and fail to see the interior attributes of paint and varnish as a protection to the piece of furniture which they help to decorate. Paint creates an air tight film over the surface enabling the article to withstand the ravishes of the elements. The secondary use for paint is for decorating the surface on which it is employed.

Here is a splendid formula for re-finishing furniture:

1. Remove varnish with commercial varnish remover.
2. Wash with gasoline.
3. Apply coat of clear shellac.
4. Rub with fine steel wool.
5. Apply a quick rubbing varnish.
6. Rub with steel wool and repeat five or six times.
7. The last time rub with refined cotton seed oil and rotten stone. This makes a beautiful finish.

Spring Salads Typify Best in Culinary Art

"WHY Spring Salads Should Have Colorful Garnishes," was the culinary topic discussed by Miss Jean Lovejoy on Monday afternoon March 28, at 3 o'clock, before forty-eight members of the Corpus Christi Home Bureau unit. Mrs. J. B. Magin was chairman of the meeting.

Fancy shapes made from carrots, with the French vegetable cutter, water lily radishes and garnishes for fruit salads designed with mint leaves were demonstrated by Miss Lovejoy. Each one of these garnishes was applied to a sample salad. Following the talk on "Spring Salads" the women of the unit were served tea and a taste of the salads.

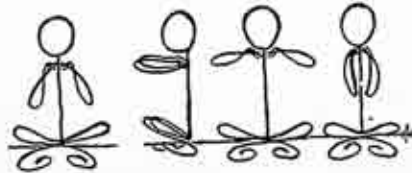
Right Exercise Helps to Increase Circulation



Overweight

- (1)
- Sit with legs stretched in front
1. Reach forward and touch toes
 2. Fling arms back to a shoulder height position, elbows straight, head up.

(30 times in groups of 6)

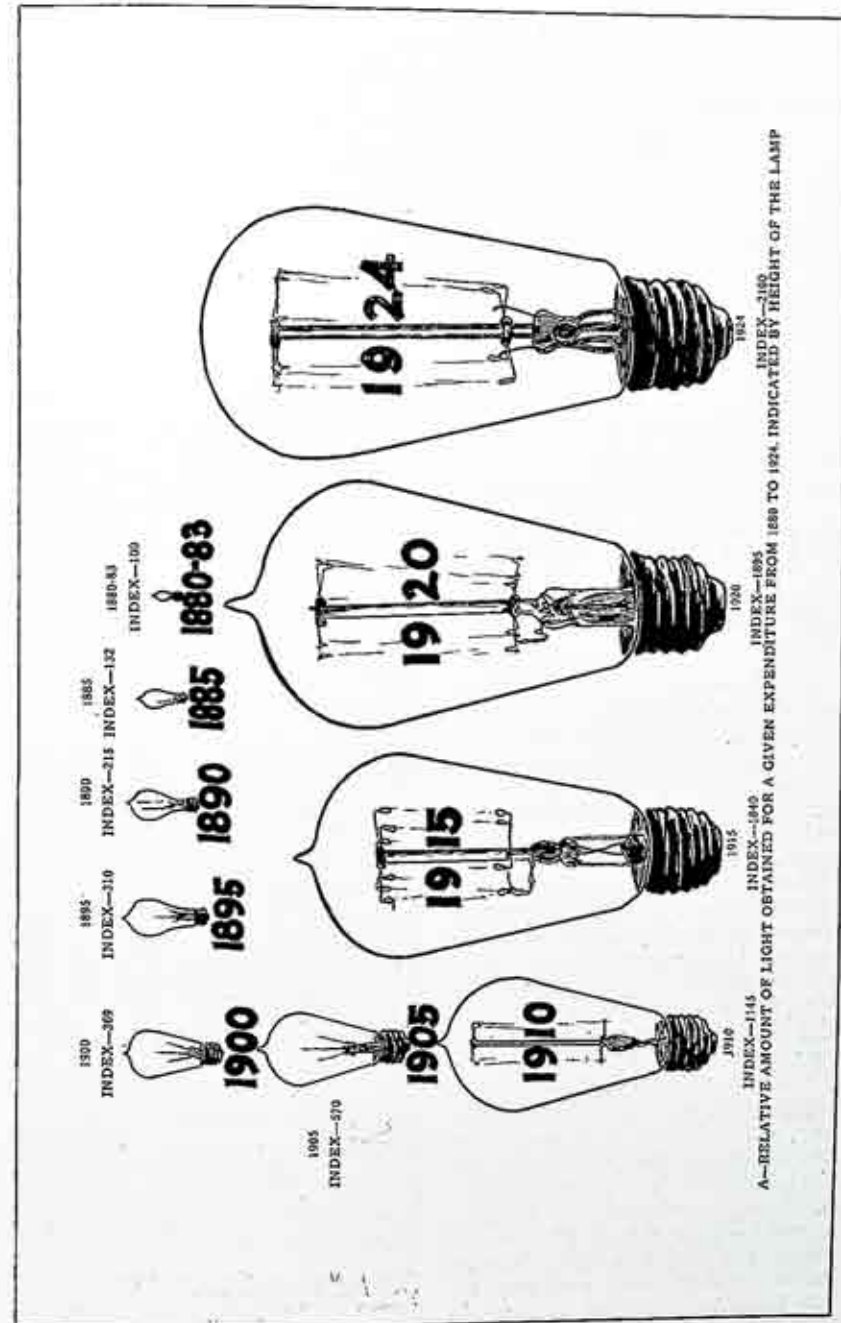


Underweight

- (2)
- Sit crosslegged with hands on shoulders and elbows at side. Keep the neck in line with the spine.

1. Raise elbows forward
 2. Move elbows sideways, shoulder level
 3. Pull elbows forcibly to ribs
- (20 times)

Exercise briskly, breathe deeply as you carry out the instruction given above and you will be quite invigorated when you finish a fifteen-minute interval of exercise. A warm shower following the exercise is very healthful.



OBITUARY



WITH the utmost regret we announce the following death. To the bereaved family we extend the deep sympathy of the officers and employees of the Company:

Mrs. Katherine Gerling, sister of Mrs. Emily Hoffman, died March 31 at her home, 733 Maple Street. Funeral services were held on April 4th, from the home and interment was at Mt. Hope Cemetery.

PERSONALS



Mr. Norman Davidson recently returned from Miami, Florida, where he enjoyed his vacation with his family and parents. He spent three weeks taking life easy, aided by the best of weather, enjoying regattas, boat races and sight-seeing. Among the photographs he took were those of Gar Wood's boats, Miss America IV and Miss America V. He also took motion pictures of Florida views, which he expects to show to friends soon. The trip was made by rail and in good time, for all the trains were on schedule. Mr. Davidson was enthusiastic over the vacation and wishes to make Florida his vacationing ground again.

Friends of Mr. Carl C. Ade, architect, will be interested to know that he has moved his offices from 104 East Avenue to the seventh floor of the Gas & Electric Building. Mr. Ade is a well-known Rochester architect, and is a specialist in the design and construction of school buildings. He has designed buildings recently in

Webster, Newark, Scottsville, Spencerport, Ontario, and Irondequoit, besides many in Rochester for which he has earned deserved praise.

Mr. Joseph P. MacSweeney, Manager of the Domestic Sales Department, was recently elected chairman of the Retail Merchants Council of the Chamber of Commerce, at the annual meeting of the Executive Committee. Mr. MacSweeney was also made chairman of the Program and Budget Committee of the Council. A unanimous vote of appreciation was given the Rochester Gas & Electric Corporation by the Council for cooperation in the "Christmas Good Will" movement in supplying electric current free of charge for the lighting of the City's four community trees.

Several young ladies of the company have formed a sewing club which meets regularly for the purpose of improvement in the art of the needle. Meetings are held at the homes of the different members, and after the sewing sessions, luncheon is served by the



Scene in Mr. Fred Miller's front yard at Irondequoit Bay. In the foreground is Miss Katherine Cropsey, of Washington, a friend of Mr. and Mrs. Miller



Mr. Landis Walton Smith got a running start on the fishing season and incidentally picked out a beautiful location.

hostess, and other social activities indulged in. The members of the club are: The Misses Loretta Murray, Alice Barth, Marion Moore, Carrie Baird, Lucille Park, Gertrude Shippey, Marion Giles, Margaret Wright, and Mrs. Catherine Lapp.

Mrs. Viola Plant is the proud and happy occupant of a new home on Walzford Road, Irondequoit. She believes she will enjoy it because of its quiet rural atmosphere even though it is far removed from her daily work. But what are a few extra miles in these days of adequate transportation.

Mr. Charles L. Cadle, the Company's General Manager, recently toured to Washington and Atlantic City in his Lincoln car. It was a combined business and pleasure trip, and Mr. Cadle spent quite some time in Washington looking over the beauties of the capitol. He found Atlantic City equally interesting at this time of year and spent fully a week at the sea-side.

Mr. and Mrs. Harold F. Bartlett enjoyed a spring vacation recently with a trip to the Bermuda Isles. They motored to New York City and sailed from there to the Islands, encountering good weather most of the time. Harold is now enthusiastic over spring vacations in a southern climate in preference to a

summer vacation, for, he says, one can enjoy the beauty without the uncomfortable heat of summer. —

The possibilities of Company service were shown recently when the Gas Shop Inhalator crew was called upon to save the life of "Buddie," a full-blooded fox terrier owned by Dr. M. R.

Waterman of 1208 Lake Avenue. Buddie had been locked up in the family kitchen while his "parents" were out, and, in his playfulness, had accidentally turned on the gas jet. He was in a semi-conscious state when Dr. and Mrs. Waterman returned home, and the Company was immediately called for help. Prompt response on the part of William Spall, operator of the Inhalator, and his assistants, saved the life of the dog, and gained for the Company the heartfelt gratitude of Dr. and Mrs. Waterman.

This is the first case on record where the life of a dog has been saved by the use of the Company Inhalator, and is an example of the varied type of service the Company is equipped to render.

Miss Dorothy Lovick of the Purchasing Department was the lucky person whom the New Industries Bureau of the Chamber of Commerce



Beautiful scene in the Mountains. Photographed by Mr. Kenneth Weidenborner of the Mailing Department.

selected as the composer of the best slogan for Rochester, in the recent campaign. Her slogan "Rochester for Real Riches" was selected out of a thousand which had been sent in and brings to her the first prize of fifty dollars. The award bears more than the ordinary significance to Miss Lovick because the announcement of the winners was made on the anniversary of her birth, and, she states, it was the best birthday gift she received.

Miss Isabelle Donals recently entertained the young ladies in the Gas Distribution Office at her home, Stop 27, on the St. Paul Boulevard. Bridge and dancing were indulged in. Those present were The Misses Ada Geen, Dolores Youngblodt, Agnes Hall, Frances DeBerger and Marie Bruns.

Miss Kathryn Shattuck, of the Home Service Department, spent Easter with her family in Coldwater, Michigan. The journey was rather long and tiresome, but Miss Shattuck says that to be home for two days was well worth the trouble.

Miss Dorothy Letson, sister of Leona Letson of the Consumers Bookkeeping Department, entertained thirteen of her school-mates at a party on April the sixth, celebrating the fourteenth anniversary of her birth. The table was tastefully decorated for the occasion with a cake bearing fourteen lighted candles, one for each year. Games were played and a delightful time had by everyone. Miss Letson attends Public School No. 29.

Mr. Homer H. Edwards, of Station 33, is the proud father of a newly born baby boy.

Mr. Joseph Haftenkamp, Mr. Victor Hoddick, and Mr. Leo East attended the Gas Distribution Conference of the American Gas Association at Baltimore, Md., on April 4th and 5th.

Mr. and Mrs. Tucker Enjoy a Wonderful Trip

MR. C. A. TUCKER, our Assistant Treasurer, often termed the "Watch Dog" of the treasury and familiarly known to most of us as "Pa Tucker," recently returned from an extended trans-continental land tour. Mrs. Tucker accompanied him on the trip, which was just one round of pleasurable experience.

Mr. Tucker is enthusiastic over the manner in which the Raymond Whitcomb land tours are conducted; he says he never touched his baggage from the time he left Rochester until he arrived back home again. Everything was arranged for in advance, and all he and Mrs. Tucker had to do was to enjoy themselves and make the most of the obvious assets of such a tour of the country.



Get out your kodaks in preparation for "shooting" such beautiful scenes as this one. Show us what you can do.

Over 1400 miles of the trip, totaling about 3800 miles in extent, was by motor bus, practically all of the remainder being by train. The outward leg of the journey took them through Louisiana, Texas, New Mexico, California and Arizona, about seven days being spent in Pasadena, California. The return was via the Santa Fe route.

By a strange combination of the "elements" of nature, a temperature of ten degrees below zero was encountered in Las Vegas, New Mexico, but the remainder of the trip brought balmy weather and a preponderance of sunshiny days.

It is interesting, indeed, to hear Mr. Tucker recount his impressions of the vast kaleidoscopic panorama that was unfolded to him throughout this trip. It is like listening to a radio travelogue and is necessarily replete in superlative expressions of appre-

ciation for the beauties of the "Painted Desert," the "Petrified Forest," the Grand Canyon and other natural beauties.

At Grand Canyon, weather conditions were the best in weeks, it was said, for visibility. The vivid coloring of hundreds of specific rock stratas stood out in bold relief, a transparent, purple haze adding sublimity to the wonderful scene.

After twenty-two years of faithful service with the Company, characterized by great regularity of daily appearance at his office, it is not strange that Mr. Tucker should have been missed a great deal. And we are glad, indeed, to see him at his desk again, that he and Mrs. Tucker had such an eventful, enjoyable trip and we trust that the satisfaction of it will encourage them to enjoy many other ones, equally as pleasant.



Mr. Tucker's party photographed at the Grand Canyon. From left to right they are: Mr. and Mrs. Tucker; Mrs. George C. Hollister, of Bronxville, N. Y.; Mr. and Mrs. John C. Law, Pittston, Penna.



Messrs. Frank Bulkley and Howard Reichart promenading at Miami Beach after an invigorating salt water swim.

Assistant Secretary Enjoys Play Spell

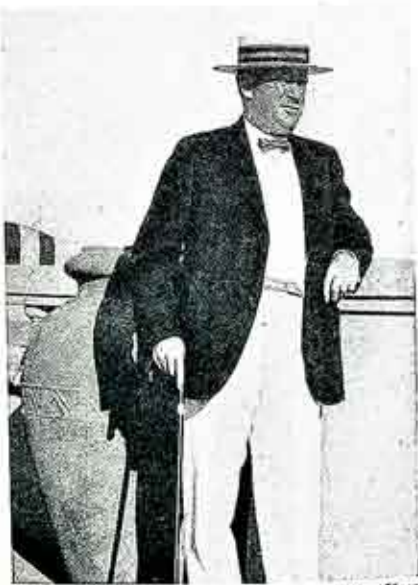
MR. HOWARD REICHART, Assistant Secretary of the Company, and Mr. James F. Hamilton, President of The New York State Railways, enjoyed a few weeks surcease from the rigors of the Northern winter in the Sunny Southland. With them at Miami Beach, was Mr. Frank Bulkley, representative of J. K. Rice, Jr., and Company, Brokers, of New York City. These three gentlemen, all wizards of finance, formed a sort of trinity of interest and being together added much to the quality of the good time enjoyed by each.

Mr. Bulkley for some years has specialized in the sale of Company securities, as well as those of The Mohawk Valley Company, his firm having featured utility securities for many years.

Mr. Hamilton, as most of our readers know, is President of The

New York State Railways, and is responsible to a large degree for the excellent car service afforded in this City. In addition to being Assistant Secretary of the Company, Mr. Reichart is Secretary and Treasurer of The Mohawk Valley Company and its subsidiary companies, and Secretary and Treasurer of The New York State Railways and its ten affiliated companies.

Mr. Reichart is secretary or treasurer to more organizations than any other one person we know about. We imagine that, even in his dreams, he sees an unending panorama of figures, data, financial statements and directors' meetings. That he bears his responsibilities well may be seen from one of the accompanying reproductions. Perhaps one of the reasons for that is the fact that he surrounds himself with such entertaining company. And, of course, this assertion applies to the discernment of the two other gentlemen in Mr. Reichart's party.



Mr. James F. Hamilton, President of the New York State Railways, who recently returned from Miami Beach, Florida.

Party for Miss Donals

On April the sixth, the Gas Distribution Office celebrated the anniversary of the birth of Miss Isabelle Donals, with a birthday party in the office. Mr. Chester Schlenker volunteered to make the birthday cake, and in the manner in which it was attacked was any indication of its quality, it surely was a delicious cake. Several

Miss Dolores Youngblodt of Gas Distribution Office is known as a talented dancer and recently took part in the "Demolay Follies" which were given at the Community Playhouse during March. She featured in the dance known as the "Black Bottom." Miss Youngblodt is a pupil of Miss Lorraine Abert, local instructor, and studies and practices regularly.



Hurrah, Spring is here, and soon you may see many beautiful scenes like this one loaned to us through the courtesy of the Eastman Kodak Company.

visitors from the main office joined the members of the Gas Distribution Office in the celebration, including Messrs. Clinton Cole, Thomas Ward, and John Skuse. They enjoyed themselves thoroughly, as did the members of the office force.

Mr. Mallory Loos was a prime mover in the planning of the Theta Sigma Phi's Easter Hop, which was held at Maplewood Inn, on Saturday evening, April 16. "Mal" is the President of the fraternity and this particular dance is said to have been especially enjoyable from every angle.

The employees of the Transportation Office and the Coke Truck Garage enjoyed a St. Patrick's Day noon luncheon in the offices of the Transportation Department, on March 17th. The place was suitably decorated and the favors were especially attractive. The luncheon was served by Jackson.

The Misses Madaline Holahan, Ruth Marcott, Helen LaBorie and Carol Roth meet once each week for bridge, the meeting place being at the homes of the members of this bridge quartet. At the last regular meeting, the young women dressed in clothing of the past century, just to vary the monotony.



Some of "Jake" Feltham's boys as they appeared at the Y. M. C. A. Boys' Club show which was held recently at the Central Y. M. C. A.

On April 4, twelve girls of Miss Bridgeman's Department held a bridge and 500 party in the Electrical Distribution offices. Luncheon was served and Miss Bridgeman kindly furnished the Easter baskets which, among other things, contained some very delicious candy.

Miss Mildred Brownell has left the Company to return to her home in Utica, N. Y. She expects to spend the summer at Big Moose Lake with her parents.

Miss Cosette Tibbils recently entertained at her home, 3763 Lake Avenue, at a bridge party.

A birthday party was recently held at 14 Rundel Park for the sister of Miss Rose Jensen. Fourteen guests were present to enjoy the music, games, dancing and the luncheon which was served at eleven P. M.

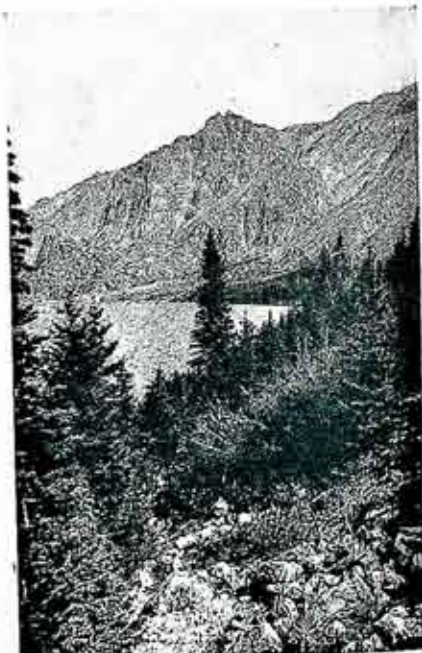
To show how the men at Andrews Street attempt to amuse the young women of the Electrical Distribution Department we might state that Mr. "Al" Boddy recently brought in a tiny mud turtle, while Mr. Frank Weeks furnished pussy willows.

Seven girls of the Electrical Distribution Department recently gave a luncheon to Miss Mildred Brownell, in the Rest Rooms at Andrews Street.

Mrs. J. W. Copp entertained her former associates at Andrews Street at a dinner on April 4, at her new home, 216 Cedarwood Drive.

The following young women are members of a new bridge club, which was recently organized at The Sagamore: The Misses Grace Johnstone, Catherine Chidsey, Thelma Rice, Florence Osborne, Louis Consaul, Eleanor Collins, Esther Moore, Blanche Sysum, and Lucille Bryan.

Mr. Martin Murphy is driving a fine new automobile. No, we don't mean a Company line truck or radio truck, but one for his own personal use. Martin is so used to looking for radio interference trouble that he may find himself driving up to any suspicious noises he may hear as he has his family out driving.



Mystic Lake, Montana, from photograph submitted by Miss Vera Frederick.



Drawing Courtesy Utica Mutual Insurance Co.

BEING just a little bit more careful
might mean the sparing of some
innocent child's life—

—Isn't It Worth It?—



Fumes and Flashes



FORCE OF HABIT

"I never knew Jones had twins."
"My Dear! He married a telephone girl and, of course, she gave him the wrong number."—*Kansas City Star.*

REASON TO WORRY!

"Now, tell me, do Frenchmen understand American slang?"
"I guess some of them do. Why ask?"
"Well, you see, my youngest daughter is to be married in Paris, and the Count has cabled me to come across."

SOMETHING TO EAT, ANYHOW

His wife had gone to visit her mother, and had telephoned that she would not be returning until the morning.
When she got back she said to her husband, "You managed to find something to eat last night, didn't you, dear?"
"Oh, yes," he replied, cheerily. "I had the steak that was in the pantry and fried it with some onions I found in the cellar."
"Onions!" she gasped. "Darling, you've eaten my bulbs!"—*Selected.*

END OF THE LINE

The Reverend Mister Slensby was walking down a slippery hill. His feet flew from under him and on the way down he collided with a woman, and she slid down on top of him.
At the bottom of the hill, he said: "I beg your pardon, Madam, but you'll have to get off here. This is as far as I go."—*Selected.*

ALL DEPENDS

Stranger—I say, friend, at what price do you value that cow which was tied down the road this morning?
Farmer—Are you the tax assessor or did you hit her with your car?
—*Public Service Magazine.*

A MONOPOLIST

A little fellow left in charge of his tiny brother, called out: "Mother won't you please speak to baby? He's sitting on the flypaper and there's a lot of flies wanting to get on."
—*The Open Road.*

ONE OF THOSE BIG MOMENTS

"Are you still engaged to that homely Smith girl?"
"No, I'm not!"
"Good for you, old man. You had my sympathy when you were. How did you get out of it?"
"Married her."—*Kansas City Star.*

THE REASON

Mistress: "So your matrimonial life was very unhappy. What was the trouble? December wedded to May?"
Chloe Johnson: "Lan' sake, no, mam! It was Labor Day wedded to de Day of Rest!"

ALMOST

In London they were discussing advertising "Great stuff, these electric signs on Broadway," said the Yankee. "They've got one advertisement, runs a whole block, 250,000 electric bulbs."
"How many?" cried the astonished Londoner.
"Two hundred and fifty thousand," answered the Yankee.
The Londoner observed, "But I say, old chap, isn't that a bit conspicuous?"
—*The Kan-Sun.*

A SEDATIVE

Doctor: "Your husband must have absolute quiet. Here is a sleeping draught."
Wife: "And when do I give it to him?"
Doctor: "You don't give it to him—you take it yourself."

JUST AN ENCORE

Colonel: "Rastus, I understand that you are the father of twins. What have you named them?"
"Well, suh, the fust Ah named Adagio Allegro, an' Ah'm gonna name the second one Encore."
"I know you're musical, Rastus, but why call the second one Encore?"
"Well, Colonel, suh, y' see he wasn't on the program at all."

MUST BE TRUTHFUL

"What is the defendant's reputation for veracity?" asked the judge.
"Excellent, your Honor," said the witness.
"I've known him to admit that he had been fishing all day and hadn't got a single bite."
—*Philadelphia Public Ledger.*

ENGLISH AIN'T NO SNAP

"I once tried to teach a little Alabama boy to speak pure English," writes Octavus Roy Cohen. "I'll never forget the despairing way he said to me at the end of the thirtieth or fortieth lesson: 'Dey aren't no 'ain't you,' is dey? It's 'aren't you,' ain't it?'"

"Street Lilacs"



BECAUSE I come of humble folk,
And in my childhood knew
A house that bordered open fields,
A yard where lilacs grew,
As sure as budding April comes,
Mist-blue and silver-sweet,
The breath of lilacs takes me home
On swift, unerring feet.

Today along the avenue
A lilac vender strayed,
His purple blooms like magic drew
A brisk and eager trade.
For scores unmoved by orchids rare,
Or stands where roses gleamed,
Bore lilacs home with brooding care,
And walked with eyes that dreamed.

The sight of them within me woke
A sense of kinship new
They too must come of humble folk
And yards where lilacs grew.

—MOLLY ANDERSON HALEY
in *The Lariat.*

THE CITY'S NERVES

*S*omewhere is closed a circuit,
And miles and miles away
A filament is lighted;
A wheel goes into play;
A thought is carried quickly,
In clearest tones expressed,
Because an impulse flashes
North, South, or East, or West.

*And how? Beneath the pavement,
Away from human gaze,
Across the humid darkness
Wires run in countless ways.
In cables, ever-reaching
Through subterranean curves,
They carry thought and action.
They are the city's nerves.*

—By CLARENCE E. FLYNN
in the Edison Monthly.

