he buys equipment of any kind, because he does not wish to put his company in the embarrassing position of having equipment which, before its value has been used up, will be out of date and obsolete.

Because of the position the Automatic telephone occupies in the telephone industry today, the purchase of central office equipment is a more complicated question than it has been before. In the old days the question the telephone man had to consider was not whether he should buy manual equipment but simply what kind of manual equipment he should buy. Now the question is whether he shall buy manual equipment or Automatic equipment. It is a question too important and one having too much bearing on the future success and welfare of his company for him to pass over without most thorough consideration. In other words, he cannot ignore the possibility of Automatic now.

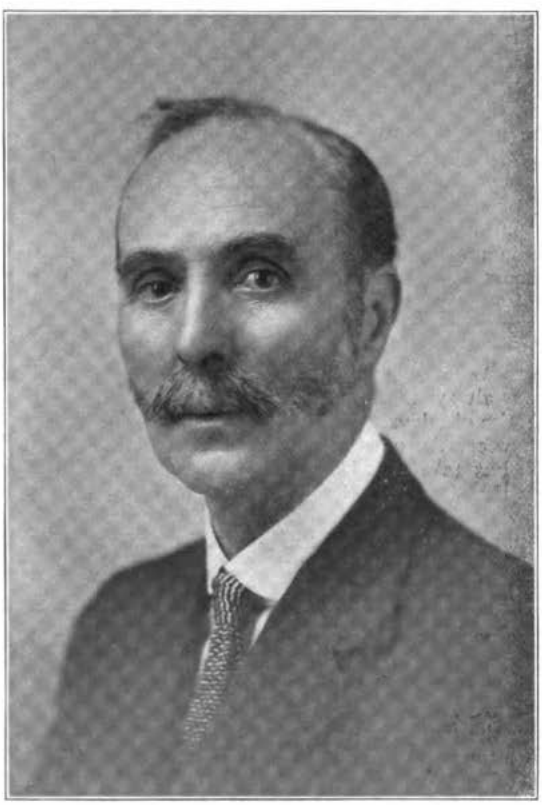
The Sales Department of Automatic Electric Company has facilities for giving any telephone man complete information on the subject of Strowger Automatic and will willingly and gladly do so without any obligation whatever on his part. Even though you may not contemplate the purchase of equipment at any time in the near future, it is not too early to begin a study of the situation now. We will be glad to serve you in any way possible.

E. C. BLOMEYER,
Sales Manager.

Daniel Sinclair, Communication Engineer

A Telephone and Telegraph Expert Whose World-wide Experience and Record in Handling Large Projects Have Made Him Prominent Among the World's Engineers in This Line.

EXPERIENCE in telephone and telegraph development for more than fifty years is the background against which Mr. Daniel Sinclair is continuing his efforts as communication expert and executive on behalf of a number of British engineering and manufacturing organizations of international reputation. Prominent among the firms of which he is a director are the Automatic Telephone Manufacturing Co., Ltd., Liverpool; the International Automatic Telephone Company, Ltd., London, and the British Insulated and Helsby Cables, Ltd., London.



Daniel Sinclair, Communication Engineer

Mr. Sinclair was born in Caithness, Scotland, on June 6, 1852. His first connection with signal engineering was in the engineering branch of the telegraph department of the North British Railway in 1872.

As a result of his experience with this organization he was selected to proceed to Japan in the service of the Japanese Government in 1875 as Inspector of Telegraphs, and remained there for five years. In recognition of his services during this time, the Mikado conferred on him in 1899 the Order of the Rising Sun of the Third Class, the highest honor then possible for the Japanese government to confer on anyone not a Japanese subject. Returning to Great Britain in 1879, Mr. Sinclair was shortly afterwards appointed engineer to the National Telephone Company for the Glasgow district. It was while he was in the service of this company that he invented a number of valuable appliances for telephone service, many of which are now in general use. On the amalgamation of the three principal telephone companies of Great Britain to form the new National Telephone Company, Mr. Sinclair was selected by the directors to examine and report upon the entire system. On the basis of this report complete reorganization was carried out, Mr. Sinclair being appointed London manager, and in June, 1892, engineer and electrician-in-chief of the entire system.

This position he held until 1902, when, on the invitation of the directors of the British Insulated and Helsby Cables, Ltd., he became General Manager of that company.

Upon the organization of the Automatic Telephone Manufacturing Co., Ltd., of Liverpool, Mr. Sinclair was appointed Managing Director of that company, and has played an important part in its development since that time. Largely under his guidance this company has been active in promoting the use of Strowger Automatic telephone equipment, both in Great Britain, where this apparatus is in successful use in fourteen cities, and in various foreign countries, including South America, India, Manchuria, China, Japan, and several others.

Mr. Sinclair's experience as an engineer and inventor abounds with interesting anecdotes. One of

Automatic Telephone Service in the Southwestern States

The Telephone Users of Texas and Oklahoma Welcome Automatic Service, and Regard the New System as Conformable with the Rapid Industrial Progress Now Being Experienced in Those States.

By H. E. CLAPHAM
Editor "Automatic Telephone"

'WAY back in the dark days of automatic telephony when the conversion of an exchange to automatic was a momentous and somewhat dramatic event, instead of the commonplace affair it has become today, there was some excuse for presenting a detailed description of the newly installed switchboard, and an account of the cutover procedure. But when several large exchanges are converted in the course of a few weeks, and more are planned for the near future, as is the case in the territory covered by the Southwestern Bell Telephone Company, such accounts are apt to become somewhat tiresome.

In this article, therefore, the familiar stories concerning the cutting of cables, the removal of heat coils and the various other features of a "Saturday midnight" cutover will find no place, of vital importance though they be to those directly concerned. Instead, I shall pass on to something of wider interest to progressive telephone men—the application of automatic telephone service in the live and rapidly growing territory of the southwest.

With but one or two exceptions, the states of Oklahoma and Texas were until recently virgin territory in the exploitation of the automatic telephone. Dallas is one of the exceptions. automatic service having been known and appreciated there since 1912.

Since the beginning of the year, three other cities of considerable size, Oklahoma City, Okla.; Wichita Falls, Texas; and Austin, Texas, have been made partly or completely automatic, while others, notably Little Rock, Ark.; St. Joseph, Mo.; and Topeka, Kas., are scheduled for conversion during the course of the year. A visit to each of those exchanges already converted, and an investigation of the way in which automatic service is making out in those cities, seemed to present many interesting possibilities, especially as the most valuable information concerning automatic comes from the experience of those communities where it is now being used.

Wichita Falls already had a very adequate and substantial telephone building, and plenty of space was available therein for the automatic switchboard.

Oklahoma City, which was my first stop in that state, presented a distinct air of prosperity, emphasized considerably by a large amount of new building construction. Blocks, and even miles, of new residences now stand on land, which, only a short time back was open country; and the growth still continues.

It is in the center of the section of greatest residence development in the northwest part of the city that the new automatic office of the telephone company has been established, giving full automatic service to about 3,000 residence subscribers. The extremely rapid growth in the subscriber list in that section has necessitated some minor changes in the fundamental plan, but so far all demands for service have been very adequately met.

Only one exchange in Oklahoma City, the new automatic office, has so far been converted,

The Southwestern Bell Telephone Company believes in telling the public all about their methods, and what happens when a dial is turned. An exhibit of telephone equipment staged at a local exposition in Oklahoma City.

Wichita Falls has been called the "City That Oil Built," but it is doubtful if it would ever have reached the degree of development that this picture indicates, without the energy and zeal shown by its pioneer citizens. The "City That Faith and Hard Work Built" is a much more appropriate title.

so that a large number of calls involve interchange of service between the stations served by the two existing manual offices, Walnut and Maple, which are located in the main telephone building in the central part of the city, and the automatic stations.

As is the case in the Dallas network, arrangements have been made so that all automatic subscribers may dial and connect with any manual or automatic station in the city without giving a verbal order to an operator.

The necessary changes in call numbers were made with a view to the extension of automatic operation to the entire network, which will be done when the time comes for the Maple and Walnut manual switchboards to be replaced.

It would naturally be unwise in a city the size of Oklahoma City to attempt to place such a combination in service without first telling the subscribers exactly what was being done in modernizing their service facilities. Several novel publicity stunts were brought into use just previous to the cutover, and a series of very excellent display advertisements were drawn up by the publicity department of the telephone company, and published in the local press.

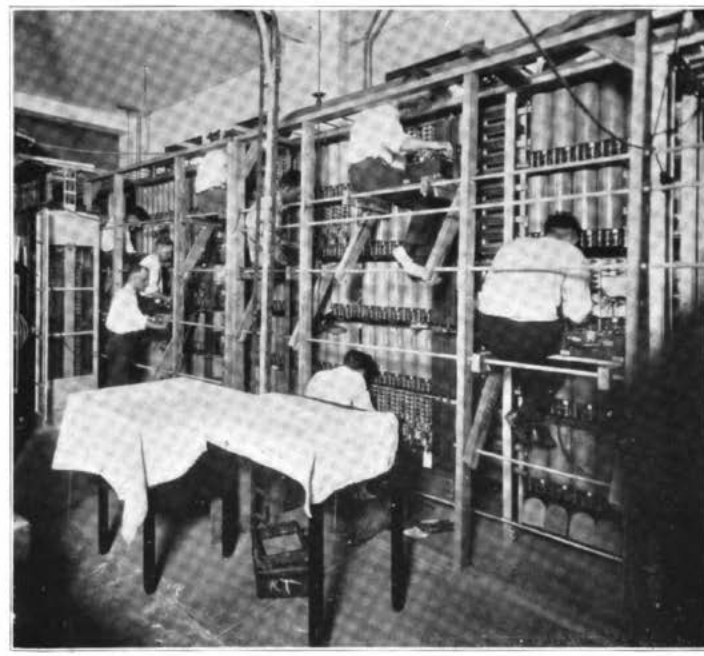
So successfully were the ideas put across to the public, that the number of subscribers who have found it necessary to call upon the "zero" operator for assistance or information has been surprisingly small.

The automatic equipment for the new exchange is housed in a splendid new building of red brick, which is so designed as to harmonize as much as possible with the new residence construction of the district.

Not many cities of the southwest can boost of a more wonderful history than Wichita Falls, Texas. Twenty-five years ago it could scarcely be found on any map, and its citizens at that time were served by something like two dozen telephones. Today the population of Wichita Falls is well beyond the 40,000 mark, and skyscrapers now stand where, a few years back, there were only a few forlorn looking habitations. Its new automatic exchange, placed in service early last December, serves nearly 5,000 stations.

To place the credit for this record in growth on any one thing would be difficult. Probably the oil development of the district has had much to do with it, but it is doubtful if it would have reached its present position of importance without unusual foresight and faith on the part of its pioneer citizens. Automatic telephone service in this city has been welcomed as an additional stimulant to civic pride, the citizens realizing that they now have a telephone system second to none, in point of modernity, in the entire country.

The conversion of the exchange at Wichita Falls was a somewhat less complex piece of work than the one at Oklahoma City, in that all of the telephones are



It is surprising how quickly an automatic switchboard can be assembled and tested ready for service when a group of energetic young men get busy. Here are shown some installers putting the final O. K. on the switches at Wichita Falls.

Austin may well be proud of its new telephone building for it is probably the most handsome and complete in that section of the country. Note the imposing dome of the State Capitol in the background.

served from one central office, and the new equipment installed in the same building that housed the manual switchboard.

AUSTIN'S FINE BUILDING

Among the new automatic exchanges in this territory, none commends itself more favorably to the attention of telephone men, as well as the public in general, than that at Austin, Texas, which was placed in service on February 18th. The accompanying photographs, which show the new building and some of the interior arrangements, speak eloquently of the careful thought that was given to the plans of this exchange. Everybody in the exchange from the office boy to the manager is proud of the equipment, and of the grade of service they are able to render to the telephone users of Austin.

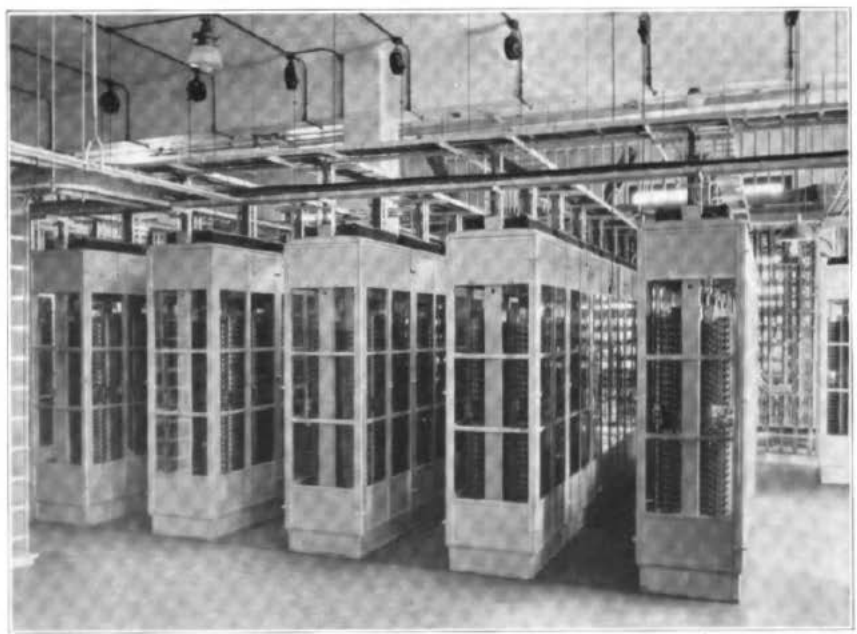
The change to automatic in Austin was prompted by the outgrowing of the old building as much as any other factor. Sections had been added to the old switchboard and rearrangements made until, just previous to the cutover there was hardly enough space to turn around. Now the old building is entirely abandoned, and the new two-story structure provides ample space not only for the automatic and long distance telephone equipment and telegraph apparatus but for an elaborate suite of offices as well.

The switchboard has an installed capacity of about 7,000 lines. While this takes up the greater part of the space on the second floor, the building is so constructed that another story can be added when necessary. In this way, any expansion that is likely to occur for a long term of years will be cared for from the same center.

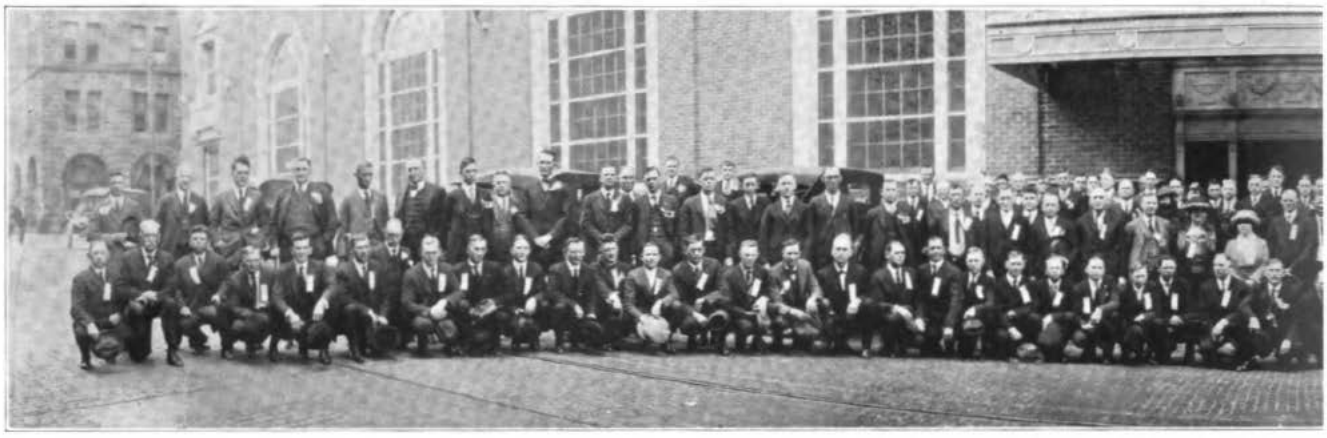
The attitude of the telephone subscribers in these exchanges toward automatic service, which is to most of them an innovation, may be adequately described in three words—apprehension, wonder, enthusiasm. That phase of human nature which stimulates a fear of those things that are not fully understood seems to be particularly well developed in a telephone company's relations with its subscribers. A change in policy or methods, however favorable to the subscriber, is frequently looked up with suspicion; hence the extreme importance of educational work when such changes are contemplated. The publicity work done by the local organizations in Oklahoma City, Dallas, Wichita Falls and Austin deserves a large share of the credit for the success of the new system and the final popular approval of the service.

In the case of the Dallas "X" office conversion a few months back, it was not necessary to explain the advantages of automatic service. The subscribers were already fully acquainted with automatic and indicated their preference for it in no uncertain terms.

An incident occurred in Oklahoma City which may serve to illustrate the general attitude toward automatic in a city where it has heretofore been unknown. It



The automatic installation at Austin is an exceedingly clean cut piece of work, and the switchroom has a decidedly pleasing appearance. This shows some of the 5,500 primary line switches.



A record crowd of enthusiastic telephone me

In Dallas, the same results are accomplished in a slightly different way. In each of the manual offices there, the "B" board equipment has been removed entirely and replaced by selector and connector equipment, the line terminals extending to both the "A" board multiple and the connector banks. In this way calls from automatic to manual stations are not only apparently but *actually* full automatic.

Calls from manual to automatic stations in Oklahoma City are dialed by the "A" operator, and manual to manual calls are completed as in regular manual networks. In Dallas, calls from manual to automatic or manual stations in other offices are set up by the "A" operator dialing direct through the automatic equipment in each office.

Austin and Wichita Falls are both 100% conversions, so that such interchange of service is not called for in these cities. Standard Strowger automatic is the type of equipment installed, and the arrangement of the switches conforms with the standards adopted in all installations in exchanges of the Southwestern Bell Telephone Company.

The line switches (plunger type) are mounted 200 to the unit, and the connectors are mounted on separate racks, each "shelf" of connectors serving 100 lines. At Oklahoma City all individual and party line connectors are of the combination toll and local type, the toll traffic being considered too heavy to warrant the use of separate groups of local connectors. In the other exchanges separate groups are used.

The success of the automatic installations in the states covered by the activities of the Southwestern Bell Company promises well for the future of automatic telephony in that section of the country. The whole-hearted enthusiasm of the telephone subscribers since they have had an opportunty to make thorough tests of automatic service is an additional warm tribute to the growing popularity of the dial. While in a few cases the disappearance of the operator has been a cause for regret, the gain in efficiency is universally admitted to have more than offset any advantages coming from personal contact, advantages which are now recognized to have been more fancied than real.

Teaching the young idea to—no, not shoot—dial. A school demonstration at Austin.

Texas Convention Sets New High Record

THE TEXAS INDEPENDENT TELEPHONE ASSOCIATION has for many years had the reputation of holding more interesting and valuable meetings than any other state association. This distinction was upheld very effectively by the success of the recent convention at Fort Worth. The convention activities occupied almost the entire top floor of the new Texas Hotel. The line of manufacturers' exhibits was unusually comprehensive.

The meeting was opened at one-thirty o'clock in the afternoon of Wednesday, March 22nd, by President R. B. Still of Tyler. In the unavoidable absence of Mayor E. R. Cockrell of Fort Worth, the address of welcome was delivered by Finance Commissioner W. B. Townsend. C. A. Shock, of Sherman, Texas, made

Automatic Telephone

A Journal of Information for the Telephone Profession

Issued Monthly by

AUTOMATIC ELECTRIC COMPANY

CHICAGO, U. S. A.

H. E. CLAPHAM :: Editor

This publication will be sent without charge to all interested persons upon request

The Most Modern — But Not An Experiment

IT is a fortunate thing for American industrial progress, that there are never lacking men who are willing to risk time and money on promising but untried projects. There would be no Strowger Automatic telephone system today were it not for those pioneers in both the manufacturing and operating fields who, at the time of its inception, were willing to invest in what was then an experiment. If they had refused to do so, or even to be interested, they could not have been condemned or criticized.

Today conditions are different. Automatic operation is no longer an experiment. The experimental stage was passed when this equipment was installed and successfully operated, from the standpoints of both service and profit, in such cities as Dayton, Los Angeles, Lincoln, Sioux City and many others.

This was nearly twenty years ago. Since that time the use of Strowger Automatic has been consistently extended in cities and towns in every part of the country, and in every country in the world.

Notwithstanding this, there are still a few telephone men operating small plants who look upon automatic in the light of an innovation. Their attitude on the whole is favorable to automatic; they believe in its service value; they believe that they will come to automatic operation in their plants "some day," but would rather see it in successful operation in other plants similar to theirs first.

This attitude is typical of that of the operating man who has been learning of automatic through hearsay. Those who investigate automatic for themselves find that there are already in operation, not one or two here and there, but many companies similar to theirs in respect to size and operating conditions, that owe their success largely to automatic. They find that whatever the status of automatic may have been twenty years ago, it is certainly not experimental now, when it has been and is being adopted by dozens of companies large and small in all sections of the country.

Those who have a tendency to fear automatic simply because they believe it has yet to be proved successful in operation over a long term of years, are urged to secure actual facts concerning the records of this equipment for the past two decades. But, in doing this, they should remember that there are only two reliable sources of information concerning Automatic, the operating companies who use it, and we who manufacture it; and even *our* knowledge of automatic comes chiefly from the records of those operating companies.

The Cost of Delay

ONE of the hopeful signs of the times in the telephone industry is an increasing tendency, most marked among those telephone men who are most active and progressive, to accept automatic not merely as one of several types of telephone equipment, but conclusively as the "telephone of the present and future".

It is to be expected, of course, that many of these, although convinced of the merits of automatic, are not yet prepared to install it because they still have some investment value in their present equipment. In cases of this kind, where they would actually lose money by abandoning a comparatively new manual board and installing automatic now, we can only say, "Whenever you are ready to install automatic our engineering and manufacturing facilities are at your service".

But to many who have been thinking of automatic in terms of several years hence, the financial gain made by waiting is more apparent than real. We suggest in all such cases that careful consideration be given to the amount that will be paid out in operation salaries and other expenses associated with manual operation during the time that attempts are being made to extract the value invested in existing equipment. In many cases it will pay to wait; in others it will not. Facts and figures are easy to get, and properly applied will show the way to a right decision.

Continuous Service or No Increase

AN order recently handed down by the Wisconsin Railroad Commission granting an increase in rates to a certain telephone company, contains a proviso to the effect that service must be maintained continuously.

Heretofore this company, which operates three exchanges serving about 900 subscribers, gave service fifteen hours each week day and four hours on Sundays and holidays. The additional cost of giving continuous service is estimated at more than $500 annually, eating up a considerable portion of the increase awarded.

This case is not unusual; it is typical of many. It emphasizes the increasing importance of twenty-four-hour service in the minds of utility commissions and the public.

It reveals, also, one of the many reasons why the small exchange owner is thinking of automatic in no uncertain terms. He realizes that with automatic equipment a condition such as that described above is entirely avoided.

Twenty-four-hour service is bought with the equipment, and there are no operator's salaries to pay.

Death of Nathan Heinemann

IT is with sincere regret that we have to record the death of Mr. Nathan Heinemann, which took place on Wednesday, March 29th, at Wausaw, Wis.

Mr. Heinemann had for many years been President of the Wausaw Telephone Company and his loss to the telephone industry is all the more keenly felt because it is the loss of a pioneer and builder. Vacancies caused by the loss of such men as Mr. Heinemann are always difficult to fill.

Modern telephone engineering is coming to recognize the fact that interior traffic imposes conditions that usually differ considerably from the city and long distance service and are frequently highly specialized to meet the needs of the individual organization. To attempt to combine these two traffics on one system results, in a majority of cases, in hampering both and imposing extra costs which are seldom justified.

Considerably over 1,000 P-A-X's have already been installed in this country to handle interior communication and other associated services, such as code call or paging, watchmen's checking, emergency alarm and the like, and the future promises to see practically every organization of any size equipped in this fashion, which will mean the utmost in efficiency and economy in both city telephone service and interior communication.

Erie Completes Another Step in Expansion Program

All Individual Line Numbers of Mutual Telephone Company of Erie Changed to Five Figure Operation. Radical Changes in Trunking Plan Made Without Interruption of Service.

BEGINNING Sunday, March 5th, the telephone numbers of all individual line subscribers at Erie, Pa., were changed to five digits. This was made necessary by the rapid growth of the company's subscriber list during the past few years and especially since the installation of the Automatic equipment four years ago.

The difficulties under which the men who engineered the change labored, and the success of their efforts in spite of them is indicated in the following letter recently received from Mr. John Z. Miller, General Manager of the Mutual Telephone Company of Erie.

MUTUAL TELEPHONE COMPANY
ERIE, PA.

March 6, 1922.

Mr. H. P. Mahoney,
c/o Automatic Electric Co.,
Chicago, Ill.

Dear Mr. Mahoney:

Saturday, March 4th, at midnight, Mr. A. C. Stratton and his assistants cut over our Automatic exchange from a four digit to a five digit system. This was accomplished in a few minutes' time with no delay and no trouble resulting.

This operation is the culmination of about seven months' work of three Automatic switchmen working practically night and day among the operating wires and cables of our main exchange. It was necessary under the conditions to do most of the engineering on the job, and Mr. Stratton and his assistants are to be congratulated on the clean and accurate results of their work.

To install the additional level it was necessary to change all the trunk routing, and when you consider that this was all accomplished without the slightest interference with the operation of the system until the moment it was cut over, it was a task presenting no little difficulty. The engineering problem involved is like that of reconstructing a railroad bridge without interruption or delay in the regular schedule of trains.

We feel fortunate in having Mr. Stratton in charge of this work.

Sincerely yours,
MUTUAL TELEPHONE COMPANY,
John Z. Miller, Secy. and Gen. Mgr.

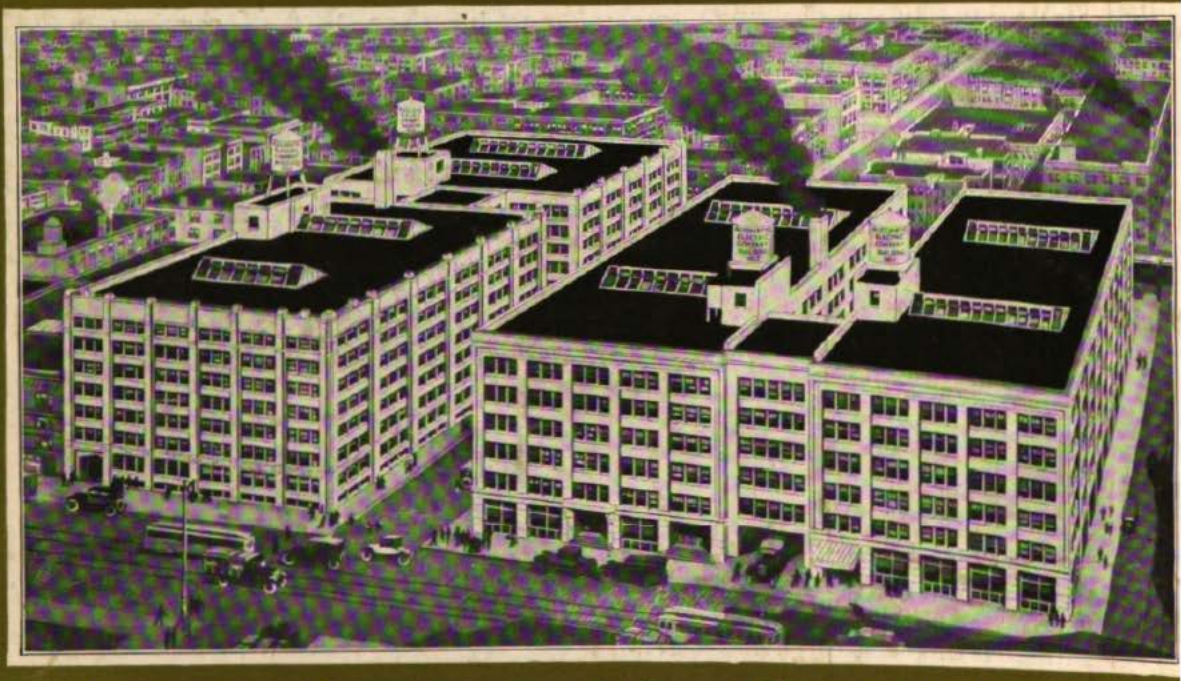
In issuing a statement to the local press regarding the changed numbers, Mr. Miller said:

"When the Mutual Telephone Company distributed its new list yesterday, a number of people called up the office to inquire why their telephone numbers were changed. The company announced several months ago that certain changes in numbers would be necessary. A telephone company never makes changes in telephone numbers unless it is obliged to do so, for much as a number change may be annoying to the subscribers, it is not only troublesome, but usually a very expensive proposition to the company.

"The reason of this change is that the company ran out of telephone numbers on its old numbering system. Formerly direct line numbers were made up of four digits, which gave a capacity of 10,000 numbers. When the present Automatic system was installed four years ago, the company did not anticipate that its growth would use up all the numbers in so short a time, but telephones have been added continually until the company found itself confronted with the proposition of having no numbers to assign to its new subscribers. The only thing to do under the circumstances was to add another "level," which would give an ultimate capacity of 100,000 numbers.

"This year will make the twenty-fifth anniversary of the organization of the Mutual Telephone Company, which event it commemorates by graduating from the 10,000 class to the 100,000."

The Home of the Automatic



Automatic Electric Company's Factory, at the Corner of Morgan and Van Buren Streets, Chicago. It has a Floor Space of 10 Acres and is Devoted Exclusively to making Automatic Telephones and Telephone Supplies.