

THE BELL TELEPHONE NEWS

VOLUME NINE



NUMBER NINE

In This Issue —

“Machine Switching for the Bell System”



Subscriber's Dial

By Bancroft Gherardi, Vice-President and Chief Engineer, and
Harry P. Charlesworth, Equipment and Transmission Engineer,
of the American Telephone and Telegraph Company.

APRIL, 1920

X-RAY Lighting

from Concealed Sources

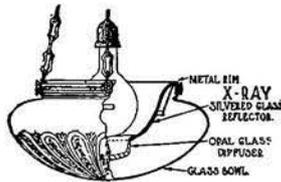
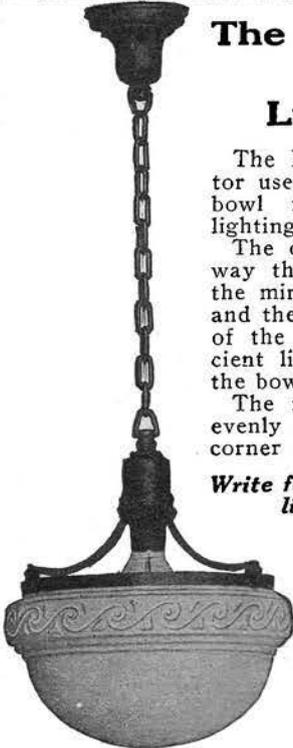
The X-Ray Reflector in the Luminous Bowl

The X-Ray silver-mirrored reflector used inside the X-Ray luminous bowl fixture gives true indirect lighting.

The diagram below illustrates the way this principle is worked out—the mirror reflector inside the bowl and the porcelain cup at the bottom of the reflector which allows sufficient light through it to illuminate the bowl itself.

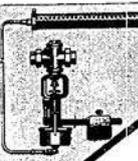
The result is a flood of mellow, evenly diffused light to the furthest corner of the room.

Write for our new booklet on office lighting—Serial No. 134



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COAL
SAVE LABOR
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HEAT REGULATION

Your employees, in office or shop, work better, with fewer mistakes and accidents, when the room temperature is *automatically kept right.*

Automatic control in processes involving heat saves labor and material.

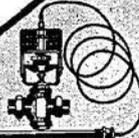
Controlling heat at the *point of use* saves coal and labor, besides improving output in quality and quantity.

Ask us to prove it to you at *our risk.*

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Specialists in Automatic Heat Control

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WABASH 640

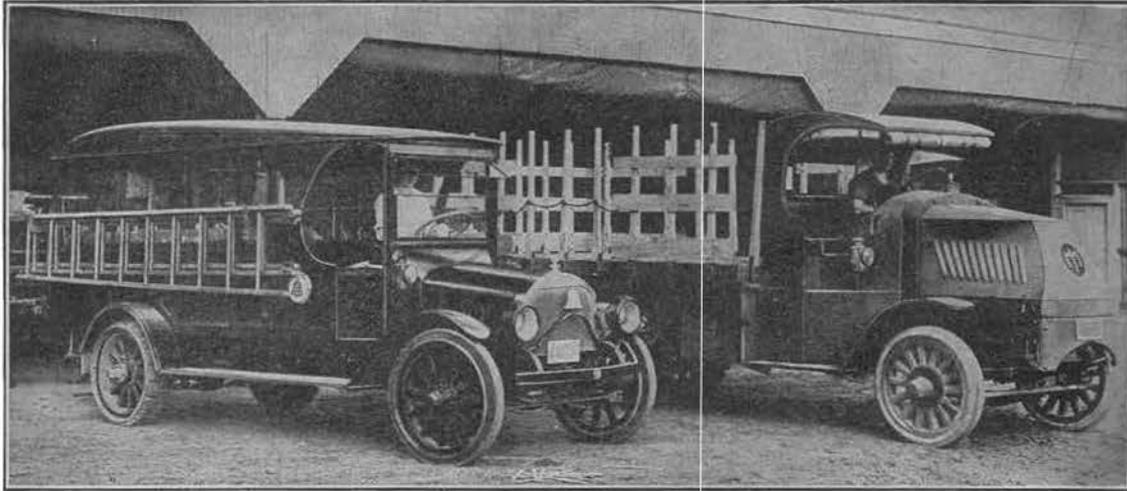
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Light and Heavy Duty Mack Trucks in the Service of the Southwestern Bell Telephone Company, St. Louis, Mo.

MACK Trucks have had a long record for dependable service in the telephone industry. Some of the earliest trucks used by the Bell Telephone Companies were Macks. Among the special equipments furnished were: Post Hole Diggers, Winch Trucks, and large fleets of Mack Transportation Trucks, most of which are still rendering satisfactory service.

The high standard of quality which goes to make up Mack Trucks is reflected in the big mileage rolled up year after year, with practical certainty of the trucks always being ready to respond when needed in an emergency. Their regularity of service is due to their excellence of material and construction, which gives the best truck insurance against costly operation.

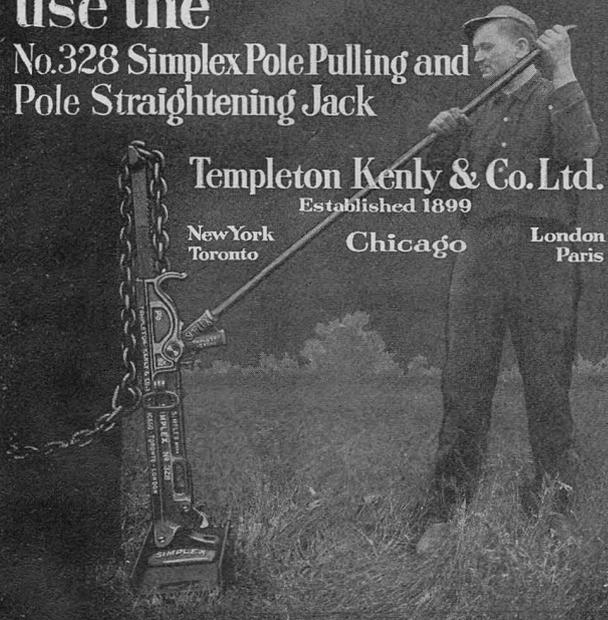
Capacities, $1\frac{1}{2}$ to $7\frac{1}{2}$ tons.

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To pull a large Pole
in 8 minutes or to
straighten any Pole in
less than Two minutes
use the

No. 328 Simplex Pole Pulling and
Pole Straightening Jack



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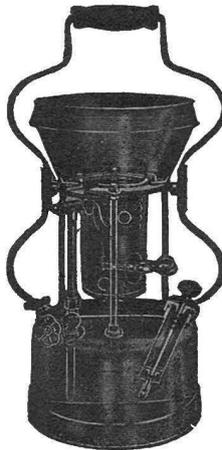
Unique Furnaces and Torches burn kerosene oil, generate quickly, and give about twice as much heat as can be obtained from gasoline.

The combustion is so nearly perfect that there is practically no unburned carbon to clog the burner and generator.

They are indorsed by fire underwriters because they are safe; by telephone companies' because they are economical and durable, and by cable men and line men because they

eliminate trouble and bother.

Write us today and we will send you our literature describing these articles, and demonstrate to you every claim that we make for them.



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FIRST AND OLD DETROIT NATIONAL BANK

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BELL TELEPHONE NEWS

One Policy

Universal Service

One System

Volume 9

CHICAGO, ILLINOIS, APRIL, 1920

Number 9

THE MONTH IN CHICAGO AND SUBURBS

News Notes and Personal Items of Interest

Chicago City Division

Mrs. Catherine Moore, V. N. Liljegren, Correspondents

Commercial Department

Did you read in the last issue our little prediction about the Infant Bell-Tel-Trio, owned, promoted and controlled by our friends, Messrs. Sutton, Crowley and Kasperek? We are sure some predictors. The aforementioned trio began its new professional life at the Women's Noonday Luncheon on St. Patrick's Day—guess the day was accidental—and from now on we venture a further prediction that these three as entertainers will be, for some time to come, some popular boys. Take our advice and hear them at your earliest opportunity and you will get one mighty good laugh. No little credit is due George E. Savage, of the credit division, for this initial success of the Bell-Tel-Trio. Mr. Savage, who has already shown himself as a commercial asset in baseball and in bowling, proved himself as an accompanist for the trio, a pianist of no mean ability.

Mazon, Ill., boasts W. H. Burnham as a home product. Mr. Burnham has always looked forward to the trip home (who wouldn't?), but of late his trips have been more frequent and more regular, and his enthusiasm at the prospect of going much more pronounced. But we digress. Though our curiosity is as lively as yours, our interest now centers on a recent trip home and not on the inducement for the trip. You know where Mazon is? No? Well, neither do we, nor does that matter much. However, we are reliably informed that it is a town of the type occasionally referred to by the sophisticated traveling gentleman as a "one-night stand," where the trains come and go—mostly go—at sparse intervals. And late one Saturday night on one of these rare incoming trains, sat Mr. Burnham, striving his uttermost to fight off the wiles of weary sleep. Occasionally he awoke with a sharp start, and his anxiety was not appeased, though he strained his eyes looking through the windows into the gliding outer darkness, until the conductor or some other weary traveler assured him that he had not passed Mazon. But, oh! tragedy of tragedies! he awoke at last with a peculiarly sharp, foreboding start, which seemed to warn him that what he had continually feared had really happened, and he found himself at a station five miles beyond Mazon. There were no returning trains, no sleeping quarters to be had at such a time of night, and, save for the wires which were strung high above him from post to post, it seemed to Mr. Burnham to be a place devoid of all the things which make a civilized community. He had no alternative—he walked back on the lonely railroad tracks. A snapshot might have disclosed a bundle un-

der each arm, and close observation might have shown that bundle to be a bouquet of flowers. Was SHE sore at the indifference which permitted him to go to sleep? No. She was not of the common kind, she could overlook a little fault like that, for she, a sister's six-months babe, was unschooled in worldly ways.

Death has cast its shadow over the home of another from our department. On Sunday, March 13th, Mrs. Margaret R. Reed, wife of Commercial Agent A. H. Reed, met the great adventure that awaits us all. Interment was on the following Wednesday. There are no children to assuage the lonely grief, and the hearts of many friends go out in sincere sympathy to Mr. Reed.

We do not know whether leap year has anything to do with it, but nevertheless four of the young ladies from the department have announced their engagements. They are Miss Amelia Belzer to R. G. Thoke of Anderson, Ind.; Miss Josephine Pearson to Theodore Miller; Miss Caroline Suplee to Walter Church, of the collection division; and Miss Vera Lovett to Raymond Wheat, of the building department. We greatly dislike to think of these young ladies leaving us, but will be good sports, wish them well and extend our congratulations to the gentlemen involved.

Arthur Rademacher has taken unto himself a wife. Mrs. Rademacher was formerly Miss Rose Schnecke, a former employé in the contract division. Mr. Rademacher was married several months ago, but kept it a secret from his friends in the office until recently.

The Bowling League of Notions continues weekly meetings with unabated enthusiasm. We have been informed that there is now \$62 in the treasury. The prizes already announced will total \$65. Mr. Driscoll, the secretary, advises that after the prizes are disposed of the balance will be used at the end of the season for a dinner. We are giving this information in advance as a warning to the men not to pass up their noonday luncheon in anticipation of this banquet.

In the last issue we mentioned the fact that Henry Reents won a second prize in the exhibit of the Bell Telephone Picture Makers' Club, and when we turned to the page where the picture was reproduced we discovered that another commercial entry, Willard Worthen, had also won a similar honor. But come over here—draw your head a little closer: We want to whisper something to you confidentially: would you have thought anything the less of the judgment of the judges if they had awarded first prizes, instead of second prizes, to the exhibits of Messrs. Worthen and Reents? Neither would we.

On March 18th the men of the cashier's section held the fifth annual dinner and get-together party. Three of the men,

BELL TELEPHONE NEWS

Halet, Hess and Sandford, proved themselves an exceptionally good orchestra and gave the group a splendid musical entertainment. Candy and cigars—mind you, a stag party and candy!—wound up the refreshments, whence they hurried themselves to the Colonial and there saw "See-Saw."

Our rifle team is still leading the league. Things are becoming a little interesting for us now. The Construction Record boys are hitting their stride and it is up to all of the members from now on to be satisfied with nothing but the very best if we are to maintain the lead. We know they will.

Collector C. O. Brown and Leo Schramm both report infant additions in their homes; both girls. Lucky boys!

Accounting Department

Revenue Division

With the coming of spring the Volley Ball Bee is again buzzing around. This department will again place a team in the field for tournament play. Workouts on the roof will start soon and all candidates are requested to come up and try for the team.

Charles Kearney of the 3rd city would like to hear of some way to keep his neighbors' chickens from picking seeds out of his garden. Our advice is don't plant any seeds this year and fool them.

John Lane claims that the laundry has discontinued cleaning his collars, but sharpens them instead. Result—two boils on the back of his neck.

Miss Mae Kallas of the toll section resigned on March 12 to enter the nurses' training school of the Norwegian American Hospital. Her many friends in the toll section wish her success.

James Berry of the toll section has accepted a position with the Michigan State Telephone Company at Detroit.

The office boys have been instructed to be economical, especially as to rubber bands, but John White of the 1st city believes in practicing economy at all times. He bought a suit of clothes with long "jeans" and then traded them in for two pairs of knee pants.

Miss M. Knell, ledger clerk, 2nd city, returned to work after acting as nurse to her mother, who has been very ill for two months.

A sign of Spring—The pussy willow on George Lauder's coat lapel. George informed us confidentially that he would have some garden items for the next issue of the NEWS.

Emmet Carney seems to be interested in real estate in Park Ridge. Are you contemplating matrimony, Emmet?

Mrs. Edna Burns of the 1st city now spends all her time at domestic science in her own home.

A dinner at the Hotel La Salle followed by a theatre party at the Garrick was the farewell extended to Mrs. Freid by her many friends of the 5th city.

Clarence Johnson, remittance clerk, is still at home sick. We wish him a speedy recovery.

We are glad to have the following with us again after their absence on account of illness: Mrs. Cunradi, Miss Kennedy,

Miss Lindner, Mrs. Harris, Miss Huot, Miss Kluth and Mrs. Brown.

The Loop Hounds and High Brows are having an interesting fight for first honors in the Revenue League. The Loop Hounds are at present leading by two games and are doing some consistent bowling.



CASH SECTION PARTY.

Recent upsets were the two defeats handed to the High Brows by Toman's Terriers. "I needed a haircut and should have gone to the barber shop," mourned Captain Noren of the High Brows, "but I wandered over to the alleys and got a good trimming from the Toman Terriers instead." Captain John Toman of the Terriers found a way to win games. Each man on his team that bowls 170 or over receives a cigar and bowls free; 250 or more—a straw hat.

Leo Winter, the champion scorer, is still on the job and willing to teach anyone the art of keeping the winning score.

Adolph Kosick of the P. B. X. Loop Hounds is the best individual performer with an average of 165 5/10, a safe margin over Emmett Carney of the Higgins' Brown Derbys with 158.

Disbursements Division

Miss Eloise J. Hart, formerly of the traveling auditors' division, was married on March 6th to William H. Stute, and will be at home after April 15th at 923 Windsor avenue.

Miss R. Agapy and Miss L. Allwell have again returned to the office to take up their duties after an absence on account of illness.

Miss M. Renier is taking a leave of absence.

A. J. Bernhardt, formerly vice-president of the Bell Employees' Association unit, and G. W. Ireland, of the Disbursements unit have accepted positions with the Central Union Telephone Company.

Directory Department

The girls of the directory department gave a dinner and theatre party on February 26th. The dinner was served at the Hotel La Salle, after which twelve girls climbed into one taxicab much to the amusement of all concerned, especially the chauffeur, who counted each one as she alighted and then looked under the seat for more. Of course, the ride was a one-sided affair owing to "Mac's" 195 lbs., but nobody objected to a "little" thing like that.

Those present who enjoyed "Dear Me" at the Cort Theatre were: Jennie Maze, Annette Primrose, Lucile Bloom, Martha Wahl, Isabel McLennan, Anna Hudson, Myrtle Rew, Mazie Weber, Emma Carlson, Hulda Pierson, Myrtle Jacobson and Marie Thorn.

Operators' Training Department Notes

The members of the dancing class attended a program given by the International College, the proceeds of which were for-

warded to the French Red Cross.

Miss Martin, of the training department, who took part in the program, was praised very highly. It was her first appearance in public and her acting was very good.

Miss Irwin, who gave an exhibition of Russian and Grecian dancing, was enthusiastically received. Her charming personality and clever dancing are winning her many friends in the training department. At the close of her dance she was presented with a large bouquet of American Beauties.

A number of the girls visited Mrs. Farrell, who was formerly Miss Kate Ryan, of the training department, and presented her month-old boy with a beautiful carriage robe.

Traffic Notes

'Twas February 28th when Hawes J. Judy of the traffic department fled by night with Miss Broughtin to a minister, who married them. May they enjoy health, wealth and happiness.

Miss Josephine Guinea of Central resigned to enter the convent of the B. V. M. order at Dubuque, Iowa. The girls presented her with a purse of \$50 and wished her happiness in her new life.

Miss Deeper, supervisor at Rogers Park, entertained the girls of the division on February 27th. While lunch was being served the members of the unit committee, Mrs. Payne, Miss Thilmary and Miss McCauley, paid a surprise visit. They explained the quarterly premium and suggested that "Regular Attendance" be a slogan. The \$5 bonus offer was also discussed. All resolved to begin work the next day with more vigor.

Mr. Goldberg of Superior is the proud father of a baby girl, who arrived in March.

Mrs. Kluge, evening chief operator, and Mr. Gaffney, day supervisor, have returned to the Superior office after several weeks' illness.

Harrison office extends its sympathy to the parents of Miss Helen Shoman, who died in February. Miss Shoman had been with the company for the last seven years. A floral wreath was placed upon her grave by her friends and co-workers.

Death claimed another at Harrison. Miss Teresa McGinley also died in February. Miss McGinley had been at Harrison for many years and her loss is keenly felt by all.

Miss Julia Ryan, day operator at Harrison, resigned to enter the order of the Sisters of Mercy at St. Xavier's Academy. Her friends presented her with a silver watch and a traveling bag.

Miss L. Deering, repair clerk at Harrison, found a package of money on Federal street. She returned it to the owner, whose name and address was on the package. She is the possessor of a reward—and a clear conscience.

Mrs. Nettie Carlyle, Wabash matron, returned from New Orleans where she spent two weeks nursing her mother.

The girls at Wabash state that they wish to thank the friends responsible for the plan made known February 27th. It is a benefit for the steady workers that was desired, but nothing as generous was expected. They have expressed their thanks to Miss Alice Kirkhoff for her part in the plan.

There is much regret at Wabash that with the opening of a new division it will be necessary to part with Messrs. Conway, Bosworth and Davenport, who will be transferred when the change is made.

Annabelle Freeman of Wabash resigned to go to California with an aunt who is ill.

Eighteen Wabash girls surprised Miss Gaul with a theater party at Powers when they heard she was to be transferred to the training department. They wish her continued success in her new work.

Bell Telephone Rod and Gun Club

The cable repair division is shooting out its preliminaries and will finish semi-finals on scheduled dates. It promises to be in the running.

The individual match will be scored in three classes: First, experienced men who have won medals in shooting; second, those who have had military training but have not won any medals; third, beginners or inexperienced shooters. Each and every one has the opportunity to win. A man that does not belong to a team may shoot in the individual by shooting the required number of matches, using iron sights.

L. J. Hausheer, Central exchange's one best bet, still leads the individual, but F. Cureton of the Construction Records and E. J. C. King of the City Commercial claim they will get him yet.

Say! Somebody said we were a chesty outfit. But why not? We have over sixty men shooting above an average of eighty-five with iron sights. Even a British Tommy would have to admit that was good.

Rasmussen, out in Morrell Park, says that his shooters have been so busy chasing lame ducks along the canal that he can't make 'em shoot at once. But, wait!

The president of our organization has been doing jury service of late, and it is rumored that he wanted to hang all of the gunmen in Cook County. "Maybe he meant us. You never can tell." The A. T. & T. Co. office team is now located upstairs above the range. Miller says that there is nothing like being close to the shooting ground. Some people are just naturally lucky.

It seems that some of the men forgot to clean their guns when through, and as this is absolutely necessary, it must be done. Also it is necessary that every man understand the mechanism of the guns before doing any shooting. Remember that others enjoy shooting and inexperienced or careless men are a source of danger to others. When in doubt, ask the acting range officer to assist you.

Baseball

The response of employes to the call for candidates for the baseball teams has been very gratifying and indicates that Managers Finnely and Robertson will have a wealth of material from which to select their teams.

Among the large number of employes whose names have been submitted, one notices such local stars as Eddie Meinke, of the Romeos; Joe Brennan, the former first baseman for the Garden Cities; Henry Kilby and Tom Osborne, of Evanston; Philip Stockhausen, of the Albany Parks; and P. E. Markovitz, former backstop for the Henry Greys, of downstate fame.

With these veterans of many a hot, semi-pro campaign as a nucleus, it will not be difficult to build up two formidable aggregations who will undoubtedly give a good account of themselves in the Chicago Industrial Baseball League.

Long Lines Traffic Department

The first regular meeting of the Association of Employes, Long Lines Traffic Department, Branch 33, was held Tuesday, March 2d, in the Bell Forum. An afternoon session was held for the evening force and an evening session was held for the



MISS THERESA
MCGINLEY.

BELL TELEPHONE NEWS

day and night forces. A dinner and a program given before each session were enthusiastically received.

Program

- Vocal solo, Mrs. McGrath.
- Vocal solo, Mrs. Colby.
- Dance, Miss Raffin.
- Vocal solo, Miss Kratzmueller.

Preceding the business meeting, Frank Bora, president of the division office branch, 37, addressed the assembly. He ex-



PRIZE WINNERS.

plained the origin, purpose and scope of the association and brought out the essential parts of its constitution.

The attendance was large, and from the remarks we have heard, each one thought the meeting well worth while.

The regular meetings of Branch 33 are held the first Tuesday in each month. The social committee is full of "pep" and enthusiasm and promise a splendid program for the April 6th meeting.

The executive committee is hard at work adjusting matters which have been called to their attention by members of the branch.

The Get-Together Club's Bunco Party

The members of the "Get-Together Club" again report a "mighty" good time at their last gathering, which was held at the Garfield Park Refectory, Saturday afternoon, March 2d. This was a bunco party with prizes 'n' everything. The girls arriving early, began dancing immediately, for as usual, they had their own "jazz band" ready for instant service. Later the "big show" began, and before the games were over, more than one girl had established her reputation in that club as a real "bunco shark." Miss Hamilton, having the highest score, won the first prize, a bottle of Mavis toilet water. Mrs. Smart, Miss Smith and Miss Shannon won boxes of stationery and candy, while Miss Jessie Taylor, without any competition whatsoever, won the booby prize, a "darling kewpie." After all that excitement, the girls came rushing into the office at their regular tours of duty, all out of breath, all a little tired, perhaps, but each and every one in the best of spirits and ready for real work after their afternoon of real pleasure.

Operator—"Chicago is calling Mr. Jones."

Subscriber—"He has gone up in his airplane."

Operator—"If he comes down, please have him call the Chicago operator."

A subscriber was complaining about a call from his room in a hotel and the chief operator asked, "Does the hotel operator know about this call?" The subscriber answered, "Good Lord, woman, the world knows about it."

B. L. T. says the Bell company placed the mirrors in the rear of the elevators to draw the crowd back. Why not place

mirrors on the switchboards to draw the operators' attention to their signals?

The following weddings have been announced in the long lines traffic department:

Miss M. Crumrine became Mrs. H. R. Davenport on February 14th.

Miss M. Kratzmueller became Mrs. Struven on March 13th.

Miss Mary Terry became Mrs. Simmons on March 13th.

On March 5th the long lines office lost the services of one



A FEW OF THE "GET-TO-GETHERS."

of its faithful employes by the death of Miss Katherine Rathsam. We extend our sympathy to Miss Rathsam's relatives and friends.

Construction Department

Bell Telephone News Committee

Samuel Bowsher
J. C. Weisert

J. S. Robson
C. N. Hodge

South Construction Division

Cable Splicer Charles N. Daniels recently moved into his new "bungalow" at Seventy-fifth street and Luella avenue. As yet we have had no invitation to the housewarming, but we should worry, because we know for a fact that he is not the possessor of any private stock.

Cable Repair Division

F. J. Lawler has resigned to accept another position.

H. E. Martz has left Chicago to join his family at Atlanta, Ga. His wife is ill.

G. H. Hutchinson has returned after a serious attack of "flu."

The instructor of the splicing school was explaining the process of reducing ohms to conductor feet, and after working the problem out on the blackboard, said: "What does the answer give you?" One of the students (not a disciple of D. Webster) shouted, "That's the footage."

Central Division Bowling League Team Standing

Team.	Won.	Lost.	Pct.	Average.	High.
Knox	19	11	.633	806-10	907
Cooties	18	12	.609	790-27	941
Reds	17	13	.567	799-12	903
Anchors	16	14	.533	758-29	943
Pierce	14	16	.467	767-1	856
Ravens	14	16	.467	747-4	893
Toois	12	18	.400	782-10	869
Braves	10	20	.333	729-2	849

E. F. Walz of the Raven team rolled weekly high game of 233 on February 25th.

One of the leading bowlers of the Reds team is raising a "cootie garage" on his upper lip.

BELL TELEPHONE NEWS

Central Construction Division

William A. Tappendorf, cable splicer, was laid up three weeks with the "flu," but at this writing is improving, so that he expects to be back on the job in a few days.

Thomas Crowley of the Old Guard who recently returned to work, is off duty again with a severe case of pleurisy. Tom has sure had his share of sickness the past six months and the boys all wish him a speedy recovery.

We are pleased to report that the three children of Cable Foreman John Champion are recovering from the measles. John says he never saw so many "spots" at one time in all of his career.

In a later issue of the BELL TELEPHONE NEWS there will be a story of the large conduit job on Wabash avenue with a general description of the work on this street and illustrations showing obstructions, etc., encountered in the installation.

North Construction Division

Harold Stevens, formerly in the cable pulling gang, has secured a two months' leave of absence to recuperate from a recent attack of the "flu." The boys all wish him a speedy recovery.

A young cable helper has resigned to enter the apple game. Mr. Young is now on his way to the state of Washington, the home of the good apples, and expects to watch them grow. His fellow workers wish him all the success in his new vocation and will look forward to the time when some of the delicious fruit arrives for distribution among the boys of the district.

Whoever has any "pull" with Martin Delaney, might try and inveigle him to drop up to North district during the noon hour and he will see some real live telephone men batting a thousand in their daily indoor games. These games are a sure cure for the "flu," a real sweat being guaranteed the first game.

Step up and get your garden spot for the coming summer.

Right of Way Items

Joseph Lapka has bought a new silver mouthpiece for his saxophone. When asked if it improved the tone, he replied: "Oh, my! jazz."

Signs of spring—Al Hild has been detected fondly fingering photographic folders, and his eyes have that $3\frac{1}{4} \times 5\frac{1}{2}$ filmy look.

"Bill" Luby recently rounded out his twenty-fifth year of service with the telephone company. If Andy McGee and Joe Luby are not careful, he will catch up and pass them.

A hopeless task—trying to convince "Bud" Kennedy that autocracy has been overthrown, after he has been "bawled out" by the traffic cop for not promptly stopping his flivver when signaled.

Henry Wellston, the consistent bowler of manhole records, recently hung up a high game. He hasn't been the same Henry since. Come down to our level, Hank!

Harry Morton, the champion shootologist, is gradually improving again. In three days' practice he rose three points; from 51 to 54. We wish him all the luck in the—shooting gallery, and no bunk.

Our well-known right-of-way metaphysician, Harry Davis, is in a terrible fix. He does not know whether to believe Sir Oliver Lodge or Thurston, both of whom were recently in town. Judging by the box office receipts, however, Thurston is a bear on the "delivery" and would probably grab off more signed permits on the "astral plane" than would the great British scientist.

At a recent examination held for chauffeurs and similar auto fiends, the mental and moral strain must have been terrific. Andy Sheridan said he had to answer such questions as: Is your machine a car or a Ford? What are your sentiments as regards the downtown traffic cop? If you had a swell-looking

doll on board, would you "step" on it or drive slow? Joe Luby says that when Sheridan was asked, "What is a differential?" he replied, "A bunch of machinery under the rear axle to save wear and tear on the tires." Andy says in reply that once upon a time two honest, industrious, virtuous white men were fighting, but Joe came up and separated them!

Andy McGee has been endowed with some more new office scenery, hence his lofty bearing.

Central Supplies Division

Frank V. Dawson, our reliable bowler on the Cootie team of the Central Division Headquarters Bowling League and also stenographer, has decided to go back home to Indianapolis. He is now with the auditor of disbursements of the Indiana Bell Telephone Company.

William Scherschel of our South division branch is at present on a soup diet. He has had most all of his teeth extracted and is having castings made for a new set that will not wear out.

Our genial night watchman, "Big Bill" Sullivan, has been transferred to the position of night checker, in charge of the storeroom after closing hours. He is taking the place of Louis Loecher, who died on February 20th after a lingering sickness of four weeks. Mr. Loecher had been with the Supplies division since January, 1908, and is greatly missed by a large number of friends both in and out of his department.

A. B. Timmons, a painter, was taken suddenly sick while working on December 26, 1919, and was removed to his home at 7128 Lafayette avenue. He lingered with heart trouble until January 14th, when he crossed the Great Divide. Mr. Timmons was in the service of the company since July, 1914, and was a very conscientious member of the Chicago Telephone Company's band. He is survived by a widow and one daughter.

The mother of F. W. Smith passed away on January 25th. Death was caused by pneumonia.

The father of Robert Bamford also passed away on January 29th.

On March 4th the father of O. F. Spalding died.

E. W. Eggert apparently has no fear of the H. C. L., as he became the father of a bouncing baby boy.

Plant Employes Association Notes

A special meeting of the Joint Plant Council was held in the Bell Forum on the afternoon of March 9th. H. F. Hill, vice-president of the Chicago Telephone Company, having been invited to be present, was called upon and entertained with an informal talk which was encouraging.

The resignation of Miss Sarah Dougherty as corresponding secretary was accepted and Miss M. M. Carey of the Plant accounting department elected to fill the vacancy thus created.

The report of the wage scale committee was received and read. A lively discussion followed from which it was evident that some of the local councils had not given the subject the attention it deserved at the time the committee had requested information for the formulation of a wage scale, and the council voted to refer the report back to the committee with instructions to send out new questionnaires and give the matter their further consideration and report at a later date.

The Accident Prevention committee has now been organized and is on the job. Meetings are held the first Monday of each month.

A large number of the members of the Plant association are preparing to battle the high cost of living with their own back yard gardens. Intensive farming is the one sure method

of getting good results, as the members of the Gardening Association have found.

The man who never ate radishes and onions fresh from the garden really doesn't know just how much of the flavor is lost in transportation and lying in the market for three or four days before reaching the table.

If you have a back yard, join the Gardening Association and learn how to become rich in health and happiness. Call J. C. Bone, chairman of the membership committee, Official 300, Station 989, for further information.

Wabash Council

Wabash Council held its regular monthly meeting on March 9th, a large number of members being present. The meeting was held up to this council's high standard, great interest being shown in the business on hand, particularly in the remarks of Mr. Landry and Mr. Newmiller under "good of the order." Refreshments were served.

Wabash sent flowers and their sincere sympathy to Mr. Rogers, whose wife passed away, and to Mr. and Mrs. Harvey, who lost their baby.

Joliet Council

Joliet Council held a combined business and social meeting March 22nd. Refreshments were served and a dandy entertainment provided by home talent. John P. Hansen, president of the Joint Plant Council, was present and made a few remarks.

Suburban Dance

The Suburban Special Estimate, Inspection Equipment, Toll Room and Plant Superintendent's Office Locals have appointed committees to arrange a dance and card party to be given jointly by these locals on April 27th. These committees are hard at work and promise us a "large" evening of enjoyment.

Please send in your items for the May issue to J. W. Williams, Room 801, 212 West Washington street, not later than April 17th. We can use more than the locals have been sending in.

Accident Prevention Council of the Chicago Telephone Plant Employés Association

The Accident Prevention Council, a subsidiary body of the Chicago Telephone Plant Employés Association, was organized March 1st at a meeting of the delegates elected by the Local Councils to represent them in this work.

The meeting was addressed by several interesting speakers, who aroused the enthusiasm and interest of the delegates by pointing out the need of this great public work, and the good results that have been accomplished in other companies and other industries towards eliminating accidents, when every man in the organization becomes an active Accident Prevention worker.

After the addresses the business meeting got under way. H. Hood was elected chairman and F. D. Berry secretary. An executive committee of three was appointed to organize the work. This committee has since met and formulated plans for an extensive program of activities, that aims to arouse the interest of all plant men in this vital work.

The council meeting adjourned, with every member thoroughly inoculated with the doctrine of Accident Prevention. Next meeting is scheduled for Monday, April 5th.

Wednesday Lunch Club Entertained

More than 550 ladies were entertained March 17th at the

Wednesday Lunch Club with a tabloid minstrel revue. Messrs. Sutton, Kasperek and Crowley, commercial department members of the Players' Club, staged a thirty-minute act that was one big laugh.

Another feature which was also a hit was the singing of Miss Wood, of the plant accounting department.

American Legion.

Bell Post No. 242 will hold its next meeting April 8th, eleventh floor, 311 West Washington street. Supper will be served at 6:30 p. m. It will be a business meeting and smoker, to which W. Y. Hendron, commander, and C. E. Sutton, adjutant, request every comrade to come—and to bring a new buddy, if possible.

It is desired that every member express his wishes in connection with the "big time" planned for May. Discussion of this will be open at the meeting. There also will be a report from the by-laws committee, which has formulated a set of rules for the post.



KASPAREK, SUTTON AND CROWLEY.

Chicago Suburban Division

H. F. Crunden, Correspondent

Headquarters Notes

Plant Department

Roy Brean, who suffered a broken leg while unloading a reel of cable, is doing nicely and expects to be around again shortly.

Harley McDonald says that Lake Michigan has moved over to the Chicago-Gary conduit run and he carries a life preserver around in his Ford.

Frank Allison is reported to be improving from his sickness. He is undergoing treatment at Alexian Brothers' Hospital. Hope to have you back soon, Frank.

Emil Krafft has joined "Doc" Mott in the accident reduction work.

Jim Penn's idea was a clever one, and we must say that the lockers look neat—but Miss Kavanagh lost her combination. Oh, Kavy!

Business of opening a locker: one, two, three, four, five, clickety-click-click-click-click, back five, four, three, two, clickety-click-click-click—Ooooooh, I got it!

If anyone wants to know about the engagement of Herman Stenzel, our H. O. B. (head office boy), just ask Herman to show you his diamond scarf pin. If you don't see it in his tie, just take a peep under the tie, where Herman secludes it at times. He is solicitous for our eyesight. His valuable assistant, Joseph Berger, can now get first-hand information on becoming engaged.

Mrs. McGrath has returned after a six weeks' illness of pneumonia.

Harry Baker is again on the job with the same genial smile.

Arthur McDonald surrendered to the lure of the automobile business.

E. J. Brown was called in on a conference recently. Earl brought with him a large lunch box filled with Mrs. Brown's choice luxuries. It was too much of a temptation to others, so Brown had to go to a restaurant for luncheon.

J. L. Shepherd, formerly of the Chicago Telephone Company, suburban plant department, died of pneumonia on February 24th. At the time of his death Mr. Shepherd was local manager for the Michigan State Telephone Company at Portland, Mich.

Traffic Department

Miss Mary Ross is recuperating at the home of her parents in Michigan after a severe illness.

Miss Lydia Erickson, division instructor, has been transferred to Cleveland, Ohio. Miss Erickson was with our company for several years and during the war served with the Signal Corps in France as operator and supervisor with a most excellent record. We wish her success at Cleveland.

H. E. Eldridge, toll manager, has his golf sticks shining and is dated up for nearly every Saturday afternoon for the next six months. We hope to be well represented at the golf links this season.

Toll Division

On February 26th a theater party was given by the collect girls, Misses McGee, Reilly, Brislane, Origer, Hinchey, Skinner and Plunkett attending. The play, "Voice in the Dark," was the attraction. Dinner at the Mandarin Inn preceded the party.

After quite a spell of sickness, the Misses M. McCormick, F. Peterson, J. Roche and Mrs. Walters have returned to the toll room. Miss A. Varak is recuperating at Margaret Mackin Hall.

Toll day operators, Misses Rimmer, C. Koss, G. Reed, V. Steinhaus, L. Methe, E. Jarnecke and E. Papineau have resigned. Also Mrs. F. Wallenborn and Mrs. M. Hayes have resigned to take up the duties of housewives.

Misses T. Fisher, M. Merrick and J. Roche have been appointed supervisors. Miss R. Bishop has been transferred to the toll room from Elgin.

Mrs. V. Farwick, formerly Miss V. Regan, toll day operator, surprised all the girls by saying that she had been married in the early part of September. The toll force join in wishing her happiness and success.

Miss E. Foley of the toll evening force is in the hospital recovering from an operation. Miss R. West has been home for some time also. The girls all wish them a speedy recovery.

Miss Ethel Matson of the evening force has resigned.

Misses Mary Cody and Elizabeth Karren, former toll operators, have been reemployed.

Aurora District

Miss Mildred Stoltz is a new operator at the Aurora toll board.

If the Aurora operators continue to flash new diamonds, we will soon work without other lights. Among the latest victims are Misses Margaret Hein and Martha Cameron. We hope they won't all decide to leave us soon, but we have a hunch that Martha will be the first, the wedding day being set for "some time in June."

LOST—One attractive toll operator and one handsome repairman. Please return to exchange building in Aurora for reward.

No doubt there will be fewer colds and headaches now that the "perfect attendance" bonus is in view.

Elgin District

The girls of the Elgin office gave a regular party for Miss Seiger, former Elgin supervisor, who is now chief operator at Geneva. Dancing was enjoyed during the evening, after which a dainty luncheon was served by Mr. Rothstein and Mr. Patchen. We will have to admit that both waiters missed their calling.

Misses Josephine Carlson and Edith Rockafellow are new students at the Elgin office.

Mrs. Marie Callaway, formerly Miss Marie Sykora, has returned to the Elgin office as an operator.

Coining ideas on means for better service, fifteen chief operators of the Chicago Telephone Company came from various parts of the Elgin and Wheaton districts to meet Traffic Manager Raymond Patchen. The aforesaid gentleman appeared to be a mighty popular man with his group of assistants gathered around him at dinner, which was served at the Kelley Hotel.

Mrs. Matt Hoesley, who resigned her position as book-keeper at the Woodstock exchange to make her home at Billings, Mont., pleasantly entertained the commercial and traffic departments. Five hundred was enjoyed, Miss Ethel McGee winning first prize. Mrs. Glenn Shales, formerly chief operator at McHenry, furnished music for dancing and singing. Delicious refreshments were served. All departed acclaiming Mrs. Hoesley a royal entertainer.

Mrs. Florence Reed, formerly cashier at the Woodstock exchange, later entertained the traffic and commercial girls at a farewell party in honor of Mrs. Hoesley. Games and music furnished a most delightful evening. In a sculpture contest Miss Mabel Gallagher carried off honors by making the best likeness of Mrs. Hoesley. Other prizes were won by Mrs. Gertrude Kraemer, Vera McKenzie, Florence Cooney and Rose Peterson. Miss Ellen Simmons of Evanston College, Miss Vera McKenzie of Elgin and Mrs. Ruth Mason of Sandwich were out-of-town guests. Walter Reed, dressed as a woman traveler, presented Mrs. Hoesley with a handsome traveling bag, the gift of the commercial and traffic girls. A luncheon was served.

Evanston District

H. B. Gates, district manager, is responsible for this one: A certain north shore man was having his photograph taken. "Smile a while," said the photographer. "Perhaps it will help you a little if you will moisten your lips." Of course, that is pretty hard to do in this dry town.

Cards and letters have been received from David Campbell. He says that the weather in California is ideal. He has taken several trips with Mr. and Mrs. Leupke, and has also had a visit from our old friend P. J. MacLindon.

Mrs. Mary Hansen's husband, Harry Hansen, wire chief at Glencoe, has bought a new car. Mary is learning how to drive and has promised the girls in the commercial department a ride just as soon as she mastered the art. "Hurry up, Mary."

Hammond District

O. A. Krinbill is spending several weeks in Pasadena, Cal., for his health. Everyone hopes for a speedy recovery.

One day this month a subscriber of Whiting exchange while paying her telephone bill asked if they gave trading stamps. The chief operator informed her they did not, but they do give good service, "we can vouch for that."

Miss Lillian Kollwitz and Miss Bessie Parker, Hammond operators who have been on the sick list for some time, are still very ill. We wish them a speedy recovery.

Miss Agnes Powell, Hammond, has resigned to be married. Miss Grace Reynolds, toll supervisor at Hammond, is also

BELL TELEPHONE NEWS

on the sick list. Miss Reynolds is spending a few weeks with her parents in Afton, Mo., until she is able to resume her duties.

Misses Mildred McQuiston, Violet Hanson and Anna Fandrei have recently been employed at the Hammond office.

Harvey District

The Misses Bessie Simmons and Hazel Bellanger, M. A. operators at Harvey, resigned. Miss Mabel Abbott has accepted a position as lost-time operator.

Miss Blanche Apking, Beecher operator, is the lucky owner of a beautiful diamond.

Misses Margaret Hayes, Clara Winterfeldt and Christine Klein, Blue Island operators, resigned.

Mrs. Mae Walborn, ex-operator at Blue Island, has been reemployed; also Misses Mary Haffner and Ruth Morris have accepted positions as operators at Blue Island.

Miss Eleanor Klein of Blue Island has resumed her duties after being away for several months.

Miss Esther Conrad, Monee chief operator, resigned to be married.

The Misses Lillian Weber, Gertrude Nagle, Susanna Wise, Chicago Heights operators, resigned.

Mrs. Helen Peterson, Chicago Heights operator, has been transferred to the Chicago Heights commercial department as billing clerk.

Mrs. Lillian Titus, ex-operator at Chicago Heights, has been reemployed.

Misses Mary Kogler, Eva Bateson, Veronica Fuhrmann have been employed as lost-time operators at Chicago Heights.

Miss Madeline Foskett, Homewood operator, resigned.

La Grange District

Miss Helen Quase, who is in charge of the observation board at La Grange, is convalescing at her home after an operation for appendicitis.

Miss Loretta Lange of La Grange traffic department has been transferred to the Hinsdale exchange as chief operator.

Miss Kremholz, former chief operator, has been transferred to La Grange to take the position of traffic clerk, and Miss Machtemes has again taken a position on the operating force.

A new clerk in La Grange commercial department is Miss Dorothy Hoffert, who until last June worked for us at Downers Grove office.

Mrs. Louise Munn is a new employé in La Grange commercial office.

Berwyn exchange is growing and so is the number of operators. Misses Ellen Simandl, Helen Daniels and Cecelia Spale are new operators there.

Mr. Voss, chief clerk at La Grange, has spring fever, although at this writing he is recovering. Under date of March 15th he reports six baby chicks from a setting of six eggs. That's the best report we've had from our chicken enthusiasts of La Grange.

Miss Bertha Meyer, La Grange operator, returned to work after six weeks' illness with scarlet fever.

Mrs. Catherine Lange, night operator at La Grange, resigned and her position will be filled by Mrs. Cheney, day operator.

Mrs. Mabel Shay, Berwyn operator, entered into the limerick contest in the *Chicago American* and won a dollar. The question was, "What is the wildest creature you ever saw?" Answer, "Is a man when the 'phone girl is slow."

The Berwyn girls were recently presented with a box of candy in appreciation of good service given a Riverside subscriber.

Mr. Schulte of the plant department is on the road to fame. We see signs of his becoming an inventor. He is trying

to eliminate the use of certain parts of a telephone instrument in order to save work, expense and thereby get the operator in a shorter length of time.

Oak Park District

The Maywood operators were entertained by Miss Dorothea McBride, one of the force, at a Washington's birthday party. The house was suitably decorated for the occasion and dainty refreshments were served. All present reported a very enjoyable evening.

The employés of the Oak Park commercial office gave a dinner party March 10th. Everyone present enjoyed a good hearty laugh when one of the girls inadvertently sat on a cut of cherry pie. (This is a good sign of an early spring.)

Mrs. M. Douglas, formerly Gertrude Leeseberg, entertained a few ex-operators and Miss Grace Wagner at her residence Wednesday afternoon, March 3d.

The Oak Park commercial employés gave a dinner party on St. Patrick's Day.

Mrs. Doris Schultz of the traffic department resigned on March 1st to be married to John Owen of Waukegan. Mr. and Mrs. Owen will make their home in Waukegan.

Waukegan District

Miss Pansie Nestor of Zion has resigned and gone to her home in Miner, Ill.

Death entered the home of the Misses Marie and Florence Johnson of Zion twice within two weeks. Their brother died on February 7th of pneumonia and on February 27th their mother passed away. We extend our sympathy to them in their bereavement.

Mr. and Mrs. Clifford Wyles of Fort Sheridan are rejoicing over the arrival of a son born on February 27th. Mrs. Wyles was formerly Miss Martha Booth, a night operator at the Highland Park exchange.

Miss Helen Sodman, operator at Highland Park, returned to work on February 16th after a three months' absence. Miss Sodman fell from the porch of her home, sustaining a compound fracture of the left arm and a broken shoulder blade.

Mrs. Louise Barnes of Area has accepted a position as operator at the Libertyville exchange.

Mrs. Lawson, former supervisor at Evanston, has accepted a position at Waukegan.

Miss Margaret Hoff, operator at Great Lakes, has been transferred to Waukegan.

Miss Anna Bink of Great Lakes has returned to work after six weeks of illness.

Miss Mamie Hayes, chief operator at Lake Forest, has been on the sick list for several weeks.

Miss Emily Kutter of Lake Forest has been transferred to the Wilmette exchange.

Miss Siegle of Lake Forest is taking a month's furlough.

Miss Ruth Broncheon of the commercial office at Waukegan is on the sick list, having undergone an operation for appendicitis.

MARRIED—Miss Margaret Smith and Walter T. Maxson, on February 14th. Mrs. Maxson was formerly cashier at the Waukegan office and is well known among telephone people, having been employed here for the past thirteen years. Mr. Maxson was at one time a solicitor for the Chicago Telephone Company. He was one of the boys in the famous Rainbow Division. Mr. and Mrs. Maxson are now living in Indianapolis, Ind.

Miss Millie Filstead, operator at Waukegan, recently won first prize in a fox-trot contest held at the North Chicago Auditorium. "Oh, how she can dance!"

Miss Agatha Thomson has resigned her duties as operator at Waukegan and is attending business college.

WAR AMBULANCE MAKES HONORABLE RECORD

*French War Ministry Acknowledges Services of Machine
Donated by Employes of Chicago Telephone Company*

The long and useful service of Ambulance No. 394, bought with money donated to the great cause by employes of the Chicago Telephone Company, is attested by a beautiful certificate recently received by General Manager Abbott. The engraving on this page does but scant justice to the beauty of the certificate, which is hand tinted and lettered in three colors.

The following correspondence tells the story of Ambulance No. 394:

AMERICAN FIELD SERVICE IN FRANCE. SERVICE AUTOMOBILE AMERICAIN AUX ARMÉES FRANÇAISES.

Téléphones:
Auteuil 22-47 — 22-48.
Siège Central:
21, Rue Raynouard,
Paris (XVII).

Télégrammes:
Amerifield-Paris.

March 15, 1919.

To the Employes of the Chicago Telephone Co.:

Remembering very gratefully the debt the Field Service owes to your interest in its effort, we are sending you this brief story of the work directly accomplished through your generous contribution.

In our files at headquarters, from which this record was taken, we have all such data concerning the day's work of our ambulances at the front as was available through correspondence with the French authorities of the Service, our chiefs of sections, and individual drivers. For many reasons, however, it has proved difficult and sometimes impossible to secure complete information. Often a car destined for a certain section met some mishap on its first journey, and after being returned and repaired at its base parc, had to be transferred to meet a need in some section other than that originally intended. During periods of great military action, when cars were constantly requiring reconstruction, their placements and drivers were, for efficiency's sake, necessarily changed and the thread of their story thereby temporarily lost. While we endeavored to have the drivers communicate directly with the donors, they often failed to do so, through too much modesty regarding either their achievement or their ability to write interestingly. In almost every instance the cars have served in more places than the postes mentioned in our files. The fact that our thousand or more ambulances carried over five hundred

thousand wounded during the war is perhaps the most satisfactory evidence of their constant activity.

Subsequent to the signing of the Armistice we have been able, in many of our sections, to help in the provisioning and rehabilitation of devastated towns and villages. Now that the United States Army Ambulance Service is being demobilized, Colonel Percy L. Jones, Chief of Service, has recommended to the U. S. Army Headquarters that all such cars as are still in condition shall continue to be used in the task of reintegration in northern France and Belgium. If this intention should for any reason prove impracticable of fulfillment, it is hoped that these cars may be put to some similar use.

We very much wish you might realize something of the gratitude so often expressed to the drivers of these cars by the Frenchmen they carried—and in many instances, also, in letters written later by their families to our headquarters. The French Ministry of War has recently requested us to convey to the donors of the Field Service cars their appreciation of the great practical benefit the contribution served. In behalf of our own administration, may I assure you we quite appreciate the fact that without your cooperation, the purpose of the Service could not have been accomplished. Respectfully yours,
(Signed) HENRY D. SLEEPER,
Dir., A. F. S. Hdqts.

Mr. Abbott's reply follows:
Chicago, March 19, 1920.
Mr. Henry D. Sleeper,
50 State St., Boston, Mass.
American Field Service,
My dear Sir: Permit me to acknowledge receipt of your very

interesting letter, prepared in Paris under date of March 15, 1919, together with Certificate of Service, expressing the appreciation of the French Ministry of War and the American Field Service in France for the coöperation of the employes of the Chicago Telephone Company in donating Ambulance No. 394 that was engaged in the mission of relief along the French front during the World War.

I am very glad indeed to inform you that during the active military operations we not only received communications from the Paris office of the American Field Service with reference to the ambulance donated by us, but also from its driver, Mr. Arthur U. Crosby.

We were all very happy, I assure you, to have had an oppor-



Maintenance Celebrities

No. 23 - Ed. Breen



A veteran Equipment District foreman is Ed. Breen, who got off to the humble start of installing boxes for the A. D. T. in 1891. World's Fair year found Ed. crawling under the old Transportation Building and engaging in other pursuits calculated to make the telephone installation for the fair a success. Being thought right smart at handling wires, Ed. was graduated into the Equipment division, doing switchboard work. You often read of cut-overs without any trouble, credit invariably attaching to the Equipment. This is Ed.'s particular dish. He has a habit of making them in the afternoon. It is the careful way he has always laid out his work; and sometimes when asked when he is going to cut in a new gigantic unit, he yawns modestly and says, "Oh, yes! we did that yesterday after tea." He is handy with the hickory and has considerable fielding average. He also qualifies as amateur horticulturist, his specialty being spuds. He had one of those famous war gardens and laid out enough hills to provide for his family of eight and supply the war-torn areas of Europe. He built an addition to the house to store the harvest but reaped a pocketful of marbles. He now uses the garden for digging worms. It is his favorite dissipation to get a branch from some tree, hasten to the nearest watercourse and fish it dry. He is a regular "Huck Finn" and puts to shame those with the fancy tackle. He is an artist of more or less ability, or was, until he punctured the region of his slats doing something in oil on his front porch. His particular hobby is prevention of ladder accidents.

tunity to be of assistance in the great cause, and on behalf of the employes of the Chicago Telephone Company I take great pleasure in thanking you for your letter and the certificate, both of which will be framed and placed where all may read with interest the story of the activities with which Ambulance No. 394 was connected. Very truly yours,

W. R. ABBOTT,
General Manager.

Outlaw Bowling League

What's in a name, anyway? That Goats climbed from third to first place in March. They switched places with the Bandits. Otherwise the league standings were the same on March 29th as the month previous.

E. Bauer leads the individuals with an average of 187-16. The league will close its season April 19th, and the final standing of the teams and all individuals will appear in the May issue of the BELL TELEPHONE NEWS.

The score to March 29th was as follows:

Teams	Won	Lost	Pct.	Total	Avg.	High.
1. Goats	29	16	.644	35,807	795-34	920
2. Raiders	28	17	.622	35,487	788-17	882
3. Bandits	28	17	.622	35,290	784-19	909
4. Lowbrows	26	19	.577	33,865	752-25	882
5. Pirates	22	23	.488	34,495	766-25	870
6. Wreckers	21	24	.466	34,614	769-9	900
7. Repeaters	16	29	.356	33,696	748-36	888
8. Destroyers	10	35	.222	33,090	735-15	917

Team high (1 game)—Goats, 920.
Team high (3 games)—Goats, 861.
Individual high (1 game)—Nottingham, 244.
Individual high (3 games)—Bauer, 216.

Bell Telephone Bowling League

Under the leadership of Captains Love and Tappendorf the Bell Telephone league bowlers attacked the pins in the American Bowling Congress tournament at Peoria, Ill., on March 15th and 16th. Private A. Bronder was the only one to reach his objective, rolling on the first squad, 9 a. m., on the sixteenth, he scored 677 pins, which temporarily placed him in first position in the singles. This, however, was beaten by a St. Louis bowler with 683 pins before our boys reached the train to leave Peoria.

A creditable showing was made by the balance of our bowlers as the following scores will show:

FIVE-MEN TEAMS.

Team No. 1—	1st	2nd	3rd	Total, 3 games.
H. T. Love (Capt.)	196	179	176	551
H. Waltman	167	209	220	596
G. Fick	193	167	176	536
A. Bronder	147	202	154	503
J. H. Welch	168	171	182	521
Total	871	928	908	2,707

Team No. 2—	1st	2nd	3rd	Total
G. Bontemps	178	200	204	582
R. J. Lillis	154	171	166	491
J. Newsome	149	178	230	557
W. Stahl	195	193	186	574
W. Tappendorf (Capt.)	177	155	151	483
Totals	863	897	937	2,687

Team Standing March 18

Team	Won	Lost	Pct.	Avg.	High.	Total
1 Commercial	56	13	.812	833-63	1,046	60,990
2 Construction	48	21	.696	863-37	955	59,584
3 Long Lines	44	25	.638	841-12	959	58,041
4 Supply	42	27	.609	847-42	983	58,485
5 Edgewater	38	31	.555	844-28	960	58,264
6 Accounting	25	44	.362	806-59	903	55,673
7 Suburban Plant	18	51	.261	762-29	866	52,607
8 Kedzie-Edgewater	5	64	.072	729-58	847	50,350

High individual score, one game—Waltman, Edgewater; Love, Commercial; Cary, Commercial, 245.
High individual average, three games—Stockhausen, Edgewater; Bronder, Commercial, 217-1.
High team score, one game—Commercial team, 1,046.
High team average, three games—Commercial team, 951-2.
Weekly high game, Carey, Commercial, 245.
Weekly second game—Crow, Construction, 227.

Thomas Lived Long Ago

Teacher: "Now, children, listen to this: Thomas Campbell, the famous poet, once walked six miles to a printing office to have a comma in one of his poems changed to a semicolon. Why did he take all that trouble?"

Bright Boy: "'Cause he didn't have a tellyphone."—*Cleveland Plain Dealer*.

In spite of all the talk about waterpower, it doesn't taste as if it had any.—*Arkansas Gazette*.

If you would start right, start saving.



MAINTENANCE MATTERS

When the White Sox started south one of our general office clerks bade one of the members of the party a very affectionate good-by at the station. Have you noticed her sadness?

"This year I save" is the latest slogan of the girls of the maintenance file room. Here's hoping our Anna Zsika saves the — hundred this year. A dinner, show, taxi and everything in store for us if she does.

The following ladies and gentlemen upheld the reputation of the department in the recent exhibit of the Bell Picture Makers' Club and walked away with some of the prizes: Miss Laura Brey, of the educational division; B. F. Buttsbach, of Oakland; G. F. Ebert, of Wabash; F. A. Meyers, of Irving; G. Spiegelbauer, of the equipment division; and F. Hofstetter, of the building division.

"Bill" Schumacker, Yards switchboard man, reported to work March 2d after a seven weeks' siege of illness. "Bill's" doctor diagnosed his case as multiple furuncle (boils). He evidently knew that "Bill" was a telephone switchboard repairman and, of course, had to cut the furuncles in multiple.

Pullman reports all the absentees back on the job and things once more rosy. Even "Bill" Smith, who was only a step ahead of the undertaker, has slipped back into the driver's seat.

Yards and McKinley councils gave a reception and dance at Ogden Park refectory February 9th, the music being furnished by Edward Moebius' Chicago Telephone Company orchestra. A large crowd was present and everybody spent an enjoyable evening.

Miss Wolf is now cashier of the maintenance department. Strange to say, two days after her appointment she appeared in a new spring gown. Quick work—what?

J. G. Jenkins, Central, is father of a brand new boy.

Rumors continue to announce the recent marriages of Harry B. Young and George Stanley of Stewart. Because of the back-ordering of information by these gentlemen we are not supplied with details, but offer this much from the goodness of our reportorial heart. If they like this, they may have more by submitting particulars. This is indeed a period of unrest, as there seems to be some danger that Lester A. Huyck and Arthur Bacigalupe will also join the Brotherhood of Lunch Carriers, if rumors and signs mean anything.

Earl Shaw is now installing in Main.

After prodding behind the stove and making a thrilling plea, the following flow of oratory was elicited from the Pullman oracle, "Grandpa" Beebe: "Hands that grasp too much, hold but little. Fools occasionally find opportunities, but wise men make them." When "Grandpa" leaves us, we'll have to get an Ouija board to guide our destiny.

A Spaulding subscriber called the night chief operator recently and complained that his telephone bell had been ringing spasmodically for about an hour. The case was referred to the night switchboard man, who made the usual tests and found nothing wrong. He called the number to ascertain if that subscriber had made the complaint. A pleasant-voiced lady answered and explained that the ringing was not the telephone, but the front door bell which she had been leaning against down

in the front hall while talking to her gentleman friend. Her father mistook it for the telephone and reported it.

Sheldrake is the name of the new unit cut into Rogers Park March 13th. This is the second unit at this office and consists of five trunk sections with 4,900 subscribers' multiple. Five sections of "A" board were also placed in service, which gives the office growing pains, fifty-one positions being in the place.

The maintenance general office local council had an entertainment January 20th which included "eats" and a vaudeville bill by telephone talent. Dancing was in order and the event passed most successfully. Moebius' orchestra furnished the music.

We are told that Wentworth is to make an offering on the altar of matrimony in the person of one Harold S. Hazen.

"Shorty" Jones, the pedro champion, played 700 games at Canal office and didn't win one.

Elmer Gamster is covering the installation of the fourth unit at Hyde Park office. We tried to learn what the prefix would be, but couldn't find out, so you can see that we are going so fast they cannot keep up with us on prefixes.

John Ross has been transferred from Belmont to the Western Electric. Best wishes for the future, John.

Members of the equipment division gave an entertainment and dance March 12th at the Bell Forum, which was attended by four hundred members and their friends. The entertainment committee had arranged an excellent vaudeville program, employing departmental and the Players' Club talent, and put on a playlet entitled "School Days" which portrayed things as they might be, but are not, in the plant school. Music by Moebius' orchestra. Properties and stagecraft were entirely by members of the department and the thing was a credit to the ones who took part. Dinner was served by Mr. Renaud and a dance wound up an evening of rare pleasure. It seems that Tom Freeman acquired some reputation as master of the new steps, but there is some mystery as to his whereabouts during the moonlight dance. It is rumored that Breen and Hayes have secured the men's assembly room part of each week to get caught up with Tom on the latest steps in dancing.

Under the Sink With the Rest of the Pipes.

Subscriber: "Who is this crazy man you sent to my house?"

Wire chief: "Why, what makes you think he is crazy?"

Subscriber: "Well, he is lying on his back under the sink, and when I asked him what he was doing he reported in all seriousness, 'I am fishin'.'"

Otto Schmackel, repairman, announces another "suffergate" in his family, making grand total of four girls and one boy. Where is that Roosevelt medal, or should it be a Carnegie medal for heroism?

The most indulgent father, John Delles, Lincoln testman, has purchased a new rattle for his year-old only son. For the information of other fathers similarly inclined, the rattle is made by a well-known Detroit manufacturer.

James Marhold, Lincoln testman, has swapped places with Testman Sidney Booth of Lawndale. We understand Jim buys theater tickets occasionally for some young lady in Lawndale vicinity. One guess.

MACHINE SWITCHING FOR THE BELL SYSTEM

By Bancroft Gherardi, Vice President and Chief Engineer, and Harry P. Charlesworth, Equipment and Transmission Engineer, of the American Telephone and Telegraph Company

In the annual report of the American Telephone and Telegraph Company recently published, President Thayer has the following to say concerning one of the activities of the department of development and research:

"Great progress has also been made in subscribers' station and central office apparatus. Improvements, making both for economy and efficiency, have been perfected and standardized for use. Among these the most important is the machine switching system which has been the subject of constant study and experimentation by this Department over a period of more than ten years.

"It has been necessary not only to produce apparatus which would operate efficiently and economically, but also to perfect all of the details necessary to make this entirely new apparatus function properly in relation to the existing apparatus, the present buildings, the practice of the public, etc. That is, after its completion as an efficient mechanism it was necessary to make all of the adaptations so that its introduction would be economical and without disturbances to the public. This has been accomplished."

As to the engineering features of this question he says:

"During the past year the Engineering Department has been engaged in planning and directing the introduction of machine switching or automatic switchboards into the Bell System. It is our plan to study each improvement in apparatus to determine how it can most economically be made a part of the plant. Such studies show that in the large cities machine switching equipment should be employed for extensions necessary to provide for growth and for reconstruction to replace worn out equipment. Our experience has shown that by this procedure we are enabled constantly to change to new types of apparatus as they are developed, with the least amount of disturbance to the service, in the minimum time and without disturbing effects upon the employes or on the financial situation. Thus loss and waste incident to sudden change are avoided, apparatus not sufficiently proven is not incorporated into the plant, and the entire physical property of the System is by easy evolution keeping abreast of the development of the art of telephony.

"By the use of these automatic switchboards as we have planned to introduce them, increased capacity will be provided with proportionately small increases in the number of operators required and with a simplification of the service conditions in the large cities. While these automatic switchboards are more expensive in first cost than the manual switchboards, it is expected that the decreased operating expense of the automatic will do much to offset the increasing cost of giving telephone service."

Back of these brief reports lies a series of most interesting and important advances in the art which have been made by the development and research experts and engineers of the Bell System, namely, the creation of an improved switchboard system meeting the service requirements of the Bell System and which will permit the subscribers to make calls without the aid of an operator even under the intricate conditions of our largest cities.

A description of this new form of telephone equipment and service will, doubtless, be of great interest to our co-workers in all branches of the service, each of whom will, in some degree, be engaged in the application and operation of this new

system. We will, therefore, outline briefly some of the interesting work leading up to the adoption of this new form of switchboard as well as describe the system itself and its application to the service requirements of a large city.

From the invention of the telephone, the Bell System has continuously developed the telephone art, of which switchboards are but a part. New improvements in telephones, switchboards, lines and cables have followed one another with remarkable rapidity. While each successive type of apparatus to the superficial observer sometimes suggested similarity, nevertheless, each step in the evolution marked a decided improvement.

In general, these improvements have been of such a nature that they have not necessitated a change in the methods used by subscribers in making calls. One of the factors of the machine switching problem which added to its complexity was that from its very nature this system necessitated a change in the manner in which a subscriber made his telephone calls. This phase of the problem had to be most carefully considered so that the arrangements adopted for all classes of calls would be simple and could be employed by all subscribers without the chance of complications, difficulties or misunderstandings.

From the time of the earliest switchboards there has been a constant effort to perform various operations automatically so far as consistent with the service requirements, and many new features have been introduced from time to time for reducing the work required on the part of the operator. In line with these developments, telephone engineers early applied themselves to the problem of completing

calls entirely without the aid of an operator. Many forms of automatic systems have been developed and tried out from time to time, but none of these satisfactorily fulfilled the complicated service requirements of large cities.

An indication of the magnitude of this problem may be secured when we consider that in New York City, for example, there are at present a total of nearly one million telephone stations served from about ninety central offices, and the predictions are that within the next twenty years the stations and central offices will have more than doubled. Each subscriber in this great network must be able to reach promptly every other subscriber. Due to the large area involved, a great number of calls within the city involve extra charges, which means that they must be specially supervised and-ticketed. There are many different classes of service furnished the public, such as measured rate, flat rate, official, coin box pay station, attended pay station, and other special services such as information, etc. Not only individual lines, but party lines and private branch exchanges must be cared for. Furthermore, demands for service to the extensive suburban area surrounding this great city, as well as to the vast number of cities, towns and rural communities throughout the entire country require that provision be made for thousands of toll messages daily which must be recorded,



Figure 1. Telephone equipped with dial.

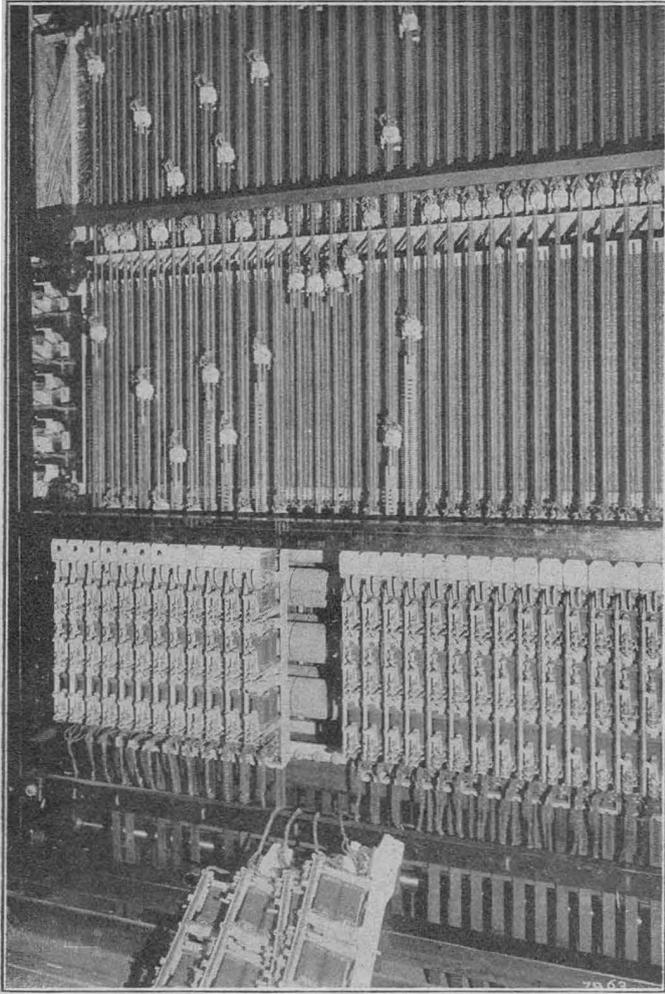


Figure 9. Typical selector frame showing constantly revolving friction rolls, magnetic clutches, and racks by means of which selecting mechanisms are moved up and down.

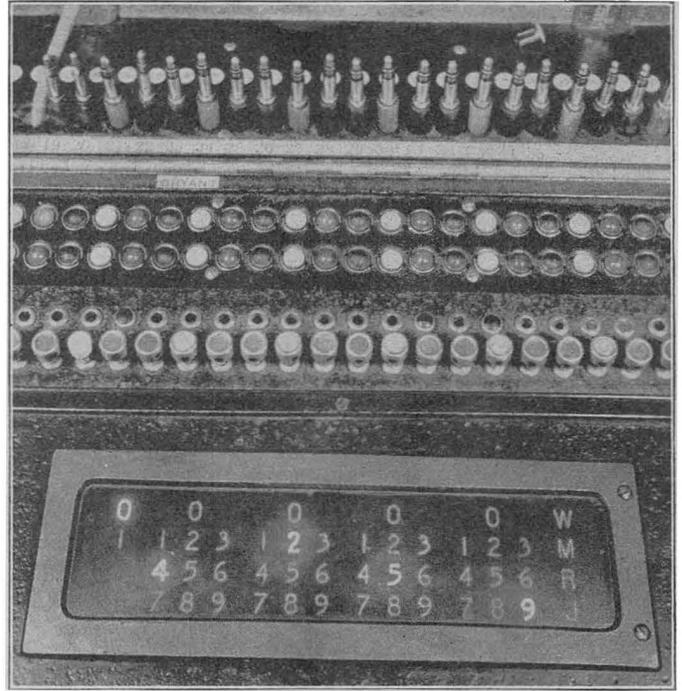


Figure 21. Call indicator at an incoming trunk position in a manual office showing number 4259 displayed.

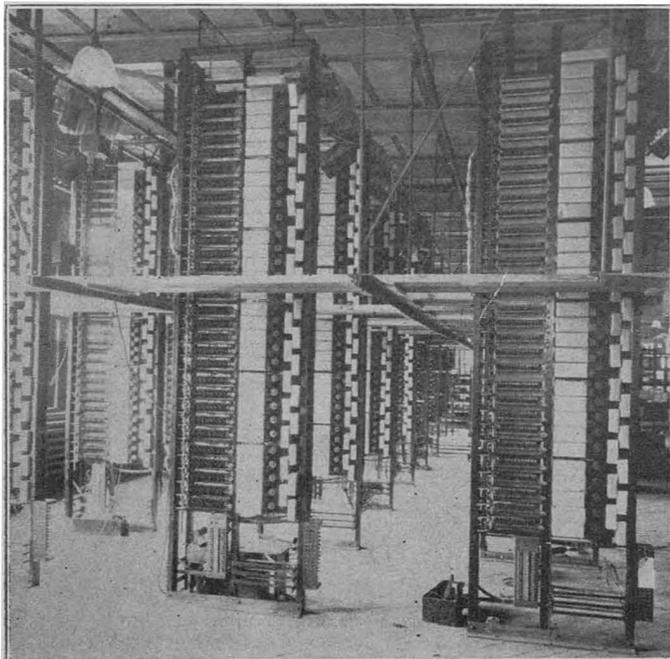


Figure 25. Sequence switch frame in process of assembly in the factory.

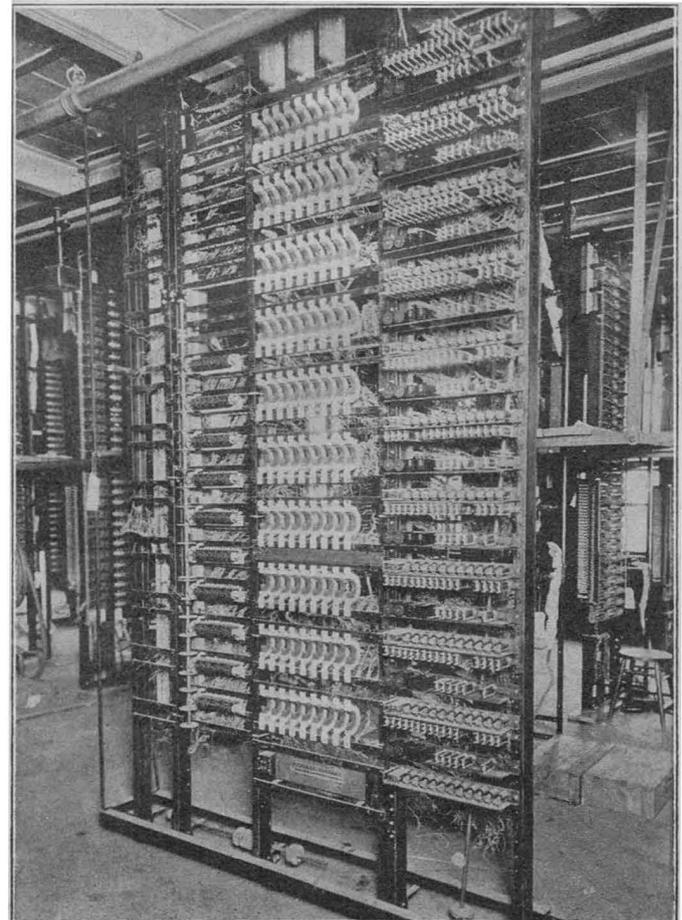


Figure 7. Sender equipment in process of assembly at factory.

BELL TELEPHONE NEWS

supervised and timed. It will be clear that the problem of producing machine switching equipment which will satisfactorily perform a sufficient amount of the labor involved in handling the above service, so as to replace enough operators to warrant its existence, is not one that could be solved except after years of development work. It will also be evident that systems which might operate satisfactorily in cities of small or medium size, where service requirements are comparatively simple, would not meet conditions in these large metropolitan areas.

System Perfected and Tried Out Under Service Conditions.

As a result of exhaustive investigations and long continued experiments, the engineers of the Bell System have produced an automatic switchboard which satisfactorily meets even the exacting service conditions just referred to. It may be interesting to note in this connection that as a final step in the development of the system, three complete central office equipments of the machine switching type were installed at Newark, N. J. These installations were made on what is known as a "semi-mechanical" basis, that is to say, operators were employed to take the calls from the subscribers and transmit them to the machinery by means of numerical keys. It was thus possible to try out this form of apparatus without introducing any new method of calling on the part of the subscriber during the trial installation.

The results of these trial installations demonstrated conclusively that the new machine switching system would meet all the essential service requirements of our largest cities. The

Arena Dr John, r, 2156 Bathgate av.	FOR dham	4141
Arena Theatre, 623 8th av.	BRY ant	5409
Arend Ernest, A, Archt, 105 W 40.	BRY ant	3231
Arend F J, 165 Bway.	COR tiand	0940
Arend F J, r, 813 5th av.	PLA za	4226
Arends Katharine, MD, 178 W 97.	RIV rside	0570
Arendt E, r, 156 W 86.	SCH uylcr	2861
Arendt Edwd & Son, Leaf Tob, 151 Water.	JOH n	1635
Arendt Ellis, 151 Water.	JOH n	1635
Arendt Simon, r, 29 E 129.	HAR lem	4202
Arengee Co, 21 W 4.	SPR ing	7224
Arens A, Leaf Tobacco, 182 Water.	JOH n	4747
Arens Miss Adele, r, 29 W 84.	SCH uylcr	2493
Arens Burchard, Cafe, 520 8th av.	GRE eley	5141
Arens Edgmont H, Bookseller, 17 W 8.	STU ysnt	0717
Arens F X, r, 119 W 80.	SCH uylcr	6347
Arens Max, Lawyer, 271 Bway.	BAR clay	5786
Arensberg A, Drugs, 1002 So Blvd.	INT rvale	2925
Arensberg M, r, 961 St Nich av.	AUD bon	1520
Arensberg Walter C, r, 33 W 67.	COL mbus	4826

Figure 2. Typical examples of new form of listing telephone numbers.

work of manufacturing equipment of this character is already well advanced and the first installations will be placed in service early in 1921.

How the New System Operates.

For those not already familiar with our new machine switching systems, we will describe briefly its fundamental and most interesting features.

Each subscriber's station will be equipped with the usual form of telephone instrument and in addition with a calling device known as a "dial" which will be mounted at the base of the desk stand as shown in the illustration, Fig. 1. This dial, as will be noted, has ten finger holes bearing the numerals 1 to 9, and also 0 and the word "Operator" in the tenth hole. For the larger cities the dial will also bear certain letters of the alphabet as referred to below, while in the smaller cities numerals only may be employed.

In making a call, the subscriber will, of course, first refer to the telephone directory, but will find in the new directory that the central office name is printed somewhat differently than heretofore. Typical examples of the new form of listing telephone numbers are shown in the illustration, Fig. 2. As will be noted, these conform to the present manual listings, except that the first three letters of the office name are set out prominently. Simple as this change in the form of listing appears, until it was developed by the Bell System experts, no satisfactory system of designating telephone numbers for machine switching systems for large cities such as New York, Chicago, Boston and Philadelphia was known.

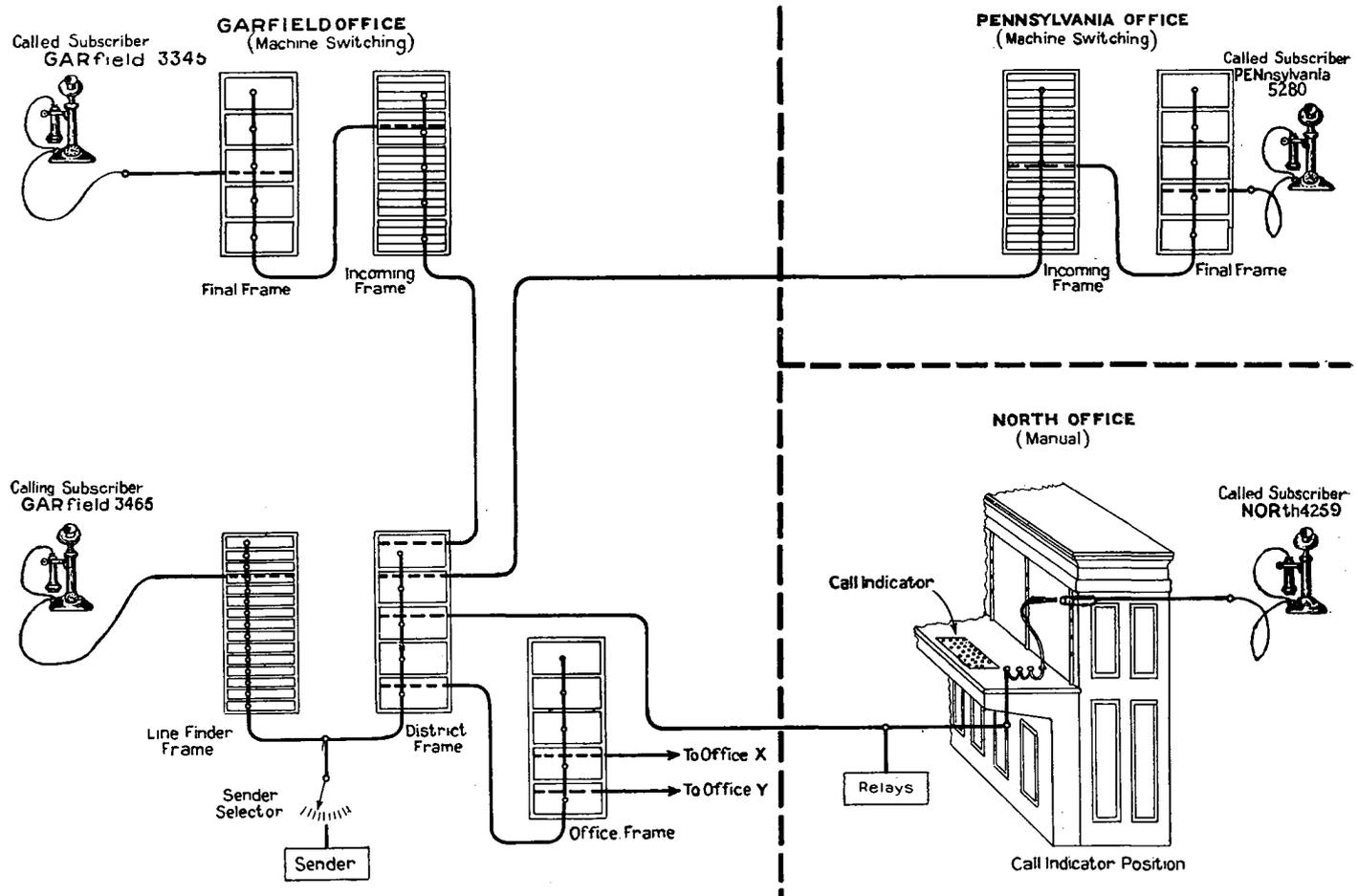


Figure 4. Diagram showing progress of a call from an automatic subscriber to another automatic subscriber or to a manual subscriber.

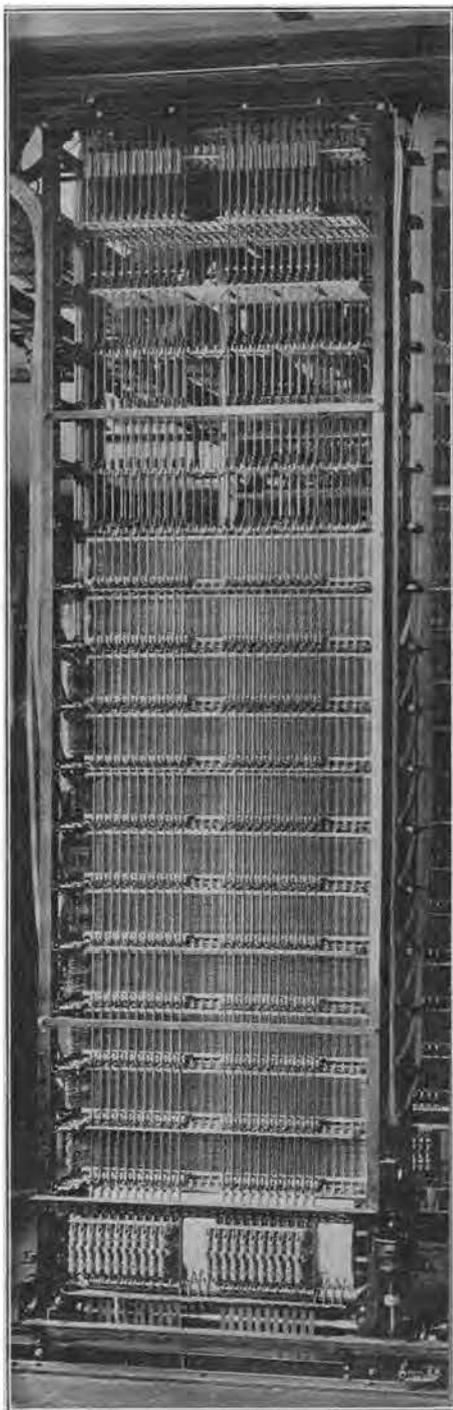


Figure 5. Line finder frame showing multiple banks and selecting mechanisms.

One of the unique advantages of the plan developed for designating telephone numbers is that it does not necessitate the abandonment of all of the existing manual listings. For manual operation it leaves the listing substantially as at present. For machine switching operation, the same form of listing is used, a clear indication being given in the directory as to the portion of the listing which should be dialed in making an automatic call. Various other plans have been proposed, all of which either have involved serious objections, such as changing the whole system of manual designation, or the use of combinations difficult for the subscriber.

Under the plan adopted, the dial as illustrated in Fig. 3 (shown on front cover of this magazine) will carry the complete alphabet with the exception of two letters (in this case "Q" and "Z"), in addition to the ten numerals. The letters omitted will be those infrequently used, and, therefore, not required in the first three letters of central office designation. Under this plan machine switching calls are passed to the central office mechanism by dialing the first three letters of the office name and then the four numerals, followed by the party line designation, if any. On calls to machine switching offices there will be no party line letters to dial, as these offices are arranged on a terminal per station basis.

In medium-size multi-office cities where six-digit calling is practicable, only the first two letters of the office name will be given prominence in the directory. In very small multi-office cities where five digits only are required, the telephone number may consist simply of five numerals and no letters may appear on the dial.

Having secured the desired telephone number from the directory, which we will assume to be "PENnsylvania 5280," the subscriber will first remove the receiver and listen for the "dial tone" which indicates when the apparatus is ready to receive his call. He will then insert his finger in the opening of the hole over the letter "P," rotate the dial until the finger comes in contact with the metal stop shown in the picture and release the dial, which will automatically return to normal. He will then repeat this operation for the letters "E" and "N" and in turn for the four numerals 5-2-8-0.

We will now describe briefly the progress of the call through the major pieces of apparatus. As will be seen from the diagram illustrated in Fig. 4, the line of the calling subscriber, whom we will assume to be a subscriber in the "GARfield" office, appears at a so-called "line finder frame." When the receiver is removed from the switchhook preparatory to dialing, the line is selected by a "line finder" and connected to an idle "sender" by means of a "sender selector." Upon completion of these operations, which take but a fraction of a second, the "dial tone" is sent out to the calling subscriber as mentioned above.

When the subscriber dials, the electrical impulses (on a decimal basis) are transmitted to the "sender" which receives and registers them, in turn translates them to the proper basis for the control of the apparatus which is not operated on the decimal system, and then governs the selection through the ap-

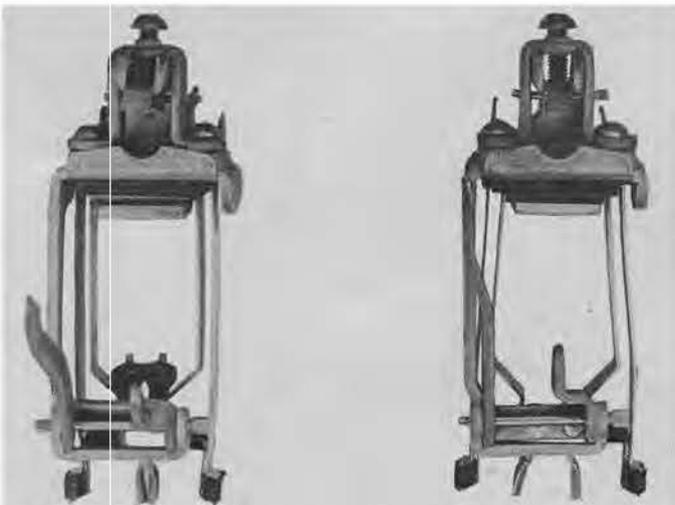
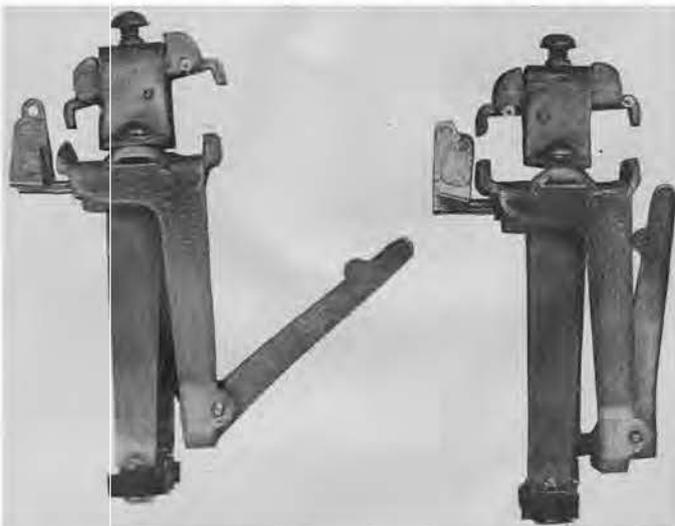


Figure 24. Selector multiple brush shown in operated and non-operated positions.

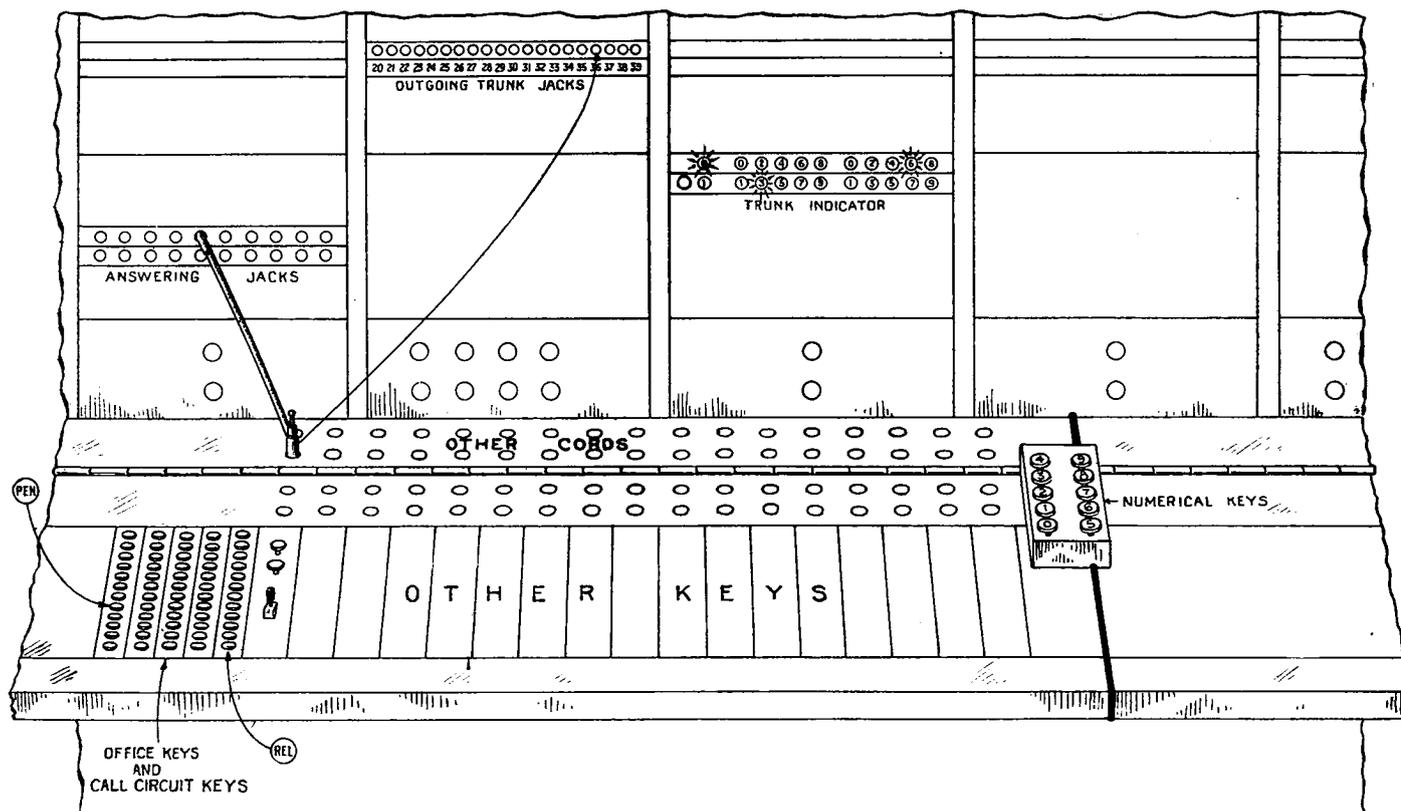


Figure 17. Position in manual office equipped with numerical keys for completing calls to automatic offices.

paratus as referred to below. If the subscriber, for any reason, should fail to dial the full number, the selection as described later, would not be completed, but the call would be taken up by a maintenance employé and the subscriber advised of his error in case he had not already hung up and dialed again.

The "sender" automatically causes the particular "district selector" which is permanently associated with the "line finder," originally used, to start up and select a trunk to the office desired, namely, "PENsylvania," either directly or through an "office selector" in case the number of trunk groups is too large to be placed on the "district selector." Assuming that the "PENsylvania" office is on an automatic basis, the trunk chosen will terminate at an "incoming selector" frame and the "sender" above referred to will cause the call to be routed through the "incoming selector" to a "final selector" and thence to the particular line desired. When the connection is thus completed, audible signals will be sent back to the calling subscriber to indicate that the station is being rung or that the line is busy. If the line should be out of order, the connection would be automatically completed to an operator who would so advise the calling party.

If the call had been for another subscriber in the same office, namely, GARfield, instead of in the PENsylvania office, it will be noted that the call would be routed from the "district selector" to an "incoming selector" in the same office and thence to the particular "final selector" in which the desired subscriber's line is located.

As soon as the subscribers have completed conversation and hung up their receivers, the connection through the automatic machinery is immediately disconnected and the apparatus returns to normal.

Automatic Completion of Call Closely Resembles Procedure in Manual Operation.

Those who are familiar with the manual switchboard will doubtless be impressed, from the description given of the completion of a call, with the rather striking similarity of the prog-

ress of a call through the full mechanical and manual systems. It may be interesting, therefore, to carry this comparison further.

As mentioned, aside from the dial, the automatic and manual subscribers' telephone sets are very similar.

With the manual system, when the subscriber removes his receiver from the hook it causes the apparatus to light a lamp associated with the answering jack. The operator on noting the light, takes up a cord and plugs in. With the mechanical system, the removal of the receiver causes a "line finder" to take up the subscriber's line in readiness for the next operation.

With the manual system, the operator next throws a listening key and notifies the subscriber she is ready to receive the call by saying, "Number, please?" With the mechanical system, the "sender selector" proceeds to attach an idle "sender" and this "sender" indicates to the subscriber that it is ready to receive the call by sending out the "dial tone."

With the manual system, the subscriber next gives his order orally to the operator. With the mechanical system the subscriber by means of the dial gives the number electrically to the "sender" by pulling the letters and numerals of the number as already described.

With the manual system the operator knows from the office name that has been given, the proper routing of the call. She gives the number desired to the incoming operator ("B" operator) at the distant office, obtains a trunk and connects it with the calling line by plugging in with the other cord of the pair she previously used in answering. With the mechanical system the "sender" upon receiving the office code from the subscriber's dial, recognizes its significance and causes the "district selector" to select an idle trunk leading to an "incoming selector" at the desired office.

With the manual system the incoming operator at the distant office locates the desired subscriber's number in the multiple before her. She tests the line to see if it is busy and if it is not busy she inserts the plug of the incoming trunk in the multiple jack and the ringing is started automatically. If the



Figure 22. New buildings now nearing completion at the Western Electric Company's Hawthorne plant to be used for the manufacture of machine switching equipment.

line is busy, she plugs the trunk into a jack which sends back the busy signal. With the mechanical system, the "sender" causes the "incoming selector" to locate the group of trunks leading to the "final selector" caring for the particular 500 lines in which the desired number is located, and causes the "final selector" to locate the line desired. The "final selector" tests the line to ascertain if it is busy, and if it is not, establishes the connection and ringing is started automatically. If the line is busy the selector will not establish the connection, but will give a busy signal to the calling subscriber.

Interesting and Ingenious Apparatus Employed.

Illustrations of the various pieces of apparatus which we have referred to are shown in Figs. 5 to 11. For installations in the largest cities, the "translator," which forms a part of the sender, consists of a selector similar in general to the selectors illustrated.

A detailed description of each unit employed would, of course, be impracticable in this connection, but we will refer very briefly to one or two items of equipment which are of exceptional interest.

Glancing at the photographs of the typical selector frames, Figs. 8 and 9, it will be seen that these frames are made up of "banks" arranged to accommodate one hundred circuits. It will also be noted that five of these "banks" are provided one above the other. Rods are furnished equipped with five "multiple brushes" which travel over the contacts of the "banks," the rods being elevated by means of rollers at the base of the frames. These rods, with their multiple brushes and control mechanisms (see Figs. 10 and 12), constitute what have been referred to as "selectors."

The "banks" shown in Fig. 13 are interesting in that they correspond closely to the multiple in the ordinary manual switchboard. That is to say, lines or trunks are connected to the multiple terminals on the "bank" in much the same manner that they are connected to the multiple jacks in the manual switchboard.

Another very interesting piece of apparatus is the "sequence switch," as shown in Figs. 14 and 15. This switch is probably one of the most ingenious devices involved in the mechanical system and performs in a very simple manner, what had previously been accomplished by the utilization of large numbers of relays. Its use has also made possible a more positive timing of events than could otherwise be obtained. For example, if it were essential for a certain circuit to be closed just before some other circuit, it is simply a matter of cutting the "cams" on the sequence switch, a sample of which is shown in the photograph, in a certain way, and the order of events is assured. By this simple device, therefore, thousands of combinations of operations may be established at will.

It will also be interesting to note that the various machines are not in general "stepped" along by the electrical impulses, but are power driven, the "selectors" being started and stopped at the desired trunk or line, in accordance with the electrical impulses which are always under control of the "sender."

Manual Positions Required in Automatic Offices.

While regular calls between two subscribers will be completed under the new system without the aid of operators, certain classes of calls, such as toll calls to suburban points and calls for discontinued or changed numbers will require the assistance of an operator. Special manual positions will, therefore, be provided in the automatic offices for this service. These positions will also care for cases where subscribers desire, for any other reason, the assistance of an operator. In such cases the subscriber will use the hole of the dial marked "operator." The manual positions will also be used for the handling of traffic from coin boxes when these are operated on a manual basis. In certain of the automatic offices, centralized information desks will be provided for furnishing the various classes of information required by the public. In some machine switching offices, so-called "cordless B" positions will also be provided initially, to care for calls from the existing manual offices as described more in detail later.

The manual positions installed in the automatic offices for handling toll calls to suburban points, as well as for completing connections from pay stations, etc., will in general be operated on a "semi-mechanical" basis, that is to say, the operator will be provided with numerical keys for completing the connection to the mechanical apparatus. By setting up on her keyboard, a

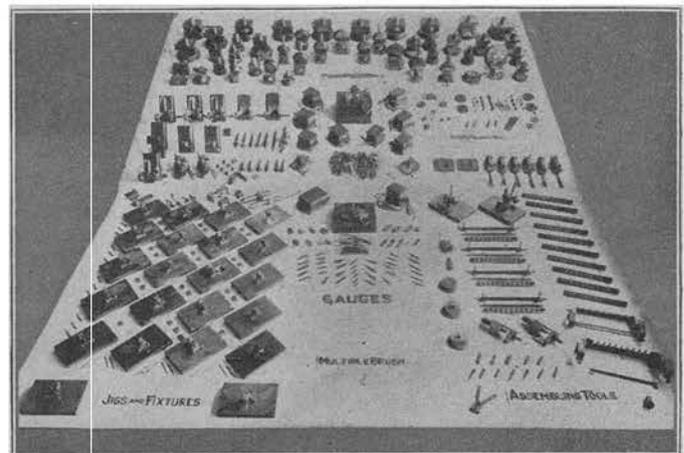


Figure 23. Tools and gauges required for making multiple brushes. One of these brushes appears in the foreground and is also shown in Fig. 24.

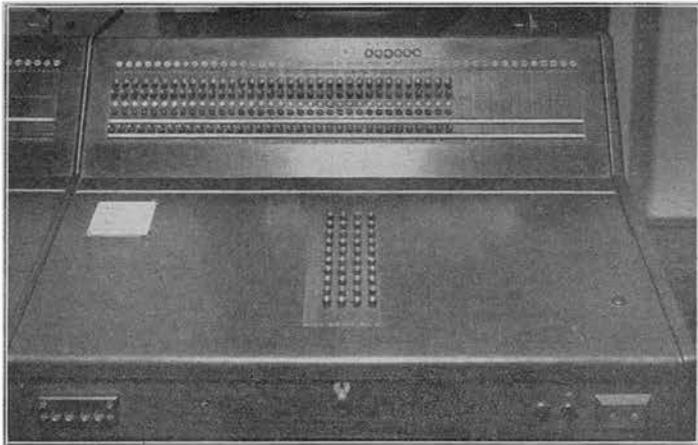


Figure 18. Incoming trunk position ("cordless 'B'") in a machine switching office.



Figure 19. Typical installation of Cordless B positions in a machine switching office.

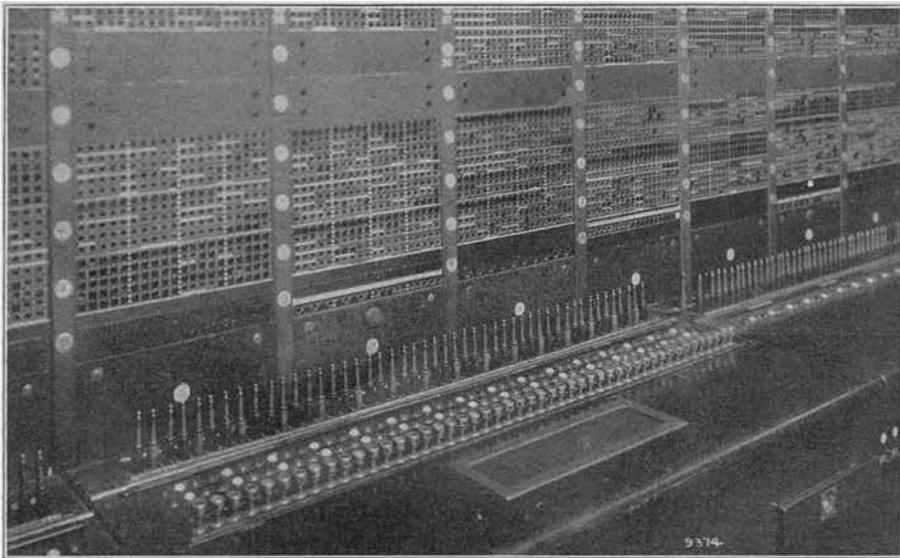


Figure 20. Incoming trunk position in a manual office arranged for "call indicator" operation.

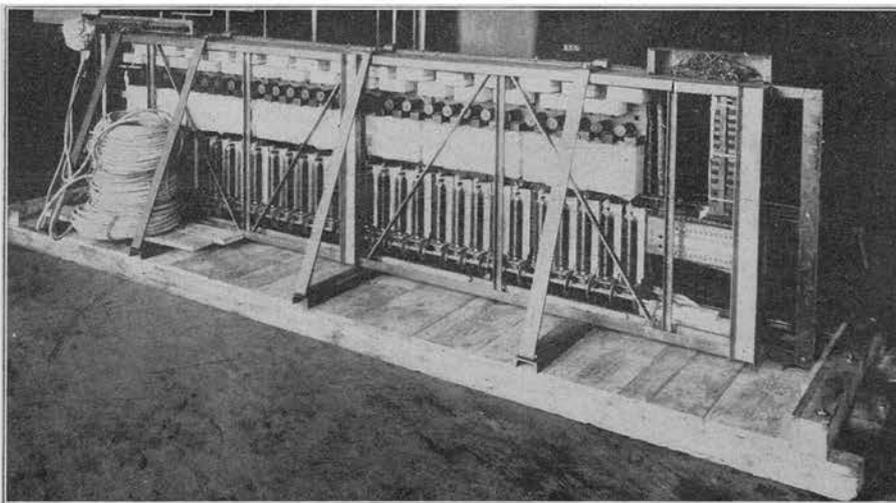


Figure 26. Sequence switch frame completely equipped and braced ready for packing.

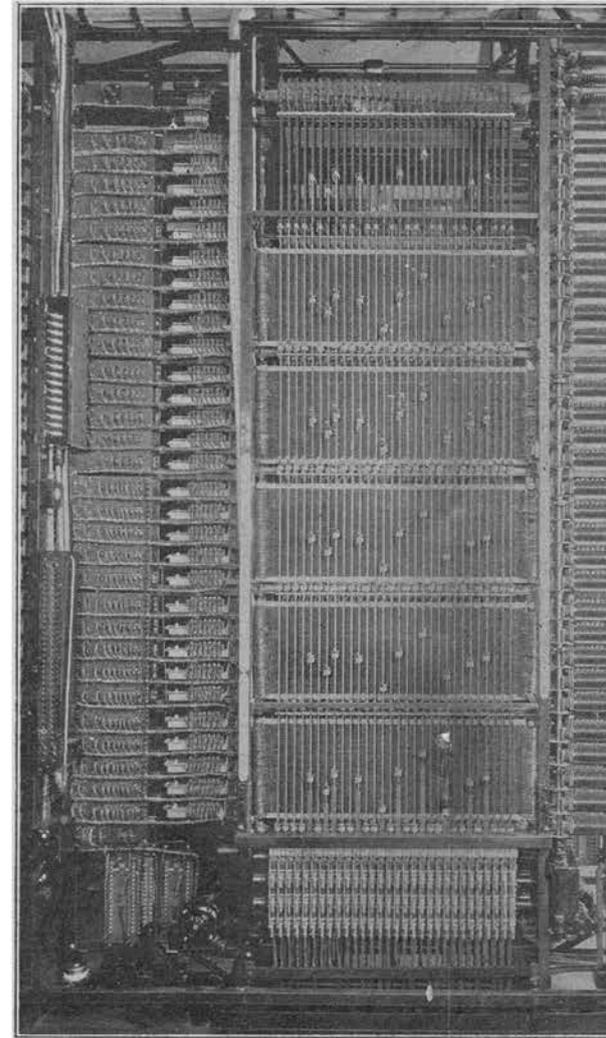
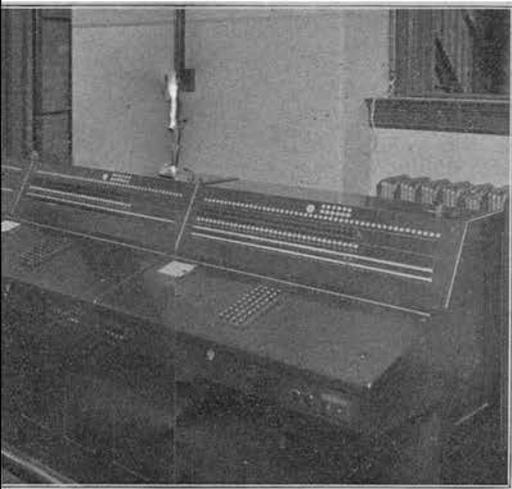


Figure 8. Typical selector frame showing general arrangement of incoming and final frames.



Class B positions in a machine switching office.

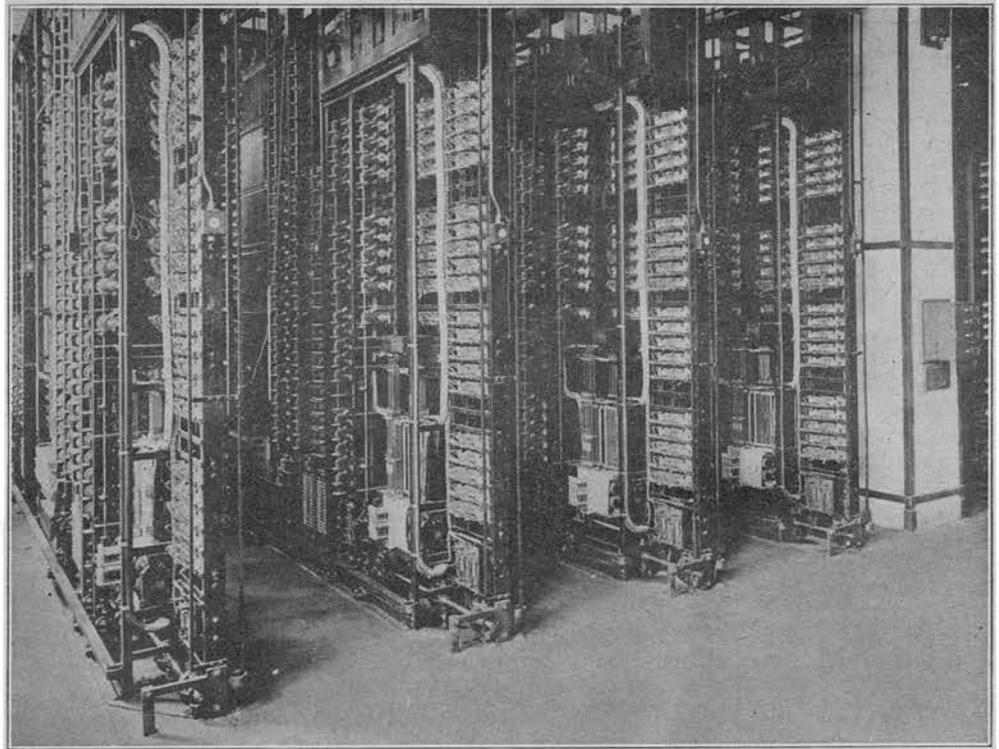
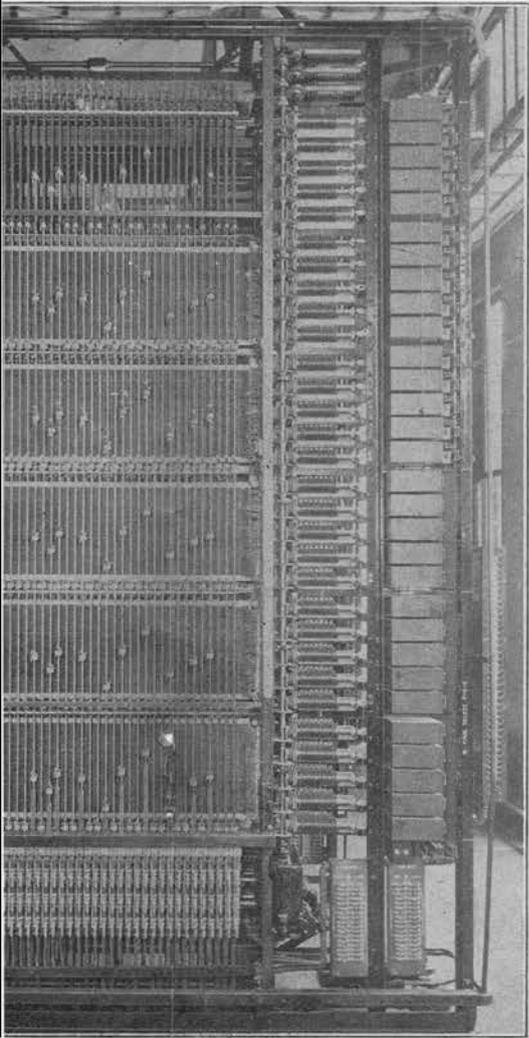


Figure 11. General view of machine switch installation.



Same showing general arrangement of district, office, in-

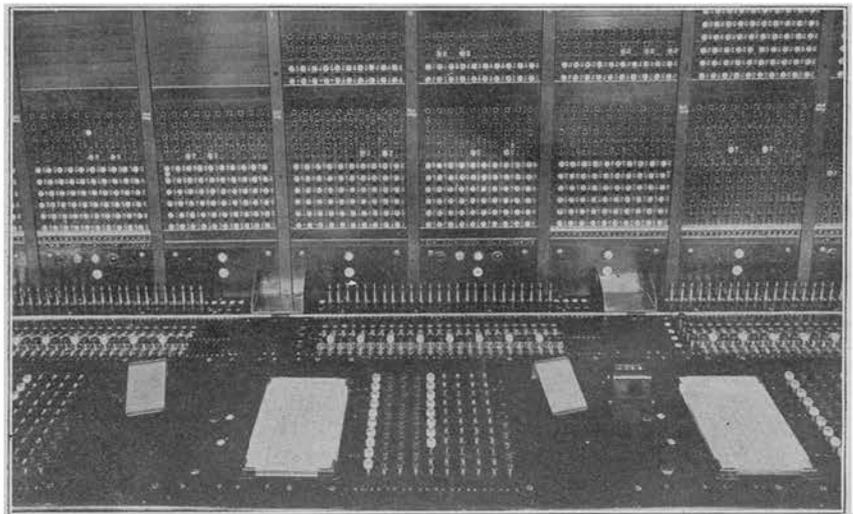


Figure 16. Manual position in automatic office arranged for semi-mechanical operation.

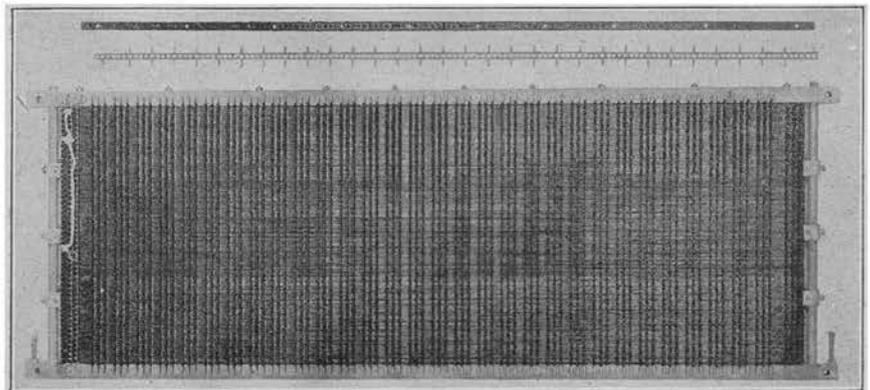


Figure 13. Multiple bank showing individual insulating and terminal strips.

photograph of which is shown in Fig. 16, the first three letters or numerical code of the office desired, followed by the numerals and party-line letter if to a manual office having such party-line service, the call will be completed automatically to the desired office, and if the latter is of the machine switching type, automatically through the switches to the called subscriber's station. If the distant office is operated on a manual basis, the call will appear before an incoming operator at that office on a "call indicator," as described later.

As the semi-mechanical operators will be unable to readily identify the calling subscriber, as is possible today due to his line terminating directly before the operator on an answering jack, a so-called "checking multiple" is provided at the semi-mechanical position. On suburban calls the operator may thus readily check the calling number as given by the subscriber, and insure accuracy in the billing record.

Automatic and Manual Switchboards Interconnect Without Difficulty.

In connection with the introduction of automatic switchboards, the question naturally occurs to one not familiar with the system, as to how calls are to be completed from a mechanical office to a manual office or vice versa. This need cause no concern, however, for the automatic system has been so carefully worked out, and the methods of connecting it with the other types of switchboards have been so perfected, that the different forms of equipment will interconnect without difficulty. In fact, a subscriber connected with one of the new automatic switchboards does not need to know whether the subscriber he is calling is connected with another automatic or with a manual switchboard. Conversely, a subscriber connected to a manual switchboard does not need to know which type of switchboard the party he is calling is connected with.

Considering first calls from a manual to an automatic office, one of two general methods will be employed, depending on the particular conditions encountered. Where the volume of traffic to automatic offices is considerable, or the manual switchboard is to remain in service for a reasonable period, the position will be equipped with a ten button key, as illustrated in Fig. 17, and on receipt of a call, the operator will select the office desired by means of one of the keys formerly used as a calling circuit key. This operation will automatically select a trunk to the automatic office and will indicate the number of the trunk chosen by lighting lamps in the face of the switchboard before the operator. She will then play off the telephone number desired on the ten button key, take up the trunk indicated with the other end of the cord pair with which she answered the calling subscriber and the connection will be completed automatically through the switches at the automatic office to the subscriber's station desired.

In special cases where the volume of traffic to automatic offices is small or the manual switchboard is soon to be replaced due to it becoming inadequate, the operator will complete the call over a calling circuit to an incoming operator at the machine switching office in the same manner as she would to another manual office. The incoming operator occupies what is known as a "cordless B" position, since it has no cords, and she simply completes the connection through the mechanism by playing off the desired number on a set of keys before her, which resemble in some respects the keys of an adding machine. Photographs of typical "cordless B" positions are shown in Figs. 18 and 19.

On calls from automatic to manual offices, the automatic subscriber will dial the number in the same manner as he would in making a call for another automatic subscriber, but the machinery will select a trunk to the manual office (see Fig. 4) and light a lamp associated with the trunk indicating to the incoming operator that a call is waiting. The operator will then depress a key associated with the trunk and the number dialed will be displayed in lamp signals before her. The displaying of

the number will be accomplished by a device known as a "call indicator" corresponding somewhat to a "carriage call," but which differs materially in its arrangement, as shown in the photographs, Figs. 20 and 21. The call is thus received visually and not orally by the incoming operator. Upon noting the trunk selected and the number displayed on the indicator, the operator completes the connection to the desired line in the multiple before her. If the line is found busy, she inserts the plug of the incoming trunk in a busy back jack sending back the busy signal to the calling subscriber. The machinery has been so designed that when more than one call is received at the same time at these incoming positions, the additional calls are stored up in the mechanisms and in turn displayed on the indicator as the operator has disposed of the preceding calls.

Changes Required in Toll Equipment.

The "tandem" toll boards now operating in most of the large cities on a manual basis will be replaced by machine switching equipments. In some instances, the through call will be completed entirely by the automatic equipment, while in other cases the services of an operator will be required for completing the call from the tandem point.

In the case of the toll boards at which calls to long distance or other points beyond the suburban area are completed, no radical changes will be required at the present time. It appears that the only changes necessary will be to modify the recording trunks from the local offices over which the subscribers pass their toll calls, and also to arrange for the toll operators to secure connection with subscribers' lines in the automatic offices. To establish such connections one of the two methods outlined above for handling calls from manual to automatic offices will be employed.

Means No Radical Change in Private Branch Exchange Equipment or Operation.

The introduction of machine switching central offices will not require any radical changes in the equipment or operation of private branch exchanges. The private branch exchange positions must, however, be equipped with calling devices to permit of the operator completing outgoing calls and the circuits must be so arranged as to function properly with the automatic central offices. Furthermore, in some cases the circuits will have to be modified so that private branch exchange stations can call for a trunk and do their own dialing to the central office. These changes in the private branch exchange equipment will, in some instances, be made without removing the switchboards, while in other cases, particularly on the smaller installations, new switchboards having the desired features will be installed and the boards removed will be utilized in districts having manual central offices.

Tremendous Task for the Western Electric Company.

It will be interesting to refer briefly in this connection to the wonderful work which has been and is being carried on by the Western Electric Company in the production of this apparatus.

The engineers of the Western Electric Company have had a formidable task in their work in relation to the design of new apparatus and circuits to meet the requirements of the new system as determined by the engineers of the general staff of the American Telephone and Telegraph Company. Following this work of design, exhaustive tests of all new apparatus have been carried on in coöperation with the American company's engineers. Notable work is also being done in analyzing the detailed requirements for individual installations as ordered by the associated companies and in the preparation of comprehensive specifications for the manufacture and installation of these equipments.

Splendid work is also being done by the manufacturing department of the Western Electric Company at Hawthorne, Ill. To provide the machine switching equipment a large amount of already available space is being utilized and five new buildings

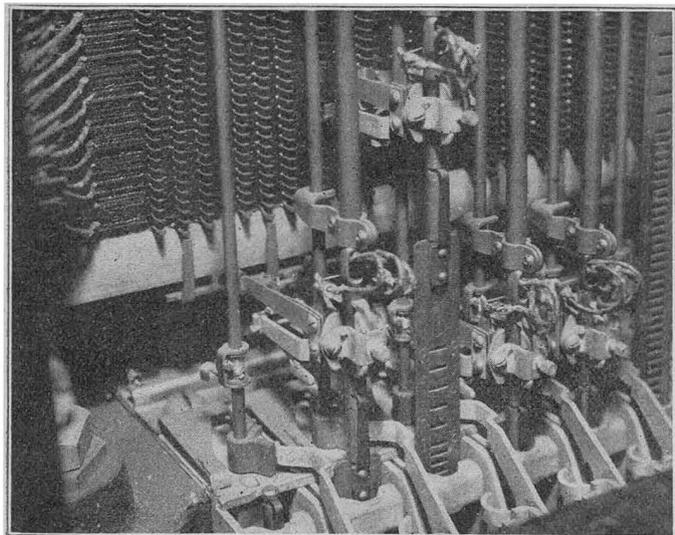


Figure 12. Selector frame showing details of multiple bank, multiple brush, and part of control mechanism.

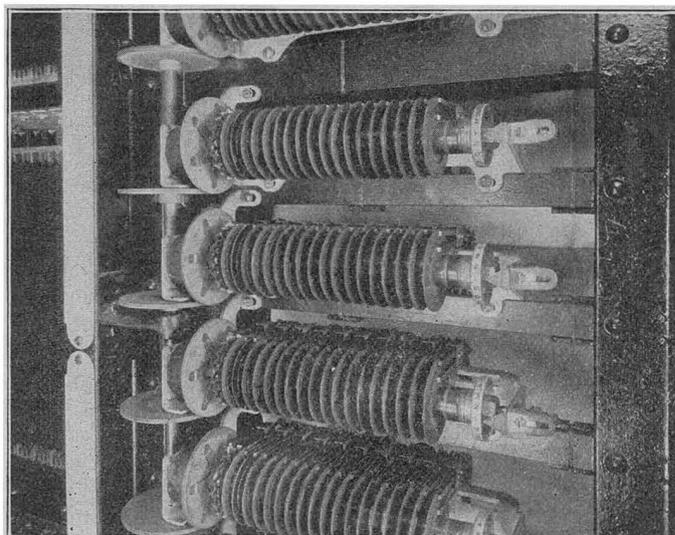


Figure 15. Sequence switches mounted showing constantly revolving drive shaft and magnetic clutches by means of which the sequence switches are revolved.

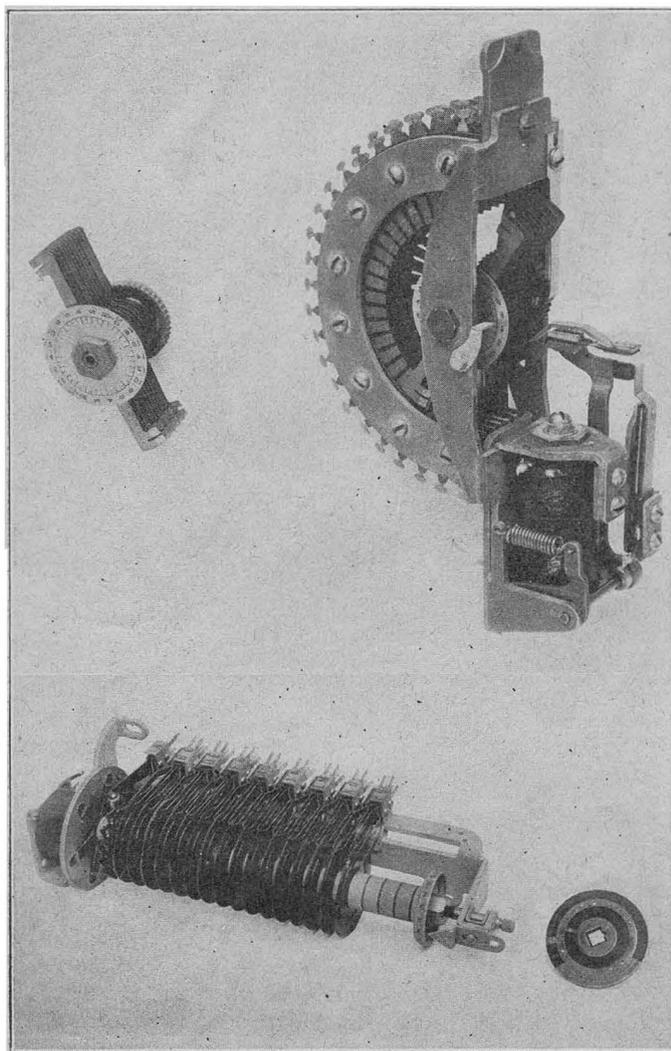


Figure 6. Rotary switch used for sender selectors.
Figure 14. Sequence switch, also showing a typical cam.

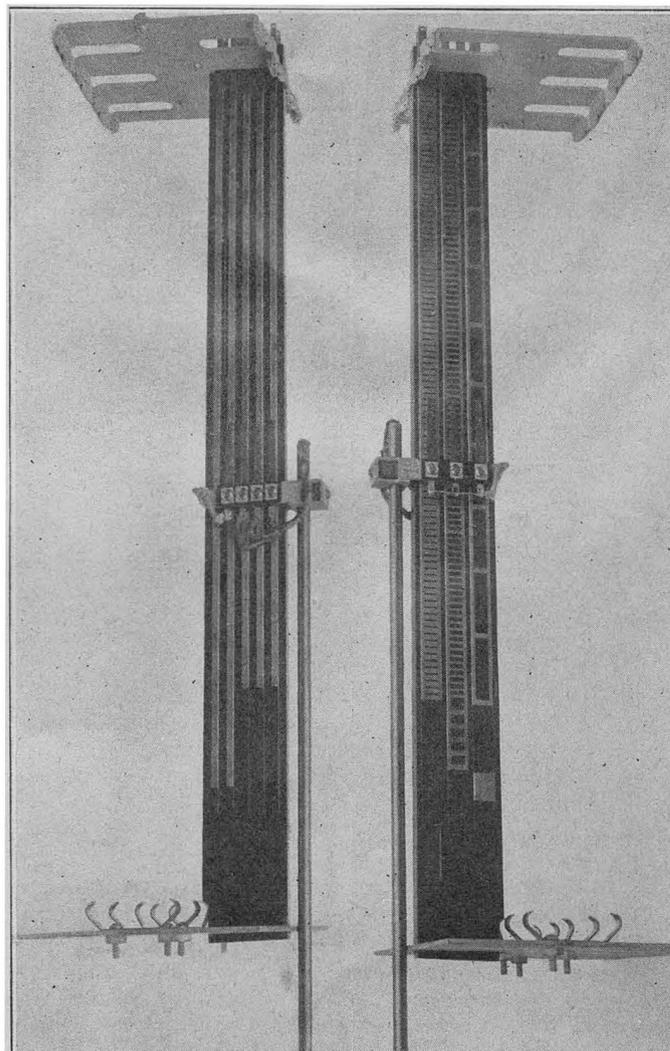


Figure 10. Commutator for controlling vertical movement of selecting mechanism.

(see Fig. 22) are rapidly nearing completion. Three additional six-story buildings will also be added to the main telephone apparatus group in the near future. The gross floor space of these three buildings alone will be 277,640 square feet, or nearly six and one-half acres. These various buildings together with their tools, machinery, furniture, etc., will constitute a very great addition to the manufacturing capacity. As the output of machine switching equipment increases and that of manual switchboards diminishes, many of the existing buildings and machines at Hawthorne will be turned into the production of machine switching equipment.

To produce this new form of apparatus means a tremendous manufacturing task. Three thousand new piece parts involving some thirty-six thousand manufacturing and inspection operations, have had to be made. This means that working drawings had to be prepared, manufacturing methods had to be developed, thousands of new tools had to be designed and built, additional machinery had to be provided, testing gauges had to be devised and thousands of other small but vitally important details had to be taken care of.

There is no more striking way of setting forth the magnitude of this manufacturing problem than to call your attention to the photograph, Fig. 23, showing the tools, test gauges, etc., required to produce the simple "multiple brush" which forms a part of the "selector" referred to above, and which is shown in Fig. 24. A study of these pictures and the recollection of what a small part of the complete machine switching office the "multiple brush" constitutes, it being only about as large as a key, will give a better conception of the problem of manufacturing equipment of this kind than could be obtained from pages of descriptive matter.

To facilitate the installation of these intricate machine switching equipments, the Western Electric Company has given careful consideration to the assembly of the equipment as far as practicable in the factory. Very gratifying results have been accomplished in this direction, and as shown in the illustrations,

Figs. 25 and 26, many of the frames are being assembled and wired in the shop and shipped complete with their cables attached. By shipping the equipment in this manner, the period of installation will not only be reduced, but the work will be greatly facilitated and other advantages will be obtained.

Opens Up New Fields of Endeavor For All Employés.

From the brief description of the machine switching system which we have given, it is evident that the introduction of this new form of telephone equipment and service will involve a vast amount of work on the part of all departments in the associated companies. As with any great project, this cannot be accomplished without a full concentration of effort and all departments must perform their functions in a most thorough and coöperative manner. It will be apparent, therefore, that new and interesting fields of endeavor have been opened up for every employé in the Bell System, for whether a member of the traffic, plant, commercial, engineering, accounting or other organization, the introduction of machine switching operation will present to each some new and interesting problems which must be solved. Although the use of machine switching equipment will not make it necessary to continually add such large numbers of operators to the force as heretofore, the constant growth in the system and the need for operators to cover the special positions in the machine switching offices and in the toll boards will evidently require the services of our operators.

This article could not be considered complete without an acknowledgment of the splendid work already done by the traffic and equipment engineers of the associated companies in the formulation of plans for specific offices, as well as by the other departments in so far as they have been concerned. Enough has already been accomplished to demonstrate that the introduction of this new system will be carried on successfully in the usual Bell way, that is, in an economical and orderly manner, without inconvenience to the subscriber, and without derangement or interruption of the service.

Hoffstetter Wins Art Popularity Contest

Fred Hofstetter has the honor of receiving the highest number of votes for the most beautiful production in the exhibition of pictures recently held in the Bell Forum. His oil painting "Sunset" carried the day. This picture is one of two purchased by the traffic department for hanging in the traffic rest rooms. The other fortunate artist is Mrs. Jane McBratney, whose "Indian Warrior" has fine decorative quality.

A number of other offerings in the exhibit received votes. Those which ran the highest were "Goose Girl," a water color by Miss Laura Brey; "Lilacs," an oil by Fred Hofstetter; "Winter Day Forest Preserve," an oil by E. G. Drew; "California Scene," a photograph by Miss Etta Dwyer; "Edgebrook," a photograph by J. J. Riddle, and "Baby Girl" in pen and ink by Miss Mabel Svenson.

Mr. Drew was elected president of the Business Men's Art Club in March at a meeting held in the Hamilton Club. T. V. Field, H. C. Howard and V. Ray are charter members of the organization. The club is composed of Chicago business men and is believed to be the only one of its kind in the nation.

Bell Traffic Club

The Bell Traffic Club held its March meeting on Wednesday, March 17th, in the Bell Forum. The dinner and table decorations were appropriate to the day.

Mr. Cloyd of the suburban traffic department read a very interesting paper on "Service Criticism."

After the meeting the members attended the performance at the Palace Theatre.

At a special meeting held March 1st J. B. Davenport of the

city traffic department, J. W. Wolcott of the suburban engineering department, W. R. Hutchinson of the suburban traffic department, were elected to active membership in the club.

The next regular meeting will be held Tuesday, April 20th. C. M. Conway will be the speaker.

Bell Telephone Chess and Checker Club

The tournaments held March 12th resulted as follows:

Class "A"—First, F. J. Golden; second, A. J. Scott; third, G. Lester.

Class "B"—First, J. O'Grady; second, T. Trainor.

Classes "C" and "D"—First, J. Zanrzla; second, D. L. Cowlin and L. A. Gordon, tied.

No chess tournament held. The next tournament will be held April 16th at 6:30 p. m., in the fifth floor clubroom.

Asks Fair Deal for Utilities

In a plea for a fair deal on the part of municipalities toward utilities, Chairman William M. Smith of the Michigan Public Utilities Commission said that when the proper attitude is reached the utilities will not have to pay a high rate of interest because of the low value of the bonds on the market, which will work to the advantage of the people of the municipalities themselves.

Speaking before a large number of business men in Saginaw, he pointed out that the old days of the franchise have expired and that conditions have undergone a change. He said the public utilities must have enough revenue to pay good wages, maintain the plants in good shape, set aside for depreciation and pay a fair return in dividends.

John L. Spellman, Publicity Manager

B. E. Sunny has announced the appointment of John Lawrence Spellman as publicity manager of the Chicago Telephone Company and the Wisconsin Telephone Company, succeeding Clifford Arrick, who resigned to accept the vice-presidency of the National City Bank of Chicago. Mr. Spellman was born in Chicago thirty-five years ago and was educated in the Chicago public schools. For fifteen years he has been employed by Chicago morning newspapers, most of the time in "covering" the City Hall and writing principally on gas, telephone, traction and electric light matters, in their relations with the City Council and the State Public Utilities Commission.



JOHN L. SPELLMAN.

Mr. Spellman has been employed at various times by the City Press Association, the *Chicago Tribune*, the *Chicago Record-Herald* and the *Chicago Herald and Examiner*. He was day editor of the old *Record-Herald* and retires as automobile editor of the *Tribune* to join the telephone organization.

More Records

Speaking of records for long service reminded the P. B. X. division that it has five veterans in Chicago who stand high in point of continuous service. The P. B. X. men are:

- James Hennessey, thirty-five years.
- Peter Stichter, thirty-four years.
- Otto Hild, thirty-one years.
- John J. O'Brien, thirty years.
- Matthew Phillipi, thirty years.

Although old in service with the telephone company, they are still young and active, and it is sincerely hoped that they will be with us many more years.

Bells Would Not Ring

The Cairo, Ill., exchange received a call from an uptown subscriber who had just had a telephone installed, stating that parties were calling her, but her bells would not ring.

Bert Arey, bug hunter, was immediately sent to rescue. While inspecting the ground wire which ran into a very dark basement he found that Charley Pierceall, the Kentucky speed king, had done a very good job of fastening the ground wire on a broom handle which he mistook for a water pipe.

The only thing we can say in Charley's favor is that he surely scraped the broom handle good and clean before fastening the ground clamp.

A Miracle in Michigan

Dr. Steinmetz, the noted electrical engineer, states that a message can be sent to Mars—at a cost of a billion dollars. That is theory.

Sir Oliver Lodge is attracting much attention because of his belief that he has communicated with the spirit of his dead son. He is doubted.

But the Bell System, a human, earthly affair, has established communication with St. Peter at the Golden Gate—and we can prove it.

The Michigan State Telephone Company was the medium of this marvelous feat. A patron at its Marquette office requested that the connection with St. Peter be established, and it was. If there are skeptics in any part of the United States or Canada, they are invited to ask "Long Distance" for "Joseph St. Peter, Golden Gate Hotel, Munising, Mich." (Consult directory for rates and have correct change ready.)

Economy

The following article was submitted by a Milwaukee subscriber:

Mr. Thayer (senior partner): "How do you like J. B. of inquiry department?"

Mr. Thayer (junior partner): "System personified! Economical too; economical of the most valuable ingredients in the world—'Time.' At first I was disposed to call it waste, but from my experience and yours I know it is *economical*. Keeps tab and pencil near the telephone, makes memorandum of number he wants, repeats it distinctly to operator in ordinary tone and ninety-nine times out of 100 gets party he wants. You and I have called for numbers, depending on memory to repeat them correctly to operator. If the line happens to be busy, we forget the number or transpose the figures, get the thing balled up at one end or the other of the line—lose our temper and good nature and caused irreparable *Waste*, the enemy of Economy."

Legal Department Head at Chicago

William Ruger, Jr., general attorney for the Chicago and Wisconsin Telephone Companies, was appointed to that position in September, 1919. Since the departure of E. S. Wilson last January, Mr. Ruger has been in general charge of the work of the Legal Department at Chicago.



WILLIAM RUGER, JR.

Mr. Ruger is a native of Wisconsin and attended the University of Wisconsin. He began his legal practice in 1897 as a member of the firm of Ruger & Ruger at Janesville. The practice of this firm was largely corporation law, with water power law as a specialty. After four years' residence in Milwaukee, Mr. Ruger was invited to become a member of the legal department of the Bell System.

Bell Telephone News

Published Monthly By
CHICAGO TELEPHONE COMPANY

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A. BURT, *Vice President and Treasurer*
H. F. HILL, *Vice President*
E. G. DREW, *Secretary*
B. S. GARVEY, *General Auditor*
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S. A. RHODES, *Chief Engineer*
JOHN L. SPELLMAN, *Publicity Manager*

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Why Not Be Fair?

Many of us who spent our earlier lives in small cities can remember the strenuous efforts which often were made to secure railroads for our particular localities. Often special elections were held and large subsidies voted to help pay the cost of building branch lines which would put the home town on the map as a "railroad center." Later, efforts almost as great were made to secure electric traction lines.

In those days the night when the "juice" was first turned into the electric leads and the new street lights blazed forth was a time for celebration, and in one city which the writer remembers a local capitalist who had the courage to build an electric street railway was given a tremendous public reception, with bands and speech-making, at the "opera house."

Thus it was, and perhaps still is, with new utilities. But with the established companies the story is often different. They are made the target for abuse and attack of every sort and it takes a brave newspaper or public official to raise a voice in their behalf. But the proposition is simple if considered on its merits. The utility companies only ask for the right to conduct their business on a profitable basis which will enable them to make extensions and improvements to meet the public needs and pay a reasonable return to the investors.

A grocer, a restaurant keeper, or a clothing merchant is at liberty to increase the price of his goods whenever costs advance. The landlords, as many of us are finding through unhappy experience, may also increase rents to any figure they please. The utility company, however, must pay the increased cost of everything it buys and pay increased wages to its employes, but it is not at liberty to increase the selling price of its service at will.

Every man in business as well as every laboring man knows that the price of goods and the price of labor have risen tremendously in the past five years. He must know that utility costs have also risen in the same proportion. This being the case, how can any honest man object to a reasonable increase in utility rates to meet these conditions?

Ownership of Public Utilities

The granting of better rates to public utilities is usually considered a step which benefits only a comparative few. It is generally thought that the stockholders and perhaps the employes profit by the increase. The general public often believes that its only advantage in higher rates is better service. And yet practically every citizen of the United States now owns public utility securities, whether he is aware of the fact or not.

The explanation of how the billions of dollars of securities, representing investment in public service companies, have become so widely distributed as to bring universal ownership about is shown in an analysis of the extraordinary situation by Carl D.

Jackson, chairman of the Wisconsin Railroad Commission, in which he says:

"The actual ownership of most public utilities is by the people themselves. The first liens on most public utilities are very often owned by trust companies, banks and largely by insurance companies throughout the United States. Nearly every man carries an insurance policy. The average citizen has a bank account, yet not one citizen out of a hundred realizes that in one form or another his actual savings and insurance and his wife's and children's welfare depend upon the solvency and continued operation of public utilities.

"There is probably not one man in fifty whom we meet on the street who does not own a part of a public utility, whether he knows it or not. So the questions relating to public utilities are not confined to the consumers on one side and the public utilities as such on the other, but the whole question is one involving financially nine-tenths of the entire population.

"Furthermore, public utilities should not only be solvent in themselves, but there should still remain a reasonable incentive to reasonable development along the lines to be demanded by future generations. Nothing should take place in this country to discourage individual and collective efforts along progressive lines."

Don't Miss a Sherman Rogers Article

Sherman Rogers is now probably the most useful speaker on industrial problems. He was born in a country town in Minnesota thirty-four years ago, but early his family moved to Idaho where he got a grammar school education and started while still a boy to make his own way in the Idaho woods.

He not only did the most menial work in a lumber camp, but at one time he and members of his family undertook to do business for themselves with disastrous results. After this failure he went back to work as a lumberjack, but he, unlike most of his fellows, knew something of the employers' point of view.

During the past three years Mr. Rogers has studied labor conditions as a common laborer in shipyards, stockyards, steel mills and coal mines, and has come to the conclusion that most of the industrial troubles can be cleared away by a proper understanding between labor and capital. He thinks that the ninety-eight per cent of good men on both sides are badly advised and misled by the remaining two per cent.

Since his great speech at the annual dinner of the New York Chamber of Commerce he has spoken to over 30,000 employers, and is devoting all his time to such speaking and writing. When he has sufficiently covered the field of capital he proposes going to labor with the same "get together" message.

In New York the other day, he said that as a telephone user he has the greatest sympathy with those who are responsible for giving service, and felt that the least he could do to help was to be patient. His articles as well as his speech are full of meat.

Garden Time

It's garden time again. Vegetables are still high priced, probably more so than last year. So it behooves the gardeners to raise more and better "truck" than ever this year. And beside it will do you good to hoe and dig around out of doors. Get busy before the season grows too old.

War Decorations

Enlisted men in the United States Army were not overlooked in the distribution of official honors for service in the great war. They received 57 out of the total of 78 Congressional Medals of Honor and 3,593 of the 5,109 Distinguished Service Crosses. All of the 641 Distinguished Service Medals, which were awarded for meritorious service and not for acts of valor on the battle fields, were conferred upon officers.

BELL SYSTEM'S YEAR

*Annual Report of American Telephone
and Telegraph Company for 1919*

That the Bell System has passed through the strenuous period of war conditions with its plant management and finances intact and is in a healthy condition to undertake its post-war responsibilities with a minimum of delay, is clearly shown by the annual report of the American Telephone and Telegraph Company.

H. B. Thayer, president of the company, gives an interesting history of the details and results of the year's operation not only of the American Telephone and Telegraph Company, but of the whole Bell System. The system, although made up of many separate corporate entities, operates as one organization and enjoys the benefits of one organization—unity of purpose, standardization of material and methods, a single manufacturing, purchasing and supply department and a uniform policy. It is shown that there are advantages both to the stockholders and to the public in efficiency and economy of operation, in addition to the insurance value resulting from the national scope of the utility.

The report not only shows the component parts of the Bell System and their relationship to one another, but it describes how the system functions in order that each of the associated companies should get the greatest value from the headquarters organization with its accumulated experience and abundant resource. A statement of earnings for the five months' period since federal control is given more significance than the earnings for the complete year. In normal times the margin of undivided profits at the rate shown in the five months' statement would be considered ample. It compares favorably with any similar period in the system's history, but times are not normal and the commissions are asked to protect this necessary service by granting some increased rates so that the management may be prepared for some increased expenses.

Salaries and wages have been increased to meet the present standards and are believed to be generally fair and sufficient to attract the high class of personnel which is necessary to and has been characteristic of this service.

As in the past, the actions of rate controlling bodies have, in general, been acceptable. There are exceptions, as always, but the tendency is toward more equitable and more sound treatment. It is becoming more clearly understood that in a utility of this sort, which in order to give service must expand with the growth of the community, the test of rates—assuming economy and efficiency—is the return which will attract capital.

"No man and no corporation," says Mr. Thayer, "had a right to expect to come through the great war untouched. Our greatest loss was the loss of these margins for plant growth and reserves of men and women in training. During the war the restriction on the use of capital and material, coupled with the unprecedented demand for service, compelled us in some places to exhaust our plant margins and left us at the beginning of 1919 with an actual shortage of plant to meet the then demands. By the end of the year, except in a few localities, the usual facilities were restored."

There is a heavy loss shown during the war in men and women trained for telephone work and in young men in the minor supervisory positions. "Handicapped by this lack of plant and of employes, especially supervisory officials, we entered upon the year of the greatest demands upon us," says the report. "Unavoidably, therefore, the service, particularly in congested centers, has been impaired. It is now improving, but it cannot be brought to the pre-war standard until conditions approaching

those before the war again obtain. To do as well as has been done, no body of men and women ever labored more loyally in the public service than have the thousands in this service during the past."

The report describes the functions of the department of operation, the legal department, department of development and research, and the department of accounts and finances, all of which are contributing to the development of the system so that it can meet the greatly increased demands that have been made upon it.

It is shown that the property has been maintained in accordance with the standards of the Bell System and is not allowed to deteriorate, and that additional plant is now being rapidly constructed so that in minimum time the maximum efficiency will be available.

Among the new features which are brought out in this report are automatic switchboards which have been developed by the Bell engineers and which while more expensive in first cost than manual boards, will do much to offset the increasing cost of giving telephone service.

The toll cable system is being extended westward and is expected to be completed to Chicago by 1923. In cooperation with the Cuban-American Telephone and Telegraph Company plans have been made to lay telephone cables to Havana, so that the principal places in Cuba will be in telephone connection with the principal places in the United States.

Many mechanical labor-saving devices have already been adopted to meet the shortage of unskilled labor, and other devices are being constantly studied and adapted to the needs of the business.

The report shows what is being done to provide adequate telephone plant and adequate traffic supervisory forces and operators. At one time the turnover in operators reached the rate of 80,000 a year. The adding of so many inexperienced people to the operating force reacted seriously on the service, but the turning point has been passed. Every resource of the Bell System has been brought to bear upon the service problem. In more than half the cities in the country the service has already been restored to normal, and during 1920 a return to substantially normal service is confidently looked forward to throughout the Bell System.

The stockholders are congratulated on the fact that the properties have come through the war unimpaired as to earnings. As a rule the public has been willing to pay fair rates and rate-controlling bodies ready to authorize them.

The department of development and research during the year has actively prosecuted work upon more than 500 improvements in the telephone art. The patent holdings of the Bell System have increased fully 12½ per cent during the year, and it now owns or controls, or is licensed under, more than 5,000 United States letters patent and applications therefor.

Special mention is made of the associations of employes which have been organized to maintain a spirit of mutual cooperation and confidence by providing regular facilities for the exchange of views between employes and the management.

There were 15,000 telephone men in war service from the Bell System, and practically all who have applied for reinstatement have been reemployed.

The total amounts of payment under the employes' benefit plan for pensions, sickness, accidents and death benefits during 1919 was \$2,855,008.

During the period of government control increased costs and uncertainty as to the authority of the government to fix rates resulted in failure of the government to earn its compensation. After the return of the properties to the owners a satisfactory adjustment was made with the postmaster general. At the end of the year the report shows that in the United States there were approximately 11,000 separate telephone companies. Of them 36 are associated companies of the Bell System, 9,403 independent companies whose telephone stations are connected with the Bell System and about 1,500 independent companies whose telephone stations are not connected with the Bell System. There are also a large number of rural lines and associations operated mainly on a mutual or cooperative basis and not rated as companies. Of these lines and associations there are 26,184 which connect with the Bell System.

At the end of the year the number of telephone stations which constitute the Bell System in the United States was 11,795,747, of which 7,739,159 were owned by associated companies of the Bell System. The increase in the total number of stations in the Bell System during 1919 amounted to 729,748.

There were 209,860 employes in the associated Bell companies at the end of the year, who are operating 24,162,999 miles of wire, of which 94.6 per cent was copper. The net additions to the Bell-owned plant during the year was over \$73,000,000.

For the whole Bell System with all duplications excluded the total income, including compensation, after the deduction of expenses, amounted to \$79,650,186, from which over \$27,000,000 was paid in interest and \$39,000,000 in dividends, leaving over \$12,000,000 surplus. The surplus earnings in the last five

months of the year since the end of federal control have been \$7,000,000.

The capital stock, bonds and notes payable of the Bell Telephone System outstanding in the hands of the public at the close of the year were \$1,060,000,000, while the net assets devoted to earning return on these outstanding securities amounted to over \$1,448,500,000. This is due to the fact that surplus and reserves of over \$388,500,000 had been invested in productive property.

For the American Telephone and Telegraph Company the net earnings of the year were over \$60,000,000. In round figures, the interest charges were \$15,000,000, the dividends \$35,000,000 and the resulting balance \$9,000,000, of which \$5,000,000 was appropriated to reserve for contingencies and \$4,000,000 added to surplus. The company and its predecessors have paid dividends to the public at the rate of at least \$7.50 per share each year for the past thirty-eight years, and during the past thirteen years the rate has been uniformly \$8 per share. The number of shareholders in the American Telephone and Telegraph Company was on December 31st 120,460, an increase of 8,000 during the year. To this number should be added some 9,000 employes of the Bell System who are paying for stock out of their wages. More than 19,000 employes have already paid in full for their stock and are stockholders of record. There are more women stockholders than men.

The report reviews certain questions and claims presented by C. H. Venner relative to the Atlantic and Pacific Telephone and Telegraph Company notes and includes a report of the stockholders' committee which completely disposes of this matter.

Schledorn Chicago Winner in Revolver Contest

We were aware of the ability of Bell riflemen, bowlers and others, but we did not know we had in our midst one of the best revolver marksmen in Chicago. Allow us to introduce C. W. Schledorn of the drafting division of the engineering department as an expert with the revolver. He is already known as an active member of the Bell Picture-Makers' Club. His hand-colored photographs won second prize and honorable mention at the recent exhibition.

The surprise came the latter part of March, when at the close of the United States Revolver Association's intercity match Mr. Schledorn finished with the individual high mark in Chicago. Teams representing 33 cities competed, each on its home range. The scores were all sent to the association's headquarters in Columbus, where they will be compiled.



C. W. SCHLEDORN.

Public Official Praises Operators

The following letter speaks for itself:

Mgr. C. U. Tel. Co.,
Indianapolis.

My Dear Sir:

I notice today the operator who handles my telephone, Main 2202, is so hoarse she can hardly say "Number, please."

I want to compliment you on such a loyal worker and it called to my attention that you are probably having a serious time with short help on account of sickness among your employes.

I have complained of service but I am pleased to note you are giving good service under the unavoidable conditions.

Yours truly,

(Signed)

LEO K. FESLER,
Auditor of Marion County.

Champion Pole Climber

You can talk about your champions,

Hunting game and catching fish,
Telling yarns and raisin' "taters,"

A champion for every wish,
But for just plain shooting trouble,
Chasin' shorts and hikin' poles

You must send the cup to Lawndale,
"Sidney" Hatch the title holds.

In the pursuit of his duties on March 12th, chasing wet shorts out of the junction boxes and other hiding places, Mr. Hatch had occasion to climb to a large junction box in an isolated part of the district. The wind was strong and blew the door of the box open with such force as to bend the hinges so the door could not be closed again. Mr. Hatch having on his Sunday suit including a white collar and kid gloves was unable to get around the door to the pole and would not attempt the "daring feat" of swinging down to the pole from the platform on which he stood. He called the office and informed us that he was marooned on the pole and wanted some help. Two men and an auto truck were hastily summoned to his aid and he was rescued without being injured. At present Mr. Hatch does not show any bad effects from the exposure.

Co-operation Means Strength

"The industrial strength of a community is measured by the efficiency of its public utility service. The strength of a public utility depends upon the good-will of the community and the coöperation it receives."—*Exchange*.

SAFETY FIRST and ACCIDENT PREVENTION

Member National Safety Council

"EVERLASTING WATCHFULNESS IS THE PRICE OF SAFETY. THINK OF THE LOVED ONES AT HOME BEFORE TAKING A CHANCE."

"TO MEET TEMPTATION AND TO CONQUER IT IS THE ONLY TEST OF CHARACTER. TO OVERCOME CARELESSNESS IS THE ONLY GUARANTEE OF SAFETY."

PHYSICAL ENGINEERING Cut Down the Depreciation

Most of us at some time during our service with the company have spent some time in an exchange, either furnishing service to the public or keeping the equipment in condition to render proper service.

If additional sections of "A" board are installed isn't it a fact that the older sections need considerably more attention than the newer sections? More cases of "trouble" are reported in the older sections by our operators. The repairman spends more of his time in the older sections.

With this in mind you will admit it is logical that the older person needs more attention than is given to the man under forty years of age.

Therefore, don't drag around with a chronic ailment thinking it will eventually "Come Clear." Report it to a medical "repairman" at once to locate the cause of the trouble.

This precaution may add many years to your usefulness, which is a matter so often overlooked.

The personnel and equipment of our Health Department are at your disposal for cases of this kind.

Tell About Dentistry

If you should go to a dentist today, it is almost certain he would find something necessary to do for you.

If a dentist could examine the teeth of every person in a theater tonight, he would find nearly everyone needing dentistry of some kind.

Nine people out of ten never go to a dentist until pain drives them. They neglect their teeth because they do not understand

the relation of good teeth to good health.

The world does not yet realize what dentistry can do for humanity.

Here then is a duty for all of us.

"He who knows not, and knows not that he knows not, is asleep; wake him."

We who know the benefits of dentistry must tell others.

Tell your neighbors, your friends, your own family.

Preach dentistry.

Begin today.

A FRIEND OF THE UNDERTAKER



Very much the worse for wear, but still making accidents when discovered by Accident Prevention. But it is no more.

The Automobile Hazard

Last year, 7,600,000 autos, 10,000 deaths.

Last year, maimed and crippled, This year, 9,000,000 autos, ——— deaths.

This year, maimed and crippled ———.

In Chicago, 420 persons were killed in automobile accidents during 1919; in Cleveland 136; in St. Louis 97; in the Borough of Manhattan, New York, 191 children under 15 years of age were killed by automobiles, and in Greater New York 677 persons were killed by automobiles in one year.

The National Safety Council has declared war on the avoidable automobile accident and has enlisted the aid of practically every interest concerned in a comprehensive campaign for the reduction and eventual elimination of that costly casualty breeder. You as an individual can enlist now for accident prevention.

DON'T WAIT FOR THE DAY WHEN YOU WILL BE DRAFTED.

REMEMBER THE DRIVERS ARE NOT RESPONSIBLE FOR ALL THE ACCIDENTS!

Recent Accidents

CHICAGO TELEPHONE COMPANY.

An installer picked up a hot

Just because "the whole blamed world is on the wrong track" is no sign we should go the same way and forget accident prevention.

When preachers really preach
Men really listen—
We want
Preachers for accident prevention.

soldering iron by the metal part and burned the palm of his left hand.

A P. B. X. installer was standing on a ladder testing conductors. The ladder slipped from under him and he fell to the floor, cutting his hands and lips.

A laborer was winding loose cable onto the drum of a winch by pushing the wheel with his hands. The glove which he was wearing caught between the gears and pulled his finger in. His finger was bruised severely.

A collector slipped and fell on an icy sidewalk, causing a fracture of a rib on the left side.

An equipment installer was testing for a ground on a light circuit in a fuse cabinet. The fust melted in his right hand, burning his finger.

A hoe used to remove ashes from a fire box was leaning against the boiler. A janitor stepped on the metal part, causing the handle to fly up and strike him in the face.

An operator was descending a stairway. She missed her step and fell, bruising her side.

An operator when descending stairs, slipped and fell, causing a contusion and swelling of her hip.

An operator, leaving the operating room, slipped and fell on the floor, injuring her spine.

MICHIGAN STATE TELEPHONE CO.

Detroit Construction Department

A gang of men were pulling out an underground lateral. One man was in the manhole, seeing that the cable came out properly. The sleeve of the cable broke in two, striking him above the left eye.

A man was coming down a pole when in some unknown manner his foot slipped, striking against an iron pole step.

A man was helping saw a telephone pole with a cross cut saw. His right knee was injured by being hit with the end of the saw.

An employé hit a lag bolt with a hand axe, and rust from the bolt flew in his eye.

A man was stepping poles when in some unknown manner, his hammer slipped and struck him on the left thumb.

Another employé was handling telephone poles and ran a splinter into the middle finger of his left hand. Blood poisoning set in after nine days. The man did not go to see a physician until the ninth day.

Detroit Equipment Department

An installer, while trying to remove bricks from a wall near the ceiling, in order to run an inside wire, ran a rusty nail into the index finger of his left hand.

A repairman was standing on top of a ladder and the bottom of the ladder slid on the marble floor. He fell from the ladder, injuring his back and spine.

Michigan State Plant Department

A groundman was putting glass insulators in a box. One rolled out of his hand and chipped. A chip flew into his eye.

A digging bar was driven into the ground for a brace used in

erecting a pole. A tree, which was being felled, struck a guy wire fastened to the digging bar, hurling it through the air and hitting an employé, causing a contusion of the scalp and multiple fracture of the skull.

Accident Prevention Trophies

During the month of April, the Accident Prevention Trophies of the Chicago Plant Department will be in possession of Messrs. Corning of Oak Park district, Lovell of Central Construction, and Stone of Austin exchange.

Oak Park district and the Central Construction division are in first place this month. However, Evanston district and the Cable Repair division still retain perfect records; but as they have already held the trophy for three consecutive months, the next highest in turn receives the honor of holding the award.

This is the third consecutive month for Austin. They sure know how to do it.

The standing of the various divisions for the period ending January 31st, is as follows:

Suburban Plant.

- | | | |
|-------------|---------------------|--------------|
| 1. Oak Park | 5. Hammond | 9. La Grange |
| 2. Evanston | 6. Waukegan | 10. Joliet |
| 3. Harvey | 7. Elgin | 11. Aurora |
| 4. Wheaton | 8. Special Estimate | |

Construction.

- | | | |
|-------------------------|-----------------------|-----------------------|
| 1. Central Construction | 3. Garage | 6. Building Cabling. |
| 2. Cable Repair | 4. Supplies | 7. South Construction |
| | 5. North Construction | |

Maintenance.

- | | | |
|--------------|---------------|-----------------|
| 1. Austin | 8. Main | 15. Yards |
| 2. Stewart | 9. Belmont | 16. Lincoln |
| 3. Central | 10. Hyde Park | 17. So. Chicago |
| 4. Wabash | 11. Pullman | 18. Lawndale |
| 5. Humboldt | 12. Kedzie | 19. Irving |
| 6. Edgewater | 13. Calumet | 20. Monroe |
| 7. Oakland | 14. Wentworth | 21. Lake View |

Honor Roll

<i>District.</i>	<i>Division.</i>	<i>Period.</i>
Stewart.....	Maintenance.....	15
Austin.....	Maintenance.....	15
Central.....	Maintenance.....	12
Edgewater.....	Maintenance.....	11
Humboldt.....	Maintenance.....	11
Oakland.....	Maintenance.....	11
Evanston.....	Suburban.....	11
Pullman.....	Maintenance.....	9
So. Chicago.....	Maintenance.....	7
Building Cabling.....	Construction.....	6
Belmont.....	Maintenance.....	6
Main.....	Maintenance.....	6

DO NOT USE IODINE ON BURNS



“EXCUSE IT, PLEASE!”

April, 1920.

“It looks like rain.”
“Yes, and tastes like it.”

Taking Joy Out of Life.

“The meanest man I know is a young fellow who boards with us.”

“What is the matter with him?”

“He is trying out an invention to keep subscribers from listening when a party line is being used.”—*Baltimore American*.

Auto-Preparedness

“Getting ready for the automobile show?”

“Yes, I’m negotiating a new mortgage on the home.”—*Louisville Courier-Journal*.

Not in the Other Place

An Englishwoman who is a medium says that near-beer is popular in heaven. So that’s where it’s popular?—*Louisville Courier-Journal*.

More Spirit Talk.

Mr. Tilton was surprised one morning by reading the announcement of his own death in a newspaper.

He at once called his friend, Jones. “Hello, Jones. Have you seen the announcement of my death in the paper?”

“Yes,” replied Jones. “Where are you talking from?”

The Booms That Bloom in the Spring

Some recent “nominations” for President remind us that the less there’s in a drum the louder the boom.—*Boston American*.

Operator: “Number?”

Subscriber: “66, please.”

Operator: “Busy.”

Subscriber: “Then give me 33 twice.”—*Moonbeams*.

Spring Colors, 1920

The “reds” seem blue because America proved to be not as green as they thought.—*Pittsburgh Gazette-Times*.

Up-to-Date Youth

Bobby’s father asked him when Moses lived. Bobby said he did not know. His father then read from a book: “Moses 4,000 B. C.,” and then asked Bobby why he did not know when Moses lived. Bobby replied: “Oh, I thought that was his telephone number.”

Footing the Bill

“Bill’s going to sue the Company for damages.”

“Why, what did they do to him?”

“They blew the quittin’ whistle when ‘e was carryin’ a ‘eavy piece of iron and ‘e dropt it on ‘is foot.”—*Everybody’s*.

A Book Worm

“Have you read Scott’s novels?”

“All but his ‘Emulsion.’ I have seen it advertised, but I have never been able to get a copy.”

Worthy to Wear a Crown.

“Are you sure you love your neighbor as yourself,” asked St. Peter, who was cross-examining a new arrival.

“Yes,” answered the applicant for a golden crown. “For ten years he used my telephone to carry on his business, and I never complained.”

“Enter, my good man,” said St. Peter with much feeling.—*Birmingham Age-Herald*.

College Wit

“Bridget, I don’t want you to have so much company.

Why, you have more callers in a day than I have in a week.”

“Well, mum, perhaps if you’d try to be a little more agreeable, you’d have as many friends as I have.”—*Boston Transcript*.

Dear Eddie:

Have you ever been
In close CONTACT with BELL ‘phone men?
No? Neither have I ‘till now.
And the things I’ve heard
And learned, my word,
Have deepened the LINES in my brow.

They all believe in ghosts, I’ll say,
For they speak of PHANTOMS every day;
Of course, that stuff is bunk.
And I wonder why
A TELEPHONE GUY
Is talking all times of his TRUNK.

They tell me of SNEAK CURRENTS, too;
I ‘spose they sneak on WIRES, don’t you?
But where do they sneak to, Ed?
ARRESTER is not
A TRAFFIC cop—
They never buy hats for POTHEAD.

Now HENRY is not a Ford machine
And PLUGS are not a wagon team:
No prisoner is in the CELL.
I’ll DROP a LINE
And tell the time
That BATTERY BOXES the BELL.

POLARIZED BELL is not a dame
Who gives cold shoulders to her flame,
Though he has JACK in his jeans.
SPLICING might be
A wedding, but see,
Nothing is just what it seems.

Some men, like roosters, always wear
Big SPURS upon their feet, I’ll swear
They look like Bantam games.
I think I’ll stop
Before they knock
The ‘block off your old pal James.

OF INTEREST TO OUR GIRLS

Conducted by
Mrs. F. E. Dewhurst

The Poetry of Work

Some people think that work is all prose. "If there is any poetry in life," they say, "it is to be found in the hours when we are off duty."

There are others with the blessed gift of imagination who find beauty even in "the common round, the daily task." As we spend at least a third of our time at the "daily task," it would be fortunate for us if we could have our eyes opened to the poetry of work, if there is such a thing.

A few evenings ago, a little group of people were talking about the part imagination plays in our lives and how the poet can see beauty and value in common things. "For instance," one of them said, "I suppose a poet could write a nice little poem on an old shoe."

"No doubt," said another. "I'm sure I could write one on this old teakettle. It looks battered enough and not a bit poetical, but it has made tea on many a battlefield and General Pershing himself has been refreshed by its steaming comfort."

And then they decided to see what kind of poems they could write on some common and unpromising subjects. The poem which follows was written by one of the party. Can you think of a more unpoetical object—a discarded, soiled, frayed cord!

"What the Cord Said"

"We need a new cord in Position Six," the supervisor said to repair,

As she gave in the number of a threadbare cord battered from constant wear;

The old cord sighed as it said good-bye
To its "buddies" all in a row.

"The span of our life is not very long,
But it's filled with wonder, I know.

Why, I've heard the story of many a youth
As he pledged his vows anew:

'Oh, the wondrous thing I'll do for you, girl,
When God sends me back to you.'

And I've heard the cry of a mother's heart,
As her boy called her up to say,

'We have sailing orders, mother of mine, tomorrow or perhaps today.'

I gave the news to an anxious world,
'The kaiser begs for peace and the roar of cannon and
Boom of guns in far-off France must cease.'

How I thrilled with pride when the boys came home
And the streets were filled with cheers, for I knew that many
a love-lit eye was dimmed with happy tears.

Looking back down the lane of yesterdays, the memory of the
past clings

And I take up the trail in another land,
Through the gate at the end of things."

Mrs. Carroll, now of the Chicago operators' training department, who wrote this, is the same young lady, then Miss Mulligan, who wrote the clever little poem on the "Home Guards" which we published in February, 1918.

In that poem, beginning—

"I've enlisted in an army
That wears no uniform,
But we're always out on duty
In sunshine or in storm"—

she saw something besides a switchboard and girls making connections. She saw the men over there and she saw the girls as a part of that great army—the loyal "home guard."

On this page we reproduce one of our recent advertisements. It is not a poem in words, but it is poetical in thought, for it pictures the beauty of the telephone operator's work. We can imagine an operator feeling proud as she realizes that she is such an important factor in the life of the city. She is only a girl, but by this magic instrument which she holds in her hand—this insignificant little metal plug, she can send messages through space and bring service which means safety, protection and help. In her hand is the key to the portals of speech. She opens the way, and

"The speed of the wind's
Like a snail and its pace
When matched with a word
On its journey through space."

Who can say such work is prose? It is glorious opportunity.



**Guardians of our City-
Protectors of our Homes
Aids in our Business-**

Positions now open in this
interesting profession



MILADY'S SPRING WARDROBE RESTRAINED AND REFINED IN ITS LOVELINESS

Lines Insouciant and Details Smart, but Simplicity Remains Outstanding Feature—Overblouse Effects Never More Striking—Organdy, Crepes, Voiles and Satins Developed into Charmingly Piquant Frocks

By Maude Hall

Fashion has had its spring preliminaries and the finals show modes that are refined and restrained in their loveliness. The great designers of Paris and New York seem to be in closer accord than ever, for the latest style news from France seems like a repetition of the early predictions from American centers of dress.

Some of the things that have been definitely decided are as follows:

Tricotine and serge are to be the leading materials for street wear.

Taffeta will hold undisputed sway in the realm of silks both for the house and street wear.

Long, slender lines are to be featured with some fulness, and the hipline slightly longer.

Plaited skirts with plain, tight-fitting basques will be favored among the effects that are both original and practical.

Wool jerseys will play an important part in the development of sports dresses, closely followed by rough silk fabrics.

There will be



Bodice 8705
Skirt 8638
Beading 12504
Bag 12458

Blouse 8679
Skirt 8295
Embroidery 12548

Dress 8713

Patterns for Designs

The designs shown on these pages are supplied by The Pictorial Review, New York. Patterns may be secured from any Pictorial Review agency.

a strong vogue for large and small checks.

Narrow belts and striped girdles will be equally smart.

Wraps will strike a gorgeous note.

Buttons, embroideries and braids will be in greater demand than ever as fashionable garnitures.

Frocks a la Belgique will have a commanding place along spring and summer styles. These feature an elaborate tracery of silk cord on taffeta for daytime wear and on lace or net for

evening use.

In the newest collections of buttons for spring and summer costumes many glass novelties are included. They are in all sizes, shapes and colorings. Some half-round white ones have dots of a contrasting color all over the surface, so that the effect is that of pins in a pin cushion. Other buttons of glass are cleverly covered to resemble cat's eyes or given a queer changeable effect. Among the opaque patterns the most interesting is the type which is colored and treated to resemble fancy silk. A rough surface, usually of a dark shade, represents the weave of the silk, and tiny flowers painted on in bright colors, the design of the silk.

Braid is used in many ways that justify the repeated use of the adjective fascinating. Silk soutache in vermicelli pattern is employed in the decoration of a soft brown satin with straight gathered skirt and a waist that falls almost to the hips. The sleeves, cut in one with the front and back of the waist, are trimmed with double frills of self-material, also handsomely braided. The neck is cut into a deep V and has a vest of plain georgette.

GUIDE TO PATTERNS

8705—Ladies' Long-waisted Bodice. Designed for 34 to 44 bust. No. 8638—Ladies' One-piece Gathered Skirt. Designed for 24 to 38 waist. Width at lower edge about 2 $\frac{3}{8}$ yards. The costume in medium size requires 4 $\frac{3}{4}$ yards 40-inch Georgette crepe— $\frac{3}{4}$ yard 36-inch satin— $\frac{7}{8}$ yard 36-inch lining for underbody. One of the new draped snugly-fitted bodices is combined with an

equally new wide gathered skirt to form this charming frock. The bodice is beaded in design 12504, and the beads may be jet or several colors may be combined. The bag is of velvet beaded in design 12458. The strap slippers may be of suede or kid-skin.



Dress 8722, sizes 14 to 20 years, price 25 cents.

8679 — Ladies' Tunic Blouse. Designed for 34 to 46 bust. No. 8295—Ladies' two-piece Skirt. Designed for 24 to 36 waist. Width at lower edge about 1 $\frac{1}{2}$ yards. The costume in medium size requires 5 $\frac{1}{2}$ yards 40-inch Georgette crepe. A charming frock for spring wear with one of the new long tunic blouses in kimono style that slips on over the head and fastens on the shoulders. Embroidery in design 12548 worked out in heavy rope silk adds a pleasing touch. Strap slippers of soft glazed kidskin are worn with this.

To Whiten Silk

When white silk has become slightly yellow, try adding a little blue to the last water in which it is rinsed after washing. If it is not too yellow, the blue will restore the fresh, white color.

Home Dressmaker's Corner

Charming Model for a Dressy Frock of Georgette

The desirable feature of this youthful model is that it may be developed in a variety of materials with equally smart effect. While originally it was made of beaded georgette, it can be carried out in cotton voile, silk muslin and satin. The two-piece gathered skirt may hang free at the lower edge or be tucked under. Provision is made for either a round or square finish of the neck and a vest of contrasting material may be added, if desired. If made of sheer material, a wide trimming band may be adjusted to the underbody. There is also a two-piece foundation for the skirt. Medium size requires 3 $\frac{1}{2}$ yards 40-inch material, with 2 $\frac{3}{4}$ yards 36-inch lining for underbody and foundation skirt.

In cutting the material, place the front and back gores and outer front of the blouse along the lengthwise fold, as shown in the guide. The back of the blouse and sleeve are laid with the large "O" perforations along a lengthwise thread.

The front and back gores of the foundation skirt and front of the underbody are laid with the triple "TTT" perforations along the lengthwise fold in cutting the lining, the back of the underbody having the large "O" perforations rest on a lengthwise thread.

To make the underbody, close under-arm and shoulder seams as notched. Hem the back and plait lower edge and stitch.

Next, close the under-arm and shoulder seams as notched. Turn hem in back at notches. Gather lower edge of front and back between "T" perforations and one inch above.

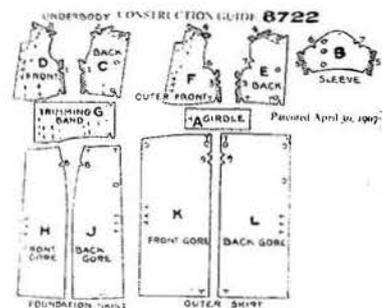
Now, take the sleeve and close seam as notched. Sew in armhole of outer waist as notched with small "o" perforation at shoulder seam and bring seam of sleeve to under-arm seam.

Adjust outer waist on underbody with center-fronts, center-backs, under-arm seams and lower edges even and stitch gathers at lower edge to position.

Foundation Skirt—Slash through the fold at center-back of back gore, from upper edge to the large "O" perforation and finish slashed edges for a placket. Join gores as notched. Gather back gore between "T" perforations. Sew foundation skirt to lower edge of waist with center-fronts even and bring back edge to center-back.

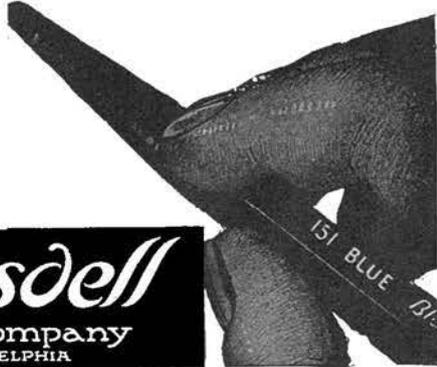
Outer Skirt—Slash through the fold at center-back of back gore, from upper edge to the lower large "O" perforation and finish slashed edges for a placket. Join gores as notched. Gather skirt at upper and lower edges between "T" perforations. Adjust outer skirt to position on foundation skirt with center-fronts and center-backs even; stitch upper edge of outer skirt over upper row of gathers in waist and bring side seam in skirt to under-arm seam. Stitch lower edge of outer skirt to lower edge of foundation skirt with seams even. If desired, omit gathers at lower edge of outer skirt and do not use the foundation skirt.

Girdle—Arrange around the waist with center-fronts even and close at back meeting the ends of girdle. Finish with a bow as illustrated on reverse side of envelope.



Blaisdell Colored Pencils

Smooth writing, long wearing, quick sharpening — the standard colored pencils for more than a quarter century.



Blaisdell
Pencil Company
PHILADELPHIA

M. J. CORBOY COMPANY

**Plumbing, Gas Fitting
Sewer Water Contractors**

178 W. Randolph St. - Chicago, Ill.

CONTRACTORS FOR

Chicago Telephone Co.'s Majestic Exchange
 " " " Austin "
 " " " Kildare "
 " " " West Pullman "

Everstick Anchor Company

ST. LOUIS, MO. LOS ANGELES, CAL.

MANUFACTURERS OF

**BLACKBURN'S
NEVERSLIP CABLE RINGS**

Harrigan & Reid Co.

**HEATING and PLUMBING
ENGINEERS**

SHEET METAL WORK

PHONE MAIN 243-244

231-233 First Street DETROIT, MICH.

ATKINS
SILVER STEEL
SAWS

On the Pole or in a Hole
linemen, electrical workers and all those who have wood or metal cutting to do under the most difficult conditions, will find that

Atkins SILVER STEEL Saws
can be relied on to do the work easier, quicker, better than any other saw.

Specify "ATKINS"
We make a better saw for every use—ask for literature—free.

E. C. ATKINS & COMPANY, Inc.
Established 1887 "The Silver Steel Saw People"
Home Office and Factory: INDIANAPOLIS, IND.
Canadian Branch: HAMILTON, ONTARIO
Branches carrying complete stocks in the following cities:
Albany, Chicago, New York City, Portland, Ore., San Francisco, St. Louis, St. Paul, Minn., Toronto, Ont., Vancouver, B. C.



B. Thrifty Says

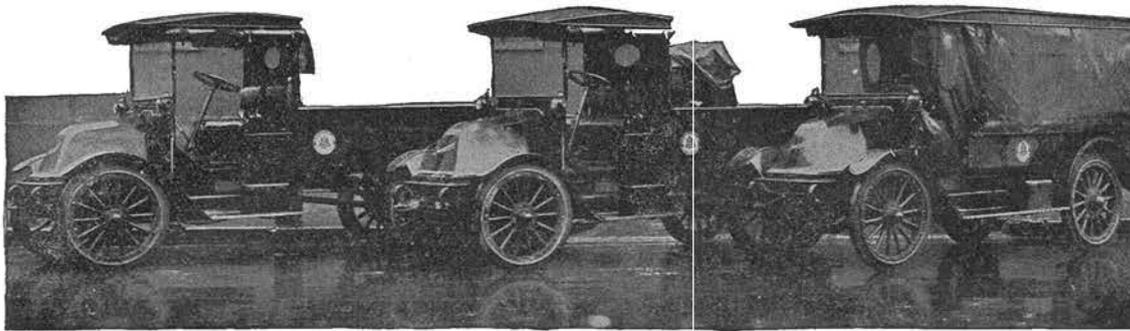
"Let the money you work for work for you."

Accounts may be opened and deposits made BY MAIL

**THE
NORTHERN
TRUST COMPANY
SAVINGS BANK**

N. W. Cor. La Salle and Monroe Streets
CAPITAL AND SURPLUS, \$5,000,000

© 1919 T.N.T. Co.



“SERVICE”

The telephone is a symbol of Service. The far-reaching Bell Telephone organization is a creator of service—and is a servant of this same service.

International Motor Trucks, like the telephone, are symbols of Service. The far-reaching sales and distributing organization of the Harvester Company, represented by 92 branch houses and thousands of local dealers, forms a solid service foundation upon which **International Motor Truck Service** attains completeness.

Bell Telephone Service supplemented by International Motor Truck Service spells “Plus-Service.”

You are interested, naturally, in such service. So are we. Do the obvious thing. Investigate.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA, INC. CHICAGO USA

A Justifiable Kick

The manager of one of the offices taken over recently by the Central Union Telephone Company furnished the following letter. It is a typical complaint of the olden days before plant maintenance repairs were made and before rural and urban subscribers understood each other very well:

Dec. 27, '09.
Line 22.

Telephone Company.

As you expect pay for the used of phone.

We expect so we can used it Sunday and today can't get no one.

We don't like to pay for nothing that don't benefit us. As we have payed for days that we couldnt used the phone this summer 2 week altogether and sure you wouldn't like too either, to pay for nothing that didn't benefit you. Remember just count off untill the line is fix.

Country-people can wait while the city people is waited upon first. Country people just as good the town people. Wasn't for the country people the town people would starve.

I ain't the only can't used the line.

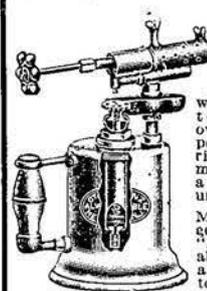
Bell News Widely Read

The BELL TELEPHONE NEWS is more widely read, apparently, than the publishing and editorial corps have known or believed. Many letters have been received lately from various parts of the middle-west relating to items that appeared in recent issues. The item of news concerning Harry D. Beattie of Grand Rapids, formerly an employé of the company but now out of the service and supporting a family by means of a magazine subscription business, although he is blind and crippled, attracted unusual attention. Mr. Beattie is being given splendid support among magazine readers who work for the company. Several of the newspapers of Michigan have published the item, while others have asked for a cut or picture of Mr. Beattie.

Blankety Blank Service

A lady in Kalamazoo stepped into a store to use the telephone. She rang a short ring and placed the receiver to her ear. There was no answer. This was repeated several times without results. Words failed to express her opinion of the service. The proprietor having had no trouble with the instrument, stepped up to see what the trouble could be. The critic had been turning the handle of a pencil sharpener fastened on a shelf near the telephone.

QUALITY, EFFICIENCY and DURABILITY



Patented
No. 65 Quart Torch
No. 66 Pint Torch

are the three essential points each telephone worker must consider carefully when purchasing tools. Some overlook these points, yet experience has taught many that such an action is unsuccessful. Merely as a suggestion, try the "Always Reliable" when you again need torches, furnaces and braziers. You will then also, be on our largest list of satisfied users.

Your nearest jobber has our goods in stock, or will stock them for you.
OTTO BERNZ CO., Newark, N. J.

Annual Concert of the Bell Telephone Male Chorus.

The annual concert of the Bell Telephone Male Chorus will be given in Orchestra Hall on Thursday evening, April 22, at 8:15.

The excellent quality of the work at rehearsals has continued and the enthusiasm and interest of the members are apparent from the large and regular attendance which, with an already well-trained chorus, assures a splendid concert. Director Protheroe, under whose able leadership the organization has been steadily advancing for several years, looks forward confidently to the best concert we have ever had.

Chicago Telephone Company employés desiring tickets should make application through their department heads. No charge will be made for the tickets, which will be given out as nearly as possible in the order in which applications are received. Department heads may obtain tickets from O. N. Olson, secretary of the chorus, Room 1001, Bell Telephone Building.

Accurate Testing Service



Weston

(Model 57)

WIRE CHIEF'S VOLTMETER

An Instrument possessing special characteristics and of exceptionally high internal resistance, which is vital in accurate telephone testing service.

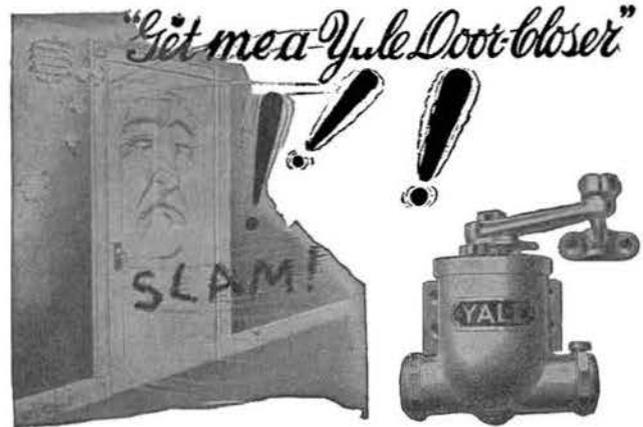
It has been found that the use of the Weston Wire Chief's Voltmeter has increased the efficiency of large exchanges 25%. The same or larger increase will apply to smaller exchanges.

Through a series of tests, for which it is specially devised, it affords an incomparable means of determining rapidly the condition of subscribers' lines.

The Wire Chief's Instrument can be put to various uses and the ballistic properties of the instrument are such as to make it particularly adaptable to measuring capacities.

Complete information concerning this and other Weston models will be sent on request.

Weston Electrical Instrument Co.
135 Weston Ave., Newark, N. J.



Any Door is a Better Door with a Yale Door Closer

Correspondence is Cordially Invited

ON every main entrance, library, kitchen, bath and screen door, there is need for a Yale Door Closer.

The Yale Reversible Door Closer comes in sizes and finished to suitably and completely fit every kind of door.

In mechanical construction and design the "Yale" is typical of every other Yale product—and proves itself better in operation and ease of maintenance in hundreds of thousands of installations under all conditions of use and climate.



The Yale & Towne Mfg. Co., Makers of the Yale Locks, 9 East 40th Street, New York City
Chicago Office 77 East Lake Street Canadian Yale & Towne Ltd., 51 Catharines Ontario

Direct Practical Comparison Tests as Well as Laboratory Tests

Have proven

Reilly's Wood Preservative
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the most efficient agent to prevent decay in telephone poles and cross arms.

That is why it is the most widely used.

Penetrates and stays in wood—no tar adulterant to clog pores—no volatile elements to dissolve or evaporate.

Treat by brush or open tank method.

If you've tried the rest—now use the best

THE REILLY COMPANY, Indianapolis, Indiana

Plants: Indianapolis Minneapolis Mobile Seattle Norfolk

PEERLESS TESTING SETS

TYPES FOR ALL CONDITIONS OF SERVICE



Peerless Testing Sets have been officially approved and adopted by the Postal Telegraph Cable Co., the Western Union Telegraph Co., and American T. & T. Co., and associate Bell Telephone Companies and the largest Independent Telephone Companies in the country.

Without an equal for accuracy of results, Durability in Service, Beauty of Design. Send for Catalogs

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the true sign of
**INSULATOR
DEPENDABILITY**
in your specifications.

THE R. THOMAS & SONS CO.
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New York Boston Chicago

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Pacific Coast-Western Electric Co., Inc.

For the Man Who Uses Tools



It's something of practical value all the year 'round.

Genuine Harness Leather Tool Bag
Made in Six Sizes

Catalog No. 17 Describes It

MATHIAS KLEIN & SONS, Canal Station 62, CHICAGO



Herhold Chair Co.

Manufacturers of
**Telephone Operator
Chairs**

1015-1025 W. Erie Street
CHICAGO ILLINOIS

Write for Catalogue

BURNLEY

SOLDERING PASTE

Is a perfect Flux. Burnley Paste cannot spill out or drip away like liquid.



It stays where you put it and follows closely the hot iron.

Send for free sample.

The Burnley Battery and Mfg. Co., North East, Pa.
WESTERN ELECTRIC COMPANY
Distributors



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Weatherproof and Bare Telephone Wire

A Guarantee for Service and Quality

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American Surety Company of New York

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Continental and Commercial Bank Building
J. L. MAEHLE, Manager

Fidelity Bonds Burglary Insurance Surety Bonds

"RED DEVIL" Extra Heavy Linemen's Insulated Side Cutting Plier

Sizes 6-7-8-9'



Forged from a special high-grade tool steel—hand-honed knives—for linemen handling live wires. It is scientific in shape and is the finest plier ever made for heavy line work. The insulation is tested to stand 7,500 volts.

SMITH & HEMENWAY CO., Inc. 125 COIT STREET IRVINGTON, N. J.
Manufacturers of "RED DEVIL" Pliers, Electrical Tools, Auger Bits, Screwdrivers, Etc.

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MORGANITE Brushes

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**Box Joint Long Chain Nose
Side Cutter**

For the Telephone and Switch-
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The long, slender nose will let you reach into
deep, narrow places that you cannot reach
with other pliers.

May we put you on our mailing list for Plier
Pointers? There's no charge to you.

Utica Drop Forge & Tool Co.
UTICA, N. Y.



UTICA No. 55
6½ inches

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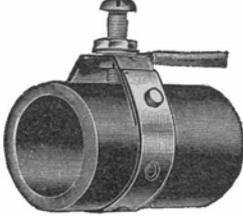
10-Inch Clipper Cut Jaws, for 3-16 in. annealed bolts in the thread, or 3-16 in. soft rivets.
Center Cut Jaws, for 3-16 in. soft rods.

14-Inch Clipper Cut Jaws, for 1-4 in. annealed bolts in the thread, or 1-4 in. soft. rivets.
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Insulated Handles if desired.

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"Easy," "New Easy" and Allen Randall Bolt Clippers.



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No. A1 Clamp Millions in Use

Why experiment with others when you can get a proven and dependable clamp for less money? It is made of copper and can be attached to any size of lead or iron pipe in less than one minute.

BLACKBURN SPECIALTY CO.
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SERVICE IS THE TEST



A Joint, stronger than the wire itself, one that is absolutely moisture proof, one that has more than ample current carrying capacity and is 98% or better in conductivity, an ideal splice, but just the average joint made every day by linemen with

NATIONAL DOUBLE TUBE CONNECTORS

MILLIONS NOW IN USE

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Blake Insulated Staples

Unequaled for telephone and bell wiring. The fibre insulation prevents troublesome short circuits and grounds. 4 sizes. Pat. Nov. 1900. Write for samples.

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We Guarantee
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Write for **FREE SAMPLE**
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Muncie, Indiana

DIAMOND GUY ROD HEAD

Weldless Threadless Thimbleless



Patented
March 5, 1918

A square-headed rod or machine bolt is easily passed through the open side of the guy head as shown in cut, until the head is seated upon the base of the guy head. The Diamond Guy Head is of high quality malleable iron, and in the $\frac{3}{8}$ " size is capable of sustaining a breaking load of 30,000 pounds, or more than double the ultimate tensile strength of $\frac{3}{8}$ " rod. Other sizes in proportion.

The advantages of the Diamond Guy Rod are:

1. No threads above ground.
2. No welds in the eye.
3. The upper yoke portion, through which the wire strand is passed, is formed in the shape of a wire rope thimble, and eliminates the use of a thimble commonly used on welded guy rods.

Diamond Guy Rod Heads are furnished separately or complete with bolts.

DIAMOND EXPANSION BOLT CO.

Manufacturers of Diamond Specialties
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Where Dependable Service Is Needed

The record that the GMC truck used by the Mountain States Telephone Company of Arizona, is making in daily work is duplicated in many other sections of the country.

For some time now there has been a disposition upon the part of many of the telephone companies allied with the American Telephone and Telegraph Company, to standardize upon GMC equipment.

To the makers of GMC trucks this is a grat-

ifying endorsement of GMC ability and stability.

There is no need to tell anyone in the telephone industry that this business demands a truck of sound, solid construction and unfailing ability to endure day after day of hard travel.

GMC trucks perform this work faithfully just as they do every other kind of hauling for thousands of users.

Let Your Next Truck Be A GMC.

GENERAL MOTORS TRUCK COMPANY

One of the Units of the General Motors Corporation

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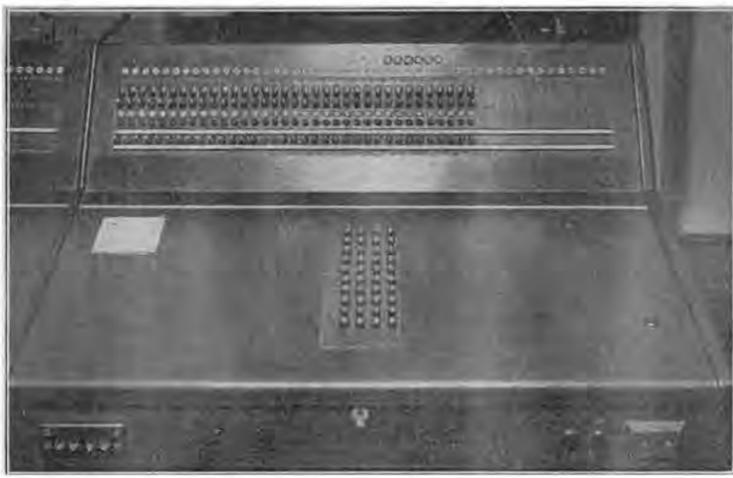


Figure 18. Incoming trunk position ("cordless 'B'") in a machine switching office.



Figure 19. Typical installation of Cordless B positions in a machine switching office.

Pages 20-21 - Complete Two-page Layout

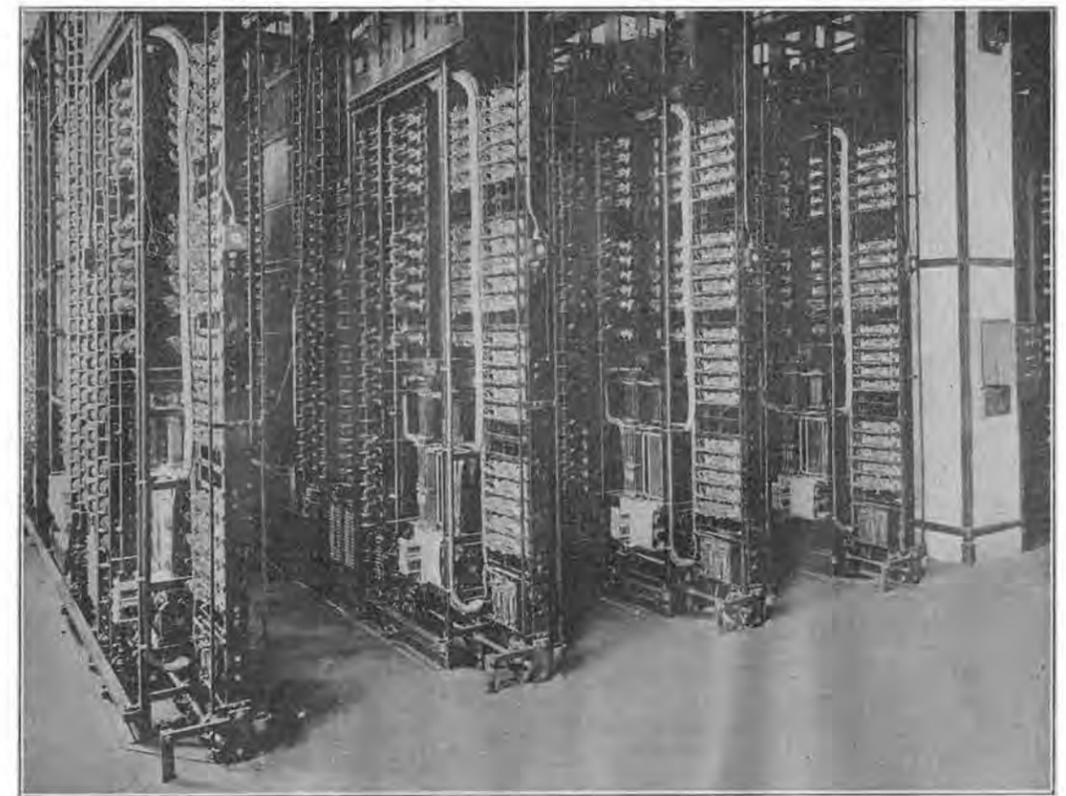


Figure 11. General view of machine switch installation.

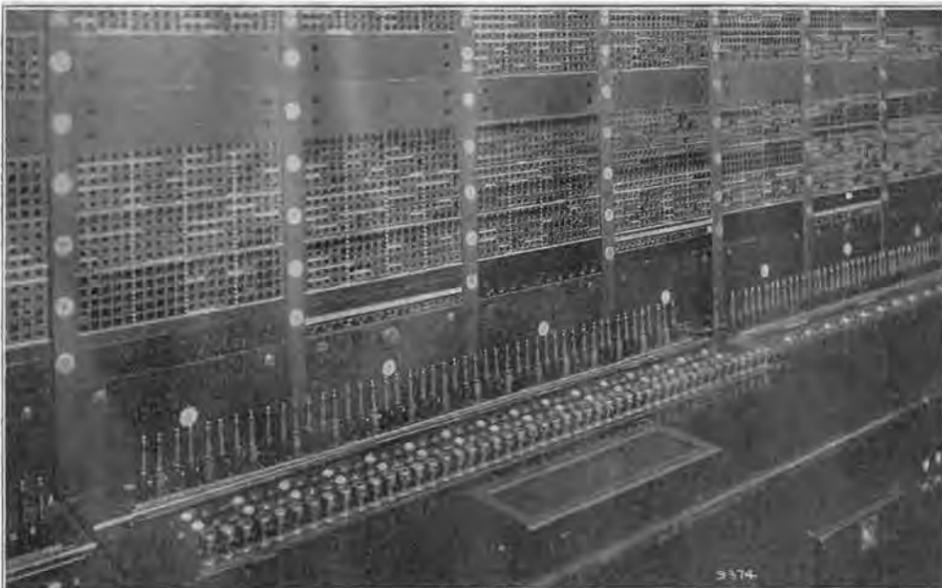


Figure 20. Incoming trunk position in a manual office arranged for "call indicator" operation.

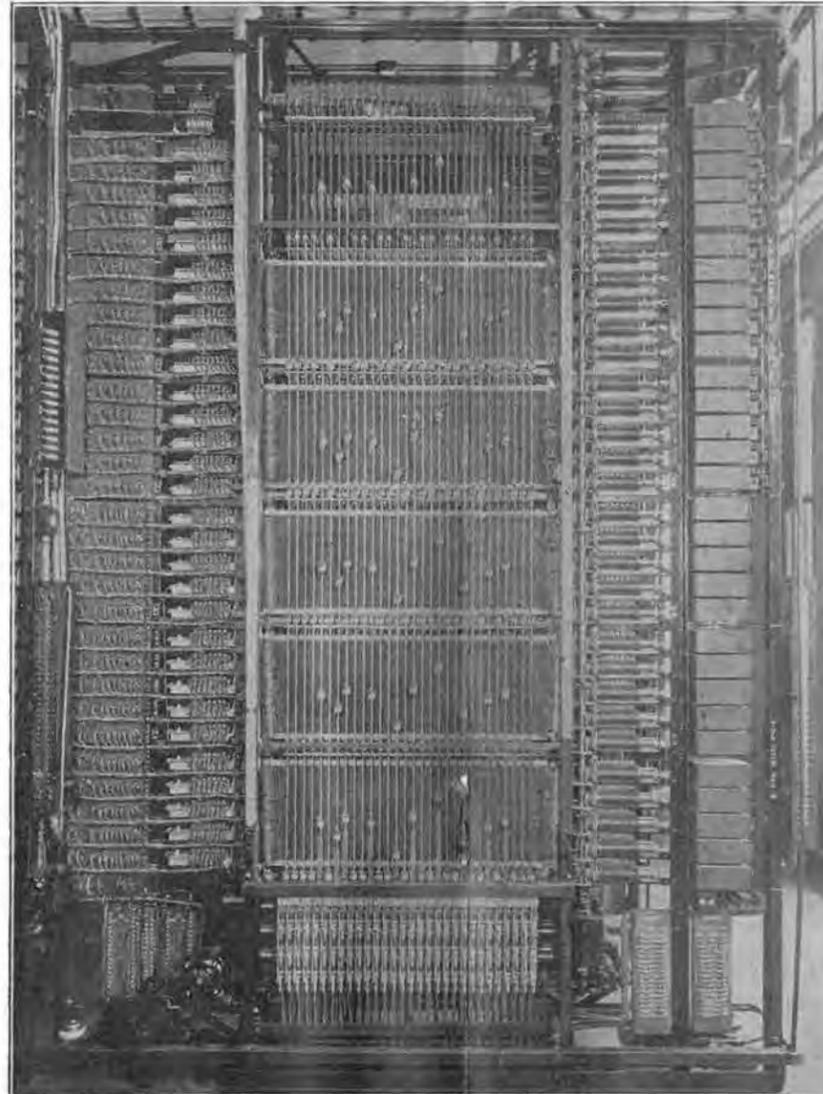


Figure 8. Typical selector frame showing general arrangement of district, office, incoming and final frames.

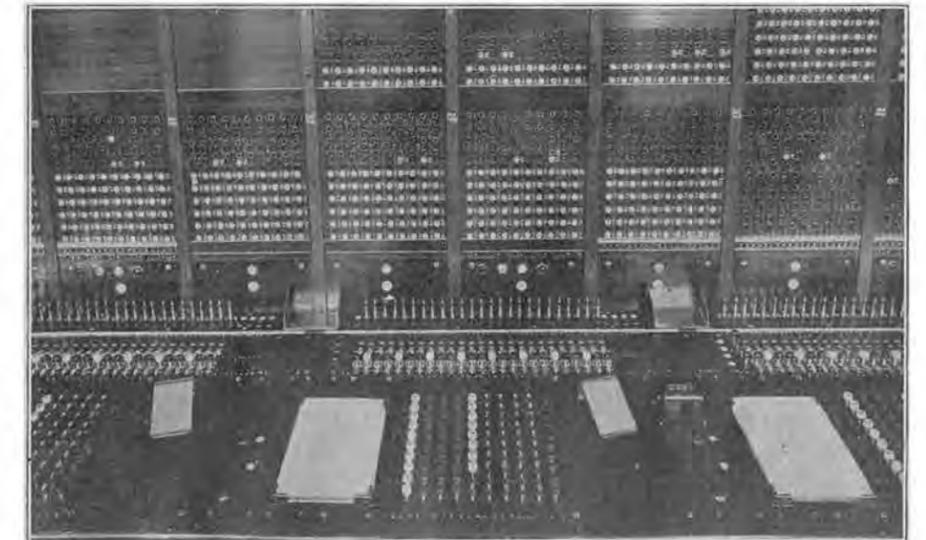


Figure 16. Manual position in automatic office arranged for semi-mechanical operation.

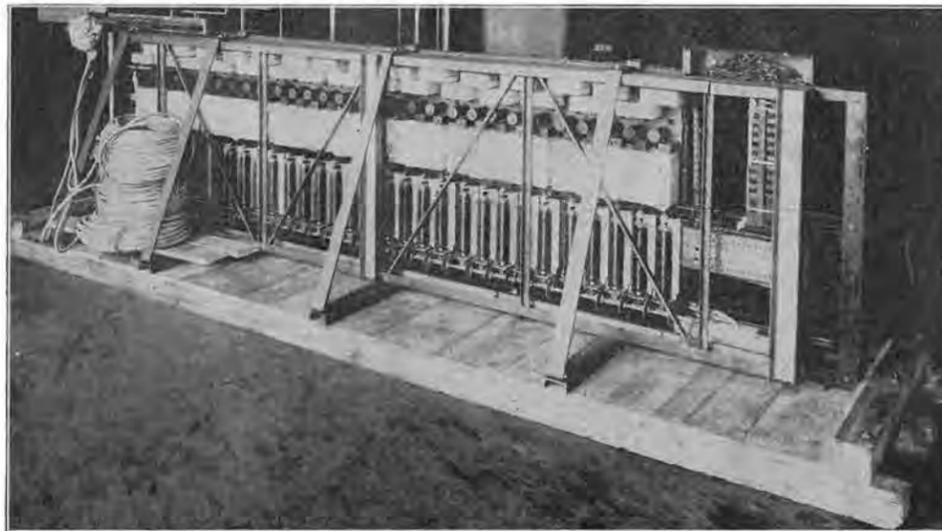


Figure 26. Sequence switch frame completely equipped and braced ready for packing.

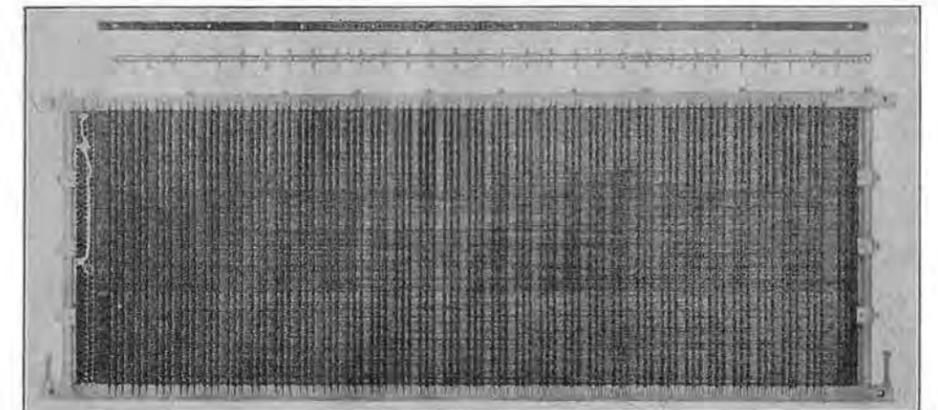


Figure 13. Multiple bank showing individual insulating and terminal strips.