THE CHANGE FROM MANUAL TO DIAL OPERATION IN THE TELEPHONE INDUSTRY

By

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LETTER OF TRANSMITTAL

UNITED STATES DEPARTMENT OF LABOR,
WOMEN'S BUREAU,
Washington, May 23, 1933.

Madam: I have the honor to submit a report on the effects on women operators of the change from manual to dial operation in the telephone industry.

The success of the industry in so planning its employment program for 2 or more years ahead that practically the only operators laid off at the final cut-over were temporary workers engaged only for the last few months, makes this a notable example of the possibilities of long-view planning in cases of technological change.

Every assistance was given the Bureau by the telephone companies in the supplying of all information desired and in granting access to records. This courtesy is gratefully acknowledged.

The study was made by Ethel L. Best, industrial supervisor.

Respectfully submitted.

MARY ANDERSON, Director.

Hon. Frances Perkins,
Secretary of Labor.
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INTRODUCTION

The telephone industry is the product of our scientific and mechanical age. It is not an outgrowth of an earlier hand industry, as is the manufacture of cotton and woolen cloth, of boots and shoes, or of furniture. Although the telephone industry sprang full-born into existence, it has been subject to the gradual changes and improvements of all growing things. The improvements have been largely technical, but accompanying these changes have been alterations in personnel, in training, in service, in the many coordinating activities of a highly developed and integrated Nation-wide service system.

In the early days telephone operators were boys, but they were often impatient and would “answer back” to subscribers. They were even known to meet afterward to fight it out with some especially irate customer. So after 2½ years girl operators were introduced, with satisfaction both to the subscribers and to the company. Before long women had for the most part supplanted the boy operators, and by 1890 there were approximately 3,000 women employed in the Bell Telephone System.¹

Of the hundreds of occupations in which women were engaged in 1930, according to the Census of Occupations,² only about a dozen employed more women than did telephone operating. Nor is the only occupation open to women in telephone service that of switchboard operator, in which such large numbers find employment. There are now opportunities for them to work as clerks, bookkeepers, cashiers, employment supervisors, engineering assistants, office managers, production supervisors, commercial managers, librarians, and research workers, and in many other positions. In short, the telephone industry, like most large enterprises, has many different kinds of work and offers a wide variety of jobs to its women workers.

It is also like other great industries in that it is constantly improving its equipment and installing the latest and best designs invented in its engineering and laboratory departments. Throughout history, from the invention of the spinning jenny or the power-driven loom in the textile industry to the most highly mechanized packing and wrapping machines of today, such changes cause a displacement of human labor by the machine. In one of the latest changes in the telephone industry, that from manual to dial operation, the same human problem of the disposition of the displaced worker is involved as in a factory when a more mechanical method

¹ Bell Telephone Quarterly, January 1932, p. 34.
of manufacture is installed. The more social the viewpoint of management, the more does the worker displaced by new inventions become a responsibility to be cared for. Because the telephone system carries science and forethought into its human as well as its technical planning, the method employed in its recent change to the dial system and the effects on the workers have been carefully examined by the Women’s Bureau. 

Technological change in an industry such as the telephone, which is already technical to a high degree, is not one to be easily understood by the telephoning public. They realize that, under the dial system, instead of calling “central” for local calls and giving the number wanted, they turn small numbers on a disk, there is a click, and the connection is accomplished. They no longer hear “Number, please?” at the other end of the wire, and if the wrong number is connected the fault does not lie with the connecting agency but with themselves. To the ordinary telephone user it seems that everything now is mechanical, whereas formerly it was human. It is not surprising that this lack of knowledge, combined with the large amount of technological unemployment, should make the dial system appear to the ordinary subscriber as an almost perfect example of the replacement by the machine of human beings. To some extent this is the case, but to how great a degree and by what careful planning and efficient work the hardship to the workers is minimized is not so clearly realized.

The technological change to the dial operating of the telephone probably is better known to the men and women of the United States than any other recent technical change, and there has been much discussion as to the numbers of women displaced by the dial and some interest as to how they fared. What actually happened to women in two cities is typical of the process now going on in many towns and cities throughout the country, and a brief description of the change may be helpful in understanding the problems incident to the cut-over from the old or manual to the dial method.

In manual operation, when a customer lifts his receiver a tiny light burns on the switchboard beside a small hole or “jack” representing the terminus of his line. An operator inserts into this jack a plug on one end of a connecting cord and asks “Number, please?” If she receives an order for a telephone served from the same office, she inserts the plug on the other end of the cord into the jack of the desired line and then rings on the circuit. Lamp signals show whether the called party answers and when the parties hang up.

Should the call be for a telephone in another office in the same city, the answering operator “passes” the call for completion to an operator in the other office, using an interoffice (trunk) line.

Intercity (long distance) calls require cooperation by at least two operators and often more. Frequently four operators are involved—a local operator answering the call and advancing it to a nearby toll operator for forwarding to a distant toll operator, who in turn passes it to the distant local operator for completion. If there is no permanent direct circuit and one must be “built up”, then an operator at each “switching point” also enters the picture.

*Described briefly, the method used was to stop adding permanent employees to the rolls as much as 2 years before the proposed change, and to take on only employees engaged definitely on a temporary basis. When the cut-over dates arrived, only four women among those on a permanent basis were laid off.*
Dial systems substitute electromechanical processes for some—not all—of these manual operations. In an all-dial area no central-office operators are required to complete strictly local calls correctly dialed. Operators are required, however, to assist customers who dial incorrectly or who need other help. In an area part dial and part manual, operators assist in completing calls from either type of office to the other. All these, as well as the local operators in the smaller cities and towns where manual operation is retained, will continue to increase in numbers as the volume of telephone traffic grows. Manual or dial, there is the same need of operators for many special services, among them interception of calls for changed or discontinued numbers and supplying information about new telephones or the numbers of those in distant places. Similarly, the number of operators handling short-haul toll calls and long-distance calls has been little, if any, affected by the dial system. The same is true of operators at private branch exchange boards, of whom there are about as many in the country as central-office operators.

The program calls for the introduction of the dial system for handling local calls in fewer than 500 of the 6,000 exchanges of the system that was studied by the Women’s Bureau. Most exchanges will not be cut over—at least, such is the present plan. But where the cut-over is to be made, infinite care and planning are being used. The change to dial was begun in 1920, and it is planned to have the conversion substantially completed in a few years.

The sample of the methods employed in making the cut-over may be regarded as typical of what is occurring in large and small communities throughout the country. In rehearsing the planning and experience of the telephone industry during this period of technological change, it is realized that much of it may not apply to technological changes in a single industrial plant. However, the general principle of long-time planning for changes, with constant care and thought for the employees affected, may be applied to any industry. Mr. Ching, of the United States Rubber Co., said in a speech in Chicago that the hardships resulting to the worker through technological changes could almost be measured by the suddenness with which such changes were effected, emphasizing further the need for long and careful planning before installing technological improvements that dispense with large numbers of workers. In the telephone industry, where every effort is made to mitigate the hardship to the workers of technological change and improvement, there is practically no unemployment except in the case of temporary employees, who know when they are taken on that the job probably will last only until the change to dial is made. The long-time planning in this instance shows that much can be done to prevent general dislocation where new and labor-saving equipment is introduced.

There are two ways of introducing a change: The entire system may be altered at one time, or the change may be gradual, with the installing of the new method first in one section and then in another.

In the present study of the change to the dial system in telephone operating, the examples described are the change of about one third of a city’s telephone stations and the change of the stations of an entire, but much smaller, city. It is apparent that the difficulties involved when an entire city is cut over to a changed method present
far more complications in adjusting the employment problem than when the change is gradual. In both cities the change was planned for more than 2 years in advance, and careful arrangements were made to eliminate unemployment, with its personal and social consequences, as far as possible.

To ascertain the effect of the change on employment, a matter of great interest to the Women's Bureau, the numbers of operators on the company's books at three dates were taken about 6 months previous to the cut-over, at the time of cut-over, and after the cut-over was established, 7 months after in one city and 6 months after in the other. The plans of the company for the change as they affected the operators were checked with care, as were also the results after the cut-over. The effect of the change on the workers who remained with the company was noted in regard to Sunday work, split tricks, and night work.

The company furnished the names and addresses of displaced operators and these women were visited in their homes about 12 months after the change to obtain information on their work experience in the period since the cut-over. Earnings of these displaced women at the time of the cut-over were supplied by the company so that they could be checked with the earnings on succeeding jobs with other employers. As all workers who returned to the telephone company in the same city were reinstated at the salary at time of leaving, no comparison was necessary for the wages of this group.

A COMPLETE CUT-OVER TO THE DIAL SYSTEM

Due to the growth of this city, a manufacturing community of nearly 200,000 population in New England, it became necessary to abandon the old telephone building and the manual type of operation and to provide suitable quarters for housing a modern telephone plant under the dial system. Early in 1927 it was determined that the change from the old to the new system should be made in July 1930.

It was estimated that the full force of employees would be needed up to the date of the conversion, and the problem was to so plan their intake and outgo before the cut-over, and the disposition of surplus after the cut-over, as to avoid laying off employees who might wish further employment. The plan adopted was to let the normal resignations gradually reduce the regular (permanent) force, but to keep the total force at full strength by replacing these losses with temporary employees who could be released after the cut-over. On this basis the regular force would be down to requirements by the time of the cut-over if the plan were put into operation in October 1927.

Accordingly, all applicants registering after October were told that, if employed, their services probably would be terminated when the new dial system was installed. Up to the middle of 1930, employment conditions in this city were extremely good, and in order

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4 This term is used here to describe the women employed under the manual system and dropped at time of the cut-over, in spite of the fact that all were temporary employees engaged to work only until that date. Many were absorbed later by the telephone company.
to obtain sufficient numbers of the type required for telephone work special recruiting measures were necessary. However, enough applicants expressed a preference for this type of employment, and these readily signed a clause stamped on the application blank that pointed out the short-term nature of the prospective job. A representative of the company then visited the homes of the accepted applicants and explained to the parents or guardians that the work probably would not be permanent. This was satisfactory in most cases, although several parents thought permanent work would be more desirable and withdrew their daughters' applications.

During a period of approximately 6 months before the cut-over it was not practicable to attempt to recruit and train inexperienced people for the short time remaining. There was available a group of former employees, mostly married, who from time to time came in on call and assisted the company when unusually heavy traffic, vacations, or other condition required extra employees for short periods. These people, classed as "occasional", did not expect nor desire permanent employment and obviously fitted well into the employment program. However, to obtain the number required it was necessary to interview practically all who could be reached of the employees who had resigned in the previous 5 years. Actually, more of them could have been placed than were available, and of those enlisted only half could work full time because of their respective home duties.

The shortage still remaining was due to the extensive retraining necessary to effect the change to the dial system without service interruptions. A year in advance of the cut-over a small group of operators were given from 4 to 6 weeks' intensive training. The general training of all operators requiring it was begun in March 1930, each employee receiving from 2 to 4 weeks of instruction. All training was on company time, and of course it was necessary to have substitutes at the switchboard during the hours of training. For this purpose, 91 experienced operators were borrowed from other cities. These had their transportation and subsistence paid during this period and were returned to their home offices immediately after the cut-over.

At midnight of July 14, 1930, the entire city was cut over, that is, changed to the dial system of operating. Before and even after the cut-over there was much discussion among the citizens as to the number of women displaced by the change, and rumor reported between 500 and 600 as so affected. To obtain accurate information, the numbers of operators at 6 months before the change, immediately before the change, and at 6 months after the change were copied from the pay rolls. These figures follow:

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Regular</th>
<th>Temporary</th>
<th>Occasional</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1930</td>
<td>547</td>
<td>222</td>
<td>192</td>
<td>22</td>
</tr>
<tr>
<td>June 1930</td>
<td>534</td>
<td>312</td>
<td>179</td>
<td>43</td>
</tr>
<tr>
<td>January 1931</td>
<td>249</td>
<td>249</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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The disposition of the 534 operators on the books in June, just before the cut-over, was as follows:

<table>
<thead>
<tr>
<th></th>
<th>Regular</th>
<th>Temporary and occasional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>312</td>
<td>222</td>
</tr>
<tr>
<td>Retained</td>
<td>253</td>
<td>7</td>
</tr>
<tr>
<td>Transferred</td>
<td>37</td>
<td>94</td>
</tr>
<tr>
<td>Resigned</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Laid off</td>
<td>4</td>
<td>112</td>
</tr>
</tbody>
</table>

At the time of the change, then, 260 employees were retained, though, as apparent from the table last preceding, this figure was reduced by normal resignations to 249 during the following 6 months.

The number of operators laid off was 116, and of these all but 4 were temporary or occasional operators. The 4 exceptions were married women not especially desirous of remaining at work. Of the 131 operators who were transferred, only 2, who were changed to plant work, could be transferred within the city itself, as all might have been cared for in a case of partial cut-over; but positions were offered in nearby towns and cities, and as far as possible the inclination and convenience of the operator were consulted.

Of the 179 employees hired for temporary service from 6 months to 2 years before the cut-over, 5 were employed by the telephone company within the city, 94 were transferred to exchanges in other cities, and 4 resigned, leaving 76 who were laid off. Of 43 “occasional” employees, consisting of ex-operators rehired in the 6-month period immediately before the cut-over, and who neither expected nor, as a rule, desired permanent employment, all were laid off but 5 who resigned and 2 who were retained by the company.

In spite of the small number of women laid off in relation to the population of nearly 200,000, it was a large enough group to be of public interest, and the telephone company sought the cooperation of the chamber of commerce and the mercantile bureau in finding possible work for the operators affected. A personal canvass was made by the telephone employment supervisor among employers of women all over the city, and as a result approximately 38 jobs in 24 concerns were offered. These positions consisted of office work, sales work in stores, and counter work in restaurants, with salaries ranging from $12 to $25 a week. Only 11 girls of those laid off accepted permanent positions thus provided, the remainder not being interested in the positions offered.

Visits were made a year after the cut-over to 78 operators whose employment had terminated at that time. An effort was made to interview all of the 116, but some had moved and could not be located, and others, though called upon repeatedly, were not found at home.

It is to be remembered that of the 116 laid off, 76 were short-service people who had been recruited for (and were agreeable to) temporary employment; 36 were ex-operators who had accepted reemployment with the distinct understanding that they wished to work only until the cut-over; and 4 were regular employees (married women).
who were not averse to quitting work. Most of these employees did not wish further employment at the time; all were offered telephone positions in other cities and given a chance at positions with other concerns in the same city, more of which could have been located for them by the telephone company had there been sufficient demand, but none of the employees laid off accepted these offers. Some of them expected to seek employment eventually but planned to wait at least until fall. That some of them subsequently were anxious to find employment and had difficulty in doing so was, of course, due chiefly to the changed circumstances brought about by the depression.

Of the 78 who were interviewed, 39 had been reengaged without loss of time for temporary work with the telephone company, as there was need of extra operators to take calls until customers became more familiar with the dials. Also, summer vacations had begun and substitutes were necessary to replace regular operators. Eventually it was found possible to retain permanently 18 of the temporary workers visited, and a year after the cut-over they still were employed by the telephone company. Of the other 21, 15 were kept for less than a month, 5 for 1 to 4 months, and 1 resigned voluntarily.

The disposition of the other 39 operators whose employment terminated at the time of the cut-over was as follows:

<table>
<thead>
<tr>
<th>Offered telephone positions in other cities</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>7</td>
</tr>
<tr>
<td>Refused</td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Offered both nontelephone positions and telephone positions in other cities</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepted</td>
<td>4</td>
</tr>
<tr>
<td>Refused</td>
<td>2</td>
</tr>
</tbody>
</table>

| Acquired positions through their own efforts | 9 |

The period at which the cut-over took place was unfortunate. By the summer of 1930 the difficulty of obtaining work was much greater than it would have been a year earlier. A scarcity of jobs was developing all over the country, and in the city where this cut-over took place there was, in addition to the effect of the depression, a normal lack of positions for women. The city was one principally of men's employment, with industries where there were few opportunities for women. In spite of this fact, many of the operators who were laid off wished to find their own jobs, or wanted to rest for a while before taking a new position, or for other reasons did not care to consider the opportunities offered by the telephone company in other cities or in nontelephone work in their own city. The greatest objection to taking work in other cities came from the mothers of the girls, who were unwilling to have them leave home, and from the fact that wages were too low to allow of the paying of board and room. In some cases the girls were too young to leave home and in others they could not be spared, either because their services were needed or because their earnings would then be paid for board and room to strangers and not go to the family budget. A number of the girls who were living at home said that if they took a job in

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*Other than 39 reengaged by the telephone company.*
another city they would have nothing left, either for clothes or to
send home, after they had paid their board and lodging. In most
cases where nontelephone work was offered the work was not of a
type desired, and the girls felt that they could do better if they
themselves looked for jobs.

All the operators regretted having to leave the telephone company;
one girl said, “Telephone work is the only thing I’ll ever like.” It
was very difficult to find employment, and the experience of one girl
was that of many: “I’ve walked and walked, looking for a job.
I’ve even thought of trying housework, but that only pays room
and board. I may have to take it, but I don’t want to.”

The hardships in seeking employment consisted not only of “walk­
ing and walking” but in many cases of weeks without work and
without pay. Of the 38 girls who lost time between the cut-over
and their next job, 10 lost 6 months but less than a year before finding
work and 3 were without work the whole year.

The extent of lost time for industrial reasons in the year following
the cut-over was reported by all but 1 of the 78 women interviewed.
Forty-three of them lost at least 3 months, 21 of these losing 10
months or more. Of all the 77 women reporting, only 21 had worked
the entire year without losing time.

The steadiest work was reported by the girls who stayed on as tem­
porary operators with the telephone company in the same city, and
18 of the 21 who reported work for the entire 12-month period after
the cut-over were in this group. Of the 25 women who during the
year worked only in jobs other than with the telephone company,
only 2 had a full year’s work and 16 worked for less than 7 months.
A third group of the operators laid off worked part of the year with
the telephone company, in the same or other cities, and part of the
year on nontelephone work, and these women reported less employ­
ment during the year than did either the women only with the tele­
phone company or those only in nontelephone work.

Although the wages of those who remained with the telephone
company in the same city were not changed, the wages of those trans­
ferred to other cities or towns or of those employed in other kinds
of work showed considerable differences from their pay before the
cut-over. A number of women transferred to telephone work in
other cities or taking jobs with other companies in the same city
had a marked decline in earnings; in telephone jobs the smaller cities
had lower schedules in some cases. For the 48 women in telephone
work, either in the same city or transferred to other towns and cities,
the earnings after the cut-over were as follows:

<table>
<thead>
<tr>
<th>Same</th>
<th>Less</th>
<th>More</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Of the 29 women who at time of the final interview were not in
the employ of the telephone company and who reported their earn­
ings, as many as 25 were receiving less than formerly. Two earned
the same as before and two had higher earnings. Five who had re­
ceived from $15 to $16 a week as telephone operators, a year later
reported earnings of from $6.25 to between $13 and $14; and 7 of 8
whose earnings with the telephone company had been from $17 to
$18 were earning with other companies from $7 to $14 or $15.
The list following shows the kinds of employment of the 33 operators (the 29 just discussed and 4 others) who were not in the employ of the telephone company a year after the cut-over:

<table>
<thead>
<tr>
<th>Kind of Employment</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales in stores</td>
<td>10</td>
</tr>
<tr>
<td>Beauty parlor</td>
<td>1</td>
</tr>
<tr>
<td>Clerical</td>
<td>8</td>
</tr>
<tr>
<td>Waitress</td>
<td>1</td>
</tr>
<tr>
<td>Private branch exchange</td>
<td>7</td>
</tr>
<tr>
<td>Training for nurse</td>
<td>1</td>
</tr>
<tr>
<td>Factory</td>
<td>4</td>
</tr>
<tr>
<td>Helping in hospital pharmacy</td>
<td>1</td>
</tr>
</tbody>
</table>

It is not surprising to find, with this wide variety of jobs and in most instances a decrease in pay, a strong preference for telephone work. A number of the operators expressed no preference because of no other experience, but of 38 women who made a comparison, 33 preferred telephone work to other work. Fourteen declared that the telephone work was interesting and the working conditions were pleasant, and one girl summed it up by saying, “I liked the bosses, I liked the pay, I liked the girls; oh, gee, I even liked the building.” Five girls spoke especially of the pleasant working conditions, and one girl who went to work in a factory said, “In telephone work you’ve no hard work and no dirt.” Seven girls spoke of the better pay in telephone work and four of the shorter hours. One girl who had worked on “information” at the telephone company said it was the best of all jobs: “Kept you smart and alert and taught you to spell, looking up names all day.”

There were 5 girls of the 38 reporting who preferred their new jobs. The reasons they gave were “No Sunday or holiday work”; “Better hours, nicer work”; and “More definite hours and less strain.” One girl, though declaring that “The telephone company is a very nice place to work”, said she appreciated the uniformity of hours in her later job.

On the whole, the opinions of the majority were strongly in favor of telephone work over any other, and the sentiments of many were expressed by the girl who said, “I was heart-broken when I lost my job. It was so nice there. You had different types of people over the lines all the time; always enough work to keep you interested; it’s more interesting to be busy than slow.” But the feeling of many of them was expressed by a former telephone operator who commented, “New inventions are good for something, but they are not working good for poor people.”

Technological changes in the telephone system, as in other industries, are made because of their increased efficiency. As the last-mentioned operator said, “They are good for something.” The following are the results to the consumer of the change to the dial system as reported by a company bulletin: “It [the dial] is somewhat more accurate than manual service and when fully installed in a given place the dial service is quicker. During hours of light use, such as nights, Sundays, and holidays when manual boards have to be operated with a skeleton force, and therefore with a somewhat slower service, the dial service is just as rapid as during the busier hours of the day. The dial system is also proving more adaptable to improvements and developments to keep pace with the rapidly increasing requirements of the telephone service.”

The result to the operators laid off has been shown, but there was also some difference resulting from the change to the operators who stayed with the company. On the whole, the effect was an improvement in the working conditions. Operators formerly worked on the
outgoing switchboard (A board), the incoming switchboard (B board), and the toll or long-distance switchboard. Under both systems, the old or manual and the dial system, there was also the information service. With the change to the dial system, the A and B boards were no longer necessary, and the toll board cared for the requests for assistance that formerly would have gone to the B board. This necessitated more toll operators and also gave the toll operators more varied work. The change to dial, with the work principally long-distance calls, resulted in a smaller proportion of split tricks (morning-evening shifts, work periods with a break of from 4 to 5 hours between the periods) and of Sunday work than was found under the older system. The proportion of night workers increased slightly with the introduction of the dial system, although the actual number of night employees declined from 27 to 15.

<table>
<thead>
<tr>
<th>Percent of women under</th>
<th>Old method, January 1930</th>
<th>New method, January 1931</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning-afternoon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning-evening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afternoon-evening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Night shifts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday work</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>44.1</td>
<td>49.8</td>
</tr>
<tr>
<td></td>
<td>27.1</td>
<td>20.1</td>
</tr>
<tr>
<td></td>
<td>23.9</td>
<td>24.1</td>
</tr>
<tr>
<td></td>
<td>4.9</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>51.0</td>
<td>36.9-47.0</td>
</tr>
</tbody>
</table>

Operators who formerly had been on the A or B boards noticed more change with the new method than did the operators formerly on toll, the principal difference being that in addition to plugging in on the switchboard it was necessary now to operate a dial to connect the incoming call with the city subscriber. One operator, who found the calls coming in on the toll board much more interesting than over the A and B boards, said: “You talk with operators all over the country; there is difference in pronunciation and accent; you hear new things and new places. Sometime I hope to get a trans-Atlantic call.”

For most of the operators formerly on the A and B boards the new work was easier than the old. “Work is easier on toll now; the board is smaller, not so much reaching. Used to repeat numbers all day long, now just say ‘right’”, was the opinion of one girl. Probably because of the very lack of monotony on the toll board compared to the A or B, another girl found it harder, but the majority agreed with the operator who said, “For us the dials are better.”

The telephone operator as a rule is a young woman. Few under 18 years are employed, but rarely is one hired who is over 25. In January 1930, 6 months before the cut-over, about 60 percent of the operators were under 25 years of age and only 2.7 percent were 40 or more. In January 1931, 6 months after the cut-over, a little less than 40 percent were under 25 years and 4.8 percent were 40 or more, illustrating the fact that the transfers and lay-offs had been among the younger women. Of those laid off, 69.8 percent were under 25 years of age and 42.2 percent were under 20 years, the natural
result of the taking on of young women for temporary work after October 1927.

In spite of the youth of those laid off, it was not easy, even with every assistance given by the telephone company, for them to find work. In factories where new methods of work result in lay-offs, it is frequently the older and less adaptable worker who is first discharged. The experience of this group of telephone operators is indicative of the large body of women, many of them much older, who lose their jobs through changes in industry and for whom there are apparently no other immediate openings. The best effort of industry cannot prevent temporary unemployment from technological causes, but the public that benefits by more efficient methods should be aware of its responsibility and not allow the worker to bear the entire burden of change and progress.

A PARTIAL CUT-OVER TO THE DIAL SYSTEM

Two years before the change to the dial system in about one third of the stations in this city, arrangements were made for a new building to house the heavy mechanical equipment required, and at the same time plans were made to take care of the employment problems that would arise in the change. It was realized that it would be necessary to hire some new operators before the cut-over, on account of the normal business increase and the usual need for the replacement of those leaving the company, so all those hired in the 2-year period before the change were to be told that their employment probably was only temporary and might terminate at the time of the cut-over to the dial method.

In hours of work, earnings, and all other respects, the conditions of work of the operators hired with this understanding of only temporary work were the same as those of the regular employees.

Six months before the actual cut-over it was found that by careful planning all these temporary employees could be kept. Some could be transferred to other central offices in the city or to nearby towns; extra operators would be needed on the intercept positions and in the information service, and more operators would be used on the toll board as this service increased; the coin boxes were to be cut over gradually, and some of these operators would be needed until 2 months later, when the transfer was complete; a careful arrangement of vacations to begin immediately after the cut-over would give work to some until the normal separations would open regular positions; and the telephone company of a neighboring State agreed to employ a number of operators in a resort for the summer, by the end of which time it was thought positions with the home company would be made available through normal turn-over.

By these various means it was planned to retain the 125 temporary operators employed in the offices in which the service was to become dial, as well as some temporary operators in offices where the manual system would remain, but which were affected by the change because of the probable transfer of displaced operators whose seniority would entitle them to employment in these offices.

When a change takes place in a factory it usually is possible to train people gradually as they learn the new job, but in a service
industry such as the telephone the training must be done in advance of the change so that the public may not suffer through the inexperience of the operators. For this reason, the use of the dial had to be taught to the regular operators. This required 34 instructors, and it was necessary to fill, temporarily, not only their positions but the positions of the operators during this time of learning. It took about 35 hours for an operator to learn to handle efficiently the work of the new system; and 350 operators received this training, which was given for a few hours each day over a period of 2½ months.

Six months before the cut-over, the total number of operators in the offices that were to have dial operating was 424. This number was considerably larger than would be needed under the dial system, so it was necessary to provide not only for the 125 temporary operators but for a number of the regular employees. These were cared for by the same methods already described as providing work for the temporary operators. From this time, 6 months before the cut-over, when it was found that it would be possible to keep both regular and temporary operators, the status of the latter was changed to regular.

After November 22, 1929, somewhat less than 6 months before the change, obviously it was impracticable to train new people for such a short period. The hiring of new operators was restricted as much as possible, and the few that were hired were told their employment would end in May when the cut-over occurred. To keep down the number of new operators, 137 ex-employees available for occasional employment were notified and came back for periods of from 1 to 5 weeks, and 32 operators were borrowed from a neighboring city for 3 weeks before the cut-over.

When the time of the cut-over finally arrived, May 3, 1930, there were 435 operators in the offices to be changed to dial, and only 33 of these had been taken on since November 22, 1929, and so were scheduled to be laid off. In other offices also there were some operators hired since that date who were temporary employees and could not be retained. In all, 61 operators were to lose their temporary jobs and must look for other work.

That the total operating force in the cut-over offices had to be reduced to a large extent is apparent from the following figures:

| Before change, November 1929 | 424 |
| At time of change, May 1930 | 435 |
| Immediately after May 1930 | 287 |
| After November 1930 | 128 |

These reductions were accomplished as already described, and in this process the company found itself able to provide jobs not only for the temporary operators whose status had been changed to regular but for 27 of the 33 hired since November for service only until May. 6

The fact that the cut-over occurred in the business section of the city resulted in a large percent (65.3) of the employees being operators with length of service of 2 years and over; nearly one third of the entire number had been with the company for at least 5 years.

At the time of the cut-over, nearly two thirds of the operators were retained at the dial offices and were given work either on the

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6 10 of the 27 were retained in the cut-over offices.
toll board or on the boards handling the calls from dial to manual
or the other way about. One third were transferred to other offices
in the city or nearby towns, or to temporary work—as aid to sub-
scribers or on intercept positions—until permanent places should
become vacant. Only 6 operators from the cut-over offices and 55
from other offices in the city were laid off.

Although it was impossible to retain these 61 operators, all of
whom had been taken on as temporary workers within the preceding
6 months, the telephone company still felt a responsibility. As was
true of the complete cut-over in the other city, the period at which
the change occurred was unfortunate. In the spring of 1930 posi-
tions were beginning to be scarce, and the chances of securing work
were much less than if the cut-over had occurred in 1929. The tele-
phone company realized this situation and gave as much work as
possible to its former employees. In spite of the fact that 56 of the
operators laid off were under 25 years of age, and none were over
30 years, it was not easy for them to find work. A canvass of open-
ings was made by the employment supervisor and 8 girls were placed
in stores as salesgirls, on private branch exchanges as switchboard
operators, or in other work not with the telephone company. Ten
were recalled for temporary work with the company, 11 were trans-
ferred to other offices in neighboring towns, and 32 were without jobs.

The names of all the 61 were kept by the telephone company, and
at the end of 10 months its records showed the following disposition
of the operators:  

<table>
<thead>
<tr>
<th>Reemployed by company</th>
<th>26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transferred in company</td>
<td>10</td>
</tr>
<tr>
<td>Positions with other employers</td>
<td>8</td>
</tr>
<tr>
<td>Declined position with telephone company</td>
<td>4</td>
</tr>
<tr>
<td>Ineligible for work with telephone company (poor work)</td>
<td>10</td>
</tr>
<tr>
<td>Could not be located</td>
<td>3</td>
</tr>
</tbody>
</table>

Within a year, therefore, 44 of the 58 women who could be located
were employed, and 36 of them were with the telephone company.
During the year many of the women had been out of work for
longer or shorter periods. Twenty-seven of them were visited, and
information was obtained of their lost time between jobs, dif-
fences in pay, and preferences for various kinds of work as com-
pared with telephone. Of the 17 reporting time lost between
lay-off and first subsequent job, 5 lost from 4 to 8 months, 8 lost
from 1 to 3 months, and 4 lost less than a month. In a number of
cases the first job either could not be kept or was not satisfactory,
so that other work was sought. Some of the telephone work in
other exchanges was not accepted, because of differences of pay in
the smaller towns or because it was night work and solitary.

In nontelephone work the pay was less in 6 cases in a total of 9
positions. For all 27 women visited, the first work immediately
after the cut-over showed the following comparisons with the pay
in the former telephone job.

<table>
<thead>
<tr>
<th>Same</th>
<th>10 women, all in telephone.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less</td>
<td>12 women, 6 in telephone and 6 not.</td>
</tr>
<tr>
<td>More</td>
<td>5 women, 2 in telephone and 3 not.</td>
</tr>
</tbody>
</table>

The 17 telephone operators who had received a different rate
were those who had been transferred either to another town or to
another type of work, while the 10 retained for temporary work
with the company were paid their former salaries. The declines in the earnings of women having nontelephone jobs were greater than the decline in salaries on telephone work. Of the 6 women in non-telephone work who received less, 2 had been earning $22 a week and had come down to $12 and $13.50, respectively, while of 4 whose salaries had been $16 a week, 2 women earned $10, 1 $11, and 1 $15.

During the 13 months that elapsed between the cut-over and the interviews with the workers there was considerable shifting of jobs and unemployment. Nineteen of the 27 women had more than one job, 2 women reporting 4 different work periods. During the 13 months, 16 of the women worked less than 8 months and only 3 worked through the entire period. This lack of employment was not always due to the impossibility of obtaining work but occasionally was due to personal reasons. However, of the 22 women who reported that they had lost time, only 1 said she had lost no time for industrial reasons.

During the 13 months following the cut-over, all but 4 of the workers visited had been employed for either a longer or a shorter period by the telephone company. No time was lost after the cut-over by 10 women, who were immediately given temporary work, but of this number only 2 were employed continuously for the 13 months. Others were called back at various intervals, 1 waiting only a week before being summoned, while 3 were not called back for 7 months and 2 not for 10 months. A few (4 women) were not sent for, and these probably were among the 10 women considered ineligible because of poor work. At the time of the interviews with the former operators, 19 of the 27 reported work with the telephone company, 6 were unemployed, and 2 had other employment.

A few women compared their experience in different kinds of work as compared with telephone and explained the basis of their preference. Telephone work was liked because of better pay, or because they were familiar with the work, or because hours of work were better. One reason for preferring nontelephone work was better chance of employment, by which was meant future openings, and another was shorter and more definite hours, the latter having reference to the system in the telephone company of changing shifts every few months. However, the majority (8 out of 10) gave opinions in favor of telephone work.

There was some shifting in the proportions who worked at night and on Sunday among the operators who remained in the offices when the dial system was installed. Because of the elimination of operators to attend to the city calls (except to give information and aid to the subscribers), and their principal employment on the long-distance switchboard, the proportion of night operators was less after the cut-over than before and the percent of Sunday operators was higher. The split trick consists in work in two periods with an interval of from 4 to 5 hours, and usually it is considered less desirable than a single shift. In November, before the change, over one third (37.4 percent) of the operators were employed on split tricks, while after the cut-over a slightly larger proportion (39 percent) worked these hours.
Aside from these changes, the hours were the same for the operators before and after the cut-over, namely, 8 hours on day and night shifts, with 15 minutes off in the morning and in the afternoon, and 7 hours on evening and split shifts. Lunch periods were an hour in length and there was a 15-minute break in each 3- or 4-hour work period.