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PORT

OF THE

ROYAL COMMISSION

ON

A DISPUTE RESPECTING HOURS OF EMPLOYMENT

BETWEEN

THE BELL TELEPHONE COMPANY OF CANADA, LTD.

AND

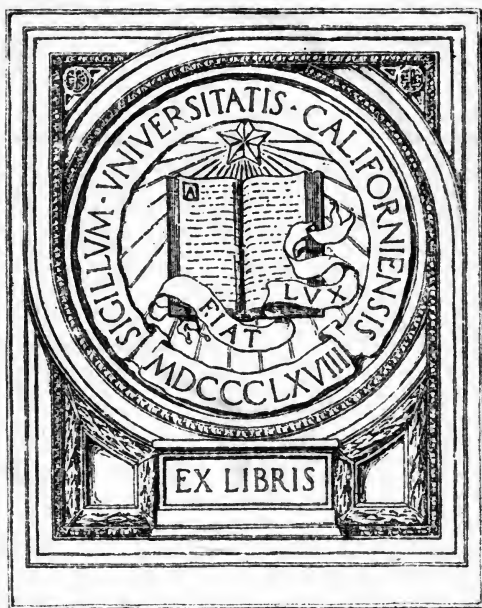
OPERATORS AT TORONTO, ONT.

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ROYAL COMMISSION

COMMISSIONERS :

W. L. MACKENZIE KING, C.M.G.,
Deputy Minister of Labour,
Chairman.

His Honour JOHN WINCHESTER,
Senior Judge, County Court of the County of York.

COUNSEL REPRESENTING BELL TELEPHONE COMPANY :

WALTER G. V. CASSELS, Esq., K.C.,
W. A. H. KERR, Esq.

COUNSEL REPRESENTING EMPLOYEES :

J. WALTER CURRY, Esq., K.C.



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COMMISSION

APPOINTING HIS HONOUR JOHN WINCHESTER AND WILLIAM LYON MACKENZIE KING, ESQUIRE, C.M.G., COMMISSIONERS, TO INQUIRE INTO THE BELL TELEPHONE COMPANY OF CANADA, LIMITED, AND THE OPERATORS EMPLOYED IN ITS OFFICES AT TORONTO WITH RESPECT TO WAGES AND HOURS OF EMPLOYMENT, AND ALL MATTERS AFFECTING THE MERITS OF THE SAID DISPUTE AND THE RIGHT SETTLEMENT THEREOF.



CANADA.

GREY. (SEAL.)

EDWARD THE SEVENTH, *by the Grace of God of the United Kingdom of Great Britain and Ireland, and of the British Dominions beyond the Seas, King, Defender of the Faith, Emperor of India.*

To all to whom these presents shall come, or whom the same may in anywise concern :

GREETING :

WHEREAS in and by an order of Our Governor General in Council bearing date the second day of February, in the year of Our Lord one thousand nine hundred and seven, provision has been made for an investigation by our Commissioners therein and hereinafter named with respect to a dispute between the employees of the Bell Telephone Company of Canada at Toronto and the said company as upon reference to the said Order in Council, a copy of which is hereto annexed, will more fully and at large appear.

NOW KNOW YE, that by and with the advice of our Privy Council for Canada, we do by these presents nominate, constitute and appoint His Honour John Winchester, Judge of the County Court of the County of York, and William Lyon Mackenzie King, C.M.G., of the City of Ottawa, in the Province of Ontario, Deputy Minister of Labour, to be our Commissioners to conduct such inquiry.

To HAVE, hold, exercise and enjoy the said office, place and trust unto the said John Winchester and William Lyon Mackenzie King, together with the rights, powers, privileges and emoluments unto the said office, place and trust of right and by law appertaining during pleasure.

AND WE do hereby under the authority of the Revised Statute respecting inquiries concerning public matters, confer upon our said Commissioners the power of summoning before them any witnesses and of requiring them to give evidence on oath or on

solemn affirmation if they are persons entitled to affirm in civil matters orally or in writing, and to produce such documents and things as our said Commissioners shall deem requisite to the full investigation of the matters into which they are hereby appointed to examine.

AND WE do hereby require and direct our said Commissioners to report to our Minister of Labour of Canada the results of their investigation, together with the evidence taken before them and any opinion they may see fit to express thereon.

IN TESTIMONY whereof We have caused these our Letters to be made Patent and the Great Seal of Canada to be hereunto affixed:--

WITNESS: *Our Right Trusty and Right Well-Beloved Cousin the Right Honourable Sir Albert Henry George, Earl Grey, Viscount Howick, Baron Grey of Howick, in the County of Northumberland, in the Peerage of the United Kingdom, and a Baronet, Knight Grand Cross of Our Most Distinguished Order of Saint Michael and Saint George, &c., &c., Governor General and Commander-in-Chief of our Dominion of Canada.*

At our Government House, in Our City of Ottawa, this second day of February, in the year of Our Lord one thousand nine hundred and seven, and in the seventh year of Our Reign.

By Command,

(Signed) J. POPE,
Under Secretary of State.

(Signed) E. L. NEWCOMBE,
Deputy Minister of Justice, Canada.

EXTRACT from a Report of the Committee of the Privy Council, approved by His Excellency the Governor General on February 2, 1907.

On a report, dated February 2, 1907, from the Minister of Labour, stating that the Mayor of Toronto having on January 29 ultimo requested the intervention of the Department of Labour for the purpose of averting a threatened strike of the employees of the Bell Telephone Company in that city, he directed Mr. Mackenzie King, the Deputy Minister, to proceed at once to Toronto and lend the good offices of the Department of Labour under the Conciliation Act with a view to effecting, if possible, a settlement of the difference.

The Minister observes that the mayor stated in his communication to the department that the time of the operators was to be lengthened from five to eight hours; that they contended it was a physical impossibility with the enormous telephone business of the city of Toronto, to stand the strain of such long hours; that the company refused to deal with them in any way, and that a strike of the telephone operators would seriously affect the public interests.

The Minister further states that Mr. Mackenzie King has reported that the anticipated strike occurred before there was opportunity of conferring with the parties; that having used his best efforts to effect a settlement, the company have stated that a joint conference between representatives of the parties is impossible, and that the company are unwilling to refer the subject of the difference to a board of arbitrators. That the operators affected are willing to accept a joint conference or to leave the matter to arbitration and abide by the award of the arbitrator. Further, that the company have stated that they strongly desire that for the information of the government, the general public, and the operators, a full investigation be made, that an accurate judgment may be formed upon the course the company have taken, that the operators have stated that they also desire a full investigation, and will agree in the event of the government appointing a board of inquiry to return immediately to the company's service upon the schedule of rates and hours the company have proposed and abide by the findings of such board.

The Minister is of the opinion that it is in the public interest that this dispute should be terminated as speedily as possible, and both because of the nature of the dispute and the express wish of the parties it is desirable that a full investigation should be made into the subject of the difference, and that to this end a commission should be immediately appointed to make expeditious and careful inquiry into the said dispute and all matters affecting the merits thereof and the right settlement thereof.

The Minister therefore recommends that it be referred to William Lyon Mackenzie King, Deputy Minister of Labour, and to his Honour John Winchester, Senior Judge of the County Court of York, as commissioners under the provisions of Part 1 of chapter 104 of the Revised Statutes, 1906, commonly called the 'Inquiries Act,' to hold and conduct such inquiry with all the powers conferred upon commissioners by the said part.

The Minister further recommends that the commissioners report to the Minister of Labour the evidence and proceedings with all possible despatch and make such recommendations as to them seem advisable.

The committee submit the same for approval.

LETTER TRANSMITTING REPORT AND EVIDENCE OF COMMISSION

TORONTO, August 27, 1907.

To the Honourable

RODOLPHE LEMIEUX, LL.D., K.C., M.P.,
Minister of Labour,
Ottawa.

SIR,—We have the honour to transmit to you the Report of the Commission appointed to inquire into a dispute between the Bell Telephone Company of Canada, Limited, and the operators in the employ of the said Company, at Toronto, with respect to wages and hours of employment, and all matters affecting the merits of the said dispute and the right settlement thereof; together with the evidence taken and exhibits filed before the Commission.

We have the honour to be,

Sir,

Your obedient servants,

(Signed) W. L. MACKENZIE KING,
JOHN WINCHESTER,
Commissioners.

TELEPHONE OPERATORS' HOURS COMMISSION.

REPORT OF THE COMMISSION.

To the Honourable

RODOLPHE LEMIEUX, LL.D., K.C., M.P.,
Minister of Labour.

SIR,

WE, the undersigned commissioners, appointed by Royal Commission, dated the second day of February, 1907, to make inquiry into a dispute between the Bell Telephone Company of Canada and the operators employed in its offices at Toronto, with respect to wages and hours of employment and all matters affecting the merits of the said dispute and the right settlement thereof, have the honour to submit herewith a report containing the proceedings of the commission and the results of our investigations, together with the evidence taken before us, and the opinions and recommendations which we have deemed it advisable to express, pursuant to the directions of the commission issued to us by His Excellency the Governor General of Canada.

I.—INTRODUCTORY.

Proceedings of Commission.—Witnesses examined.—Nature and extent of evidence.—Assistance given Commission by parties, counsel, and medical witnesses.—Charter of Bell Telephone Company.—Growth and extent of Company's business in Toronto.—Employees of company.

IMMEDIATELY upon the receipt of the Royal Commission we commenced the inquiry on the fourth day of February, 1907, by visiting the company's Main, North and Parkdale exchange, in order to become acquainted with the duties required of the operators, their methods of working and also with the apparatus and appliances used in the service by the operators. Summons to witnesses were also prepared, and a number of the witnesses served for the following morning.

The examination of witnesses was commenced on the morning of the fifth day of February and continued from day to day until the eighteenth day of February, during which time there were seventy witnesses examined, as follows:—

Officers of the Company.—Kenneth J. Dunstan, Frank C. Maw, Lewis B. McFarlane, William J. Clarke, John A. Anderson, Mary Bogart, Margaret Irwin.

Employees who took the place of strikers.—Agnes Pope, Angelina Porteous, Cora Parker, Ethel Walker, Mabel Langford, Mabel Bennett, Gertrude Perry, Grace Bertram, Ada Leonard, Ethel Henry, Alice Linton, Mamie Balfour.

Striking operators.—Isabel Dickson, Lottie Kyle, Lily Rogers, Maud Orton, Beatrice Fiegehan, Laura MacBean, Gladys Sangster, Isabel Montgomery, Winnie Hamm, Florence Maitland, Theresa Corcoran, Mamie Breck, Kathleen Lazier, Hilda Walton, Hattie Davis, Marie Strong, Laura Rockall, Emily Richmond, Lena Chamberlain, Mabel Smith, Olive Towns.

Medical witnesses.—Doctors Murray McFarlane, William Britton, Alexander Davidson, Charles Sheard, William Oldright, Walter McKeown, James Forfar, James Anderson, William H. Alexander, Gideon Silverthorne, Richard A. Reeve, John F. Uren, G. Herbert Burnham, Charles Trow, William B. Thistle, William P. Caven, Charles K. Clarke, J. M. McCallum, James M. Forster, Robert Dwyer, John Noble, Alexander McPhedan, Alexander Primrose, A. R. Pyne, Alton H. Garrett, D. Campbell Meyers, Dr. Fotheringham was sworn but not examined.

The following doctors were summoned and attended but were not examined for the reasons which will hereafter appear, namely: Doctors R. B. Nevitt, John Ferguson, R. D. Rudolf, H. B. Anderson, A. R. Gordon and R. Shaw Tyrell.

Other witnesses.—John Armstrong, Secretary of the Ontario Labour Bureau; Fred. G. Evans, A. Alliston and Jessie Leckie.

The transcribed evidence extends over 1,700 typewritten foolscap pages, exclusive of all exhibits. By prolonging the inquiry this might have been supplemented at considerable length. However, the evidence obtained, and the documents and correspondence submitted to the commission have, we feel, made us fully acquainted with the material facts and circumstances relevant to the purposes of the inquiry, and such additional evidence as might have been obtained by fuller investigation would, we believe, have been merely corroborative of the facts disclosed, and have further confirmed the opinions we have ventured to express.

We have pleasure in stating that the parties to the dispute followed the proceedings of the commission with close attention throughout, and were represented by able counsel, whose assistance in disclosing and securing a consideration of all the relevant facts was of the utmost value and much facilitated the work of the commission. We believe too that the thanks of the public no less than of the commission are due to the medical witnesses, many of them the recognized leaders of their profession in the province, who in a public spirited manner and at considerable sacrifice of their time gave very full and direct testimony before the commission.

The following facts and figures in regard to the charter issued to the company and the growth and extent of its business in Toronto may assist to a better understanding of the subject-matter of the differences into which inquiry was made.

The Bell Telephone Company of Canada commenced business in Toronto twenty-seven years ago. The company obtained a special Act of Incorporation from the Dominion parliament in the year 1880, passed in the 43rd year of the reign of Her Majesty Queen Victoria (Chapter 67). By this Act it was given power to manufacture telephones and other apparatus connected therewith, and to purchase, sell or lease the same and rights relating thereto, and to build, establish, construct or lease and maintain and operate or sell or let any line or lines for the transmission of messages by telephone in Canada or elsewhere and to make connections for the purposes of telephone business with the line or lines of any telegraph or telephone company in Canada

or elsewhere. The company's business has steadily grown, with the result that at the beginning of the present year its subscribers under the Toronto management numbered 14,900. The last annual statement shows a total expenditure for the year 1906, for salaries and wages of \$329,714.82 on account of the Toronto and Toronto Junction exchanges, and \$800,445.22 of receipts. The business of the company has been carried on from the outset at the company's offices situate on Temperance street, at which place the company's main exchange is located. In 1884 a branch exchange was opened in the north part of the city known as the 'North' exchange. In 1889 the Parkdale or 'Park' exchange was opened, in 1892 the Toronto Junction exchange, and in 1903 the 'Beach' exchange. In the year 1906 a contract was awarded for the construction of an exchange at the corner of Bellevue and Oxford streets, to be called the 'College' exchange, which it was expected at the beginning of the present year would be completed and equipped by June 1.* The telephone business comprises the operation of both local and long distance lines.

The employees of the company at Toronto on January 1, numbered in all 878, comprised as follows:—

Exchange.	Operators.	Staff—Chief Operators, Supervisors and Monitors.	Total.
Main	180	34	214
Long distance.....	120	25	145
North	81	14	95
Park.....	55	11	66
Beach.....	8	1	9
Junction.....	8	1	9
Special service, including private switchboards.....			538
Linemen, including underground.			56
Instrument and switchboard men.....			138
Business office, superintendent's department, including service, wire chiefs, trouble department, stores department, collectors, canvassers, &c.....			69
			77
			878

* This exchange had not been completed at the time of the signing of this report.

II.—THE STRIKE OF TELEPHONE OPERATORS AT TORONTO—ITS CAUSES, NATURE AND INCIDENTS.

General statement of causes.—Increase in hours of work.—A five-hour schedule introduced at Main Exchange in 1903.—Continuance and extension of 5-hour schedule.—Determining factors in arrangement of operators schedule of hours.—The traffic curve.—The sex and age of employees.—Advantage of 5-hour schedule.—Objection to 5-hour schedule.—Inefficient service leads to investigation.—Report by H. V. Hayes, Chief Engineer of the American Telephone and Telegraph Company.—Report by Jos. C. J. Baldwin, expert of same company.—Important communication of local manager upon these reports.—A conference of officers of company, held at Montreal during first week of January, 1907.—Inefficient service due to high pressure of work and low wages. Insufficiency of remuneration to meet cost of board and lodging.—The necessity of increasing wages leads to consideration of change of hours.—Difficulties in the way of changing hours without injustice to employees until equipment at Toronto improved.—Evident wish of Montreal conference to effect change in wages and hours immediately.—Decision to change notwithstanding difficulties.—Chief operators and assistants of local staff consulted, but not operators.—Letter of local manager (January 16) recommending change to 8 hours schedule.—Reasons for change clearly set forth.—Letter of General Superintendent (January 23) authorizing change to be made on February 1.—Local staff notified of intended change (January 25, 26).—Immediate signs of dissatisfaction among local staff.—View taken by operators of proposed change.—Meeting of operators held (Sunday, January 27).—A petition signed and solicitor consulted (Monday, January 28).—Company refuses to see solicitor or to consider petition.—A personal interview with manager discussed.—A strike threatened for Friday, February 1.—Long-distance operators wait on local manager (Wednesday, January 30).—A committee of employees wait on His Worship, Mayor Coatsworth (January 30).—The Mayor secures the intervention of officers of the Dominion and the provincial governments.—Correspondence between His Worship the Mayor and the Minister of Labour.—Intervention of Deputy Minister of Labour for Canada, and Secretary of Ontario Bureau of Labour (Thursday, January 31).—The local manager interviewed.—The strike precipitated by the company.—Letter from Deputy Minister of Labour to local manager, suggesting joint conference and arbitration (January 31).—Letter in reply from local manager to Deputy Minister of Labour.—Mass meeting of operators held at Labour Temple.—Resolution passed requesting government to order a public inquiry.—Operators agree to return to work if investigation made into grievances under oath.—Royal Commission appointed.—Scope of the commission.—Commission enter upon duties at Toronto, February 4.—100 employees brought in from outside localities to temporarily fill places of strikers.—Strike lasts three and a half days.—Service partially crippled.—Strike ends February 4.

THE differences between the Bell Telephone Company and its employees which resulted in a large number of the employees at Toronto going on strike on January 31 were the outcome of the company's decision, reached during the month of January,

to enforce a new schedule of wages and hours whereby the hours of work of its operators were to be increased from five to eight per day, and the manner in which this decision was made known to those whom it concerned. The circumstances which led up to the company's action require to be set forth at some length.

In 1903 the company undertook the enlargement of its premises on Temperance street and the installation of a new equipment. During the carrying on of this work the operators were subjected to considerable inconvenience, to offset which, it is alleged, the company made a reduction in their hours of work, from a day of eight hours with reliefs and intermissions to one of five consecutive hours, the wages scale remaining unchanged so far as the company's then employees were concerned. To newcomers this scale was at different periods of the year as follows :—

LEARNERS AND RELIEF OPERATORS.

- \$16 per month for first 6 months.
- \$18 per month for next 3 months.
- At end of 9 months placed on regular staff.

REGULAR STAFF.

- \$20 per month for one year.
- \$22.50 per month for next year.
- \$25 per month for next year and thereafter.

LONG DISTANCE.

After 1 year.... .	\$ 22 50
After 2 years... .	25 00
After 3 years.	27 50
After 5 years.....	30 00
Supervisors.....	32 50

On August 1, 1903, the above minimum salary of \$16 was raised to \$18 for first six months and thereafter operators were at the end of six months placed on regular staff.

The arrangement introduced as a temporary expedient at the main exchange in October, 1903, was continued as such throughout 1904, and then from December, 1904, as an experiment 'on its merits' until January, 1905, when it appears to have become the adopted and generally recognized practice of the company. The five consecutive hours day was extended to the branch exchanges on or before January 1, 1905.

A word of explanation may here be given as to the alleged determining factors in the arrangement of a time schedule for telephone operators. In the first place, the work of necessity varies considerably from day to day, though in volume it follows an order very similar. To this is given the technical name 'the traffic curve.' Commencing at seven o'clock in the morning the curve mounts gradually, with the increase in the number of telephone communications as the day advances, until by 11 o'clock in the morning the busiest hour, or what is called 'the peak of the load,' is reached. A falling off occurs as the noon hour is approached, and the rise does not again commence till on toward three in the afternoon, when there is a gradual increase in volume till 'the peak of the afternoon load' is reached about 5 o'clock. From this time, under normal conditions, the work eases off and there is a steady decline in the

traffic curve. By ten o'clock at night the 'day operations' may be said to end and the night work begins. From 10 p.m. till 7 a.m. the calling is intermittent, and except for emergencies can be handled by a greatly reduced staff. The normal curve, is, of course, subject to periodic and special variations and fluctuations caused by exceptional conditions such as arise on exhibition or race week, or are occasioned by a fire or interruption to the city's light or car service, or other happenings likely to cause an increased use of the telephone. Saturday morning's business occasions a regular weekly variation as distinguished from these periodic or spasmodic variations. The nature of the business, then, requires that the operating staff shall be divided, so to speak, into instalments, and also that extra or relief members should be constantly at hand. To effect this division so as to economize operators both in the regular and the relieving staffs is the problem with which a business manager of a telephone company is confronted.

The operators being young women, for the most part between the ages of 17 and 22 years, it is necessary that regard be had for their protection and safety in going to and returning from their employment. This regard places a limit on the hours at which it is desirable for the day staff to leave at night and the night staff to come on, and similarly to the hours at which the night staff is to be replaced by the day staff on the following morning. From 10 p.m. to 7 a.m., with a suitable provision for rest, have become the generally accepted hours of the night staff. Later than this at night or earlier in the morning it would be imprudent to have the young women employed in this calling passing to and from their work through the city and its suburbs.

From 7 a.m. to 10 p.m. is 15 hours. This period, it will be seen, admits of an exact mathematical division of the day staff into groups of three, each group working for a period of five hours, or into groups of two, each working seven and a-half hours. It was claimed in support of the five-hour schedule at the time of its introduction that it permitted a division of the staff into three groups, the members of which could be brought on in regular order, the largest numbers being taken on at the time of the heaviest load, there being under this arrangement comparatively little difficulty in arranging the numbers of the staff so as to correspond with the traffic curve. It did away, moreover, to a considerable extent, with the need for reliefs. Employees were expected to work five hours continuously without a break, or if relief was sought during this period, it was expected to be for a very brief interval only, and was afforded rather as a matter of concession than of right. It was claimed as a further advantage of this schedule that the work of the operators being confined to five hours in a day, they would have more leisure during the twenty-four hours and would, as a consequence, be more refreshed in taking up their work.

When it was decided to return to the eight-hour schedule, it was contended by the company that the five-hour schedule had failed to meet the expectations of those who had favoured its introduction; that instead of the operators being in better shape for work in consequence of a longer period of rest, many of them during this period engaged in some additional employment, such as assisting in housework, or the making of clothes, or other service which taxed their energies, or else participated in amusements of one kind or another to such an extent that they were more fatigued at the time of beginning work under the five-hour schedule than they would have been had the greater part of the day been devoted to the work of operating, as would have been the case under the eight hours. It was further contended that the five-hour

arrangement had failed to afford the efficient service to the public which the public had a right to expect, and a change of some kind under the circumstances was necessary. What, in reality, were the determining causes of the change to the proposed eight-hour schedule, and to what extent the grounds set forth by the company were borne out by the facts as given in evidence will appear later.

Reasons for Change from 5 to 8-hour Schedule.

It is quite evident that during 1906 the company, whatever may have been the cause, experienced considerable difficulty in carrying on its service efficiently. Mr. Dunstan, the local manager at Toronto, had never looked with any great degree of favour upon the adoption of the five-hour schedule, and had had little faith in the possibility of its successful working. He was inclined to believe that the inefficient service was due to the five-hour schedule, and at different times made representations to this effect to the head office at Montreal. In March, 1906, the head office decided to have a special report prepared upon the subject. Mr. James C. T. Baldwin, an American citizen residing at Boston, and employed by the American Telephone and Telegraph Company, was retained by the Bell Telephone Company to visit Montreal and Toronto and conduct an investigation. Mr. Baldwin visited Toronto in the latter part of June, 1906. He remained in the city not longer than two days, but arranged while there to have record sheets and other material sent to him for purposes of examination after his return to Boston. On November 30, 1906, he submitted his report, and this, with a report of Mr. Hammond V. Hayes, the chief engineer of the American Telephone and Telegraph Company, dated December 4, 1906, was forwarded from Montreal on December 17, 1906, by Mr. James A. Baylis, the electrical engineer of the Bell Telephone Company, to Mr. Dunstan. The reports are as follows:—

‘ TELEPHONE SERVICE—MONTREAL AND TORONTO.

‘ AMERICAN TELEPHONE AND TELEGRAPH COMPANY,

BOSTON, December 4, 1906.

Mr. JAS. A. BAYLIS,
Engineer, Bell Telephone Company,
Montreal.

‘ DEAR SIR,—In accordance with your request of May the 4th, Mr. Baldwin looked into the question of the telephone service given in Montreal and Toronto, with the particular point in view of obtaining information with regard to the method used in the latter place of working the operators only five hours a day. I am sending you herewith Mr. Baldwin’s report covering the result of his investigations, and I should like to make the following comments in regard to it:—

‘ The suggestion to employ operators only five hours a day is a radical departure from the generally accepted best practice, and it requires most careful consideration before recommending it for general use. *Broadly speaking, the system should be judged from the standpoints of cost, service and the ability to secure operators.**

‘ Considering the question of cost, it is obvious that it will take more operators at five hours a day than if they are employed eight hours, unless the loads are increased proportionately. I do not believe that such an increase as this is probable, and it therefore follows that the cost of giving service will be increased on this basis unless the pay for each operator is reduced. While it is probable that some reduction

* The italics throughout are the Commission’s own.

in salary can be made with a five-hour day, such a change would conflict in a way with the third point mentioned above, which is the ability to secure operators.

Considering now the ability of an operator to handle more calls if she works only five hours a day than if she is employed eight hours, I feel that some increase can be made as far as the operator herself is concerned, both physically and mentally. The question is, however, primarily one of service rather than of load. There is much more question in my mind if an operator on a five-hour schedule can carry appreciably more load than if she works eight hours and give an absolutely equivalent service. There is one point to be considered in this connection, and that is that the load must be so adjusted as to leave a reasonable amount of spare time in each hour, so that the unusual rush of business can be handled satisfactorily. It is our belief that the operators on an eight-hour schedule can carry a load which involves the maximum advisable working time in the hour. If this assumption is correct, it follows that the operator on a five-hour schedule must handle each call more quickly than she does on an eight-hour basis if the load is to be increased. From the rather elaborate investigations which we have recently made of "A" operators' loads, we are inclined to question if this result is possible.

The ability to secure operators is a most important point, and this should be given careful consideration. Generally speaking, of course, the operators will prefer to work only five hours a day, and if the pay is not reduced appreciably from the eight-hour schedule there will unquestionably be some advantage in this way.

In making a schedule for an office on the basis of a five-hour day, we feel that there may be some difficulties on account of drawing a line between those employees in the operating department who should be on a five-hour schedule, and those who should have longer hours. For instance, there can be nothing gained by the telephone company in having the clerks, monitors, chief operators, managers, matrons, &c., on a five-hour schedule, and the fact of having on one pay-roll employees working different numbers of hours per day is very liable to create friction.

Turning now from general consideration to the specific cases of Toronto and Montreal, I wish to say that while the five-hour schedule seems to have the advantage from a cursory examination of the data, I do not believe that there is sufficient evidence to prove the system in as yet.

In the first place, the two systems are compared under widely different conditions, and this makes it impossible to obtain any sort of a fair comparison. As far as the length of the day and character of service is considered, the comparison is a very fair one. A great deal depends, however, in a comparison of this sort, upon the individual managers, and it so happens that the conditions in Toronto and Montreal are not now such as to give a fair comparison to the eight-hour system.

It is necessary, in the first place, to know the exact loads being carried at the present time in both places, and I am inclined to question if our data is precise in regard to this point.

More important than this is the question of service given, and the tests in the two cities are made under such different conditions that the results shown are not conclusive.

We have no records as to the relative lengths of service of the operators in the two cities, and I am inclined to question if sufficient time has elapsed to obtain conclusive data in regard to this point.

It may be stated in the first place, that the Montreal manager is not making the best case possible for the eight-hour day. The loads carried by the operators in this city are too low, and under the conditions that exist there, we can see no reason why the "A" operator should not handle at least 225 calls in the busy hour, and the "B" operator on a direct circuit should handle 400 calls. With the loads noted above the standard grade of service can be given when operating under normal conditions. The amount that they should be reduced, due to the complications of having subscribers

give orders in both French and English, is difficult for us to estimate, but we feel that even under those conditions, loads of 210 per "A" operator should be obtained.

'Turning to Toronto for a moment, I feel safe in saying that the service is not now satisfactory, and that it should be improved.

'Before attempting to make any final recommendations in regard to this matter further, a most careful investigation must be made. * * * * *

'Summing up the whole matter, I do not see how we can make any more definite recommendation until the data called for above is obtained. I regret that there has been so long a delay in forwarding you this preliminary report, and if we can be of any assistance in the collection of any further data, I hope you will not hesitate to call upon us.

'Yours truly,

'(Signed) HAMMOND V. HAYES, K.W.W.,
'Chief Engineer.'

Inclosure: Copy of Mr. Baldwin's report, 11-30-'06.

'REPORT ON SERVICE AND OPERATING FEATURES IN MONTREAL AND TORONTO.

November 30, 1906.

'On account of a request received from the Bell Telephone Company of Canada, I visited Montreal and Toronto the latter part of June, to inquire into the condition of the operating and service in those two cities.

'The principal difference in the method of giving service in these two cities is due to the establishment of a five-hour schedule in Toronto in place of the eight-hour schedule used in Montreal and in most American cities. *The underlying idea of the five-hour schedule is to have the operators work at an extremely high rate during a few hours of the day and have them replaced by fresh operators instead of having an ordinary system of relief during the longer day.* This scheme presents many advantages as worked out by the operating department in Toronto. In the first place, there are no relief operators. There is no provision for lunch hours, but there is an elaborate system of transferring operators from one set of hours in one week to another set of hours in succeeding weeks. The practice is to have all of the operators take their turn at the different periods of operating, consecutively.

'*The results of this new method of handling the operating force in Toronto, when compared with the cost of handling calls in Montreal, shows up greatly in favour of the five-hour schedule if the cost of operating alone is considered.* Taking the average number of calls handled in the main offices in Toronto and Montreal, and figuring the approximate number of calls handled per month, and getting the operating cost per call by dividing the operating pay-roll of the two cities by the number of 1,000 calls per month in each, gives the result for Toronto as \$1.21½ per 1,000 calls, and in Montreal \$1.87 per 1,000 calls, a saving of approximately 33 per cent in favour of Toronto. *These results represent but one side of the question. It is also necessary to consider the quality of the service given to the subscribers in the two cities.* For want of other data, I have used the service tests made by the operating departments in the two cities. This, unfortunately, does not give a good basis of comparison for the reason that the tests are made by different departments and are not uniform. This can be shown by a comparison of the summaries of the service tests in the two offices. Taking, for instance, the ratio of the operators' irregularities on out calls, due to the fault of the operator, the combined summaries for the first six months of this year show that in Toronto these irregularities are made on 8 per cent of the originating calls, whereas in Montreal the irregularities amount to a trifle over 16 per cent. I feel positive from my own observation in the two cities that this difference does not represent the actual service given in the two offices. In fact, I feel that the reverse condition would more nearly represent the actual service given in these two cities. My opinion is that the

service observers in Montreal are much more particular than they are in Toronto, and count operating faults where they are passed over without notice by the Toronto observers. There is, however, the possibility of comparing the speed of answer in the two cities which I think is a slightly fairer comparison than the comparison of the irregularities, although I feel that the results obtained on the speed of answering tests are far from accurate in either of the cities. I make this statement after having carefully observed the method by which these observations were made. In both cities the lines under test terminated as is the usual custom on lamps in a small monitor set in front of the test clerks. In not a single test that I saw made did the test clerk have the stop watch in her hand the instant that the lamp lighted, until the attention of the superintendent in each district was drawn to this feature on the part of the test clerk. For this reason I feel that the actual figures in the speed of answer test in each office should be increased by one-half to one second. As this inaccurate method of timing was used in both cities, it will enable us to form some opinion of the speed of answer in the two cities. The following results are a summary of the speed of answer tests for the first six months of the year:—

	<i>Montreal.</i>	<i>Toronto.</i>
2 seconds or less.....	27.6 p.c.	40.8 p.c.
4 " 	86.1 p.c.	74.7 p.c.
10 " 	98.3 p.c.	91.9 p.c.
Average answer.....	3.45 sec.	3.83 sec.

'The average number of calls per 'A' operator during the busy hour for the first four months of the year were, for Montreal 174.5 and for Toronto, 287.6, showing that the Toronto operators were handling some 113 calls more during the busy hour than they were in Montreal. There is approximately 80 per cent trunking in Montreal and 20 per cent in Toronto.

'I think this condition of affairs shows quite clearly in the table showing the speed of answer. On account of the larger number of calls falling in front of the operators in Toronto, there is a larger per cent answered in a short time, but on the other hand, there is a considerable percentage of the calls that have to wait over 10 seconds; in Toronto 9.1 p.c. of the calls wait over 10 seconds, while in Montreal 1.7 p.c. take over 10 seconds. From the results shown, it would appear that the service given in Toronto costs much less than it does in Montreal, but on the other hand, the service given in Toronto is poorer than the service given to subscribers in Montreal. It is fair, however, to say, that by increasing the cost of service in Toronto, by reducing the number of calls per operator in the busy hours, there is no doubt but what the service could be put on a plane equal to that of Montreal, without increasing the cost proportionately. This cheapening of the service, however, must not be attributed solely to the fact of having a 5-hour schedule in Toronto and an 8-hour in Montreal. There are several other factors entering into the question, the most important of which is the personal factor of the managers in the two cities.

'Mr. Maw, the manager (inspector of service) in Toronto, is an extremely wide-awake man, who has among other qualities, the ability of interesting his operating force in their work and keeping them keyed up to their work while at the switchboard. On the other hand the manager (inspector of service) in Montreal, Mr. Anderson, is far from being as forcible a man as Mr. Maw. His object in handling his department seems to be to give as good service as it is possible to give his subscribers, rather regardless of cost. He considers it necessary, for instance, to have one supervisor for each seven operators; while in Toronto they have one supervisor for about 12 or 14 operators.

'In talking over operating matters with Mr. Maw, his attitude is that all that can be expected from the telephone company is to give reasonably prompt service during all conditions, that subscribers should not necessarily expect as good service at times of extreme rush, as they receive during the ordinarily busy moments; that no great harm is done if the service falls off rapidly on certain days, due to storms or fire, and that in no other branch of public service do people expect to receive equally good service at

all times, citing for example, the condition of the street cars during the busy hours of morning and evening, the crowded condition of railroad trains during conventions, &c.

‘The view held by the Montreal manager, however, is diametrically opposed to this. He feels that there should be enough operators on hand at all times to give gilt-edged service to the subscribers regardless of certain rushes of business.

‘My personal feeling is that each of these managers has ridden his hobby distinctly too far. *From observations made in Toronto during fairly busy times on the switch-board, I am forced to the conclusion that the service on that board on rush days of the year must be nothing short of wretched, whereas in Montreal, during the busy hours of the day it seemed as if the operators were not loaded to anything like their proper amount.*

‘Regarding the question as to whether it is advisable to introduce the five-hour system in other offices than Toronto, and as to whether it would be advisable to change Toronto back into the eight-hour schedule, my feelings on these points are, that before this question can be finally solved, it would be necessary to have more accurate peg counts and service tests taken in the two cities, and that in equating the results of these tests it would be necessary to remove as far as possible the personal equation of the managers of the two cities. My own opinion is that if a manager of Maw’s ability were placed in Montreal with as great an incentive as to show a reduction of the operating cost as Maw has had in his work in Toronto, that the cost of handling calls in Montreal could be very materially reduced, approximating, if not equalling the cost of service in Toronto.

‘Signed) JAS. C. T. BALDWIN.’

Views of Local Manager at Toronto.

In commenting upon these reports, Mr. Dunstan wrote on December 20th, 1906, as follows:—

‘BELL TELEPHONE COMPANY,

‘TORONTO, December 20, 1906.

‘Subject: Mr. Baldwin’s Report.

‘The Bell Telephone Company,

‘JAS. A. BAYLIS, Esq.,

‘Electrical Engineer,

• ‘Montreal, P.Q.

‘DEAR SIR,—I am much obliged for yours of the 17th inst., inclosing copy of letter from Mr. Hayes and Mr. Baldwin’s report on Toronto-Montreal service. I regret that it is as anticipated, inconclusive. It could not well be otherwise in view of the limited time which Mr. Baldwin had at his disposal for personal investigation. It would have been more satisfactory had he been able to make adequate tests of the service here and at Montreal from subscribers’ stations as well as securing traffic records made under his direction and in accordance with a uniform standard here and at Montreal.

‘That the peg test records are unreliable is certain. I discussed this point with Mr. Maw before receipt of your letter, pointing out the discrepancy in operating errors, clearly showing that Montreal adopted a higher standard, while on the other hand I feel that the speed tests are unfair to Toronto, where personal observation shows quicker, if less certain operating.

‘Again, it is a mistake to judge the relative economy of the two systems by present traffic costs, assuming that those costs are largely resultant from the difference in the hour schedule. Practically the same variation existed before the 5-hour plan was adopted, showing that the comparative economy here results from other and probably a combination of causes, including general methods, closer and more intelligent supervision and a greater regard for economy. In other words, the result here is due more to the way in which the system is operated than to merits inherent in the system itself.

'Based upon records supplied by the offices interested, Mr. Baldwin concludes that the service here is inferior to that given in Montreal. Notwithstanding the defects of a *service which is too hurried to be certain*, I am led to believe from many sources that the service here, taken as a whole, is at least as good as that in Montreal.

'Subject to the above, I am in entire agreement with Mr. Hayes and Mr. Baldwin, except that they have not touched upon *the important question of switchboard economy resulting from a higher loading of operators*, and concerning which you are the best judge. Over a year ago I wrote as follows: "Every credit must be given for *the training of operators in team work and in rapidity of movement. They are subjected to close and intelligent supervision. Personal experience and constant intercourse with subscribers leads unmistakably to one conclusion, namely, that the present service, while good, is far from perfect, and faults are those of too rapid operating. Complaints against transmission except from subscribers having Blake instruments, and against lack of promptness in making repairs are rarely if ever met with; whereas those with regard to wrong numbers, bells ringing, operators' failure to repeat, hurried utterance, and other troubles from the same cause are common. The service is good, but it is not what it should be. Its strong points are those of the system and equipment; its weak ones are those of operating.*"

'The experience of the past twelve months has only confirmed the view which I have held from the beginning, and which is supported by the statements of Mr. Hayes and Mr. Baldwin.

'The same careful and intelligent management unhampered by a *system fundamentally wrong* would have given a greatly improved service at a materially reduced cost.

'As you know, both Mr. Maw and Miss Bogert were carried away by the plausible features of the scheme, and were at first enthusiastically favourable; because of the general desire to make the plan a success, unusual efforts were made, and the whole operating force threw themselves heart and soul into the work. *People cannot work at high pressure forever, and this is now realized.* Mr. Maw is frank and manly enough to now admit that *the principle is wrong*, and with this Miss Bogert coincides. They based their calculation on the vain hope that at sometime they would have a thoroughly trained, experienced staff. Short hours would secure the best material; everybody would be punctual; there would be no temporary absence and operators would remain for a long, if not indefinite period. By the very nature of things this could not be so. An analysis of the causes which led to resignations prior to the adoption of the system, showed that length of hours did not enter into the question. Experience since its adoption has confirmed this, and *we never suffered so severely as during the past summer.* Mr. Maw now realizes that the life of the operator is only between two and three years, and that we must always count upon having at least one-third partially. He therefore feels that *it is impossible in an office like the Main to employ a plan which involves operators working at an extremely high rate. There is no room for beginners nor for operators who because of sickness or other reasons are not of the best.* Success was predicted upon a seasoned efficient staff, something which cannot be obtained. It is the old story of the weakest link, and experience shows that the chain breaks when pressure of traffic due to any of the causes which operate in Toronto becomes too great for the operator not of the highest grade.

'Mr. Maw now says that better results can be obtained by a reasonable load carried for a day not exceeding 8 hours, with a somewhat increased wage.

'As previously pointed out, *from 30 to 40 per cent of the staff board, and this percentage must govern. They require a living wage, and are now feeling it impossible to meet the increased cost of board.* The teacher states that the best applicants, on learning that the salary is but \$18, and that they cannot depend upon much overtime, fail to fill in and return their applications. It is a fact that the most intelligent and brightest operators are those who do not live at home, but are thrown upon their own resources. It is a weakness in any system that it should discourage the best material, and be applicable only to the less desirable. *To pay the present high rate per hour for*

much overtime is most uneconomical, and results are not secured if there is any foundation for the idea that the service suffers when operators become tired. Service may not be materially depreciated at the end of the day when operators have been working under ordinary pressure, but it certainly must suffer when operators work overtime after being subjected to a heavy strain for the preceding 5 hours.

'I feel that events have only justified my original contention that there is nothing about the work of operating which differentiates it from any other work to such an extent as to make a 5 hour day advisable or economical. If this is now the general opinion, it would appear unnecessary to make further tests, although this may be of value in other directions. *Unfortunately, we are not in a position to revert to a longer day, because we have not the equipment which will permit unloading. Until the College exchange is opened the operating force must carry the present traffic, and it would neither be wise nor fair to increase the hours without decreasing the load. It would appear that nothing can be done for about a year, but I would recommend that after relief comes through the College office that we should then increase hours and wages and decrease the load. The increase in wages would not equal that of hours, and the cost per 1,000 calls should be lessened.* In the meanwhile I think we should get from Mr. Hayes as much information as possible, so that when the change is made we can put in force the most improved schedule. Conditions have been kept in a disturbed state, service and the net revenue have suffered by reason of this experiment, and it is most desirable that in making another change we get the best results obtainable.

* * * * * * *

'Yours truly,

'(Signed) K. J. DUNSTAN,

'Local Manager.'

Immediately subsequent to the receipt of these reports, the local manager at Toronto was requested to attend a conference of the general manager and chief officers of the company at Montreal during the first week in January, 1907. This meeting had been called for the purpose of considering the general question of the wages and hours of the company's employees, and in particular to discuss the advisability of adopting a uniform arrangement of hours in Toronto and other localities.

From Mr. Dunstan's letter of December 20, 1906, to Mr. Baylis it will be seen that Mr. Dunstan, while himself strongly favouring a return to an 8-hour schedule, felt at the time the letter was written that a return to the longer hours could not be made until the new exchange on College street was completed, and the company's plant enlarged so as to admit of an extension of equipment, and an increase in the number of operators sufficient to cope with the increase in the company's business. Nothing, he thought, could be done 'for about a year.' Mr. Dunstan, moreover, clearly realized that it was high pressure of work and low wages which were responsible for the inefficient service in Toronto, and he told the head office so very plainly. 'The faults,' he says, 'are those of too rapid operating. People cannot work at high pressure forever, and this is now realized.—The principle is wrong. It is impossible in an office like the Main to employ a plan which involves operators working at an extremely high rate' and, elsewhere in the same letter, 'as previously pointed out, from 30 to 40 per cent of the staff board and this percentage must govern. They require a living wage and are now feeling it impossible to meet the increased cost of board.' In a letter of January 16, 1907, hereafter set out, he states 'It is beyond question that there is now much dissatisfaction because operators cannot earn enough to pay for their board and clothing.'

The inevitable effect of the low rate of wages paid by the company was, as the local manager stated, the class of operators desired turned away, the applicants for positions fell off, and the company had great difficulty in obtaining either the number or class of operators required to properly carry on its business. It was necessary, therefore, to increase wages, and to do this immediately if the service were not to continue to suffer, and the alternative which apparently confronted the Montreal conference, in reference to the Toronto exchange, was whether the increase of wages should take place immediately, the hours remaining as they were, until, at least, after the College street exchange was completed, or whether there should be an increase in wages and at the same time a readjustment of hours which would help to offset any increased cost of service consequent upon the increase in salaries. 'If short hours are continued' wrote Mr. Dunstan on January 16, 'an increase in salary must be made and the present cost of service thereby advanced. It is very advisable to make the change in hours and wages coincide.'

It would appear that when the matter was discussed at the Montreal conference it was the evident desire of those present that the wages and hour question, so far as Toronto was concerned, should be dealt with at one and the same time, that any changes in wages might be accompanied by a change in hours. Also, that if at all possible, the change should be made without waiting for the completion of the College exchange. It was decided to increase the wages of the operators at Montreal, the change to take effect from the first of the year. A salary schedule applicable to the Toronto exchange was tentatively adopted and Mr. Dunstan was evidently instructed to go more fully into the question and see if it would not be possible to have the new schedule put into effect forthwith. It would appear that it had been represented to the conference that there was a considerable number of applicants for positions as operators in the company's office on the Toronto list; also, that notwithstanding his letter of December 20, 1906, Mr. Dunstan had conveyed the impression that it would be possible to so arrange matters at the Toronto Main exchange as to afford the necessary relief to the operators which would be required under the adoption of an 8-hour schedule. Mr. Macfarlane the general manager, was emphatic in his statement before the commission that at the time of the conference he understood the then equipment at the Main exchange afforded sufficient means for providing the necessary relief. After Mr. Dunstan's return to Toronto he had a conference with Mr. Maw and Mr. Clarke, the inspector of service and superintendent respectively, and the chief operators. At this meeting he discussed with them the possible adjustment that could be made, and thereafter wrote Montreal stating that he found the number of applicants was far less than had been stated at the conference, that as a matter of fact there were only 7 out of 106 who could be counted upon as being of any real service. This letter contains the recommendation of the local manager for a change to the 8-hour schedule and sets forth the real reasons why the change was made to take effect at the time and in the manner it did, despite objections which were quite apparent to the company. The letter which is dated Toronto, January 10, is as follows :—

OPERATORS HOURS AND SALARIES.

BELL TELEPHONE COMPANY, TORONTO, January 16, 1907.

Bell Telephone Company,
 C. F. SISE, Jr., Esq.,
 General Superintendent,
 Montreal, P.Q.

‘DEAR SIR,—Upon my return after the late conference on above matter, I thought it advisable to bring together the various chief operators and their first assistants. It is not wise to consult the staff, but it is very desirable to ascertain the probable feeling before adopting a *radical change*, and the chiefs and their assistants are so closely in touch as to enable them to speak from the operators’ standpoint. My memorandum of the salary schedule adopted at the conference is as follows:—

‘Local operators, 1 to 6 months.	\$20 00
“ “ 6 to 12 “	22 50
“ “ 12 to 24 “	25 00
“ “ 24 to 36 “	27 50
“ “ and thereafter.	30 00

Long distance, \$2.50 per month additional.

‘To complete the schedule we would recommend giving local supervisors an increase of \$5 on being assigned to that work, or rather after they have shown by a few weeks’ experience their ability to make good. A further increase of \$5 at the end of six months, not exceeding the maximum rate of \$35.

‘Monitors, \$37.50.

‘Long distance supervisors, checkers and monitors, maximum, \$37.50.

‘I inclose *schedule of hours recommended for the Main exchange, based upon the principle of an eight-hour day, one hour for lunch, no regular relief, shorter hours for those who take the broken periods and unpleasant hours, the newer operators taking the greater portion of the evening work, but a sufficient rotation among the older ones to make the evening staff efficient.*

‘The distribution of operators must depend upon the traffic. As this varies between city and city, and even between particular offices in a city, so must the schedule of hours differ to some extent. We think that the arrangement proposed for the Main here is better than that suggested by Montreal, that is, the operating curve will more closely follow our traffic curve. The main thing is that both offices will be applying the same general principle.

‘I was very glad to find that the chief operators were absolutely satisfied that the proposed changes are not only in the interest of the service, but that they will be gladly received by a large proportion of the staff. They think there is no doubt as to that. The teacher feels that she will now be able to get applicants of the right quality, and that they will no longer turn on their heels and go out as they have done in the past. They all expressed themselves as greatly pleased, in which view Mr. Maw and Mr. Clarke heartily coincided.

‘It is beyond question that there is now much dissatisfaction because *operators cannot earn enough to pay for their board and clothing. If short hours are continued an increase in salary must be made, and the present cost of service thereby advanced. It is very advisable to make the change in hours and wages coincide.*

‘The position with regard to applications is this: A statement was made at the conference that we had several hundred on the waiting list. Upon my return I asked Mr. Maw to report, and the following speaks for itself:—

“‘For the year 1906 and up to date I have on hand 106 applications. Out of these 99 are objectionable and undesirable, leaving 7, which are only fair, but in case of emergency might be considered. Applications previous to 1906 are undesirable and out of date.’”

'The question as to whether the changes shall go in force at once or be postponed until the operators can be relieved of their present excessive load was fully discussed, and without minimizing the difficulty of carrying the present load, nor the fact that a certain percentage of the staff may object to lengthened hours, yet it is the unanimous opinion that the change should be made on February 1. The chiefs feel that the present staff will be better satisfied. *Increased money must be paid in any event, something must be done to attract applicants, and we should stop loading the staff with poor material.* With the exception of the Main, there will be little difficulty. *There we may give a twenty-minute relief morning and afternoon, in the discretion of the chiefs, to operators handling very busy positions, especially on busy days. This may not be necessary, but can be used to tide over. As a choice of evils, we prefer acting at once rather than continuing the present unsatisfactory conditions.*

'I would therefore ask your authorization of the above schedule of salaries and change of hours effective from February 1.

'Yours truly,

Signed) 'K. J. DUNSTAN,
'Local Manager'.

From this letter it will be apparent that at the Montreal conference a salary schedule had been adopted, based on an eight-hour day; that it was regarded by the local manager as a 'radical change,' but that it was not until after the matter had been dealt with by the head officials of the company that any intimation of the intended change was given to the chief operators and their assistants, or that their views as to whether suitable arrangements and provisions for the change could be made were ascertained. It would appear, too, that this was the only medium through which an effort was made to secure an opinion as to the probable effect which the change would have upon the staff.

The Manner in which the Change was Effected.

The head office, on January 23, authorized Mr. Dunstan to have the proposed change go into effect on February 1. The letter authorizing the change was as follows:—

'SUBJECT: OPERATORS' HOURS AND SALARIES.

THE BELL TELEPHONE COMPANY OF CANADA,

GENERAL SUPERINTENDENT'S OFFICE,

'MONTREAL, January 23, 1907.

'K. J. DUNSTAN, Esq.

'L.M., Toronto, Ont.

'DEAR SIR,—I have your letter of January 21, inclosing clipping from the Toronto Star of the 19th. It is very unfortunate that the proposed change leaked out; this I look upon as a consequence of having taken the chiefs into our confidence in the matter.

'Regarding the questions raised in your letter of January 16, we desire that you put the new salaries and hours schedule into force on February 1, if possible, and we approve of paying local supervisors an increase of \$5, if, after having been assigned to that work, they make good, with a further increase at the end of six months, not to exceed a maximum rate of \$35. Long distance supervisors to reach a maximum rate of \$37.50.

'Regarding monitors. In Montreal it is the custom to give an operator relief from her duties at the switchboard by allowing her to act as a monitor, but no change in salary is made, as the work is considered to be light compared with the ordinary operating. We do not think that monitors should be paid a higher rate than that of an

ordinary operator, unless you find it essential to make exceptions of those now employed in order to retain their services. The same applies to long distance checkers. These girls are simply clerks and we think could be procured at a lower rate. In Montreal the maximum salary allowed the checkers is \$30, and we have no difficulty in procuring ample help of this description at the price.

‘If you consider checkers as ordinary line operators, the maximum which they could reach would be \$32.50. I can see no objection to paying them a maximum of \$35, provided their salary was based on their length of service, as in the case of ordinary operators.

‘I note that no reference is made to the salaries of local or long distance observation clerks, recorders or night recorders. I assume, therefore, that these have been satisfactorily arranged.

‘Yours truly,

(Signed) ‘C. F. SISE, JR.,
‘General Superintendent.’

This letter was written at Montreal on January 23, and on the following day notice of the intended change was given to the superintendent at Toronto, who caused notices to be subsequently posted in the several exchanges. These notices, which were in the nature of a copy of the letter of the local manager to the local superintendent, were as follows:—

‘THE BELL TELEPHONE COMPANY OF CANADA, LTD.,
‘LOCAL MANAGER’S OFFICE,
‘TORONTO, January 24, 1907.

‘W. J. CLARK,
‘Superintendent.

‘The experiment of an exceptionally short day, consisting of five hours, having proved a failure from many points of view, including that of the majority of the operators themselves and the advantage to the staff of increased wages to enable them to meet the higher cost of living, make it advisable to return to the ordinary day of 8 hours, with the payment of larger salaries.

‘You will therefore revert to the old schedule of hours and adopt the following scale of salary, both effective from February 1 next:—

‘Local salaries—

1 to 6 months	\$20 00
6 to 12 months	22 50
12 to 24 months	25 00
24 to 36 months	27 50
36 months and thereafter	30 00

‘(Signed) K. J. DUNSTAN.’

At the Main exchange a similar notice was also posted, giving the salaries for long distance operators. The notices were identical except that rates for long distance operators were \$2.50 higher in each case.

These notices were the first official intimation that the employees of the company had that their hours were to be changed. The following letter sent by the local manager to the general superintendent would indicate that the opposition to the change which manifested itself immediately was not altogether unexpected, despite the representation which had been made, and which was repeated in the communication, that the majority of the operators would welcome the change:—

' OPERATORS' HOURS AND SALARIES.

' TORONTO, January 28, 1907.

' THE BELL TELEPHONE CO.,

' C. F. SISE, Esq., Jr.,

' General Superintendent,

' Montreal.

' DEAR SIR,—I have always held serious misgivings as to what would happen when the change from 5 to 8 hours became effective. A year ago I did not think it could be made without grave consequences. Fortunately the opinion of the operators themselves has gradually become more favourable until to-day I am convinced that the majority welcome the new scale of hours and wages. While this is so *no one expected the change could be made without disturbance*, and undoubtedly a section of the staff are excited and antagonistic. I inclose an exaggerated article from this morning's *World*. The facts are that 6 or 8 agitators have prevailed on about 150 out of the 600 to sign a petition against an increase in hours. Mr. J. W. Curry, a lawyer, has telephoned asking whether I would see him on behalf of the petitioners, stating that they have placed their case in his hands. I replied in the negative, at the same time explaining briefly for his information why the change was advisable in the interests of the service and the operators themselves. I anticipate that he will draw up a more formal petition and that the agitators will endeavour to secure more signatures. It is well that the trouble comes in the winter, not in the summer. We are as well able to face it now, as we would be at any future period. It is the inevitable result of giving a great deal and then trying to take something back. *I understand the operators claim that as their hours are being increased by three-fifths, their salaries should be raised proportionately.*

' There is no trouble at the North or Park, everything is well in hand. Agitation is confined to the Main. While reserving absolute firmness, every effort will be made through the chief operators and their assistants to persuade the dissatisfied element that both hours and salaries are reasonable.

' Yours truly,

' (Signed) K. J. DUNSTAN,
' *Local Manager.*

The notices appear to have been posted some time on the afternoon of Friday, January 25, and were read by a number of the operators who were employed at that time and during the evening. The majority of the operators, however, did not see the notice until the following (Saturday) morning.

It will be observed that the notices as posted contained a mention of the hours and wages merely. They contained no intimation that with the increase in hours of work there would be any lessening of the pressure under which the operators would be obliged to work during the hours of their employment, nor any adequate measure of relief afforded. Mr. Dunstan contended before the Commission that notwithstanding the statement contained in his letter of January 16, to the general manager, it was the intention of the company both to lessen the pressure of work and to afford considerable relief, and that he had taken steps to see that the operators were made aware of this intention. The operators on the other hand denied they had any grounds for believing that the company had any such intentions, and asserted that from their knowledge of the extent of the equipment in the Main exchange they had very strong reasons for believing that even were such the intentions of the company it would have been impossible for these intentions to have been successfully carried out.

To what degree the contentions of the respective parties were well founded may

be judged in part from the communications already set forth and will appear more fully when the nature of the evidence on these points is given. There can be little doubt but that the situation as it appeared to the operators on Saturday after the posting of the notices, whether rightly or wrongly so viewed, was that in less than a week's time they would be obliged to accept a change of conditions which, so far as they could see, meant a considerable increase in the amount of work which they would be required to perform, and this at a considerably less than proportionate increase in the amount of remuneration; also that this change was going into effect notwithstanding it was generally admitted that work as it had been carried on under the five-hour schedule had already proved too great a strain and in some instances a positive injury.

On Sunday an informal meeting of the supervisors and some of the operators was held at the residence of one of their number, at which consideration was given to the method of dealing with the situation and approaching the company. The meeting decided that the best course to adopt was to consult a solicitor and have him assist in framing a petition which would be presented to the company. It was agreed to consult Mr. J. Walter Curry, K.C., and members of the meeting were deputed to arrange an appointment with Mr. Curry for the following day. On Monday afternoon, while the Committee was in his office, Mr. Curry communicated with Mr. Dunstan by telephone, asking if he would receive a petition from his employees or would see him, Mr. Curry, on their behalf. The reply received was to the effect that the company had made up its mind and that no possibility of a change would be considered. Mr. Dunstan refused absolutely to see Mr. Curry on behalf of the employees and in fact appeared to resent their action in having consulted a solicitor, alleging that it was a matter between the company and its own employees, and not one in which a third party should interfere. Some of the operators, it would seem, advocated later a committee of the employees waiting upon the management, but they were not agreed upon this, the general feeling among the operators being that as Mr. Dunstan had stated that the company had made up its mind and had refused to consider a petition from its employees little or nothing could be gained by a personal interview. It was after receiving the answer given by Mr. Dunstan to Mr. Curry that a number of the operators decided that rather than accept the new conditions of employment they would cease work and it became generally known that a strike would take place on February 1, unless some change or agreement were reached in the interval. On Wednesday, January 30, notwithstanding the decision reached, a committee of the long distance operators waited upon the local manager, but were unable to effect any change.

Intervention of Department of Labour.

On January 30, a committee of the employees waited upon Mr. Emerson Coatsworth, the Mayor of the city, and requested his intervention. Mr. Coatsworth communicated with Mr. Dunstan by letter, and at the same time sent the following wire to the Department of Labour, at Ottawa:

'TORONTO, ONT., January 29, 1907.

'Mr. W. L. MACKENZIE KING,
'Deputy Minister of Labour,
'Ottawa, Ont.

'A strike of telephone operators is very imminent here and likely to occur on Friday. The time of the operators is to be lengthened from five to eight hours. They

say that it is a physical impossibility with our enormous telephone business to stand the strain of such long hours. The company refuses to deal with them in any way. Could you not come up to-night or to-morrow and make an effort to relieve the situation in the public interest, which will be seriously affected by a strike.

(Signed) E. COATSWORTH,
Mayor.

To the request of the Mayor for the intervention of the department under the Conciliation Act, the Minister of Labour replied as follows:

Ottawa, January 30, 1907.

E. COATSWORTH, Esq.,
 Mayor of Toronto,
 Toronto Ont.

Your telegram to Mr. Mackenzie King, Deputy Minister of Labour, stating that a strike of telephone operators is imminent and likely to occur at Toronto on Friday, and requesting his intervention has been submitted to me.

I have had pleasure in directing Mr. King to proceed at once to Toronto to lend the good offices of the Department of Labour, with a view to averting the threatened strike, and of effecting an amicable settlement of the differences between the company and its operators.

In sending my deputy to act on behalf of the government in this dispute I trust that both parties will show a disposition to be governed in their actions toward each other, by a due regard for the public interests involved, and that considering the necessity of an uninterrupted and continuous operation of the telephone service, the parties will, failing an adjustment of their differences before Friday, be prepared, in order to avert a strike, to accept such method of amicable settlement as Mr. King may suggest, and, as in the public interest, as well as in the interests of the parties themselves, may seem reasonable and fair.

(Signed) RODOLPHE LEMIEUX,
Minister of Labour.

Mr. Mackenzie King, the deputy minister, left Ottawa the same day as that on which the reply had been sent by the Minister of Labour to His Worship the Mayor, and arrived in Toronto the following morning. He called upon the Mayor and met at His Worship's office Mr. John Armstrong, the Secretary of the Ontario Bureau of Labour, who had been requested by Mr. Coatsworth to lend the good offices of the Ontario government. Mr. King and Mr. Armstrong then waited on Mr. Dunstan. During their conference with the local manager the threatened strike of the employees took place.

The following telegram had been received by Mr. Dunstan from the head office, on the morning of January 31:

MONTREAL, QUE., January 31.

K. J. DUNSTAN,
 Bell Telephone Co.,
 Toronto.

As this is last day of month insist upon declaration of intentions to-night. Pay off strikers, but do not allow them to again enter building, particularly operating room.

(Signed) 'C. F. SISE'

Pursuant to the instructions contained in this message, Mr. Dunstan directed that each operator should sign one of two papers, headed respectively as follows: 'We will continue in the service and report regularly for duty,' and 'We resign from

the service to-day.' These papers were placed before the operators at noon on Thursday, January 31. Referring to the signing of these papers, Mr. Maw, the inspector of service, said in his evidence:

'After I read Mr. Dunstan's note that you have (notice of January 24), and went into the matter verbally trying to calm the matter down and so forth, and asked them that I would like them to sign one way or the other for the reason we didn't know whether we wanted 50 operators to keep a continuous service uninterrupted, at the same time we should try and run smoothly, none had left before, and hoped it would continue.

'Q. They had left the board and you were conferring with them; they had not left with the intention of leaving the company's service permanently at that time?

'A. No, I think not, they were going off duty.

'Q. After you asked for signatures I understand that a number refused to sign and left the service altogether?

'A. Yes, I don't know whether they left the service.

'Q. Then in your opinion did the requesting the employees to sign these papers at that time in that manner in any way account for their leaving the employment at the time they did?

'A. I think it did.

'Q. I am trying to find out whether in your opinion the action of the company in requesting the operators to sign this sheet was responsible for the strike taking place when it did or not; if I understand it rightly you are of opinion it was?

'A. It brought it on at that moment, I think.'

Notwithstanding that the strike had been precipitated in this way through the company's action, Mr. King and Mr. Armstrong endeavoured to arrange a joint conference between officers of the company and representatives of its employees, and to have the company agree to refer to arbitration such questions as could not be settled by a conference. The following communication, having this end in view, was addressed after the interview, by Mr. King to the local manager of the company, and personally delivered about two o'clock in the afternoon:

'TORONTO, January 31, 1907.

'K. J. DUNSTAN, Esq.,

'Manager The Bell Telephone Co.,

'City.

'SIR,—As you are aware, I have been directed by the Honourable the Minister of Labour, acting on a request from His Worship Mayor Coatsworth, to lend the good offices of the Dominion Department of Labour towards effecting a settlement of the difficulties which exist between the Bell Telephone Company and its operators in this city in reference to a new schedule of hours and wages which it is proposed by the company to put into force to-morrow.

'I arrived in Toronto this morning, and at the earliest opportunity had, in company with Mr. John Armstrong, Secretary of the Ontario Bureau of Labour, an interview with you, during which interview certain of the operators ceased work, in consequence, I understand, of their being asked to state in writing whether they proposed to accept the new schedule or consider themselves as no longer in the company's employ.

'You will doubtless agree that it is very much in the public interest as well as in the interest of your company and its employees that the service should remain uninterrupted and your present employees retained in their positions provided an amicable settlement can be reached on the questions in dispute, and that every fair and reasonable means of effecting such amicable settlement and averting a general strike should be adopted.

'It would appear that the first step towards effecting such a settlement would be to arrange a joint conference between the representatives of the company's employees, acting on their behalf, and yourself with such other representatives of the company as you may name, acting on the company's behalf, and that pending such conference and such further negotiations between the parties as may be mutually agreed upon, the operators should continue in the company's service under the present schedule of rates and hours, and the company agree to continue in force the present schedule.

'If you will kindly acquaint me with the views of your company as to this proposal, I shall, in the event of it being favourably entertained, be pleased to so inform the operators, and endeavour to bring about a joint conference as speedily as possible.

'I have the honour to be, sir,

'Your obedient servant,

'(Signed) W. L. MACKENZIE KING,
'Deputy Minister of Labour.'

Mr. Armstrong, at the same time, delivered a similar communication.

No reply was received to either of these communications until the afternoon of the next day, when the following communication from the local manager was handed to Mr. King and Mr. Armstrong at the company's office.

THE BELL TELEPHONE COMPANY OF CANADA, LIMITED.

TORONTO, February 1, 1907.

W. L. MACKENZIE KING, Esq.,

Deputy Minister of Labour,
Toronto.

DEAR SIR,—I beg to acknowledge receipt of your letter dated January 31, expressing a willingness to lend the good offices of the Dominion Department of Labour towards effecting a settlement of the differences which exist between the company and a portion of its operators in this city, making a suggestion that pending a conference and such further negotiations between the parties as may be mutually agreed upon, the operators be allowed to return under the old schedule of rates and hours. On behalf of the company, I beg to state that had this request been received before the operating staff, or rather a portion of it precipitated trouble by striking yesterday about 1 p.m., the company would gladly have acceded. The action above referred to has now made it impossible for reasons explained more fully to you in conversation. The difference is one of principle. What was originally a temporary relief to off-set the discomforts of operating while the main exchange was being reconstructed, was continued as an experiment based upon the principle of rapid work for 5 hours at smaller salary as against the usual practice of a lighter load continued for an ordinary day at a higher rate of payment. The experiment was tried exhaustively and under most favourable conditions. It has proved an absolute failure, detrimental to the service, injurious to the health of the operators; and those in direct charge of the Traffic Department, who were most favourable to its adoption are now most pronounced in its condemnation. In view of the practical knowledge and experience gained during this experiment, the company cannot in justice to its subscribers or to the health and comfort of its operating staff continue the plan condemned by all who are charged with the duty of maintaining the service.

The company appreciate highly the motives by which you are actuated, and the fact that you have come to Toronto to act in the capacity named in your letter and strongly desire that for the information of yourself, your government, the general public and the operators, you will make a full investigation in order that you may form an accurate judgment upon the course the company has taken. I can only again assure you of our willingness to give full information. We recognize our duty to the public, and believe that at the present moment satisfactory service is being furnished

to all subscribers, as every switchboard position at every exchange in the city is now filled by a competent operator.

There may be matters of detail capable of improvement and these will be adjusted as satisfactorily as possible with our staff. In conclusion I would add that as an evidence of the fact that this company has not abused its position towards its operators, there has been no previous strike during the 27 years of its history.

Yours respectfully,

(Signed) K. J. DUNSTAN,
Local Manager.

On the evening of the same day, the operators to the number of over four hundred held a meeting in the Labour Temple, Toronto, at which meeting the following resolution was unanimously passed, and a copy given to the Deputy Minister of Labour to have forwarded to the Minister :—

‘Whereas by the arbitrary action of the manager of the Bell Telephone Company, at Toronto, the operators, supervisors and monitors were compelled to leave the company’s employ in a body and thereby disorganize the service and cause serious inconvenience and delay to the general public of the city of Toronto ;

And, whereas, the said employees having every confidence in the fairness and justice of their demands, proposed and agreed to submit all questions in dispute to a board of arbitrators ;

‘And, whereas, the said company, through its manager, has refused a conference and such submission to arbitration ;

‘And, whereas, the said employees are confident that the force of public opinion would, upon all the facts being made known upon oath, compel the said company to treat its employees fairly and justly ;

‘And, whereas, the said employees are anxious that all the facts should be made public upon oath before a board of public inquiry ;

‘Now, therefore, this meeting of operators, supervisors and monitors to the number of over 400, requests the Minister of Labour to cause a public inquiry to be made under oath into all matters in dispute between them and the said company, agreeing, that in case said inquiry is ordered, to return to the company’s employ in order to prevent inconvenience to the public and a general disorganization of business, and to be bound by the finding of said board in all matters between themselves and the said company.’

The Appointment of Royal Commission.

The communications received from the local manager of the company, and the resolution passed by the employees were communicated by telephone to the Minister of Labour at Ottawa by the Deputy Minister from Toronto, and copies subsequently forwarded by mail. The Deputy Minister at the same time strongly recommended that, considering the dispute was one which had an important bearing upon the health of women engaged in an industrial pursuit in which a large number of young women and girls were employed throughout the Dominion, a royal commission should be appointed to inquire fully into the matter. At noon on the following day the Deputy Minister received the following communication from the Minister of Labour :—

‘W. L. MACKENZIE KING,

‘OTTAWA, February 2, 1907.

‘Deputy Minister of Labour,

‘King Edward Hotel,

‘Toronto.

‘Re dispute between Bell Telephone Company and operators, government has de-

cided to refer matter to Royal Commission, appointing yourself and Judge Winchester commissioners. Commission will be issued immediately.

(Signed) RODOLPHE LEMIEUX,
'Minister of Labour.'

Later in the day the following communication was received by the Deputy Minister of Labour from the Honourable R. W. Scott, Secretary of State:—

W. L. MACKENZIE KING,
'Deputy Minister of Labour,
'King Edward Hotel,
'Toronto.

OTTAWA, February 2, 1907.

'Minute of Council has been approved, appointing you and Judge Winchester commissioners under Public Inquiry Act to inquire into telephone strike. The commission has been issued and will be mailed you to-day. With this assurance, I presume the operators will return to work.

(Signed) R. W. SCOTT.

The commission issued to His Honour Judge Winchester and Mr. Mackenzie King conferred upon the commissioners the power of summoning before them any witnesses, and of requiring them to give evidence on oath, and to produce such documents and things as the commissioners deemed requisite to the full investigation of the matters into which they were appointed to examine. The following extracts from the order in council, making provision for the investigation by the commissioners, and which was attached to the commission, will indicate more fully the scope of the commission and the circumstances under which it was issued:—

'On a report dated February 2, 1908, from the Minister of Labour, stating that the mayor of Toronto having on the 29th January, requested the intervention of the Department of Labour for the purpose of averting a threatened strike of the employees of the Bell Telephone Company in that city, he directed Mr. Mackenzie King, the Deputy Minister, to proceed at once to Toronto and lend the good offices of the Department of Labour under the Conciliation Act, with a view to effecting, if possible, a settlement of the difference.

'The minister observes that the mayor stated in his communication to the department that the time of the operators was to be lengthened from five to eight hours; that they contended it was a physical impossibility with the enormous telephone business of the city of Toronto, to stand the strain of such long hours; that the company refused to deal with them in any way, and that a strike of the telephone operators would seriously affect the public interests.

'The minister further states that Mr. Mackenzie King has reported that the anticipated strike occurred before there was opportunity of conferring with the parties; that having used his best efforts to effect a settlement, the company have stated that a joint conference between representatives of the parties is impossible, and that the company are unwilling to refer the subject of the difference to a board of arbitrators. That the operators affected are willing to accept a joint conference or to leave the matter to arbitration and abide by the award of the arbitrator. Further, that the company have stated that they strongly desire that for the information of the government, the general public and the operators a full investigation be made, that an accurate judgment may be formed upon the course the company have taken, that the operators have stated that they also desire a full investigation, and will agree in the event of the government appointing a board of inquiry to return immediately to the company's service upon the schedule of rates and hours the company have proposed and abide by the findings of such board.

'The Minister is of opinion that it is in the public interest that this dispute should be terminated as speedily as possible, and both because of the nature of the dispute and the express wish of the parties it is desirable that a full investigation should be made into the subject of the difference, and that to this end a commission should be immediately appointed to make expeditious and careful inquiry into the said dispute and all matters affecting the merits thereof, and the right settlement thereof.

'The Minister, therefore, recommends that it be referred to William Lyon Mackenzie King, Deputy Minister of Labour, and to His Honour John Winchester, Senior Judge of the County Court of the County of York, as Commissioners under the provisions of Part I. of Chapter 104 of the Revised Statutes, 1906, commonly called the "Inquiries Act" to hold and conduct such inquiry with all the powers conferred upon commissioners by the said part.

'The Minister further recommends that the Commissioners report to the Minister of Labour the evidence and proceedings with all possible despatch and make such recommendations as to them seem advisable.

The commission as here indicated was issued at Ottawa on Saturday, February 2. It was received at Toronto on the Monday morning following, on which date the commissioners, as already stated, entered upon their duties.

The company had, in anticipation of the strike, brought in operators from Ottawa, Montreal, Hamilton, London, Windsor, Peterborough and other centres. Over 100 in all appear to have come to Toronto, some of them arriving on the morning the strike took place and the remainder on the day following. Some 25 persons chosen at random from among the number of those who had been brought to the city were asked to appear before the Commission on Tuesday, February 7, at the beginning of the sittings of the commission. On that day a medical certificate from Dr. Alton Garratt was produced, in which it was stated that of the 25 persons selected, 13 were in too precarious a condition of health to permit of their giving evidence. Dr. Garratt, on being examined in reference to the certificate, stated that all were suffering from a good deal of nervousness, that some were suffering from sore throat, tonsillitis, laryngitis, &c. The 12 who gave evidence were examined at some length. They were all from among the most highly remunerated employees of the company at the localities from which they came. Several of them were in positions of authority, commanding good salaries. Some had been in the service of the company for a number of years. They apparently understood, before leaving work at the points from which they came that they were being brought to Toronto to fill the places of those who were likely to go out on strike. They had been asked by the local managers in their several exchanges if they were willing to come, and appear to have consented without any undertaking other than that all expenses would be paid and their services remunerated at the rate of their regular salaries. However, the president of the company, Mr. C. F. Sise, in a letter written from Montreal on January 30, to the local manager at Toronto, advising the latter that forty operators were leaving Montreal on the following morning, stated: 'The operators who leave here to-morrow morning have expressed the utmost loyalty to the company, and state that they propose to see us out of our difficulties at Toronto, and in recognition of their loyalty we do not propose to stop on a question of dollars and cents.' None of those who came appear to have had any expectation of remaining permanently in Toronto. They had been informed that their services would probably be required for a few days only, the inference being that the operators at Toronto not being effectively organized and a number of them self-dependent, it would be but a matter of a few days before

necessity would compel them to return to work upon the new conditions, or others be obtained to fill their places. With the assistance of the operators brought in in this manner from the outside, and the utilization of its office staff at the operating boards, the company was able to maintain an indifferent service on the Thursday afternoon and the following Friday, Saturday and Sunday during which the strike lasted, although in some parts of the city the service during these days appears to have been all but completely crippled.

The intention of the government to have inquiry made into the grievances of the operators, and the appointment of the Royal Commission having been announced, the operators, in accordance with the terms of the resolution they had passed, presented themselves for re-employment at the offices of the company on the morning of Monday, February 4. A large number were immediately taken on, and the strike, to all intents and purposes, was at an end.

III.—THE REMUNERATION OF WORK AND THE COST OF LIVING.

Statements of local manager setting forth reasons for change from five to eight hours, and policy of company in reference thereto.—Inefficiency of service confirmed by J. T. Baldwin.—Further statements by local manager.—Criterion for testing system—Cost, service and ability to secure operators.—Results of tests from these standpoints prove five-hour system wanting.—The health or well-being of the operators not the motive of the change—reasons for believing this.—Confirmed by evidence before the commission.—Evidence of Mr. Dunstan that wages paid not sufficient to meet cost of living or to attract operators.—Evidence of Mr. Maw that low salaries responsible for inability of company to secure operators.—Increased hours, not wages, cause of strike—explanation of this.—The two schedules compared.—Total earnings under the five-hour schedule.—The increase under the eight-hour schedule in reality a reduction considered from point of view of earning capacity.—Objection to hours virtually an object to wages change as well.—The change viewed from standpoint of cost to company, and remuneration to employees.—The new schedule a saving in cost to company, and a decrease in wage-earning.—Allowance to be made for possible lessening of speed of operating.—The intention of company to effect a saving in cost.—Increase in wages not equal to increase in hours—a considerable difference in percentages.—Increased outlay of expenditure by company not necessarily an indication of increase in cost.—Possible benefits to be derived from change in rates less real than apparent.—The more favourable changes relate to periods of service which few operators reach.—Average life of operator from two and a half to three years.—Evidence of Mr. Dunstan.—Evidence of Mr. Maw.—More favourable wage changes of no advantage to majority of operators.—Doubtful if other changes appreciably improved opportunity of operators to better their condition.—A word as to profits.—Revenue and expenditure of company during 1905—an 8 per cent dividend.—Earnings and expenditure of Toronto exchanges.—Views of local manager as to relation of wages and profits.—Views of Mr. Maw as to relation of wages and profits.—Views of general manager as to relation of ways and profits.—Bearing of wages and profits on question of relations between employers and employees.—Peculiar position in this connection of an industry possessing a complete or quasi monopoly.—Bell Telephone Company a monopoly so far as concerns Toronto.—Obligation on public to insist on fair day's wage for fair day's work.—Extent to which profits of company may have been derived by species of sweating or tax levying.—Admissions of local manager in reference thereto.—In public interest that such conditions should be disclosed and understood.—The interest of investors.—Increased publicity a desirable factor.

‘**O**PERATORS cannot earn enough to pay for their board and clothing. If short hours are continued an increase in salary must be made, and the present cost of service thereby advanced. It is very advisable to make the change in hours and wages coincide. Increased money must be paid. In any event, something must be done to attract applicants, and we should stop loading the staff with poor material. As a choice of evils we prefer acting at once.’ It will be apparent from the reports made and the correspondence which took place prior to the strike that the reason for the change from the five to the eight-hour schedule, and the policy of the

company in regard thereto, are to be found in these concise statements of the local manager at Toronto in his letter of the 16th of January to the head office, containing his recommendation for immediate action. "The service given in Toronto is poorer than the service given to subscribers in Montreal," wrote the expert, Mr. James C. T. Baldwin, and he adds, "From observations made in Toronto during fairly busy times on the switchboard, I am forced to the conclusion that the service on that board on rush days of the year must be nothing short of wretched." "The faults of the present service," wrote Mr. Dunstan in another communication, "are those of too rapid operating.....Complaints with regard to wrong numbers, bells ringing, operators' failure to repeat, hurried utterance, and other troubles from the same cause are common.....People cannot work at high pressure forever, and this is now realized.....We never suffered so severely as during the past service..... It is impossible in an office like the Main to employ a plan which invokes operators working at an extremely high rate. There is no room for beginners, nor for operators who, because of sickness or other reasons are not of the best.....From 30 per cent to 40 per cent of the staff board, and this percentage must govern. They require a living wage, and are now feeling it impossible to meet the increased cost of board.To pay the present high rate per hour for much overtime is most inconvenient, and results are not secured if there is any foundation for the idea that the service suffers when operators become tired. Service may not be materially depreciated at the end of the day when operators have been working under ordinary pressure, but it certainly must suffer when operators work overtime after being subjected to a heavy strain for the preceding five hours."

'Broadly speaking,' wrote Mr. Hammond V. Hayes, chief engineer of the American Telephone and Telegraph Company, 'the system should be judged from the standpoint of cost, service, and the ability to secure operators.' That it was judged from these standpoints is abundantly apparent, as were also the results, viz., that (from the standpoint of ability to secure operators) operators could not be secured because of the low rates being paid; that (from the standpoint of service), the service as a consequence was materially impaired; that to secure operators and improve the service it would be necessary to increase the wages and reduce the speed of operating, which would mean also an increase in the number of operators. Increase in wages and increase in the number of operators, other things remaining the same, would mean increased cost; (from the standpoint of cost then) to offset an increase in cost it would be necessary to increase the hours.

Health of Operators not a Main Consideration.

Had the company made the health of its operators a matter of first concern, it is difficult to see how it could have permitted operating being carried on at such a high rate of speed for so long a time after its ill-effects upon the health of the employees had become known, or how the company could have permitted its operators under any circumstances to work a certain number of days each month for a period of 10 hours, being two consecutive stretches of five hours each, as was the common practice under the five-hour system, when it had become apparent to the management that five hours' consecutive work at the high rate of speed which characterized the operations of the Toronto exchange was inimical or injurious to the health of its employees.

In the letter above referred to, of the local manager, recommending the changes as well as in other correspondence, and reports, one looks in vain for any reference which would indicate that the health or well-being of the operators was a matter of any consideration save where it was forced, so to speak, upon the company in its consideration of the three commercial tests above set forth, namely, cost, service, and ability to secure operators. Where mention, for example, was made of relief in the above-mentioned letter, in connection with its advocacy of two continuous stretches of four hours each per day, it was worded so hypothetically, and made to apply in cases only of such extreme necessity, that its insertion for commercial rather than humane reasons is but too apparent. 'We may give a twenty-minute relief morning and afternoon, *in the discretion* of the chiefs, to operators handling *very busy positions*, especially on *busy days*.' If anything further were needed to explain the motive it would be found in the words which immediately precede and follow, 'With the exception of the Main there will be little difficulty'. . . . 'this may not be necessary but can be used to tide over.' It was a question not of the health of the operators, but as Mr. Dunstan very tersely expressed it 'a choice of evils,' for commercial reasons.

In view of these facts, and taking into consideration the circumstances existing at the time, the fact that the change was not delayed until the other exchange had been completed, and what transpired at the conference in Montreal, we are forced to believe that it was for commercial and business reasons rather than because of any humanitarian considerations that the company decided to substitute for the five-hour schedule the schedule which it attempted to enforce on February 1. We are the more confirmed in this belief, inasmuch as the management does not appear to have considered any alternative other than the one of an eight as against a five-hour schedule. Had the lessening of the pressure under the 5-hour system been the main consideration, as was urged, this might have been effected if humanitarian considerations had been uppermost, by an increase in the number of operators and the lessening of the load which each operator was obliged to carry. Moreover, there were as alternatives all the possible arrangements both in the matter of time and reliefs which might have been made through an adjustment on any basis less onerous than that of the eight-hour system as proposed.

That commercial reasons rather than any consideration for the health and welfare of the operators were the motives which prompted the change was no less apparent from the testimony given before the commission than it was from the written records of the company, which were filed as exhibits. In his evidence in regard to the wages paid, and the inability of the company to secure operators as a consequence, Mr. Dunstan was very clear in the replies given to questions put by the commission:—

'Q. As I understood it, in discussing this matter of wages, what you said was equivalent to stating that during the past three years the Bell Telephone Company has not been paying wages sufficient to enable these operators to pay the cost of their living?

'A. I think you are right, with this qualification, I am not sure that that goes back three years. . . . To the girl who lives at home the salary which we have been paying was perhaps sufficient, that depended entirely on what she did with her money. To a girl who can make some money in some other occupation, and I have heard of such occasions, it would be perhaps a very good thing. To the girl working a good deal of overtime it was all right, but the overtime was most objectionable from the

standpoint of her health, but to the girl who had to make her own way in the world, to pay her own expenses, and who wished to live on a certain scale, then it was insufficient and did not attract, and those people did not come into the service except perhaps in very limited quantities.

‘Q. Then the woman who is depending for her livelihood on what she could earn in the employment of the Bell Telephone Company could not make a sufficient amount to really properly pay her living expenses in the city of Toronto?’

‘A. Not of the class that we wanted. Of course you understand you can get down down, but I say of the class we wanted and of the age that we wanted, the low salary was insufficient and the short hours did not appeal because it did not enable her to live.’

‘Q. Did you have in your employment any number of girls depending entirely on what they are getting from the Bell Telephone Company?’

‘A. Undoubtedly.’

‘Q. Would that be a large number?’

‘A. It would be a very large percentage; not the largest percentage, but a very substantial percentage which is dependent.’

‘Q. Would that be 50 per cent?’

‘A. I would not like to say; if I were to make an estimate I would be more inclined to put it perhaps at 30 to 40 per cent.’

‘Q. That 30 to 40 per cent were not receiving a sufficient amount?’

‘A. Unless they were members of the old staff, in which case they would be getting the old salaries because they were never reduced, or unless they were filling a superior position I was speaking of before, but as I said before that class turned away and would not enter the service, and yet that is the very class we want in the service because experience shows that they make the best operators.’

‘Q. Any self-respecting woman wanting employment would naturally turn away from employment that would not give her a livelihood?’

‘A. Most decidedly, unless we could promise her sufficient overtime to enable her to make it in that way, and when she was told we could not do that, and would not do it, then of course there was no alternative but to go away.’

Mr. Maw, referring to the inability to obtain suitable applicants gave the following evidence:—

‘Q. Was it in consequence of the smallness of the salary offered?’

‘A. Almost without a doubt.’

‘Q. That was the real reason after all for the change in the number of hours and in salaries, because you could not get the applicants?’

‘A. That was one of the reasons.’

‘Q. The main reason.’

‘A. The principal reason, but the service given was entirely unsatisfactory to the public.’

‘Q. When you found you were going to have to pay more wages to get applicants, was it at that time you considered an increase in hours? Was that the motive that prompted you increasing the hours?’

‘A. That coupled with the working of the operators and the service.’

‘Q. What do you mean by the working of the operators?’

‘A. The service given, general statements of people who say: “I ask for Central, and I got that promptly,” or “I may get my number and I just hear a buzz; if I get them, well and good; if I don’t I may stand and shake, and so forth.”’

Nature and Extent of Wages Change under New Schedule.

Notwithstanding the low rates of wages paid to operators prior to the change, the operators without exception stated it was the question of hours, and not of wages which occasioned hostility to the new schedule, and was responsible for the strike. Both the management and the operators admitted that under the old scale it would

have been impossible for a self-supporting woman to maintain herself, the cost of living being what it was in Toronto. In view of this, the *bona fides* of the operators in making a protest against any change which meant increased remuneration can hardly be questioned. What the change really amounted to a brief explanation will show.

The rate of wages for local operators under the 5-hour schedule and the 8-hour schedule were respectively as follows:—

Local Operators.	5-hour Sched. ule.	8-hour Schedule.
	Per month.	Per month.
1 to 6 months.....	\$18 00	\$20 00
6 to 12 "	20 00	22 50
12 to 18 "	20 00	25 00
18 to 24 "	22 50	25 00
24 to 30 "	22 50	27 50
30 to 36 "	25 00	27 50
Thereafter.....	25 00	30 00
Long distance \$2.50 per month additional.		

Under the five-hour schedule there were no reliefs, but there was a system of overtime which made it possible for operators to supplement their regular earnings by working additional hours. At the rate of 26 working days in the month, and working 52 hours overtime, each month, an operator might supplement her regular wages to the extent of \$7.20 during the first 6 months of her employment, to the extent of \$8, between the 6th to the 8th month, to the extent of \$9 between the 18th to the 30th month, and to the extent of \$10 thereafter. Under the eight-hour schedule it was proposed that overtime should be done away with completely. In its stead was to be substituted an increased number of hours of regular work per day, with an increase in the monthly wage. The number of hours increase in regular work under the new schedule as understood by the operators at the outset amounted to 78 per month, though under the schedule as modified before the commission the actual increase in working hours per month came to 52 in the case of those working the regular hours; where operators were working on reliefs, as was the practice with beginners for the 6 months, the increase would be less, being an increase of 6 hours only. In the cases, though, where operators worked as reliefs, their day was more broken, the working time being at less regular periods, and the intervals between, more frequent or longer.

The amount of increase in wages, as will be seen by a comparison of the two schedules was :

	5-Hour Schedule.	8-Hour Schedule.	Increase per month.
		\$ cts.	\$ cts.
1 to 6 months.....	\$18.00 per month....	20 00	2 00
6 " 12 "	20.00 "	22 50	2 50
12 " 18 "	20.00 "	25 00	5 00
18 " 24 "	22.50 "	25 00	2 50
24 " 30 "	22 50 "	27 50	5 00
30 " 36 "	25.00 "	27 50	2 50
36 and thereafter.....	25.00 "	30 00	5 00

In other words, under the new arrangement the operator would receive during the first 6 months of her employment, if working full regular time and not reliefs, \$2 per month in the place of \$7.20 earned in overtime by working the same number of hours, under the five-hour system. What the change in the schedule as a whole meant will be seen from the following :—

5-Hour Schedule + Overtime.		Total.	8-Hour Schedule.	Decrease to Operators.
		\$ cts.	\$ cts.	\$ cts.
1 to 6 months	\$18.00 + \$7.20 per month.	25 20	20 00	5 20
6 "	12 " 20.00 + 8.00 "	28 00	22 50	5 50
12 "	18 " 20.00 + 8.00 "	28 00	25 00	3 00
18 "	24 " 22.50 + 9.00 "	31 50	25 00	6 50
24 "	30 " 22.50 + 9.00 "	31 50	27 50	4 00
30 "	36 " 25.00 + 10.00 "	35 00	27 50	7 50
36 upwards	25.00 + 10.00 "	35 00	30 00	5 00

It is not to be wondered at, therefore, that the operators who were dependent for their livelihood upon the earnings which they might make in the company's service and who required such spare time as they might have for doing work for themselves, should have preferred the old arrangement, notwithstanding the arduous overtime which it involved, while to operators who were living at home and who looked to their earnings from the company for a sum sufficient to enable them to supplement the family budget, or to earn something towards personal expenses, the increased hours of work and additional earnings derived therefrom, would appear to involve a greater sacrifice as compared with the shorter work day, than would be met by the total increase of earnings that might result under the eight-hour schedule from the month's work.

The manner in which to correctly estimate the cost of labour to an employer is to take as a unit, a quantity of labour of a given degree of intensity and reckon increases or decreases according as the quantity is lessened or increased in duration or intensity in relation to the amount paid. To an employee, wages may properly be said to increase or decrease only in proportion to the extent to which the quantity of labour is lessened or increased either in duration or intensity in proportion to the remuneration it receives. Taking one hour of time given to operating as a unit of measurement, and assuming the intensity of the work to have remained the same, the change effected in this case would occasion in reality a saving in cost to the company, and to the employees, the so-called increase in wages would in reality be a decrease. The extent to which in either case it was such, would depend on the degree to which the speed of operating, or the intensity of the labour was diminished under the new arrangement, a matter which is given very full consideration later on, but in regard to which at this point it may be sufficient to repeat the words already quoted of Mr. Hammond V. Hayes, the Chief Engineer of the American Telephone and Telegraph Company, who was consulted by the company in the matter. In his letter of December 4, 1906 to Mr. Jos. Baylis, the company's engineer at Montreal, Mr. Hayes says, 'Considering now the ability of an operator to handle more calls if she works only five hours a day than if she is employed eight hours, I feel that some increase can be made as far as the operator herself is concerned both physically and mentally. *The question is, however, primarily one of service rather than of load.* There is much more question in my mind

if an operator on a five-hour schedule can carry appreciably more load than if she works eight hours and gives an absolutely equivalent service.'

That the change was intended to mean a reduction in cost to the company, and to that extent, and viewing the matter from the standpoint of quantity of labour expended, a decrease and not an increase in wages to the operators, is clear from the statement of the local manager in his letter to Mr. Baylis, of the 20th of December, in which he says, 'to pay the present high rate per hour for much overtime is most uneconomical, and results are not secured if there is any foundation for the idea that the service suffers where operators become tired,' and more particularly in the following extract from the same letter: I would recommend that after relief comes through the College office that we should then increase hours and wages and decrease the load. *The increase in wages would not equal that of hours and the cost per 1,000 calls should be lessened.* It has been seen that in less than a month after the local manager recommended that the change should be immediately made, without waiting for the opening of the College office, and the facts clearly show that when made the increase in wages was not made to equal the increase in hours by a very large per cent. Roughly estimated, the increase in hours under the eight-hour schedule, as it appears to have been originally intended, was an increase of 60 per cent, for the majority on the regular staff, or an increase of 40 per cent in the case of the schedule as subsequently modified. The increase of wages, on the other hand was an increase per month for the first six months of 11½ per cent; for the second six months of 11¼ per cent; for the third six months of 12½ per cent, &c., &c. In other words, the change meant a reduction in wages per hour of from 2¾% to 3½% per cent for the first six months, &c. The percentage decrease in wages under the eight-hour schedule as originally proposed, and under the eight-hour schedule as finally revised, as compared with the five-hour schedule, will be apparent from the following:—

	5-Hour Schedule.		8-Hour Schedule.			7-Hour Schedule.		
	Amount per Month.	Amount per Hour.	Amount per Month.	Amount per Hour.	Percentage per Hour less than 5-Hour Schedule.	Amount per Month.	Amount per Hour.	Percentage per Hour less than 5-Hour Schedule.
	\$ cts.	Cts.	\$ cts.	Cts.		\$ cts.	Cts.	
1 to 6 months..	18 00	13·84	20 00	09·61	3,1 ¹ / ₂ %	20 00	10·98	2,3 ³ / ₁₀ %
6 " 12 " ..	20 00	15·38	22 50	10·81	2,9 ⁷ / ₁₀ %	22 50	12·30	2 " 6 ⁶ / ₁₀ %
12 " 18 " ..	20 00	15·38	25 00	12 01	2,10 ⁰ / ₁₀ %	25 00	13·46	1½ " 6 ⁶ / ₁₀ %
18 " 24 " ..	22 50	17·31	25 00	12 01	3,3 ³ / ₁₀ %	25 00	13·46	2,11 ¹ / ₁₀ %
24 " 30 " ..	22 50	17·31	27 50	13·22	2,9 ⁷ / ₁₀ %	27 50	15·10	1,2 ² / ₁₀ %
30 " 36 " ..	25 00	19·23	27 50	13·22	3,3 ³ / ₁₀ %	27 50	15·10	2,2 ² / ₁₀ %
36 and thereafter.	25 00	19·23	30 00	14·42	2½ " 6 ⁶ / ₁₀ %	30 00	16·48	1,1 ¹ / ₁₀ %

As mentioned above, allowance must be made in this case also for any difference in the rate of speed of operating under the two schedules.

It is true that the commission was informed that the change had been made at an estimated increased cost to the company of \$1,300 per month. This, notwithstanding a reduction in labour cost, such as has been shown, may have been the case. The service had to be improved, and it was the improvement of the service which was aimed at in the charge. It was quite conceivable that subscribers may have benefited, while

the company and labour each sacrificed something, or subscribers and the company may have profited, while financially the operators may have been left in a relatively worse condition. When it is remembered that the company's business was constantly increasing, through new phones being added month by month, increase on extension sets and in private branch exchange sets, some increase of expenditure would be the normal thing to expect, it by no means follows that this would mean an increase in cost per subscriber to the company, or any reduction in its net profits.

Nor were the possible benefits to be derived from such increases as were made in the schedule rates as considerable as might at first appear, for the reason that only a small percentage of the operators would ever reap the advantages of the more favourable changes. It will be observed that under the old schedule the highest rate fixed was \$25 per month at the end of two and a half years. Under the new schedule operators at the end of two years were to be increased to \$27.50, and at the end of three years to \$30. The evidence before the commission went to show that the time during which the majority of the operators remained in the company's employ did not exceed 2½ years or 3 years at the most. In other words, that the 'average life of an operator' was less than 3 years. Various reasons were ascribed for this.

Mr. Dunstan gave evidence as to this subject as follows:—

'Q. What is the average life of service of an operator ?

'A. It is variously estimated from 2½ years to 3 years.

'Q. So that by the time they are getting \$20 they were worn out?

'A. Not worn out—ready to get married.....Many—a certain percentage—marry; then in many cases a sister marries and they are needed at home. Then, if a father is prosperous because times are good, it may not be necessary for her to stay, and the mother may need her at home.....I may not have included that we supply a large number of what are termed "private branch exchange operators" to the wholesale merchants and others of the city. That is, they apply to us for an operator. She leaves our service and enters theirs.....Now, there are between 250 and 300 such private exchanges in the city, and probably the majority of the persons in charge of such switchboards have graduated from our office.....Then, again, there are cases of persons who have gone to the offices, serving originally as switchboard operators, and who, because of their training and ability, have been taken into the office or promoted to some other branch, and then their place is taken again by another operator, probably from our force.'

Mr. Maw in his evidence, said:—

'Q. As I understand it, the life of an operator is about three years. Did they go out after they got educated sufficiently to get into better positions, or was it because they were not being paid enough?

'A. For various reasons, no special reason; some possibly take better positions, and others went home.

'Q. The large majority of them went out after two or three years' service?

'A. That has been practically the standard under all conditions.

'Q. That is your experience?

'A. Yes.

Whatever the cause, the facts are that the period of service of the average operator being what it is, the changes which were made in the wages schedule were such that to the majority of the operators the more favourable changes would be of no advantage whatever, since they lay beyond the period of average employment. On the other

hand, it is extremely doubtful if the changes by which the majority were actually affected were such as to appreciably improve, or improve at all, for them their chances of being able the better to meet the increase in the cost of living.

The Question of Wages and Profits.

In this connection a word as to the profits of the company, and the general question of wages and profits may not be out of place.

The total earnings of the Bell Telephone Company amounted during 1905 to \$3,517,595.52. Its expenditure to \$2,615,276.82; \$251,586.19 was set aside as reserve contingency, leaving \$650,215.96 to be divided as net profits on capital amounting to \$8,604,840. A dividend amounting to 8 per cent was declared for that year.

At the Toronto exchanges the total expenditure for salaries and wages for 1905 amounted to \$274,425.03, of which amount \$100,381.38 was incurred on account of wages paid to operators, other than chief operators, assistant chiefs, supervisors, monitors and inspectors of service.

The commission endeavoured to ascertain the views of the company on the relation of wages and profits, the amount paid to operators for services rendered as compared with the amount received by the persons whose invested capital is the means of procuring these services. When asked as to his views in this matter, Mr. Dunstan replied as follows:—

‘Q. Was there any question of the increased profits made by the company?

‘A. There was not.

‘Q. Then how did you determine as to what proportion of increase you should make to the employees when you have not considered the question of the increased profits?

‘A. Not considered on that basis.

‘Q. Do you think they should not be associated?

‘A. I do not.

‘Q. Should the amount paid to the local manager have any bearing with the amount of profits occasioned by the local manager?

‘A. I cannot answer a question of that kind. I will say this, as a qualification of what I have just stated, that it must necessarily follow that if a company is not making money they may not have the ability to pay as much as they would like to do. Possibly if they are making a great deal of money it may affect their ability to pay. Without question there might be a connection between the salaries paid and the ability of the company to pay.

‘Q. And 1 per cent dividend would be \$90,000?

‘A. Yes.

‘Q. That would aid very materially, would it not, to the remunerating of your operating staff?

‘A. It would.

* * * * *

‘Q. And that was not considered at all in connection with your service?

‘A. It was not.’

Mr. Maw gave the following views:—

‘Q. . . . Do you think that considering the question of wages, the matter of profit should be considered at all?

‘A. I do not see that that is connected with the question.

‘Q. You do not think that has any bearing at all on the question?

‘A. I do not.

'Q. Have you always felt that way?

'A. We have to pay the market price.

'Q. Have you always felt that way?

'A. Yes.

* * * * *

'Q. Would you think a question of profits ought to be considered in regard to your recommendation?

'A. No, I don't think so.

* * * * *

'Q. I put the question in another way. Where you saw that a number of operators were not receiving a sufficient wage to enable them to gain a livelihood, and to be self-supporting, would you consider in looking to a readjustment of that wage, would you think of picking up a balance sheet of the company, and finding out to what extent the profits might admit of an increase?

'A. No.

'Q. That would never enter your mind?

'A. That would never enter my mind.

'Q. I am afraid I do not understand just what you are saying; what I am trying to get from you is your reason why you think the matter of profits should not be considered when such a question as this of fixing the minimum wage comes up. What is your reason for saying you think the matter of profits should not be considered?

'A. For the reason that all that is required is to pay the market price for your goods.

'Q. That is a reason that I think ought to be carefully considered. Have you any other reasons?

'A. I think that covers the ground.'

While these were the views of the local manager and inspector of service of the Toronto exchange, respectively, it is gratifying to be able to report that they were not shared by the general superintendent of the company. Mr. McFarlane in his evidence said:—

'Q. You have heard what other witnesses have stated about the question of profits to be considered in connection with the wages of employees. Have you considered that matter at all?

'A. Yes, sir, at various times we have.

'Q. What do you think as to the relationship between the profits of the company and the payment of the wages of their employees?

'A. Well, I think that ought to enter into a company's consideration, and I think it is a very simple proposition in one way. Still it is complex in the other. In Toronto we obtain probably an average of \$37.50 per telephone rental per year. taking as an average, taking the extension sets, the private branch exchange sets, and all other sets, taking the total number of sets, and dividing by the total revenue, out of that \$37.50 per year you have got to pay so much for general expenses, so much for maintenance, so much for operators, and so much for sundries and other accounts, leaving a balance over.'

We have included these views of the company's officials because in our opinion too great stress cannot be laid, if due regard is to be had for the preservation of harmonious and satisfactory relations between employers and employed, upon a very full consideration of the relation of wages and profits, more particularly in the case of an industry which holds a public franchise and is conducting a public service, and which from the nature of things possesses by the tacit or expressed consent of the public, a limited or a complete monopoly. It was contended before the commission that there were 58 or 60 competing companies. While this may be, it is nevertheless true that so far as the city of Toronto is concerned, and many other localities throughout the

Dominion in which the Bell Telephone Company operates, this company has an absolute and complete monopoly. It enjoys this monopoly by the consent of the public. That this consent arises from a city's consideration of its own convenience rather than from any predisposition in favour of a particular company is not a matter of concern. The fact is that in the city of Toronto there is one company carrying on the telephone service for the entire city, and whether they like it or not the public generally of that city, so far as it may wish to make use of the telephone, is obliged to pay the Bell Telephone Company for its service. Viewed in this light, which we believe to be the right and proper one in regard to public service utilities where an absolute or quasi-monopoly exists, an element is introduced which justifies an insistence on the part of the public of a due regard for the welfare of employees which might be urged with less reason in the case of competitive industries. To the extent to which the citizens of Toronto have parted, either voluntarily or involuntarily, with their right to choose between competing concerns, and to that extent have parted, also, with their power to extend their patronage in the direction in which they believe the interests of justice and fair play may best be served, to that extent it is, we believe, not only their right, but their duty, to know and to insist upon a company profiting by their patronage, treating its employees in a manner which is equitable and fair, in other words, giving to its employees, whether they be women or men, a fair day's wage for a fair day's work. To the extent to which the Bell Telephone Company has profited by the necessities of its operators, or has secured services at a rate which would not have enabled those who rendered them to have lived, but for the support received from members of their own families, or in ways other than those provided by the company, to this extent, the profits of the company have been derived by a species of sweating, or by the levying of a tax upon homes and individuals for which no compensation has been made.

That the company has profited in this manner is sufficiently proved by the admissions of its own manager that the wages paid were not sufficient to meet the cost of board and clothing, and that, notwithstanding the operators had been obliged to work at a pace which was absolutely detrimental to their health. The circumstance that these truths are lost to sight by the involved and intricate processes which obscure the workings of modern industry and commerce, or that by some they may be condoned as being in accord with common practice, is not a reason why in the public interest they should not be disclosed and a healthier and more equitable regard for just such situations established. Moreover, it is, we believe, not more in the interests of justice and the maintenance of friendly relations between employers and employees, than it is likely to be in accord with the wishes of fair-minded investors who would hesitate to accept as profits, dividends which had been earned at the expense of either the health or well-being of those who had assisted in their making. And this leads us further to venture the opinion that in the interests of shareholders, employees and the general public alike, it is desirable that as much publicity as a due consideration for business secrets will permit, should be given to the manner in which public or quasi-public utilities of the class of the Bell Telephone Company, carry on their operations. Public opinion may be expected to safeguard the welfare of those who serve the public, however remote that service may be, and in this connection it may fairly be assumed that the interests of capital, no less than of labour, and of labour no less than of capital, will receive a due regard.

IV.—THE DURATION AND INTENSITY OF WORK.

The 5-hour schedule adopted from motives of economy.—5-hour system viewed from standpoint of duration of employment or quality of work performed meant more than appearances indicated.—Some operators required to work 6½ or 7 hours at 5-hour remuneration.—Some operators required to work 10 hours, or double time certain days.—Distinction between double time and overtime.—Double time not paid for by company as 'overtime' in ordinary sense.—Double time an important feature of 5-hour system. Evidence of Mr. Dunstan.—Corroborative statements by operators; evidence of Miss Hattie Davis, Gladys Sangster, Mamie Breck, Laura Rockall; self-supporting operators dependent on double time to make ends meet.—Operators obliged to work double time.—Regular 'overtime' also a feature of 5-hour system.—'Overtime' not infrequently unremunerated.—Evidence of Mr. Maw.—Instance of extended period of service without compensation.—Evidence of Florence Maitland.—Summary as to actual practice under 5-hour system.—5-hour system viewed from standpoint of intensity of employment or rate of speed at which work performed.—Method of operating switchboard illustrated from Toronto exchange.—Method of operating switchboard illustrated from article by C. J. Larned, General Superintendent of the Chicago Telephone Company.—Speed of operating dependent on number of lines, number of possible connections and calling rate.—Meaning of an operator's 'load.'—Extent of operator's duties at Main exchange, Toronto.—Evidence of Mr. Maw.—Average calling rate at Toronto and Montreal compared.—Peg test records illustrative of calling rates in the two cities.—Higher calling rate in Toronto confirmed by evidence.

TO understand aright the merits of the dispute and the respective positions of the parties as to their contentions in regard to the nature and effect of the change in the hours and rates of wages, which was the subject of the difference, it is necessary to review briefly the experience of the operators under the five-hour schedule; also to examine more closely the motives of the company in making the change to the eight-hour schedule of February 1, and the views which the operators may, with reason, have held as to the probable effect of the change upon themselves, from such information as was in their possession at the time they entered their protest.

As already stated, the five-hour schedule became effective in 1903 as a temporary arrangement at the Main exchange. The local manager, as already shown, was never very sanguine as to its success, though he was prepared to give it a fair trial. The fact that the system established under it was continued as the adopted practice of the company at the Main exchange from 1903 to January, 1907, that it was extended to the Parkdale and North exchange in January, 1905, and that the experiment period terminated at the latest about January 1, 1906, are sufficient to show that from a business point of view the five-hour system contained elements which made it a profitable one for the company to follow. What these elements were was clearly shown from the evidence taken before the commission.

The 5-hour schedule appears to have been introduced in the first instance from motives of economy. In a letter to the General Superintendent, dated the 14th November, 1903, Mr. Dunstan wrote as follows:—

'I inclose herewith a copy of report signed by Mr. Maw, but in reality a joint report from Mr. C. C. Stark, on the question of shortening the operators' hours. Mr. Stark says that he has gone into the matter thoroughly with Mr. Maw, and that the figures given in the reports are the result of their joint work. He has nothing to add and can see no way of working out an eight-hour day without the cost being excessive, considering the benefit derived. He will report further if he has any suggestions to offer, but at present can see no medium between the present 8½-hour and the 5-hour day.'

The scale of wages under the 5-hour schedule has already been given. It was a rate per month ranging, for local operators, during most of the time, from \$18 to \$25 per month, depending upon length of service, the maximum being reached at the end of 2½ years.

The Workings of the 5-hour System.

To appearances, under the 5-hour system, the staff of day operators was so arranged that each operator worked only five hours a day, the work being continuous and the arrangement such that the largest number would be on duty during the busiest hours; in actual practice, however, so far as duration of employment or duration of quantity of work performed, was concerned, the 5-hour system meant something considerably more.

In the first place, it would seem that at least 32 operators each day were expected to work, not five hours only, but six and a half or seven hours per day, and this for the rate of remuneration fixed for the five-hour period. By a system of rotation, each operator came in for her turn of the longer hours. In his evidence Mr. Frank C. Maw, the Inspector of Service, stated as follows:—

'Q. While you were running the 5-hour system, did any of the operators have to work 7 hours?

'A. Yes, sir.

'Q. Did they have to work 7 hours without being paid for the extra two?

'A. They were paid the same scale of wages; that was part and parcel of the system; the 7 hours was worked in with the 5.

'Q. Then surely they were paid for the extra 2 hours?

'A. They were paid the same salary, 5 hours and 7 hours; time was no difference; it was not treated as extra, and it was understood that was part and parcel of the system.

'Q. Then they were compelled to work 7 hours while supposed to be on 5-hour periods?

'A. They worked 6½ hours; they had half an hour for lunch.

'Q. They had to work 6½ hours then, did they not?

'Yes. . . . * . . . *

'Q. How many hours a day, then, did that make that the company got for nothing in those three offices? (Main, North and Parkdale.)

'A. I have never calculated it.

'Q. . . . 48?

'A. Yes.

'Q. And if it were 2 hours it would be 60?

'A. Yes.

'Q. So that there would be that number of hours that the telephone company was getting each day in the year from their operators for nothing?

'A. That is the way you consider it.

‘Q. Well, they were not being paid for it, they were supposed to be working 5-hour shifts?’

‘A. No, they were not supposed to be working 5 hours; that was part of the arrangement and agreement at the start.’

Extra, Double and Overtime.

While the 7-hour day, affecting as shown, a percentage of the employees, was held to be a material part of the five-hour system, the practice in regard to overtime as followed by the company, made a ten-hour day for at least from 15 to 20 of the employees in the Main office each day, also a part of this five-hour system. Mr. Dunstan in his evidence as to the company's inability to secure the necessary number of operators, said: ‘There certainly has been difficulty in maintaining the number required to give service without calling upon the operators to do double duty.’

The term ‘overtime’ as ordinarily used, suggests the working of extra hours upon occasions which are exceptional, and in the nature of emergencies, and being such is usually associated with a remuneration somewhat above the allowance for a corresponding period of time during regular working hours. It is not intended to convey to the mind the conception of a period of work corresponding to the regular hours and remunerated in like measure. For example, if an employee's regular working hours are five per day, and he is obliged because of an emergency to work an additional hour, he would be said to be ‘doing one hour overtime,’ which hour's service, because of its exceptional nature and the additional strain which it was likely to impose in view of the preceding hours' work, might reasonably be remunerated at a rate something in excess of the amount allotted per hour during the regular five hours. On the other hand, if, instead of working five hours, an employee enters into an arrangement, either expressed or implied, whereby on certain days of the month he agrees to work ten hours instead of five at the same rate of remuneration per hour, in order that his monthly earnings may total a certain amount, it could hardly be said that on the particular days on which he worked the ten hours he was doing five hours' overtime. The arrangement would be more accurately described as a 5-hour day for certain days of the month and a 10-hour day on others.

Such was the arrangement which the Bell Telephone Company appears to have adopted as a regular part of its so-called five-hour system. ‘Since the trouble began,’ said Mr. Dunstan, ‘I have been interviewed by many operators, and many have stated to me that under the five-hour system they were able to work overtime, and by working the two stretches of five hours, they were able to make more money than they could by working eight hours at the present schedule. . . .’ Also, ‘I felt and we felt that overtime which consisted of ten hours under high pressure was absolutely bad, and therefore is one of the objectionable features of the five-hour plan.’ That this double time at high pressure was, as a matter of fact, extensively practised, notwithstanding that it was ‘absolutely bad,’ and was, from the company's standpoint, not only desirable, but necessary, if operators were to be secured at the rate of wages fixed under the five-hour schedule, the admissions of the local manager amply prove. In speaking of the reasons which prompted the company to abandon the five-hour system, Mr. Dunstan said: ‘When evidence accumulated that it was a failure in every point, when we were unable to get applications, when the best of those applicants would not

come unless we could promise them overtime to the extent of about three days a week, which we would not promise them . . . then we decided to draw the experiment to a close.' Also in a part of his evidence, already quoted, Mr. Dunstan referred to the part played by this so-called 'overtime,' as follows:—

'To the girl who lives at home the salary which we have been paying was perhaps sufficient; that depended entirely upon what she did with her money. To a girl who can make some money in some other occupation—and I have heard of such occasions, it would be perhaps, a very good thing. To the girl working a good deal of overtime it was all right, but the overtime was most objectionable from the standpoint of her health. But to the girl who had to make her own way in the world, to pay her own expenses, and who wished to live on a certain scale, then it was insufficient and did not attract and those people did not come into the service, except, perhaps, in very limited quantities.'

'Q. Then the woman who is depending for her livelihood on what she could earn in the employment of the Bell Telephone Company, could not make a sufficient amount to really properly pay her living expenses in the city of Toronto?

'A. Not of the class we wanted. . . . and of the age we wanted, the low salary was insufficient and the short hours did not appeal, because it did not enable her to live.

'Q. Did you have in your employment any number of girls depending entirely on what they were getting from the Bell Telephone Company?

'A. Undoubtedly.

'Q. Would that be a large number?

'A. It would be a very large percentage. . . . If I were to make an estimate I would be more inclined to put it perhaps at 30 to 40 per cent. . . .

'Q. Self-respecting women wanting employment would naturally turn away from employment that would not give them a livelihood?

'A. Most decidedly, unless we could promise her sufficient overtime to enable her to make it in that way, and when she was told we could not do that and wouldn't do it, then of course there was no alternative but to go away.'

The admissions of the local manager on this point were fully corroborated by the statements of the operators who gave evidence before the commission.

Miss Hattie Davis, who entered the service of the company in August, 1905, and who had no relatives in Toronto, both father and mother being dead, stated in her evidence as follows:—

'Q. Did you have to work overtime in order to be able to pay your board and live?

'A. Yes. -

'Q. How much overtime did you work?

'A. Oh, sometimes I made \$30, sometimes not quite as much and sometimes more.

'Q. And your regular wage was how much?

'A. \$20 and \$22.50.

'Q. So that when you made \$30 you were making nearly one-third in overtime of what your total wage was? At least 50 per cent.

'A. Yes.

'Q. And you prefer the old time with the overtime to the 8 hours?

'A. Yes.

'Q. In respect to the working of the overtime, do you have to do it, or did you do a part of it willingly?

'A. No, I did it willingly; I found it necessary to work overtime.

'Q. Could you work any overtime on the 8 hours?

'A. I don't think I would like to try it.

' Q. Did you find it a strain upon you ?

' A. Yes, I did.

' Q. How much would your wages be upon the 8-hour system ? You were getting \$22.50 ?

' A. Yes.

' Q. That would be \$25 ?

' A. I would get \$25.

' Q. So that you would be working as many hours in the month as you did overtime and possibly more, and getting less money for it ?

' A. Yes.

' Q. Then the experience you have had of the 5 hours with the overtime would lead you to believe that you would make more money with the 5 hours and the overtime you were working, than you would with the 8 hours ?

' A. Decidedly.'

Gladys Sangster in her evidence stated as follows :—

' Q. Now, while you were working on the circuit for the 5 hours did you leave to go on and work for another five at any time ?

' A. I often worked over.

' Q. Was that willingly or against your will ?

' A. Sometimes I was willing and other times I was not.

' Q. Which did you prefer to do, not to work ?

' A. Well, sometimes I needed a little extra money and I worked of my own free will.

' Q. And you were prepared to take the extra labour as it helped you to get extra money ?

' A. Yes.

Mamie Breck stated, with reference to the increased wages with the introduction of the 8-hour system, as follows :—

' Q. And what was the increased rate of wages to you, for instance ?

' A. I think I would get \$5.

' Q. And for that you had to work 78 hours extra ; was it about 78 hours extra ?

' A. I did not consider that was very much, because I always had that. I had to take a certain amount of overtime. We simply had to take it whether we liked it or not, so I always had \$5 extra in the month anyway—very seldom I did not have it.

' Q. In this case it would prevent you——?

' A. To take any overtime ?

' Q. So that you would be working just as hard for about the same money as far as you could determine, is that it ?

' A. Yes.

' Q. Is your idea of it that this lengthening of the hours would save the company the overtime ?

' A. I think it would.'

Laura Rockall said :

' Q. Did you work overtime ?

' A. Once in a while.

' Q. Why ?

' A. I needed the extra money.

' Q. Did you have your board to pay ?

' A. No, sir, living at home.

' Q. Did you need the extra money for your clothing ?

' A. Yes.'

The truth is that under the so-called 5-hour system those operators who were self-supporting and who were dependent for their livelihood upon their earnings from the company, could not make ends meet without working 10 hours a day instead of 5 during certain days of the month. As has been seen, they constituted between 30 and 40 per cent of those employed. The operators who lived at home or were not dependent solely for their livelihood upon their earnings from the company could afford to refrain from working the 10 hours instead of 5. It does not appear, however, that the company at the wages it was paying, was able to secure in sufficient numbers the operators it required, and as a consequence, any operator, irrespective of her wishes in the matter, might be obliged at times to work the double period in order that the service might not be shorthanded.

Services Given without any Remuneration.

While 'overtime' in the nature of 'double time' or a 10-hour day was thus a part of the so-called 5-hour system, of 'overtime' in the ordinary use of the term, there appears also to have been a very considerable amount, though except where this overtime exceeded one or two hours, and then not always, it does not appear to have received any remuneration. This practice, also, was regarded as one of the conditions of the 5-hour system. The evidence of Mr. Maw, the inspector of service, is sufficient on this point :

'Q. Can you tell me how many times it is that you compel each girl to report and go to work 15 minutes before the hour at which you commence to pay her ?

'A. No, I cannot tell you offhand.

'Q. At a quarter to eight, for instance, and credit her with eight o'clock ?

'A. Yes, there are some come on.

'Q. How many ?

'A. . . . I can't tell you without making inquiry. . . .

'Q. How many are there that you compel to work for 15 minutes afterwards every day ?

'A. I could not give you that information.

'Q. Is 'nt it a fact that every employee you have has to either commence 15 minutes—now speaking of your operators—15 minutes before the hour at which you commence to pay them, or work for 15 minutes after the hour for which you pay them, making a half hour in there that you get between the two right along every day ?

'A. No, they do it probably in a series, they may take six months to do it, take their turn on the wheel as they revolve. . . . that was one of the conditions of the 5 hours, there should be 15 minutes 'leeway.''

The 'leeway,' however, does not appear to have been intended to work 'both ways,' as the following statements also from Mr. Maw's evidence will show :—

'Q. If a girl is five minutes late, what happens ?

'A. She is spoken to. . . . She is not told she will be dismissed; if the thing is repeated and becomes chronic, she is told she will have to improve, or if she can't get there on time or give a satisfactory reason for it, if it is pure negligence, we tell her we will have to fill her place.'

The evidence given by Miss Florence Maitland, who had been six years in the service of the company, would go to show that the company was not above permitting a threat of dismissal to be used to exact from an employee a somewhat extended period of service without compensation. Miss Maitland testified as follows :—

'I have acted as relief at the switchboard, which means relieving those at a quarter to 12 to 1 and coming back to the office and filling in the other time till 5 o'clock.

'Q. That would be $5\frac{1}{4}$ hours?

'A. Yes.

'Q. And that was during your five-hour day?

'A. Yes.

'Q. So that would only be an extra—?

'A. Quarter of an hour.

'Q. During the time that the girls were away at the C.P.R. (switchboard) the regular girls—did you take the switchboard?

'A. I did.

'Q. Was that in addition to your other hours?

'A. Yes.

'Q. So that you put in your regular hours with the Telephone Company and then did the regular work for the—?

'A. C.P.R.

'Q. Making how many hours per day for the C.P.R.?

'A. Four hours.

'Q. And your own 5 hours in the office?

'A. No, I worked at the C.P.R. all the time, from 8 till 6.

'Q. That would be 8 to 12 and 1 to 6?

'A. Yes.

'Q. That would be 9 hours.

'A. Yes.

'Q. Did you get any extra pay for the extra 4 hours?

'A. Nothing.

'Q. And how long would that be going on?

'A. I had that 4 weeks and some days that happened at holiday time. I have always given two weeks in the summer time and got no compensation for it.

'Q. Given two weeks to whom?

'A. To the C.P.R., sent by the Bell Telephone Company.

'Q. And got no remuneration for it at all?

'A. No.

'Q. Did you volunteer to do that?

'A. No, I protested against it many times, and they told me that Mr. Maw requested that I should be sent there.

'Q. So you went against your wishes?

'A. Yes.

'Q. And got nothing for it?

'A. Nothing for it.

'Q. Did anybody make any remark to you about your objection to that?

'A. I was told that if I did not wish to stay there they could easily fill my place.

'Q. In the service?

'A. Yes.

'Q. Who said that to you?

'A. Miss Bogart.

'Q. Any other words that she said?

'A. Well, I said I would not stay there, and she said: "Don't say you won't to me, I can easily fill your place."

To sum up: The five-hour system, so far as quantity and duration of employment were concerned was shown by actual experience to be such only in name; the five-hour schedule was merely the basis of an arrangement under which the employees were obliged on a certain number of days in each month to perform seven or six and a half hours service at the five-hour rate; on other days to work two continuous five-hour

stretches, or ten hours at exactly double the five-hour rate; at all times to be ready to work without remuneration an additional 15 minutes, either before or after the five-hour period, or both, and in at least one case, to give, on pain of dismissal, service without compensation for several hours each day over a period of two weeks or more.

The Rate of Speed of Operating.

It remains to consider the *intensity of employment*, or the rate of speed at which work was performed under the five-hour system within the hours during which the operators were engaged each day. In the work of telephone operating this is a factor equally important with that of the duration of employment. The two are inseparably connected, and a proper appreciation of the one factor cannot be had without a regard for the other.

For an intelligent understanding of this side of the problem it is necessary to briefly outline the nature of the duties of a telephone operator. This may, perhaps, be most easily done by describing in a general way the method of operating a switch-board in one of the exchanges.

On entering the operating room of the Main exchange at Toronto, one sees from 80 to 100 young women seated beside each other on high chairs opposite a key-board which extends in the form of a semicircle around the three sides of the room. This board, which lies in a horizontal position, is a little over a foot wide. The position of the operator in regard to it is the same as if she were seated at a table. Joined to this board and rising vertically at right angles to it is another board filled with small holes which represent the points at which wires connect with the exchange. This board extends around the room in the same fashion as the horizontal board, and is marked off into divisions or sections, there being one division to every three operators. Each section of the board is subdivided into panels, the upper half of which are made up of small sections containing holes all of which are numbered, each small section resembling somewhat a honey-comb in appearance. These holes indicate the points at which connections are made with the several wires running out of the main exchange. Each operator has before her on the upper half of these panels, on what is known as 'the multiple,' the number of every telephone connecting with the main exchange, the lines being looped throughout the entire board through the multiple portion, so that any one operator can reach any one line she is asked for. The lower portion of the vertical board is also subdivided into holes, accompanying which are rows of glasses covered orifices, set closely together in parallel rows. Within each orifice, and beneath the glass, is a miniature incandescent lamp, which is extinguished except when serving as a signal. These holes indicate the point at which subscribers' 'phones run into and connect with the exchange. Suppose there were a total of 8,000 telephones running into the Main exchange. This number would be distributed over the entire semi-circle board, so that each operator will have before her a certain number of 'phones for which she is directly responsible. This number at the Main exchange, Toronto, averaged between 80 and 110. On the horizontal board in front of the operator, and removed a short distance from the base of the vertical board, are two rows of small plugs attached to cords, which extend beneath the board, the points of the plugs alone appearing above its surface. Parallel to these plugs and a little nearer to the operator are two rows of glass-covered orifices similar to those on the lower half of the vertical

board, and parallel to these again and still closer to the operator is a row of small levers or keys. The operator wears a band around the head, to which is attached a receiver placed immediately over her left ear, and a transmitter or mouth-piece so adjusted that she may conveniently speak into it while it is not in immediate proximity to her lips. Both the receiver and the transmitter are connected by cords with the main board. In virtue of this device the operator is free to use both hands to make the necessary connections.

When a subscriber rings up central or lifts the phone from the hook, a light immediately glows within the glass covered orifice on the lower half of the vertical board at the point at which the phone is connected by wire with the Main exchange. This light is an indication to the operator that a subscriber is calling central. She thereupon takes with one hand one of the plugs to which a cord is attached and inserts it in the hole or socket (technically termed the 'jack') corresponding to the light which is glowing, at the same time pressing forward one of the levers or keys. This connects her with the calling subscriber, of whom she requests the number desired. On receiving the number she takes the end of the other cord—there are a pair of cords with a plug at the end of each—and inserts its plug in the hole or socket (the 'jack') on the upper half or 'multiple' portion of the board which bears the number requested. She then throws the lever back which connects for a moment the machine generating current, and takes a little portion of that current to ring the bell of the called subscriber. The plugs inserted in this way effect the desired connection between the phones. As soon as the operator connects with the subscriber by inserting the plug in the hole at which his phone connects with the main exchange, the light beside this hole, which has been her signal, is extinguished, and one of the small lights on the keyboard begins to glow. Its companion light glows also once the connection is made, and until the other phone is taken down for purposes of conversation. Once the conversation begins both of the signal lights go out. When the conversation ends, as each subscriber hangs up his phone, the companion lights opposite the companion plugs begin again to glow. It is then the duty of the operator to remove the plugs from the holes into which they have been placed, and thus sever the connection and extinguish the lights. This work of making and severing connections is the main duty of the operators. In other words, an operator is continually answering subscribers, covering the board with such connections as are requested and as rapidly clearing the board whenever conversations are ended; putting up and taking down connections.

A more complete description of the switchboard and duties of operators will be had from the following extracts taken from an article on 'The Telephone Exchange,' by S. J. Larned, General Superintendent of the Chicago Telephone Company, which appears at page 686 and subsequent pages of the July, 1907, number of 'The World To-day':—

'Supposing a number of lines, all leading in to the central office or exchange, it is necessary to provide there means whereby the user, or subscriber as he is called, may be able to signal whenever he desires service, and may then have his line promptly brought into contact with the line of any other subscriber to the system with whom he wishes to converse. The second subscriber must be signalled by ringing his bell. When the two subscribers have finished their conversation, their wires must be as quickly separated again so that each may be immediately free and available for con-

nection with other subscribers, for these wires or lines may be likened to single-track railway spurs leading into the subscriber's premises, each of considerable length, but capable of admitting and carrying but one car or message at a time. The most watchful care and systematic handling is necessary in order to permit the handling of a maximum traffic in both directions without collisions and tie-ups.

²There are connected to the Chicago Exchange more than 130,000 telephones.* The system must stand ready at any moment to bring together any two of these for conversation. Leaving out of count possible connections with other towns and cities, this means that the machinery must be capable of making on an instant's notice, any one of nearly seventeen billion possible combinations. The end of the conversation must be accurately noted and the lines promptly disconnected. Before connection is made it must be ascertained that the line asked for is not already carrying another message or temporarily disabled or unavailable for any other reason.

³In establishing connections, all the above conditions and many others must be noted and allowed for, and yet the time consumed in each step of the process of connection must be measured as seconds or even fractions of a second.

The switchboard designed to meet these requirements is a highly complicated machine both as to extent and flexibility. The subscribers' line wires are at that point (*i.e.*, the exchange) separated and their ends arranged in an orderly manner in rows, or strips, on what is called the terminal or main distributing frame. Each wire is numbered in the order of its appearance on this frame, and a careful record kept of the cables it passes through, the route it takes and the subscriber's telephone which it finally reaches.

⁴At the main frame or distributing board, above mentioned, are terminated, in a manner similar to the line wires, all the wires from the switchboard. Every line wire must be permanently connected to some one of the switchboard wires; but it is sometimes necessary to change their relation for various reasons, such as the shifting of a given telephone from one underground wire to another, because of the moving of a subscriber's office, &c. For this reason, a short length of easily replaced, flexible wire is used to continue the line wire through the distributing frame to the switchboard wire. This connecting link is technically known as a jumper.

⁵We have now traced the line wire well on its way to the switchboard, but it is again interrupted by a second distributing board, known as the intermediate distributing frame, where it is divided into two branches. One branch is for outward traffic, the calls which the subscriber originates himself, and it runs to what is called the answering jack. The other branch is for inward traffic; that is, calls made for the subscriber by others, and it runs to that part of the switchboard called the multiple, which will be described later.

⁶The switchboard itself consists of a long, continuous framework, in which are mounted the answering jacks, the multiple and other parts not yet mentioned, and before which frame sit operators, who connect and disconnect line wires, as ordered by the subscribers.

⁷The answering jack is the point at which contact is made with subscriber's line by an operator, in response to his call. The device with which a connection is established between two lines is called a pair of cords. It consists of a set of flexible wires or conductors, generally of tinsel, incorporated in a braided linen cord. At each end, the cord terminates in a metal plug, which, when pushed into an answering jack, makes a contact between the subscriber's line and the tinsel conductor of the cord. When therefore the two plugs, or pair of cords, are inserted in the spring jacks of two different lines, those lines are connected together and in a condition for conversation.

⁸Just over ever answering jack in the face of the switchboard is mounted a small electric lamp, known as the line lamp. By a rather complicated arrangement of apparatus, this lamp is lighted whenever the telephone receiver at the corresponding subscriber's station is picked up. Its glowing is the signal to the operator that the sub-

* In Toronto there were on January 1, 1907, 14,900 phones.

scriber at that station wishes to make a call. Each telephone line has but one answering jack. They are placed in the lower part of the switchboard, a certain number before each operator, that number depending upon the use of the telephones, as each operator must answer all of the calls made by the subscribers whose answering jacks are placed directly in front of her. Some lines are used so frequently that but five or ten can be placed in a single operator's position, while other lines may be used so infrequently that more than one hundred can be placed in each position.

'When any line lamp begins to glow, the operator promptly picks up a plug connected with any pair of cords, and inserts it in the answering jack corresponding to the lighted lamp. The flexible wires leading from the plug to its mate are also connected to a small switch called the ringing and listening key, located in a horizontal shelf between the operator and the vertical face of the switchboard. By moving the handle of this ringing and listening key, the operator is able to bring the wires leading from her own telephone set into contact with the wires leading from the plug and consequently into contact with the line wire of the subscriber making the call. The operator is then able to converse with the subscriber and ascertain his wishes.

'Having received an order to connect his line with any other subscriber's line, the operator inserts the second plug of the pair into a spring jack connected with the called subscriber's line, and by another movement of the handle of the ringing and listening key, brings the line wire of the called subscriber into contact with wires leading from the ringing generator. The latter is a small dynamo, generating, alternating and pulsating electrical currents. The movement of the key just mentioned allows the current from this ringing generator to flow out over the called subscriber's line, the effect being to ring the bell associated with his telephone set, and summon him to the telephone,

'The connection of the second plug with a spring jack of the called subscriber cannot be made with the answering jack of that second subscriber because that answering jack may be in a position a hundred feet away from the position in which the call is made. It is to meet this condition that the already mentioned inward or multiple branch of the subscribers' line is designed. This branch is connected to spring jacks exactly like the answering jacks except that they are arranged to occupy as little space as possible. They are all marked with the call number of the subscribers that they represent, and are arranged in numerical order, and are piled row above row in the vertical face of the board.

'It is possible to bring multiple jacks representing about the nthousand lines within the reach of an operator, and such a portion of the switchboard as contains one jack for each line connected with the office is called a section. Not more than three operators can work at a section of switchboard, and it is necessary to repeat the sections as often as the number of operators employed demands. Each section is a duplicate of every other, each subscriber's line being extended from the multiple jack in one section to the corresponding multiple jack in the next section, and so on throughout the entire length of the switchboard. This multiple feature of a telephone switchboard calls for a tremendous amount of material and labour in its assembly, a single switchboard, that of the Main office, Chicago, for example, containing over two hundred and seventy thousand jacks and over fourteen million feet of wire.'

These descriptions may be sufficient to indicate that so far as the calling by subscribers is concerned the intensity of the work, the amount accomplished within a given space of time, or in other words, the speed of operating, will depend first upon the number of lines which an operator has running into her board and for which she is responsible, secondly, on the number of 'phones connecting with the exchange, which, of course, determines the number of possible connections that can be made, and thirdly, the extent to which the different 'phones are used by subscribers.

The amount of work which an operator performs in the way of answering calls

and making connections is described as her 'load.' This load will be increased or diminished, therefore, according as the number of lines connecting with a portion of the switchboard, the number of 'phones in an exchange, or the number of connections asked for during the day are increased or diminished.

Statistics Indicating Rate of Speed.

The evidence taken before the commission went to show that the lines for which each operator at the Main exchange in Toronto was responsible under the five-hour system numbered from 82 to 110, so distributed that each operator had a proportion of busy lines and lines less frequently in use; also that the numbers on the switchboard indicating the number of possible connections, any one of which might be called for ran up to 6,041, at the time the commission was holding its sittings in Toronto.

The statement given before the commission as to the average calling rate per hour at the Main exchange, Toronto, which affords the key to the intensity of the work varied somewhat.

Mr. Maw, who was regarded as the company's expert on this matter, stated that the average per hour during the busy part of the day was from 300 to 350 calls. Mr. C. T. Baldwin, the expert of the American Telephone and Telegraph Company, who was retained by the company to investigate the relative merits of the systems in Toronto and Montreal, said in his report of November 30, 1906, already quoted: 'The average number of calls per operator during the busy hour for the first four months of the year were for Montreal, 174.5, and for Toronto, 287.6, showing that the Toronto operators were handling some 113 calls more during the busy hour than they were in Montreal.'

The following statistics from the record sheets of the company give the number of calls per hour as recorded in the peg tests made at Toronto and Montreal, respectively, on Monday, December 10, 1906. The figures speak for themselves, both as to the actual calling rate per hour in each city, and as to the comparative rate of speed of operating in the two cities. These particular tables are chosen not as being in any way exceptional, but because it was to them that reference was made by the local manager and inspector of service in their evidence, and they may be taken as fairly typical.

MONDAY, DECEMBER 10, 1906.—TORONTO MAIN OFFICE.

No. of Operators' Position.	No. of Lines.	HOURS.									
		A. M.				P. M.					
		8-9.	9-10.	10-11.	11-12.	12-1.	1-2.	2-3.	3-4.	4-5.	5-6.
1.	106	124	231	266	232	194	212	246	276	280	320
2.	93	137	217	240	230	187	139	235	221	249	301
3.	103	137	241	280	258	116x	201	270	261	264	294
4.	101	112	241	280	257	215	286	252	265	256	256
5.	92	70	180	268	240	198	182	192	195	256	255
6.	98	41x	254	296	273	132x	125	237	198	244	286
7.	97	100	255	295	192	224	168	292	253	266	290
8.	94	36x	217	250	223	238	247	286	286	292	323
9.	100	98	234	278	244	217	229	251	252	250	269
10.	101	48x	246	264	187	196	263	248	257	290	290
11.	97	147	189	288	204	195	142	277	232	203	274
12.	101	87	191	191	217	263	97x	197	205	210	333
13.	101	87	182	191	186	186	181	210	201	222	321
14.	93	48x	226	215	256	193	241	242	273	321	321
15.	101	112	220	253	246	308	487	174	193	224	280
16.	96	51x	228	236	226	212	197	250	213	261	281
17.	98	89x	230	235	256	276	199	224	208	232	248
18.	103	140	220	255	238	129	127	211	233	242	242
19.	99	99	196	243	230	239	98x	190	201	219	325
20.	102	91x	216	254	236	124	155	228	239	248	267
21.	104	94	221	241	191	170x	201	220	227	100	258
22.	100	62x	264	202	323	123x	190	241	229	239	257
23.	97	107	222	294	273	261	197	253	216	242	256
24.	97	163	225	295	249	186	251	229	258	256	256
25.	101	109	212	265	215	254	176	108	199	225	285
26.	91	90x	191	271	205	191	203	269	185	243	243
27.	104	124	227	270	241	250	243	280	298	255	282
28.	99	52x	220	206	176	212	187	228	292	246	233
29.	101	143	259	288	280	248	231	231	209	248	243
30.	105	183	202	157	177	277	253	246	245	292	292
31.	100	49x	213	217	298	177	277	253	246	245	292
32.	98	90	202	203	246	222	235	266	210	260	213
33.	99	96	225	219	236	96x	150x	118	182	160	262
34.	104	109	274	322	315	260	260	237	245	249	238
35.	96	90x	263	280	279	234	173	244	230	355	261
36.	105	183	202	157	177	277	253	246	245	292	292
37.	101	223	255	309	207	225	218	215	229	281	281
38.	97	152	220	260	237	199	200	277	227	270	290
39.	95	44x	233	276	250	177	166	322	229	289	296
40.	82	149	287	323	327	309	239	350	330	283	298
41.	94	137	284	316	303	222	304	267	284	233	233
42.	86	103	246	306	273	312	224	261	280	277	262
43.	94	84	226	268	280	156	139	282	270	335	291
44.	97	86x	226	236	227	204	278	321	291	350	310
45.	96	100	246	279	201	179	206	290	227	354	324
46.	102	82	264	265	252	337	273	243	234	297	288
47.	94	64x	260	263	241	246	234	233	182	199	281
48.	101	59x	230	260	208	204	175	167	202	294	294
49.	94	59x	230	260	208	204	175	167	202	294	294
50.	102	140	210	214	129	295	214	241	219	250	241
51.	98	56x	221	244	226	247	229	201	190	262	224
52.	91	94x	264	284	252	295	228	181	237	253	253
53.	110	133	269	302	254	171	238	229	241	248	248
54.	97	50x	208	230	197	258	208	236	205	240	284
55.	90	118	327	313	360	245	174	234	212	255	297
56.	92	107	257	261	219	170	189	190	209	277	207
57.	82	107	257	261	219	170	189	190	209	277	207
58.	73	49x	133	183	212	155	208	196	207	243	196
59.	15	70	68	126	198	146	131	182	161	192	121
60.	70	68	126	198	146	131	182	161	192	211	121
61.	97	72	167	189	202	135	237	188	180	208	122
62.	90	209	234	210	169	124	242	185	239	163	163
63.	84	123	215	234	208	153	124	242	185	239	163
64.	90	209	234	210	169	124	242	185	239	163	163
65.	84	123	215	234	208	153	124	242	185	239	163
66.	70	68	126	198	146	131	182	161	192	211	121
67.	80	53x	174	220	175	158	211	240	195	198	160
68.	64	57	203	221	195	159	107	188	119	192	139
69.	32	132	176	224	170	159	168	179	206	202	130
70.	70	57x	176	224	170	159	168	179	206	202	125
Totals.....	.....	5,031	13,857	15,641	14,710	11,335	11,492	14,329	13,836	15,259	16,947
Average per hour.....	.....	112	223	252	231	206	202	231	223	246	253

x $\frac{1}{2}$ a day.

Line 5-6, special circumstance, owing to electric lights out.

MONDAY, DECEMBER 10, 1906.—MONTREAL MAIN OFFICE.

No. of Operators' Position.	No. of Lines.	Hours.									
		A. M.				P. M.					
		8-9.	9-10.	10-11.	11-12.	12-1.	1-2.	2-3.	3-4.	4-5.	5-6.
1.	88	90	135	160	149	185	137	173	185	174	133
2.	87	16x	153	162	170	172	175	131	160	152	92
3.	85	137	160	232	214	235	153	163	193	132	140
4.	83	44x	211	228	235	...	...	231	243	252	156
5.	83	101	156	202	219	170	129	187	178	213	156
6.	85	20x	188	244	242	244	180	193	196	223	209
7.	79	137	156	200	184	242	153	182	207	165	203
8.	83	27x	179	222	210	...	...	190	145	215	153
9.	85	119	158	180	173	128	130	154	197	174	145
10.	85	32x	152	178	175	144	171	180	187	176	139
11.	88	111	173	223	192	164	168	214	195	210	170
12.	85	...	102	147	152	...	...	156	127	125	122
13.	80	145	191	224	209	173	224	167	211	215	147
14.	85	17x	158	212	233	213	105	179	195	237	221
15.	81	104	149	222	175	184	63	143	207	202	157
16.	85	11x	146	188	160	...	...	122	174	162	85
17.	85	122	190	216	203	153	172	154	235	190	200
18.	77	13x	141	156	118	153	111	229	196	153	146
19.	88	91	154	231	205	281	188	155	224	203	118
20.	77	16x	158	186	177	...	...	139	218	215	145
21.	77	95	166	186	188	117	158	162	187	154	96
22.	86	24x	186	196	163	171	169	153	97	120	157
23.	82	158	185	207	205	226	183	217	200	197	194
24.	84	...	85	115	112	...	...	96	80	86	87
25.	85	118	169	259	202	143	51x	166	221	145	162
26.	86	15x	170	206	149	54	186	185	192	182	158
27.	82	5x	147	205	170	227	132	128	149	142	117
28.	82	14x	131	171	137	...	...	183	193	153	161
29.	85	122	169	216	167	138	148	159	209	182	142
30.	78	18x	138	216	151	146	85	154	115	111	111
31.	84	109	127	203	150	180	115	111	125	115	122
32.	80	...	160	196	165	...	...	127	138	121	141
33.	81	54	93	139	82	195	115	114	131	144	137
34.	76	13x	123	176	134	136	167	141	135	118	114
35.	76	101	167	202	151	200	132	149	173	126	127
36.	67	7x	190	311	252	...	...	199	216	215	188
37.	71	116	169	231	167	183	161	152	200	200	193
38.	72	29x	200	233	194	119	134	166	205	209	154
39.	73	102	158	235	175	196	142	141	155	169	142
40.	70	30x	178	236	200	...	...	204	185	238	188
41.	75	124	162	196	180	201	164	175	193	212	284
42.	71	28x	181	220	198	135	171	187	191	185	152
43.	69	135	154	201	140	171	181	154	189	158	151
44.	84	26x	215	222	187	...	...	247	224	182	172
45.	74	101	137	157	153	166	114	138	201	177	137
46.	77	18x	211	212	212	141	183	210	257	192	154
47.	83	124	201	209	200	178	177	165	233	203	174
48.	79	29x	206	200	177	...	...	183	161	187	150
49.	80	106	173	227	170	194	182	179	177	171	86
50.	80	19x	160	176	151	245	170	205	219	219	180
51.	81	105	227	192	213	135	210	150	190	215	129
52.	77	30x	204	248	252	...	...	206	190	220	160
53.	83	89	165	184	164	134	173	108	168	158	150
54.	72	113	171	220	200	152	185	190	182	151	126
55.	75	19x	150	218	195	110	159	126	200	210	119
56.	69	9x	127	127	122	...	...	177	180	172	147
57.	75	...	123	153	194	190	98	153	163	194	185
58.	73	41x	203	217	279	178	157	178	165	141	103
59.	57	...	95	81	73	112	114	141	171	125	135
60.	63	36x	188	171	177	154	156	153	175	185	165
61.	52	87	107	163	144	112	110	114	119	142	96
62.	60	...	81	156	141	...	...	74	85	85	72
63.	43	68	165	186	157	169	155	178	187	186	124
64.	6	...	...	...	...	...	...	...	...	...	...
65.	...	...	...	...	...	...	...	...	...	...	...
Totals.....	.....	3,790	10,127	12,488	11,209	8,149	7,196	10,340	11,399	10,985	9,249
Average per hour.....	.....	86	160	198	178	170	152	164	181	174	146

Comparing the average calling rate per hour as shown in the above tables, we have the following:—

Hour.	Montreal.	Toronto.
8-9 a.m.	86	112
9-10 "	160	223
10-11 "	198	252
11-12 "	178	231
12-1 p.m.	170	206
1-2 "	152	202
2-3 "	164	231
3-4 "	181	223
4-5 "	174	246
5-6 "	146	253
10 hours.	1,609	2,179

a difference per operator as between Toronto and Montreal of 570 calls per day of 10 hours, or a difference of 57 calls per hour, being an excess in the case of the calls answered per operator in Toronto of over 35 per cent over the number answered per operator in Montreal.

The higher calling rate in Toronto, as illustrated by these statistics, was fully borne out by the statements made by operators in the company's employ at other cities, who gave evidence before the commission, and by the statements of the company's own officials. Mr. Dunstan, in his evidence on this point, said, 'They (that is, the operators in Toronto) carry a heavier load, answer more calls than operators in cities of the same size elsewhere. . . . I took a memorandum this morning which will, I think, illustrate. I find that a certain date, December 10, 1906, (the date to which the above statistics refer) in Montreal, where the operators are working the long day. . . . They answered 230,281 calls with 3,429 employees' hours. . . . At Toronto under the high pressure system on the same day the operators answered 246,785 calls. In other words, they answered a great many more calls in Toronto, with a reduction of about 40 per cent of the staff.' How this high rate of operating was effected will be seen from the methods of operating which we now describe.

V.—THE METHODS OF WORK AND ELEMENTS OF NERVOUS STRAIN.

Duration and rapidity of work, how limited.—Features of operating which increase amount and intensity of work.—‘Team work’ and its effect—increase tax upon energies in operating.—Supervisors and their duties—while assisting in some cases adds element of strain in others.—Evidence of Miss Maud Orton.—Evidence of Miss Isabel Dickson.—System of calling out unanswered numbers when board crowded—adds to pressure.—Elements of strain subjective in their nature.—The monitors and their duties.—Efforts of surveillance on operators.—Impatience of subscribers reflected by glowing of lights.—Effect of lights upon operators.—Effort of hanging or snapping of instruments.—Effect of abuse and harsh words used by subscribers.—Possibility of injury arising from shocks.—Evidence of Lily Rogers, Laura MacBean, Hattie Davis, Laura Rockall.—Evidence of Emily Richmond as to loss of use of left ear.—Physical strain of stretching at Switchboard.—Evidence of Hilda Walton as to loss of right arm.—Excessive height of switchboard at Toronto Main exchange.—Part played by special senses a distinguishing and most important feature of telephone operating.—Wherein other occupations differ in this particular.—The exhaustion, one of nervous rather than of physical energy.—Effects on health from strain of operating illustrated.—Statements by local manager.—Testimony as to illness caused by overwork.—Evidence of Maud Orton, Minnie Hamm, Theresa Corcoran, Maria Strong, Laura Rockall, Emily Richmond.

DURATION of employment and rapidity of work may each in their way be limited by restrictions, which it is quite within the power of the management of a company to control. The number of hours to be worked per day is a matter of schedule arrangement. The speed of operating depends primarily, as has been pointed out, upon the number of lines for which each operator is responsible, and the size of the switchboard. These are the ‘*mechanical limitations*,’ so to speak, which are placed upon the calling rate. There are features, however, in the methods of operating, which regard for cost and efficiency of service have made the common practice, designed with a view to exacting from each operator, an approach to, if not actually, the maximum of service of which she is capable; they play an important part in increasing the amount and intensity of the work performed. These features which relate primarily to the *method of operating* as it has been carried on in practice are deserving of some consideration.

In the first place it is to be noted that an operator’s duties are not confined to the subdivision of the board to which she is specially assigned. The subdivisions though a certain width, are sufficiently narrow to admit of an operator reaching over to the subdivisions on either side of her own. If an operator finds that calls are coming in at the division of the board, either to the right or to the left of her own, at a rate more rapid than her sister operator is able to properly overtake, she is expected to assist in making the necessary connections. The evidence given before the commission indicated that operators were so placed that the more skilled and efficient would be able in this manner to assist the less expert. In other words, each operator becomes one of a team of three, who work in conjunction in the manner described. Mr. Dunstan in

his letter of December 20, 1906, reminds the Montreal office that over a year before he had said in reference to the service at Toronto, 'Every credit must be given for the training of operators in team work, and in rapidity of movement.' This arrangement, which from some points of view may be commended, tends to keep the operators up to the highest pitch in the work of operating. It is only where calls come in too rapidly for an operator to meet them at her own division that assistance is required from the operators of the adjoining divisions. Some of the rest or relaxation, therefore, which might come to an operator in one of the divisions because of a slackening in the number of calls upon the lines for which she is responsible, is in part offset by this assistance which she is expected to afford her neighbours. It will be seen, too, that under this arrangement the greatest strain is inevitably placed upon the more efficient and skilled operators. It would appear that where operating is carried on at a high rate of speed, the tendency is to tax the energies of operators to the maximum of their endurance and ability.

In addition to the regular staff of operators, there is a staff of monitors and supervisors, there being two monitors for each 5 hours over the whole service, and one supervisor to every 10 operators. Speaking of this feature, in the letter above referred to, Mr. Dunstan says: 'They (the operators) are subjected to close and intelligent supervision.' The duty of a supervisor is to walk up and down behind the operators who are under her supervision, and see that they properly attend to their work, at the same time to assist the operators where it appears they are unable to keep up with the calls coming in. It was admitted by the operators that the assistance rendered by the supervisors in this way was a substantial one. On the other hand, it was contended that their presence as constant watchers of the way in which duties were being performed added an element of strain to the work, more particularly where the supervisor might not be as sympathetic with the operators as might be wished. It was stated, for example, by one of the supervisors herself that she regarded it as a part of her duty to keep calling to the girls under her to 'Hurry, Hurry,' so as to keep them up to their work as much as possible.

Maud Orton, in the evidence on this subject, stated as follows:—

'Q. As a supervisor you had knowledge, had you, of the way the young women worked?

'A. Yes.

'Q. Were they worked well within the capacity, or were they worked to the extreme limit?

'A. They were worked to the extreme limit, and more than that in some cases.

'Q. How do you know?

'A. Because they would frequently turn round after I would go there and say they would have an easier time than some of them would give them, but even then what I gave them they could work no harder, because the numbers had to be taken and sometimes they couldn't do it; but they did the best they could.

'Q. Did you work them harder than you felt inclined to?

'A. Yes, quite often I was compelled to.

'Q. Were you spoken to at any time by any of the day operators or assistant operators in regard to working them harder?

'A. You mean assistant chief? Yes, I have been told several times to hurry the girls more, keep nagging at them continually. There was always somebody at them continually from the time they got in till they got out. If it wasn't a supervisor it was a chief, and if it wasn't a chief it was an assistant chief.'

Isabel Dickson, who had been in the company's service at two different times, altogether about 4 years, and who was acting as a supervisor, in her evidence, stated:—

'I think the girls are altogether too hard worked. They simply had to go as hard as they could while they were in there. There was nothing else to do. The numbers were there, and had to be taken, and there was nothing else. If she is not operating there is somebody there to tell her to hurry.

'Q. So she is driven?

'A. Yes, she is driven many of them have to leave their boards because they are overdone.'

The supervisors, while assisting the operators in making or taking down connections where an operator has more than she can attend to, are also expected to call out the numbers of subscribers who may be ringing, but who are being delayed in consequence of the number of other calls coming in at the same board, and it is the duty of any operator who is not busy with her own lines, and who first hears the number called to immediately 'plug in' and make the connection, the lines being, as already explained, looped throughout the entire board, so that any operator can reach any line called out. While with a view to economy and efficiency this is a necessary and desirable feature in the work of operating, it will be apparent that where operating is being carried on at a high rate of speed it contributes another element to the pressure of work placed upon each operator, and tends to a distribution of the work among the several operators to the extent of their energies and ability.

These features, all of which have to do with the rate of speed of operating, may like the hour schedule and switchboard economy be modified in accordance with the policy of the management; it remains to consider other features incidental to operating, and which lie more or less beyond the control of a company, but which are also important factors in determining the intensity of employment, and in particular the nervous or other strain involved. For the most part their effect upon the individual will depend largely upon the individual herself, and will vary according to the temperamental, the physical, nervous and mental condition of the operators, and only in a secondary manner upon skill.

Mention has been made of the monitors, of which there are two over the whole service for each five hours. While unseen by the operators, the monitor is in a position to follow their work, hear the calls made, the replies given, and to know the manner in which connections are made. This is effected by means of an observation board, with which any of the lines of the switchboard may be connected. The system is regarded by the company as a necessary check on the operators to see that they attend strictly and properly to their duties, and is claimed to be essential to the efficiency of the service. On the other hand, it is contended by the operators that the consciousness of being, so to speak, under surveillance of this kind contributes an element of strain to the discharge of their duties.

As already mentioned the glowing of a small lamp affords to the operator the signal of a call. Several lamps may glow simultaneously, which would indicate that several calls have come in from different points at the same moment. The operators' duty is to answer and make connections in the case of each of these calls as rapidly as possible. If a subscriber does not receive a prompt answer and becomes impatient and indicates his impatience by moving the hook of the receiver of his phone up and down, as is a common practice, this impatience is reflected by the light glowing in-

termittently, the lamp going out each time the hook is lowered and relighting as soon as it is in the position it would be with the receiver off the hook. Moreover, a clicking or banging sound enters the ear of the operator each time the hook of the receiver is moved up and down.

It was alleged by some of the operators that the glowing of these lamps caused a strain upon the eyes and that the clicking sound injured the ear, but more particularly was the consciousness of a number of subscribers awaiting answers, and especially the consciousness of their impatience as reflected by the intermittent glowing of the lamp when calls were coming in at too rapid a rate to be properly overtaken, said to contribute an element of nervous excitement which enhanced the strain of operating, especially where an operator was conscientious in the desire to efficiently discharge her duties. The banging or snapping of the instrument into the ear, which is occasioned at times where connections are not promptly or are improperly made add, also, an element of aggravation.

Another element, kindred in a way, though perhaps more aggravating to a sensitive nature, is found in the hard words and occasional abuse to which operators are at times subjected by subscribers who may have become inconsiderate through being obliged to wait some little time for replies.

The possibility of injury arising from shocks is a feature also deserving of consideration. While it did not appear from the evidence given before the commission that much injury was occasioned from shocks on the Main local exchange, there was sufficient evidence to show that the possibility of such an occurrence must be more or less constantly present to the mind of an operator, while the evidence in regard to injuries received by operators engaged on the long distance lines was quite sufficient to demonstrate the inevitable risks which are run by young women in this work.

Injuries Received during Discharge of Duties.

The following operators gave evidence as to injuries received by them while in the discharge of their duties:—

Lily Rogers, examined on February 11, 1907, had been in the service since November, 1905. She stated that while on the long-distance two weeks last Friday—(making it January 25), she received a shock and had been under the doctor's care ever since.

'Q. How did you get it?

'A. I do not know.

'Q. What were you doing at the time?

'A. Answering a line—the King Edward line in the city.

'Q. For long-distance?

'A. Yes.....

'Q. Were you rendered unconscious?

'A. I think I was, yes.....When I first got the shock I remember having pains in my arms. I could not move my arms; they felt kind of drawn up—my fingers were drawn up.....They sent for the doctor, Dr. Silverthorn, and he went part of the way home with me in a carriage.....there was another operator with me.

'Q. And you have been out of the employ of the company ever since?

'A. Yes.

'Q. Unable to work?

'A. Unable to work.'

In cross-examination she gave the following evidence :—

- 'Q. I am told it was a fine day in Toronto, everything was all right ?
- 'A. It was'nt from an outside line, it was from an inside line, not outside of Toronto. It was a line between the Toronto exchange and the King Edward.
- 'Q. You are not one of the strikers ?
- 'A. I was away ill before it commenced.
- 'Q. You are not one of the strikers ?
- 'A. No.
- 'Q. You haven't made any complaint ?
- 'A. No.

Laura MacBean, in the employ of the company from 5½ to 6 years, who had been on long-distance, stated that she had received three shocks.

- 'Q. What was the result of the first one ?
- 'A. I was away from the office at the first one.
- 'Q. What did the company do for you for that ?
- 'A. They paid everything financially, as far as doctors' bills and giving me my money.
- 'Q. They just paid you your wages and your doctor's bill ?
- 'A. Yes.
- 'Q. Did not give you anything for the injury in addition ?
- 'A. Oh, no.
- 'Q. Then the second time—what was the result of that ?
- 'A. I was away again a month for that.
- 'Q. No bonus for your injury ?
- 'A. No.
- 'Q. The third time ?
- 'A. Well, of course the last shock was'nt the same as the others, it was just on the small switchboard down stairs.
- 'Q. And wasn't so serious ?
- 'A. Oh, no.
- 'Q. The first shock you were off a month—were you absolutely incapacitated ?
- 'A. Well, with my nerves I was.the first one you see was about four years ago if I remember right.
- 'Q. Did you have convulsions as the result of the shock ?
- 'A. The second shock, yes.'

Hattie Davis gave the following evidence :—

- 'Q. Did anything happen to you on the long distance ?
- 'A. Yes, I received a shock.
- 'Q. You got two shocks—when was it you got the first ?
- 'A. I think it was the week before exhibition (1906). I was off for two weeks.
- 'Q.So that the company just paid you for the time and paid the doctor and you had to bear the other expenses yourself ?
- 'A. I paid my medicine.
- 'Q. Were you given anything by way of bonus for damages or anything of that kind by the company ?
- 'A. No, I had just my salary paid me.
- 'Q. How long after that was it you had another shock ?
- 'A. I went back to work on the Monday, and on the following Sunday I was on from 2 to 10 and worked on the long-distance lines until 4 o'clock, and one of the supervisors asked me to go over to the recording desk, and the first line I answered at the recording desk was the main public line and I received another shock. That

line, I believe, does n't go out of the building at all, but notwithstanding, I got a shock from it and that was worse than the one on the long-distance.

'Q. As the result of that second shock, which came, how soon after you came back to work ?

'A. A week after.

'Q. And you were off duty, how long ?

'A. I think I was off three weeks, and three weeks after I called at the office and I think Miss Flanagan was in charge, and I asked her what time I was the following week, and I was 8 to 1, and I went on at 8 o'clock, and I think it was half past 10 or 11 o'clock they had to help me downstairs again. I couldn't stay on. . . . Nearly four weeks after that I went back—between 3 and 4 weeks.

'Q. When did you have convulsions as a result of that second shock ?

'A. I don't know if they were convulsions, but some of the girls told me they were; the spells I took—

'Q. Were your wages and doctor's bill paid this second time ?

'A. Yes.

'Q. Were you given anything for the injury it had occasioned to you ?

'A. No, just my salary and the doctor's bill paid.

'Q. Did you pay for your medicine ?

'A. I paid my own medicine with the exception of about two bottles. . . .

'Q. Then, when you went on the long-distance were you told you would be likely to get a shock ?

'A. No, I don't remember being told.'

Laura Rockall in her evidence, stated as follows :—

'Q. Did you receive any electrical shocks over the wire ?

'A. Well, I have got pains in the ear like Miss Fiegehan says.

'Q. Did that affect in any way your nervous condition ?

'A. Well just for the moment.

'Q. Have you known of others to be shocked so as to be off duty and be in convulsions ?

'A. Yes.

'Q. Did that knowledge in any way affect you ?

'A. Well, it kind of scared me—I was rather afraid of it.'

Emily Richmond gave the following evidence :—

'Q. You got a shock, did you not ?

'A. I did. . . . in 1905.

'Q. With the result that you had to go to the doctor ?

'A. I did. . . . Dr. Anderson, 5 College street, ear specialist.

'Q. And what was the injury occasioned to you at that time ?

'A. I haven't been able to use my left ear at all.

'Q. Your left ear is not of any service to you ?

'A. Not at all.'

Mention may be made at this point of a feature of operating which might, since it has to do with the size of the switchboard, be more properly included perhaps in a reference to the features of operating which are subject to mechanical limitation at the direction of the management; as, however, it illustrates the physical strain to which operators may, under certain circumstances, be subjected, its inclusion here may not be out of place. It has been shown that as subscribers increase in number, unless new exchanges are opened, the numbers on the switchboard before an operator will continually increase. At the Main exchange at Toronto the numbers on the board at the

time that the commission held its sittings, ran, as has been stated, up to 6,041. A large number necessitates the holes being very small in size and close together, which involves the exercise of considerable care by an operator to avoid the making of wrong connections. The larger the number, the higher of necessity the operating space on the switchboard extends. At the Main exchange in Toronto it was so high that the operators were obliged in some cases to stretch considerably in order to reach the more remote numbers; in fact, some of them were obliged to stand upon the rungs of their chair to conveniently do so. This stretching was held to contribute an element of strain which in some cases was considerable. One operator gave evidence to the effect that she had lost the use of one of her arms in consequence of the strain. Hilda Walton, who had been employed since July, 1905, stated:—

‘ I was reaching one day and something happened to my

‘ Q. You were reaching for what purpose?

‘ A. To put up a connection.

‘ Q. On the board—and what happened?

‘ A. Something snapped in my arm, and I worked through—it was one Saturday morning and I was 28 position, and I was operating and it was a very hard position to reach, and somehow or other there was a new operator beside me. She was pretty busy and I was pretty busy and all the board was full of lights and I was stretching up and there was something snapped in my arm and my arm felt heavy and all that morning I operated as best I could with my left hand, and went home, and mother tried to do what she could with the arm, and she felt it was out of place, and Sunday I rubbed it as much as I could with liniment and so did mother, and Monday I was 7 to 12, and when I came that morning I found I could not work with the arm at all, so after 12 o’clock I went to the doctor’s and he said the ligaments were torn and I would have to take two weeks’ rest, and I telephoned to Miss —, and she said she would speak to Miss Bogart about it, and Miss Bogart was busy then and couldn’t come and speak to me, and I said I would try and come down Tuesday morning, but I would have to take the two weeks’ rest for the arm, and I came down Tuesday morning and I worked as best I could, and Miss Bogart gave me permission to take the two weeks’ holidays, and I left off the Tuesday at 12 o’clock, and I came back two days previous to the two weeks, and my arm isn’t any better yet. It is not as painful, of course, for I have been doctoring as well as I could. I went to the doctor’s last Sunday night and he told me it was no better.

‘ Q. How have you to operate now?

‘ A. It is pretty hard reaching up. I have to get up on my chair. If I have to reach high the other operator puts up my connection. . . .

‘ Q. And you have been back now how long?

‘ A. Have been back since—this happened last May.’

In cross-examination she stated:

‘ Q. That was the history of your holiday?

‘ A. I would never have taken them; I didn’t feel I could very well take the holidays at that time, but I had to take them.

‘ Q. Did you take your holidays at that time?

‘ A. No, I was never paid for it; it was my own expense.

‘ Q. You took the two weeks on account of the straining of the ligaments in your arm?

‘ A. Yes.

* * * * *

‘ Q. Then you went back in May, and you have been there ever since?

‘ A. All but two weeks’ time, in September.

‘ Q. You took your holidays after that, did you?

‘ A. Yes.’

It was admitted by all of the operators who came from outside points to fill the places of the operators who went on strike, and who were examined before the commission, that the board at the Main exchange in Toronto was considerably higher than the boards at which they had been accustomed to operate, and that they found the strain of operating considerably increased in consequence. It was not denied by the company's officials that the Toronto board was higher than those in use at other exchanges, nor was there any attempt to disprove that the higher the board the greater the tax upon the operator.

Strain upon Special Senses while Operating.

It remains, finally, to consider a feature subjective or personal in kind, and which is at once the distinguishing and most important element in the work of telephone operating, namely, the extent to which the special senses are called into play and the manner in which they are required to act, not only continuously, but concertedly. This feature calls for special consideration in estimating the strain to which telephone operators are subjected from the nature of their work.

As has been pointed out, connections on a switchboard are made by inserting a small plug in a small hole above which the number of the telephone requested appears. The eye is attracted in the first instance by the glowing of a light which announces the call. It has then to immediately find upon the switchboard the hole in which it is necessary to insert the plug to make the desired connection. Similarly, in disconnecting, the eye detects the extinction of the light, and then seeks on the switchboard the number with which the connection had been made. This means constant employment of the muscles of the eye in different directions, and use of the optic nerve. The ear, in receiving calls, is required to distinguish between a multitude of different voices, to ascertain at once, and so as to avoid repetition, the number asked for, no matter how indistinctly or ill-pronounced the number may be; this necessitates constant alertness of the auditory nerve, whilst the vocal organs are scarcely less constantly in use in the answering of calls, the repetition of numbers, and the conducting of such conversations as may be necessary. The sensations created by the working of the several senses in this manner, transmit their several messages to the brain, which, in turn, directs and governs the actions they suggest. The brain is the centre of the nervous system. A mere statement of the case is sufficient to show that viewed from this point the rapidity or speed with which operators are called upon to carry on their work becomes a matter of great concern, regard being had to the mental constitution and nervous system. It is the fact that the special senses are called into operation so much in combination, that the several activities are all at work at the same time, which, perhaps, more than anything else, distinguishes telephone operating from that of any other employment in which women are engaged. It introduces for consideration elements of the first importance from the psychological and physiological standpoints. In most occupations in which women are employed it is the physical energies which are primarily taxed in the labour expended. This is the case with most of the work done in factories. It is so, too, with employment in shops and stores. No other calling has suggested itself to the commission in which the senses of hearing, speech and sight appear to be called into play simultaneously to the same extent or required to be so constantly on the alert. Even in typewriting and telegraphing, to which

occupations references were made in this connection before the commission, there is a difference. In taking down shorthand a stenographer is required to use the senses of hearing and sight, but not that of speech. In transcribing shorthand notes upon a typewriter, neither hearing nor speech are called into play, but merely the sense of sight. Similarly in telegraphing, a telegrapher in transmitting a message is not required to use his sense of speech, and may even transmit without using his sense of hearing, and in receiving a message does so without using his vocal organs. It is this peculiarity of the work of telephone operating, resulting from a combination of a new power with a series of new inventions which, as has been said, distinguishes this class of work from other occupations with which it might otherwise be compared, and which must be given a first consideration in considering the question of hours and the suitability of women for this class of employment. A fair comparison cannot be drawn in respect to the intensity of employment between this work and other classes of work in which the strain is mainly physical, inasmuch as telephone operating differs from most other female employments not so much in degree as it does in kind, and the exhaustion which it entails is not so much physical as mental and nervous, an exhaustion of nervous energy, a depletion of nervous force.

As to the effect upon the health of the operators from any or all of the above causes which constitute in their combined action the strain of operating, an abundance of evidence was given before the commission. This evidence concerned, in part, the experience of the company's officials and the operators under the five-hour system, and in part the views of leading members of the medical profession in Toronto. A brief résumé of the many facts elicited in this connection cannot fail to be both instructive and convincing. It is, in our opinion, impossible to overestimate the value to be attached to this part of the investigation.

The evidence of the local manager on the effects of operating as carried on under the 5-hour system was unequivocal. Mr. Dunstan said:—

‘We have proved absolutely and conclusively by our records, by our observations, that the system of high pressure for a short time is absolutely detrimental to the health of the operators, hard on their nerves, and is a strain from which we determined to relieve them; we have found that it is the pace that kills.’

And elsewhere:—

‘We decided. . . . to adopt what we considered to be the saner, wiser, better policy of reducing the strain, doing away with the pressure, letting them work moderately for the usual number of hours. I could illustrate it this way. You could take, if you will pardon the illustration—you could take a horse and drive it at a rapid rate, press it, push it for two hours every day. You will find your horse will be an absolute wreck. The same amount of ground or more would be covered by the same horse going at a moderate rate and the horse would be fresh and unaffected. We have found that it is the pace that kills.’

‘Q. Were the girls working harder than they should have been asked to work?’

‘A. In my judgment they were.’

‘Q. Were they working so hard that the work they were doing would be likely to injure their health and their nervous system?’

‘A. I think it was injurious.’

Asked as to whether the health of the operators prior to 1903 was interfered with as much as since 1903, Mr. Dunstan replied: ‘Decidedly no.’

‘Q. Why?’

‘A. Simply because they were working under normal conditions. As I said be-

fore it has been found that high pressure is injurious and it is the pace which is nerve destroying.'

Mr. Dunstan admitted that the company had had to call physicians to attend operators who were suffering from the effects of shocks received upon the line.

Illness Caused by Overwork.

In addition to the evidence as to injuries received from shocks, &c., as above set out, evidence was given by the following operators as to illness occasioned by overwork.

Maud Orton gave the following evidence :—

'Q. Have you had occasion to quit work as the result of exhaustion or nervousness?

'A. Well, I have gone home frequently exhausted, and I am always taking nerve medicines to keep me going, and I am one of the strongest members in the company. . .

'Q. What has been the result upon the operators of this continuous hard work for five hours?

'A. Well, most of them are very nervous—exceedingly nervous.

'Q. Ever anything special happen to any of them?

'A. They faint, and they are not capable of enjoying themselves the way young girls should enjoy themselves.

'Q. Do you know whether any of them have fainted while in the service ?

'A. Oh, yes, quite often in my experience of seven years.

Minnie Hamm answered as follows :—

'Q. You fainted, did you not ?

'A. I did.

'Q. What occasioned that?

'A. Excitement.

'Q. When?

'A. Well, if it is busy, why I think any person gets excited.

'Q. That is, it was the excitement of being extremely busy?

'A. Yes.

'Q. How many times did you faint?

'A. Three times, I think.

'Q. And did you faint any time during the strike?

'A. I did.

'Q. Nobody interfering with you?

'A. Not interfering with me.

'Q. And which one (faint) was the result of the excitement due to overwork?

'A. The one before (the strike).

Theresa Corcoran answered :—

'Q. How did you find it on the local board, under the conditions as they existed when you were there?

'A. Well, I could not stand it at all. I intended leaving and Miss Bogart asked me if I would try long distance.

* * * * *

'Q. Then why did you leave that and go to the King Edward?

'A. Well, I was very run down, and I left the company altogether.

'Q. That is, you got entirely run down as the result of the work on the long distance?

'A. Yes.

Mr. Cassels.—She did not say that.

'Q. Was it as the result of the work on the long distance?

'A. Yes, I was very run down, nothing else to run me down.'

Maria Strong gave the following evidence :—

'Q. And during the time you were working under the five hours, did you find you could work right along without any inconvenience at all?

'A. It was very trying at times.

'Q. With the result that—what happened to you?

'A. I had a hysterical fit one day; I was taken downstairs by Miss Irwin.

'Q. When was that?

'A. That was about May, I think, of last year.

'Q. You were away about seven weeks at that time?

'A. Yes.

'Q. As a result of the break down that was occasioned then?

'A. Yes, my nerves were all upset.'

'Q. And you didn't go back for about seven weeks? Then when you came back, how long did you work there then?

'A. I worked in the Main exchange to about the 1st of July or the last of June, May until July.

'Q. Then what did you do?

'A. I went to Parkdale.

'Q. That was easier?

'A. Yes.

'Q. You were not able to stand the strain?

'A. No, sir, I couldn't stand the work in the Main at all.

'Q. What has been the result of your working at Parkdale; have you recovered your health in any way?

'A. Of course the work was much lighter and I recovered, but I am not altogether right yet. My nerves have never been the same since.

(Witness had left the service on the 20th December, 1906.)

Laura Rockall:

* * * * *

'Q. You had to leave as the result of your physical condition?

'A. Yes.

'Q. What has occasioned that?

'I claimed it was over excitability. I went on the long distance line, and the outside town that I was talking to and the confusion around the room, why it was the account of my illness. I left about the latter end of July and returned November 13.

'Did it take you all that time to recover?

'A. Well, I felt I wasn't able to return to duty—to perform my duty properly.

Emily Richmond:

'Q. When did you take to wearing glasses?

'A. Five years ago.

'Q. What occasioned it?

'A. Well, the optician said it was a nervous strain.'

In cross-examination she gave the following evidence:—

‘Q. May I ask when you took to glasses ?

‘A. A couple of years after I went in.

Q. And who was your oculist, who recommended these glasses ?

‘A. Ryries.

‘Q. Your work was straining your eyes, isn’t that the reason? What I want to get at is this, he recommended glasses so as not to overstrain your eyes; I suppose that is what it comes to?

‘A. I suppose so.

How the element of strain was viewed by the physicians who gave testimony before the commission will appear from the resumé which follows of the testimony given by each.

VI.—THE OPINIONS OF LEADING PHYSICIANS.

Evidence of physicians before Commission.—Special points to which attention was directed.—Summaries of evidence of following physicians:—Dr. Murray MacFarlane, Dr. William Britton, Dr. Alexander Davidson, Dr. Charles Sheard, Dr. William Oldright, Dr. Walter McKeown, Dr. James Forfar, Dr. James M. Anderson, Dr. William H. Alexander, Dr. Gideon Silverthorn, Dr. Richard A. Reeve, Dr. John F. Uren, Dr. G. Herbert Burnham, Dr. Charles Trow, Dr. William B. Thistle, Dr. William P. Caven, Dr. Charles R. Clark, Dr. J. M. McCallum, Dr. James M. Foster, Dr. Robert Dwyer, Dr. John Noble, Dr. Alexander McPhedran, Dr. Alexander Primrose, Dr. A. R. Pyne, Dr. Alton Garratt, Dr. Campbell Meyers.

TWENTY-SIX medical practitioners gave evidence before the Commission. Of this number six appeared at the request of the parties, the remainder were subpoenaed at the instance of the Commission from among physicians of the city whom it was believed could speak with the authority and from a wide range of experience.

The physicians subpoenaed were nearly all selected from the medical faculty of the University of Toronto, and were without exception among the leading members of the profession in the city. A larger number were summoned and attended for the purpose of giving testimony, but the evidence given was for the most part so much in accord on the main points at issue, that it was deemed unnecessary to prolong the inquiry by a further examination of medical witnesses. In no case had the Commission any knowledge of the probable trend of the evidence to be given until hearing the testimony as delivered.

To secure a careful consideration of the matters on which it was specially desired to have an opinion, a memorandum containing mention of the following points was given to each witness some time prior to his examination.

‘The effect—

- ‘(a) Under 5 hour system—high pressure.
- ‘(b) Under 5 hour system—low pressure.
- ‘(c) Under 8 hour system—high pressure.
- ‘(d) Under 8 hour system—low pressure.

‘Upon—

- ‘1. Optic nerve—by lights—finding places for connections.
- ‘2. Auditory nerve—from calls, buzzing, shocks, &c.
- ‘3. Vocal organs—continuous calling of numbers.
- ‘4. Physical system—Length of sitting—head and chest gear, reaching.
- ‘5. Nervous system—from above cause operating together and continuously.

‘If accentuated by system of observation boards, monitors, supervisors, complaints of subscribers, &c.’

The following summaries are taken from the evidence of these witnesses given after visiting the premises of the Telephone Company and watching the operators

performing the duties required of them. Of necessity, the summaries are brief. We would strongly recommend a careful perusal of the evidence itself.

Dr. Murray MacFarlane, eye and ear specialist, 15 or 16 years in Toronto, had treated a considerable number of these employees of the Telephone Company suffering from eye strain principally, also from nervous affection of the ear,—did not find any disease due particularly to the flashing of the lights, and the switchboard,—watching the lights continually is more or less hard on the eyes, helps to increase the strain, 5 hours work too long; one stretch of 5 hours easier than two stretches of four hours; two stretches of three hours easier, as there is longer time to recuperate. Eye, ear and throat are all strained in this work, and the brain interpreting the operation of the three would use up energy, sitting in one position objectionable, putting up plugs physical exertion, increases the strain. Eight hours with an interval too hard, sooner have 5 hours work, and it over with.

Dr. William Britton, practising 31 years, Toronto, representative of the University of Toronto and Medical Council, attended employees. Many suffering from nervous debility occasioned by the strain of that particular work, so far as he could determine, upon the nervous system, which includes the senses of hearing, speaking, seeing and using arms causing too much strain upon the nerve centre, the brain; 5 hours continuous work at the extreme limit of speed with headgear on, sitting in a chair would have a deleterious effect upon the constitution and nervous system. Not only are the special senses active but there is the closest of attention apparently which can't be kept up for any length of time without affecting the nervous system to some degree. Not a wholesome employment no matter what length of hours—5 hours under the conditions stated is a great deal too much, where there is delay in giving necessary relief, exceedingly dangerous. A large number of the operators as seen by me at work looked as though they should have been at home resting; their faces showed indications of weakness on account of the strenuous employment—in their own interest as well as future posterity—5-hour system, low pressure well within capabilities of operator would be reasonable; 4 hours high pressure continuously, 1 hour interval, 4 hours again, great deal worse than 5 hours high pressure continuously; 5 hours high pressure would require a long period of rest; 19 hours, for rest, sleep and helpful recreation; 20 minutes rest in each of the 4-hour periods of the day not sufficient, wouldn't afford much relief to the nervous system; 2½ hours in the forenoon, an hour rest, 2½ hours in the afternoon would be some better than 5 hours continuous. The period of work should be divided with a rest. Finding holes greater strain on eyes than lights although lights a constant strain upon the eyes.

Placing plug in socket not entirely automatic, switchboard divided into sections of 100 each, and each subdivision 8 inches long and 2 inches deep contained 100 holes—20 in a row—these 20 subdivided into 5's but indications showing the divisions between the 5's require close strain of eye to see that subdivision. If ever automatic only after a tremendous strain for a considerable period of time. The frequent buzzing in the ear and flashing of lights would be injurious to the nerve centre and also if subscriber found fault with operator. Vocal organs not affected as much as the auditory or optic nerves although it would help to tire the whole system. Reaching for the high numbers would injuriously affect the nervous system. From noticing a good many cases that came before me, I have been led to the conclusion that the service is exacting; in a number of cases of young ladies whom I had known as the physician of the family, before they entered into the telephone service and were apparently healthy, after a length of service in the telephone office, I had to prescribe for them for various types of nervous debility, and my advice to the majority of them was to discontinue the work. The constant listening and keen buzzing means a state of tension of the nervous system all the time; 15 minutes relief would be a very slight one. The girls sit upright in their chairs, far back, with head inclined slightly forward; none standing up, 20 minutes relief in the 4 hours in morn-

ing, 1 hour for lunch and 20 minutes relief in the 4 hours in the afternoon not very helpful, although helpful to some degree; not as good as 5 hours straight. Have quite often seen nervous hysteria from this nervous strain to the telephone girls. Above all the uninterrupted close vision which has been called strenuous, and worry cannot be dissociated from their work—so very closely watched. A reduction of the lines from 120 to 115 not much value, only 4 per cent.

Dr. Alexander Davidson—practising 25 years.—Five hours continuous quick operation most strenuous upon the constitution, sufficient to injure it and the nervous system. Would never advise any one to go into this occupation if they could earn their living by any other means equally respectable. Average calls about 360 an hour. With the experience I have had with patients who have consulted me, and with what I saw yesterday of the activity with which they work, and the conditions under which they were acting, I should think that 2 or 3 years would have a very serious effect upon many of the individuals whose faces I saw there yesterday. Those I treated were suffering from the wearing down of the nervous system. Five hours continuous service—extreme limit of service low pressure—far better than 8 hours with reliefs of 20 minutes, one hour, and 20 minutes during the day. Five hours with relief of one hour at the end of the first 2½ hours should be all that ought to be expected from the operator. Flashing of lights and making connections with the dazzle of the switchboard holes very trying on the optic nerve. Continuous calling of the subscriber and supervisor, a great strain on the auditory nerves. Vocal chords as used not very heavy. All contribute to the debilitating of the nervous system, as also the physical strain in reaching and sitting still continuously in one position. Twenty minutes relief in the 4 hours slight, not long enough to give recuperation. Don't think of any other kind of employment open to women which for the same period of time is as exhausting. All the several activities at work at the same time have a very trying effect on the nervous system.

Dr. Charles Sheard, 14 years medical health officer for the city of Toronto, chairman of the Provincial Board of Health.—The condition under which the telephone girls operate, the speed required of them, the supervisors hurrying up the girls who are compelled to sit for 5 hours and not allowed to stand, but compelled to sit up straight, make it a most extremely severe service. Girls having received shocks would add the increment of fear to others. Five hours continuous work at high pressure far too long, and in a short time would simply rack and ruin and destroy the nervous system and constitution of the operator. All high pressure in the telephone system. Increased length of hours should call for an added increase of pay and increasing the pay from \$18 to \$20 and \$20 to \$22.50, for the increased 78 hours, or say 3 cents and a fraction per hour, is absolutely contemptible. Board and lodging for those in the station from which operators are taken costs \$5 to \$7 per week, and the wages as increased insufficient to keep them decently. Wages should be \$10 a week, and the better operators increased proportionately about \$15. Eight-hour period with reliefs of 20 minutes, 1 hour and 20 minutes too long although about same effect as 5 hours straight. Five hours with a relief of them at end of first 2½ hours would be more approaching the proper system that should prevail. Twenty minutes is a very trifling rest, although of some use. Know of no other occupation which constitutes as great a nervous strain as this is. Have given some consideration to this matter since the trouble arose.

Dr. William Oldright, 40 years practising, Toronto, Professor of Hygiene in Toronto University and Professor of Clinical Surgery.—A very trying service, the continuous and constant attention for calls when the operator has to have her ear on the alert and even when there isn't a call sounding in her ear, she is waiting intently to take such a call; she has got to remember the number that is asked for when it is first given to her; she has to memorize that, and she has continually to watch the lamps going in and out, and then there is added to that a very trying element, the

fact that some people who don't understand what the telephone switchboard is think that the operator ought to be sitting there attending to that one person, and they occasionally get annoyed. She is asked questions such as, Has she wakened up? Has she got back yet? Which, of course, adds to the annoyance and confusion, and all adding to the nervous strain. It is an advantage to operators to speak as they do, rather than otherwise, as it assists the memory and doesn't injure the voice. Their class of work is unfairly high pressure work. School teachers not supposed to teach more than 6 hours a day, even if that much, in the country, and 5 hours in the city. The telephone work more strenuous and harder on the mental system (than teaching). Five hours quite enough, with an interval of rest, say $2\frac{1}{2}$ hours' work, an hour off, and $2\frac{1}{2}$ hours' work, fair and reasonable, far preferable than 8 hours with the three reliefs. Five hours straight, injurious. Nervous system particularly sensitive to strain between the ages of 17 and 25 as against any other period of life, and effect of strain may appear later than that time.

Dr. Walter McKeown, 16 years practice in Toronto.—Have had telephone operators as patients suffering from nervous exhaustion. Five hours extreme limit for such service with a break in it of an hour. In 8-hour system, the 20 minutes relief would not add very much to the rest, although better than 8 hours with only 1 hour relief. It is the most exacting service I can conceive of, and would have the effect that these girls burn up more energy than they produce, and the time will come when they will have a period of nerve exhaustion resulting from the use, at such high pressure, of the eye, ear, mouth and the arms and the body, and the reaching and stretching and the additional fact that they have got to think constantly. It is not automatic. The only occupation like it is that of railway mail clerks, who only work each alternate day. The worst condition there, is their sitting so close together that they must inhale each others breath. I think operators can't stand more than 3 years life of such service on an average. I have given the question considerable consideration, and for that reason I know of nothing where the nervous strain is as great. You have to use the eye and the brain constantly, and then you have a physical exertion, and taking it altogether, I know of no other occupation that requires that at such high pressure, and when fear is added it would magnify the difficulty. They were going as fast as they could possibly work.

Dr. James Forfar, practising 17 years, Toronto.—Treated telephone girls for nervous strain and run-down constitution; rather depleted condition. One I remember had a sore on her ear and nervous troubles connected with it; couldn't wear the head-gear. On B circuit I counted the number of calls taken by an operator, 18 in one minute, which would make 1,080 in an hour. Mr. Maw said they were working at low pressure. Five hours long enough, and at that rate of speed it would be too much. Should not be continuous and should have relief when needed; without that, injurious to the nervous system and constitution generally; would suggest $1\frac{1}{2}$ hours' work, $\frac{1}{2}$ hour rest, then an hour's work, an hour for lunch, and then $1\frac{1}{2}$ hours again, with half hour rest, and finish up with another hour; or, say, $2\frac{1}{2}$ hours' work with an hour relief, and then $2\frac{1}{2}$ hours' work. Wouldn't advise the five hours straight, but would prefer it to the eight hours with an intermission of an hour. The eight hours with 20 minutes relief in the middle of the first four hours, then an hour relief. Twenty minutes in the middle of the second four hours would be intense, although better than the eight hours, but not as good as the five hours straight. The switchboard was $3\frac{1}{2}$ feet high by my rule; operator would have to reach up to her limit, eight sections of 9-inch scale= 72 inches one way. The work is injurious to the eyesight in several ways. The flashing of the lights, and finding the little holes and plugging in, I think, would be injurious; produces headache constantly looking at the holes and prevents rest, so much so that they cannot sleep when they go home; calling out in their sleep No. so-and-so, showing the nervous strain, and others have told me that they couldn't eat well, a common thing for a nervous person. Take the ears; there is that constant

cracking sound in the ear by a careless subscriber or somebody calling up a number and snapping these poor girls there from morning till night, and calling them even names that they should not hear, and even swearing at them, and listening to language not fit for any lady to hear. They are compelled to listen to these things. Reaching is hard and injurious to them; to be sitting all the time in one position; not being able to get up, and not being able to be relieved when asked for.

Dr. Jas. M. Anderson, practising 20 years, Toronto, specialist in eye, ear, nose and throat.—Treated a number of telephone girls, mostly for eye troubles, headache and nervous troubles. Business of a telephone operator is the most trying of any I have ever seen so far as it affects the eyes, and through the eyes the general system. Three hours twice a day full safe limit of service, with two hours', at least, rest between the two periods. Work broken up by intermission during the eight hours better than 5 hours straight, and less injurious; if only one hour intermission between the two periods of four hours more injurious than five hours straight. The 20 minutes' relief in the two periods of four hours a great deal better than the eight hours with one hour, but not of much service and not much difference from the five hours straight, although somewhat better. The periods not long enough for rest; five hours divided into two periods with an hour for lunch better than any of the other propositions, and an operator might do that, but the others would be too great a strain upon her. After a service of three or four years would expect to find an exhausted womanhood and unfit for any strenuous work and harmful upon the future motherhood.

Dr. William H. Alexander, Practising 11 years, Toronto.—Treated quite a few patients who worked in the telephone company for throat, chest, nervous troubles and headaches, resulting from too long continued nervous strain and not being allowed to obey the calls of nature when necessary. Five hours too long without a rest between. Operating for two or three years in this way would result in a very much disturbed condition, and if persisted in would lead to a nervous prostration and nervous breakdown. Average girl should not remain longer than three years at it, and then would not be in a condition to perform the ordinary occupations of womanhood satisfactorily. Five hours with a break of 1½ hours or two hours' rest between two sections of 2½ hours each would be maximum of hours' labour. Twenty minutes' rest in the eight-hour plan makes no substantial difference, as it wouldn't be a complete letting alone. Don't know of any other occupation which is open to women that necessitates as great a nervous strain upon the nervous system as this telephone operating. Nervous system particularly sensitive to strain at the ages at which the operators are generally employed, somewhere between 17 and 25, and adverse effects are likely to make themselves known after the end of a year or two or three years, and partly later in life.

Dr. Gideon Silverthorn, practising 15 years, Toronto.—Treated patients who were operators for the telephone company. Four cases of electric shocks in summer or autumn of 1906; operators on long-distance. The four operators attended for shocks were Miss Davis, Miss MacBean, Miss Fiegehen and Miss Rogers. At the time of strike attended a number of cases suffering from hysterics, a nervousness occasioned by the condition on that day. One had been working from 8 to 4; I was there from 4 to 6, there again in the evening quarter to 9; three were suffering same as those in in the afternoon. There the following day; one suffering. Attended Miss Davis for shock; for her to go back to work after receiving shock it would be a nerve-racking occupation; recovery from shock slow, and she was anxious to go back to work every day, and I tried to persuade her not to go. I think typewriting would be perhaps as great a strain on the nervous system.

This witness refused to give any expert testimony, as he claimed he had not been retained as an expert and not paid fees as an expert. He had attended all the above

cases at the request of the telephone company and had been paid by the company for such services.

Dr. Richard A. Reeve, Dean of the Faculty of Medicine of the University of Toronto and President of the British Medical Association, Specialist in Diseases of the Ear and Eye, timed one or two operators, one that only required to answer six calls in a minute (on the A board). Others not so many, and I think others more—6 in a minute equals 360 in an hour—the rapid use of the hand and the eyes, the connected use of the eye and the ear and the hand is certainly trying work. Can't recall any occupation just of a nature that would enable me to make a comparison. It taxes the two special senses, hearing and seeing, then the mind has to be on the *qui vive*, alert all the time, and one has to guide the plugs into the proper holes, &c. Five hours continuous service high pressure not so severe as 8 hours' service with an hour for meals, the two twenty minutes' relief in the 8 hours' service would hardly atone for the extra strain upon the nervous system from the prolonged hours. If the load same, 5 hours work preferable to the 7 hours and 20 minutes, and if 5 hours divided into 2 periods with an hour's rest between, more preferable. Good wages should be paid, as operators require in a certain sense to be experts. The work has no special effect on the optic nerve, I think it taxes the nervous force. The sight and the hearing and then the concentrated attention. A sort of mental strain, and would be a tax upon the nervous energy of the individual and would tend to deplete it. Work only partly mechanical. Execution of the work requires that one should be rather quick-witted, I think. There is mental strain, and 5 hours work sitting there at full strain would be too great for these operators. It is the concerted action that makes the work more trying.

Dr. John F. Uren.—Attended telephone girls for fainting caused by heat and exhaustion, have record of 4 times some years ago, paid by the company. Service is very exacting, 5 hours quite exhausting and injurious. Eight hours' service with one hour of rest would be harder. Would prefer the 5 hours straight to the 8 hours with two 20 minutes' relief and the one hour for lunch. Five hours divided into two periods of 2½ hours with one hour intermission much more preferable to the straight 5 hours and quite enough to be exacted from an operator. The effect upon the nervous system is through the eyes and ears and operating generally. Would prefer lesser load for the 7 hours and 20 minutes work than the 5 hours with high pressure.

Dr. G. Herbert Burnham, practising twenty years, Toronto, Member of the Faculty of Toronto University, filling Chair of Ear and Eye.—Telephone work is an arduous calling and requires the nervous system to be kept on the constant stretch, and therefore the hours should not be long without a decided intermission. Term of five hours spoken of without intermission is too long. With an intermission of an hour or so is a decided improvement and would not be too onerous. The eight hours with the two 20-minute reliefs and one hour for lunch I would consider a very unsatisfactory arrangement if I were an operator. The work is a strain upon the nervous system as a whole, through the eye and through the ear they are both employed at the same time actively; looking in a number of different directions rapidly in succession is one factor in regard to the strain, and the other factor is that they know they must be continuously on the alert. Must answer questions at once. No hesitation at all. They are unable to relax, sitting five hours at a stretch is too long. The utmost stretching of their arms is a little too great, it is not so much mental exertion as it is mental worry by reason of the alertness they have to keep their nervous system in.

Dr. Charles Trow, practising in Toronto 17 or 18 years, Professor of Ophthalmology and Otology, Eye and Ear work in the Faculty of Medicine, Toronto University.—Time should be 5 hours with the hour rest in the middle. Average girl would not last 8 hours a day with a heavy load, too much even with an intermission of an hour. The

service is very onerous and a continued strain with whatever relief they have given them in reduction of load. A woman's nature is peculiarly sensitive to reproaches and to words at any time, and that would intensify the nervousness of their calling. Young girls should not work as long as if they were older, as their nervous system is more susceptible to strain and an injury to the nervous system at their particular age is apt to prove more injurious than a similar injury at a later stage. The fact that there is a muscular exertion required in connection with their work and that the eye and ear play their part acting in a concerted way to the degree in which they do, would have an effect upon the nervous system.

Dr. William B. Thistle, practising 18 years, Toronto, Associate Professor of Clinical Medicine, Toronto University.—Five hours in a stretch involves rather too much strain upon all the functions—hearing, sight, and all—upon their nervous system, and result in a general deterioration of health, resulting, if continued, in various functional disturbances. Might result in nervous breakdown. Five hours on a stretch for 2 or 3 years would cause deterioration in health. Four hours' work, 1 hour for lunch, 4 hours work, would be harder than the 5 hours; 20 minutes relief in each of the 4 hours would be a slight relaxation, and in that way it would be an improvement on the straight 4 hours; the 5 hours straight leaves the greater opportunity for relaxation; 2 or 3 hours would be about as long as a girl ought to continue work without a period of relaxation, or 5 or 6 hours broken into two periods with an hour or an hour and a half intermission. The service is such a strain upon the sight, hearing, speech and muscles of the arms and body that it is nerve-exhausting. It is the period that she is on duty with her faculties on the alert constantly that is more important than the volume of work done. A woman's nervous system is peculiarly sensitive to strain between the ages of 17 and 25, more so than later in life. That is during the period of the 'teens. Impatience of subscriber when not answered as quickly as possible would be an additional annoyance and add to the worry, and the action of the supervisors walking between the operator to assist them when too large a number of calls coming in, and also to see that they do their work promptly, and the fact that there is a listening board at which a person appointed by the company may keep check on the manner in which they are answering calls, would add to the anxiety of the position and play a part in the strain. Can't think of any other occupation open to women in which there is the same strain upon the nervous system as there is in that of telephone operating, for the same period of time.

Dr. William P. Caven, practising 20 years, Toronto, Associate Professor of Clinical Medicine in Toronto University.—Calculated speed of operator within 200 or 300 calls an hour. It is an automatic sort of service so far as I can judge, but it is a very straining one upon some parts. The eye would be the main difficulty. It would keep special tension up so far as the special senses, eye and ear were concerned. The auditory apparatus must always be on the alert. The muscles of the eye are used while the head is almost perfectly still, increasing the strain on the nervous system. More of a nerve straining than a muscular thing, and would lead more quickly to a depletion of nerve force. Five hours' service would be ample, which the system would fairly recover from with the rest given by the other hours of the 24; 5 hours with an hour's intermission in the middle. The 20 minutes' relief in each of the 4 hours with one hour intermission between the 4 hours would be a greater strain than 2½ hours and intermission and 2½ hours, and a greater strain than the straight 5 hours. The 20 minutes intermission would be a material benefit. Those nerves that have their centre in the brain are the ones that are on tension and doing the work. I would rather have a short day and be done with it than a long dragged out day, because the nerves are there on the strain anyway—anticipating and waiting there. It is the length of time rather than the number of calls that I emphasize. A woman's nervous system is peculiarly sensitive to strain at 17 or 21, more than at any other time, and an injury to the

nervous system at that time would be more serious and be more easily made and have greater effect upon the constitution. Know of no other occupation open to women in which there is the same strain during the same period of work that there is in this of telephone operating. Know of nothing else where the tension is so high for the length of time that it is on the special nerves I have spoken of. It is not one requiring high mental capacity.

Dr. Charles R. Clark, Medical Superintendent of the Toronto Asylum, formerly Superintendent of the Kingston Asylum, Graduate of Toronto University, 1878.—Five hours a day would be a pretty severe day—a full day, to be divided into two with a good period of rest of an hour. The 8 hours, and 7 hours and 20 minutes, no relief from the 5 hours straight. Five hours straight would be a strain on the nervous system. Work not automatic, only to a limited extent. It requires a mental effort every time. Nervous strain is intense and would react on the physical health in a marked way after 3 years' service, and might pass on to the next generation in a more striking way than even in the present generation. I am basing that statement on my everyday experience with just such cases, having an experience on that kind of thing for several years.

'Q. You think it would be passed on to the future generation?

'A. That is what I preach all the time.

'Q. Then that being the case, do you believe that it is in the interests of the state that it should be prevented, if possible?

'A. It should be regulated and carefully overlooked.

'Q. And the over-straining prevented?

'A. Yes.

'Q. Then in your mind that is the duty of the State?

'A. I think so.

'Q. And do you think that your 2½ hours with an hour and 2½ hours would obviate that?

'A. I think so.

'Q. And that would be a remedy for the improper condition existing at the present time?

'A. Yes.

'I think this whole question would be far more satisfactorily settled by a series of careful investigations made along a period of several months. I think far more valuable opinions would be arrived at in connection with that. The girls there, their general appearance, would suggest to me a nervous strain and that it was an occupation requiring a great deal of nervous energy. Nervous breakdown is the cause of mental derangement. There is always a physical basis for mental disease in every case, and the results are only too well known.

'Q. Do you think if you had the opportunity of conducting some detailed investigations into the condition of these operators that your opinion would likely be changed materially from that you have expressed this morning?

'A. I don't think so.

The nervous system of a woman would be peculiarly sensitive to nervous strain between the ages of 17 and 25, more so probably than at any other time. It is the most strenuous occupation I have ever seen. The strain is there whether the calls are there or not. The attention is always occupied and the strain is there.

Dr. J. M. McCallum, practising in Toronto since 1886, professor of therapeutics and teacher in connection with diseases of the eye and ear in Toronto University. Have treated some of the telephone operators suffering from their eyes, caused by strain. Five hours is certainly close to the maximum. I would prefer it divided in two equal periods, with a period of rest in between, say an hour or an hour and a half. An operator has to be there all the time, whether answering calls or waiting for calls, 5 hours continuous service better than the 8 hours or 7 hours and 20 minutes.

Result of work would be nerve-fagged and might be a nervous break-down if 5 hours continued for two or three years. The optic nerve and the nerve governing the ocular muscles are elements necessary to be considered, also the lights. 'We know practically that changes in illumination from dark to light do irritate the optic nerve, and that is going on there all the time. Another thing that struck me was, I said to myself, was it automatic, but I did not think by watching that it was. I did not think they could tell where that light was without really looking at it closely.

'Q. Those lights are liable to flash any where along the board ?

'A. Yes.

'Q. And of course they would have to make thoroughly sure of the number, they would have to look at the board, I would imagine ?

'A. The thing that struck me about it was in that very time whether it was automatic or not. I watched the girls there, and I saw the girls deliberately run their hands along and count the numbers, I asked how long these girls had been there and they told me two years and two years and a half; then I came to the conclusion if a girl who had been there for three years had to search for it that way, it could not be automatic, and there was that strain upon the optic nerve and the muscles of the eyes to get at those accurately; I saw difficulty in fitting the plug in, they seemed to scrutinize it closely to get that.'

Flashing in of the light has an irritating effect and in that way injurious. The nerves governing the extra ocular muscles which focus the eye upon the object looked upon are the nerves where the greatest part of the strain comes. The sound kept up for hours must have an effect on the auditory nerves and if for long hours, an injurious effect might cause deafness. The possibility of receiving shocks would add to the nervous strain, effect on vocal organs not much. Their sitting position is cramped and for that reason the time should be shortened. Reaching added to the physical fatigue. The effect upon the nervous system is through the nerves of the eye and the auditory nerves; the reaching is subsidiary, operating together causes the difficulty. The memorandum (set out above) assisted me in directing my attention to the various things to observe, there is nothing there (mem.) that had not occurred to me, except about the vocal organs; that is the only one that had not occurred to me at all. There is no other occupation that I have seen, in which women may be engaged, that occasions quite the same strain to the nervous system as this of telephone operating.

Dr. James M. Forster, Assistant Superintendent of the Mimico Asylum, engaged 20 years in asylum work.—The telephone service is a very severe one, attention is so keenly fixed both by eye and ear and operating by hand; 5 hours continuous service at high pressure a full day's work, and if continued for two or three years, I should look for nervous manifestations of different kinds. Nervous breakdown, neurasthenia, hysteria and other nervous disorders, resulting from nerve depletion. If 5 hours divided into two periods of 2½ hours each with an hour's intermission would materially assist; the 20-minute reliefs would be a minor benefit. Know of no occupation open to women that demands quite the same strain upon their constitution as this of telephone operating.

Dr. Robert Dwyer, practising Toronto since 1891, for 7 years Superintendent of St. Michael's Hospital, now visiting Physician, Associate Professor of Clinical Medicine in Toronto University.—Four or five hours would be the maximum of work I would consider for telephone girls on account of the extraordinary tension of most of the faculties that the operator is under; would divide the 5 hours into two equal periods with an hour and a half at least between. Operators would deteriorate with the 5 hours continuous work. Eight-hour service divided into two with an interval of one hour would render work more injurious; 20 minutes relief in each of the 4-hour periods would be no material relief, not long enough for the operators to re-

cuperate from exhaustion. Five hours continuous work would be preferable to either and easier on the operator. I find the service intense all the time. Five hours continuous service for two or three years would somewhat injure the nervous system of the average operator, the more so, if say, 17, 18 or 19 years of age. If load made so that operator could be working continuously within her ability, it would be better for her than if she was at times waiting, expecting calls—this thing has very far-reaching effects—the Telephone Company nor the doctors who see the operators do not see the final result; after these girls have gone on for four or five years and served the company, and they get married or for other purposes leave, then they turn out badly in their future domestic relations. They break down nervously and have nervous children, and it is a loss to the community.

‘Q. Do you think it would be the duty of the state to legislate in matters of this kind?’

‘A. Very decidedly, that is our experience in the hospitals, especially in the study of nervous diseases, and it is becoming a serious problem. It is this sort of thing that is laying the foundations of the asylums, and it is dealing with this question now that will prevent the building of asylums and the loss of people to the community.

‘Q. The reason we are going into this matter so fully is that we feel the seriousness of the question.

‘A. You are quite right, too.

‘Q. And you think that an injury to the nervous system of the woman is likely to have an injurious effect upon her offspring?’

‘A. Very decidedly—we have that from every practitioner in medicine, it is becoming a serious problem to know what to do with these nervous prostrations, as they are called, of every grade and degree. They go on and on—many of them live years of misery and unhappiness, and many terminate in insanity. Apparently there is no sharp line of distinction between insanity and health, we get all grades of simple nervous prostration, and that is serious.

‘Q. Do you think between the years of 17 and 25, which are the years we are told at which most of the girls leave the service of the company, they are particularly sensitive to a strain?’

‘A. Yes, they are really not developed, they are not fully developed either mentally or physically until they are at least 20 or 21. Seventeen is a young age for a girl to go into such work as that at all. The women are a very important factor in the welfare of the state and ought to be protected.

‘Q. The information which you have given to the commission this morning—is that a matter of theory or is it based upon facts and conditions as you have seen them?’

‘A. Facts, as I have seen, not alone here, but in my experience—seen very much of too.

‘Q. Do you think you have seen enough of the facts to express the opinion confidently which you have given this morning?’

‘A. I do.’

Dr. John Noble, practising 17 years in Toronto.—A telephone operator's work is more strenuous than a school teacher's, I think it is as strenuous as an examiner of papers at an examination. I think it is as strenuous as a shorthand reporter. . . . School teachers usually work from 4½ to 5 hours a day, with Saturday and Sunday off; 2 months vacation in summer, and 2 weeks at Christmas; no night work, and regular hours. Five hours should be the outside limit, divided into two periods of 2½ hours each, with an hour between; 20 minutes relief not much use, it is better than nothing, but it takes longer than that to get the nervous system quieted. I think that after 5 years continuous work in the telephone office, with the hours and under the conditions that are existing there, that she would be disqualified to become a wife and mother. . . . If we are to pile so much work on young women it will exhibit itself in the future generation, and I believe that is the reason of such a marked in-

crease in insanity and such a marked increase in nervous prostration all over the country.

‘Q. What would be the effect on the future generation?

‘A. They will have epilepsy and all sorts of nervous diseases.

Dr. Alexander McPhedran, practising 29 years, Toronto, Professor of Medicines in Toronto University:—

‘Q. Having in mind the service you saw the operators performing and the condition under which they performed that service, so far as you have been able to come to a conclusion, will you tell us what you think would be a proper number of hours per 24 hours for such an occupation?

‘A. It would depend on two or three conditions, on the amount of service to be rendered during the time of service, the number of answers to be given, the pressure to be brought to bear and the physical condition under which they have to render it. The board is too high at present, the girl has to sit all the time, it should be arranged so that she could stand or sit, as she chose. The atmosphere should be specially given attention to, because the nerve strain is rather tense, and the atmosphere ought to be changed. Would take a number and examine them before and examine them after to ascertain the effect of the service on the girls. I think the way that suggests itself to me as the most effective would be perhaps two or three experts appointed by the commission to observe some of these girls and see the effect on them, say an examination in the early morning and at the end of 4 hours time, and 8 hours—see what the pulse is and the blood pressure—that would give the best evidence one could suggest of the strain they would be subjected to, and from that you could arrive at a conclusion as to the best conditions under which they could labour, and then, as you suggest, examinations at stated periods of 6 months or a year would be desirable in the public interest.

‘Q. Working 5 hours continuously at high pressure as fast as the girls could work, would that be a fair task to impose upon the young women operators?

‘A. No, I don't think so. It is too much of a strain on anybody—if continued for a period of 3 years a good many of them would give out. I think I would rather work 7 hours with the reliefs than 5 hours as hard as I could work. I think both are bad, intermissions of 20 minutes not of much value in the period of 9 hours. Five hours divided into two periods with an hour interval would be a great improvement, I would prefer 3 or 4 periods. Any period of high pressure is too much. I don't think it is a proper thing, and should not be operated unless it is inevitable. Five hours divided by an intermission would be long enough for the operator to work at a good reasonable, safe pressure. I may say, when I hear the conditions that the girls have been working under I am not at all surprised at the frequent irritating response to calls. I don't see that it is possible for any person to be constantly on the alert and under the strain of 5 hours, no matter what the age is, without getting irritated; it is impossible to do it. The effect of subscribers jerking the hook is to make the light go in and out; well, of course, that would be a flash in the eye, and so would have an effect on the nervous system.

*Dr. Alexander Primrose, Member of the Faculty of Medicine, Toronto University.—*The work of an operator as seen by me is a severe strain, largely automatic. I don't think they would stand it for an hour a day if they didn't eventually become automatic. The strain is very much greater at first; automatic action is not the avoiding of all strain; there must be strain in the action of the nerves and the muscles—a depletion of nervous force although it is done without consciousness. All these things (the different activities) certainly would tend to make the strain greater. The hours employed in the 24 should be few—five hours divided into two periods of 2½ hours with an hour's intermission, I should think, would be a very reasonable day's work.

Dr. A. R. Pyne, practising in Toronto.—The work of a telephone operator is very strenuous—a severe and intense service. Five hours with the intermission of an hour in the middle would be all they could stand. From what I saw there to-day there is great strain upon the nervous system; in the first place, all their senses are on the alert with the exception of the one of taste; their mental faculties are on a great tension, and besides that they are continually moving, reaching and moving all the time, taking the three together and considering the very nervous strain, and they are all operating together. There is considerable muscular movement to reach the pegs.

Drs. Alton Garratt and Campbell Meyers had been employed by the telephone company, and attended the sittings of the commission listening to the evidence adduced, were called on behalf of the telephone company and gave evidence.

Dr. Alton Garratt, practising in Toronto 18 years, on the General Hospital staff and Faculty of Toronto University.—The seven hours and 20 minutes actual work, being four hours in the morning with 20 minutes' intermission in the middle, then one hour for lunch and four hours in the afternoon with intermission of 20 minutes in the middle, better than five hours straight. Five hours straight rather high pressure work, and would wear on the average nervous system. Every one has a breaking point; the endurance of any one will break at some time or other, and I think very few can endure strenuous work for five hours, either men or women, and they will do more work and better work and work longer hours and accomplish more by intervals of rest. Five hours divided into two periods of $2\frac{1}{2}$ hours and an intermission of one hour between still better, but not a full complement of work. Could not state quantity of work an operator could do without any strain at all, nor the proper number of hours without knowing more about it. Duty of state as far as possible to ameliorate the conditions of those working and to regulate the hours of service and to see that they are remunerated sufficiently well to furnish themselves with sufficient food, &c. I don't know what is a load, how many calls per hour is a load. Five hours straight too long for a great many operators no matter what the load; there is a high tension on the special senses; the fact that these special senses are called into operation so much in combination and that the muscular activity which has been spoken of. This alertness of the faculties catching sounds and such like would have an effect in intensifying the nervous strain.

Dr. Campbell Meyers, practising 15 years, Toronto. Neurologist in St. Michael's Hospital and charge of nervous department in General Hospital. Specialist in nervous diseases, and private hospital in Deer Park for nervous diseases only.—Five hours continuous work at high pressure harder than seven hours and 20 minutes with intervals, as operators cannot work for any continuous time at this pressure; deleterious to their health. The work certainly induces nervous strain. Five hours divided into two periods with an interval better than the seven hours and 20 minutes, provided both periods kept at a moderate or low pressure. Have not had sufficient observations to judge the effect upon the operators as to the quantity of work and number of hours they should work at high or low pressure without feeling any strain at all, nor what would be a proper day's work. Object to high pressure for any continuous period—there is a strain even when operator is sitting waiting for calls.

Q. You said that you thought the girls could not be the best judges of the amount of work which they could do; there would be a tendency on the part of a good many of them to do too much in order to get extra remuneration, or for other causes, to get through with the work; you said that?

A. Yes.

Q. And that inasmuch as there was that tendency they might possibly work to a point which would injure their health. Now, in a case like that do you think they should be prevented from doing too much?

'A. I think they certainly should, and then they are naturally not in a position to appreciate the effect on their health and their nervous system until it becomes very evident.

'Q. And for that reason they should be prevented from being given the opportunity?

'A. Yes, in justice to them.

'Q. Who ought to prevent that, or how can that be prevented?

'A. By regulation of the amount of work done, to improve the conditions of the service so far as possible. The question of ventilation and other questions that might be taken up from a medical point of view would all assist to see that these girls worked to the best advantage.

'Q. A physician would be a better person to express an opinion in a matter concerning health than the one who had, say, any amount of knowledge of conditions, but had not knowledge of the human system?

'A. Yes, entirely so.

'Q. You agree that this question of health from the point of view of the health of the operators—that physicians are in a better position to pronounce upon it than anybody else?

'A. Very much; they are the only people.

'Q. Would you think that a body of competent physicians, say four or five of the most eminent physicians in the city, could, by taking this matter into consideration for a short period of time, give such a judgment upon the matter that the company would feel perfectly safe in following their decision?

'A. I think that would undoubtedly be most useful.

'Q. And you think such a committee of experts could give an opinion which if the company did not follow, they would probably be going counter to what was in the best interests of their employees, would you say? I just want to get the value of medical opinion on a matter of health?

'A. On a matter of health what the doctors advised after careful consideration, if it was not carried out then the health of the girls would suffer.

'Q. In your opinion, then, medical evidence is sufficient to form a basis as a guide in the matter of regulating the health of women?

'A. Certainly, it would form the most important part.

'Q. The medical side alone would be sufficient reason for legislating?

'A. Yes, in all business of this nature. I don't refer to this business alone, but any one that affects the health of young women.

'Q. We have been told that the ages at which most young ladies enter the services of the company are between 17 and 25; do you think the nervous system of a woman is peculiarly subject to strain at those years?

'A. I do. I think it is very unfortunate that our young women should be obliged to enter such an occupation. I think a question worth considering would be if the rapidity of the calls could not be so arranged that more mature women could take it up. I think that is a possibility, because after 21 say, the nervous system will stand very much more than it will during the development period.

'Q. You think the nervous system is subject to a great strain under this work?

'A. Yes.

'Q. Do you think in a matter that affects the health of the employees, a company having in mind the consideration of health of its employees, that a good course for it to adopt would be to call in physicians and take medical advice on the matter?

'A. I certainly think so.

'Q. Would you think the breaking down of the nervous system of a number of women was too big a price to be paid for finding out whether one system was better than another?

'A. I certainly think the sacrifice of any human health is too great a price to pay for a commercial enterprise.

'Q. Do you think that the Bell Telephone Company of Canada is right at the present time in saying: "We will decide whether this 8 hours system is going to prove injurious or not, by trying it, rather than by being governed by medical advice in the matter"? Your opinion as a medical man on that point?

'A. My opinion as a medical man is that it would cost less in health to have had advice from medical men.

Q. And that if they had regard for the health of the employees they would be governed by the opinion of medical men in the matter, rather than by the experiment, is not that what—?

'A. That is what it would mean—of course the experiment would have ultimately to be made by medical men in order to come to a definite positive conclusion.'

VII.—THE PROPOSED SCHEDULE AND THE SCHEDULE AS REVISED BEFORE THE COMMISSION.

Letter of January 16 of Local Manager at Toronto, outlining proposed change in schedule.—Letter of January 23 of general superintendent, authorizing change in schedule.—Schedule of hours proposed.—No mention of pressure of work or reliefs in schedule as proposed.—Conflicting nature of evidence as to intentions of company in regard to change.—Evidence of Miss Bogart, chief operator at Main exchange.—Evidence of Miss Irwin, chief operator at North exchange.—Intimation of intention to lighten load by lessening wires given January 30.—Statement of intentions as to change asked for by commission.—Grounds for belief as to change held by operators.—Admissions by company as to company's contention that protest against change should not have taken form of strike.—Statement by company on February 13 as to proposed working of eight-hour system.—Schedules accompanying statement.—Memorandum showing working of eight-hour system for local operators in Main exchange.—Memorandum showing working of eight-hour system for long distance.—Expression of opinion by operators' counsel in regard to suggested arrangement under new schedule.—As to operators who went out on strike.—Original intention of company to dismiss from service operators leaving employment.—All former employees reinstated in view of evidence before commission.—Further modification of eight-hour schedule presented to commission on February 18.—Statement by counsel for company in reference thereto.—Opinion expressed by commission as to nature and importance of change.—Opinion expressed by counsel for employees in regard to schedule as modified, and understanding of proposed future working conditions.—Conditions under schedule as modified conceded to be more favourable to operators than conditions under eight-hour schedule, as originally proposed, or conditions as existing prior to strike.—Opinions of commission that schedule of hours for local operators should also be applicable to long distance operators, with such changes in reliefs and intermission as may be mutually agreed upon between the company and operators.

ON January 16, the local manager at Toronto wrote the general superintendent at Montreal, as follows :—

‘I inclose schedule of hours recommended for the Main exchange based upon the principle of an eight-hour day, one hour for lunch, no regular relief, shorter hours for those who take broken periods and unpleasant hours, the newer operators taking the greater portion of the evening work, but a sufficient rotation among the older ones to make the evening staff efficient. . . . The question as to whether the changes should go into force at once or be postponed until the operators can be relieved of their present excessive load was fully discussed and without minimizing the difficulty of carrying the present load, nor the fact that a certain percentage of the staff may object to lengthened hours, yet it is the unanimous opinion that the change should be made on January 1. . . . With the exception of the Main there will be little difficulty. There we may give a twenty-minute relief morning and afternoon, in the discretion of the chiefs, to operators handling very busy positions, especially on busy days. This may not be necessary but can be used to tide over. . . . I would, therefore, ask your authorization of the above schedule of salaries and change of hours, effective from February 1.’

On January 23, the general superintendent replied:—

‘Subject of Operators’ Hours and Salaries.

‘Regarding the questions raised in your letter of January 16, we desire that you put the new salaries and hour schedule into force February 1, if possible.

The following is a copy of the schedule of hours inclosed with Mr. Dunstan’s letter:—

Number of Operators.	On duty.	Total hours.
18	7-11 ; 12-4	8
35	8-12 ; 1-5	8
30	9-1 ; 2-6	8
18	11-2 ; 4-7	6
21	12-2 ; 5-10	7
9	11.45-2.30 at P. B	6½
	5-9 at Main	.....
131		43½

So far as documentary evidence is concerned these communications are the only ones of date prior to February 1, which have a direct bearing on the intentions of the company as to the actual schedule proposed, and which came to the notice of the Commission. They contain no mention of the pressure at which work was to be continued under the new schedule other than the statement that ‘the question as to whether the change shall go into force at once or be postponed *until the operators can be relieved of their present excessive load was fully discussed,*’ and the opinion that ‘*without minimizing the difficulty of carrying the present load. the change should be made on February 1.*’ As to reliefs, the intention is clear that the schedule recommended was based upon the principle of ‘no regular relief,’ and as to hours, it was an ‘eight hour day’ with shorter hours only for those who took the broken periods and unpleasant hours.

The testimony given before the Commission as to whether the intention as expressed in these letters was the intention to which the company meant to give practical effect was somewhat conflicting. All of the operators who gave evidence on the subject expressed the opinion that the change as they had understood it from the information given them by the company at the time their protest was made, was substantially the change as it might be gathered from the letter of the local manager. Mr. Dunstan contended that the intention was both to lighten the load and afford reliefs, but admitted that this intention was not made known to the operators through any notice posted by the company, and could have only come to them through the chief operators to whom it had been made known, and who had been instructed to inform the operators of the nature of the change.

The evidence of the chief operators on the matter was as follows:—

Miss Bogart, chief operator at the Main exchange said:—

‘Q. You were instructed by Mr. Dunstan to give some notice to the operators in January last, do you recollect?’

‘A. I was not instructed to give any notice to the operators in January.

'Q. You were not?

'A. No.

'Q. Was it by Mr. Maw?

'A. No.

'Q. You were not instructed by any one?

'A. Not at all.

'Q. Not to give any notice to any one? What had you to do with the change of hours from five to eight hours?

'A. Nothing.

'Q. Nothing whatever?

'A. No.

Questioned later as to what she had said to the supervisors with whom she had conversed in regard to the change, Miss Bogart said—

'I simply told them in regard to their hours that they would be changed, that from this on, they were to have an eight-hour day, and they asked me in reference to night work, how much night work they would have, and I said, well they would have every other week of regular day duty, and I thought about every other week regular day duty, and then there would be probably once in five weeks, four or five weeks that they would have from eleven to two and four to seven, and the other week when they didn't have regular day duty that they would come on at noon in the middle of the day, twelve to one and one to two, and back in the evening, five to ten.

'Q. Had the schedule of time been agreed upon at that time?

'A. Yes, it had.

'Q. By whom?

'A. Mr. Maw.

'Q. Did he inform you of the schedule?

'A. Yes, he did.

'Q. Did he give you a memo of it?

'A. Yes.

As to what she said to the operators she stated as follows:—

'I told them that while they were going on to an eight-hour day, eight to five, the old operators would be free from night work, that there was no comparison between the eight to five day and the old day where we had eight to six and frequently short time for lunch hour, and Mr. Dunstan had said that they would do what they could to unload in the Main exchange and make things as easy as they could there; I couldn't say definitely outside of filling vacant positions just what would be done.... I don't know that that is right.... I don't think I said "unload." I think I said they would do what they could to make it easy.'

'Q. Can you tell me any one that you told that?

'A. No, I can't.

'Q. So that if they all deny ever hearing that, you would not disagree with their statements?

'A. No, outside of that the extra positions that were filled would make the load lighter.... I said that it would not be hard for them if we filled the extra positions, that it would help some.

'Q. Were they given to understand that their duties were to be made lighter at any time of the eight hours than what they had been during the five hours?

'A. Well, not outside of saying that we would fill in the vacant positions, and that they had said that they would do what they could. I think I did say to some that there might be a chance of there being a relief morning and afternoon, a twenty minute relief, but that I couldn't say definitely.

'Q. When Mr. Maw gave you this notice to put up did he tell you to inform any of the operators that there would be any unloading under this new scale?

'A. No.

'Q. He did not inform you?

'A. Nothing outside of when I was speaking to him, to say that he would fill in the vacant positions.

'Q. He didn't say anything to inform them directly that the load would be lightened?

'A. No.

'Q. Did he say anything about taking wires off their places?

'A. No, not at that time.

'Q. Did he at any subsequent time?

'A. He spoke to me on Wednesday, January 30, about it.

'Q. Was that the first time that he spoke to you?

'A. Wednesday evening.

Miss Irwin, chief operator at the North Exchange in her examination, said:—

'Q. Did you give any information to the operators other than that contained in the notice?

'A. I told the supervisors their hours were to be lengthened and the increase in their salaries. I am not sure as to whether I said that the operators, that they could tell any operators inquiring to try and explain to them; I am not sure whether I mentioned that or not; I wouldn't be positive, but I just told them of their hours being lengthened and the increase in salary, and as to what their hours would be.

'Q. Did you tell them that at any time of the day or of the five hours that their load would be lessened by reason of the increased hours?

'A. No, sir, only for the filling in of the afternoon staff.

'Q. Did he (Mr. Maw) tell you there would be any unloading?

'A. He told me of the filling in of the boards; of course, there wasn't unloading in the North exchange, not until the College—

'Q. Did he referer to taking any wires off?

'A. Not at present.

'Q. Not at that time?

'A. No.

'Q. You didn't tell the operators that any of their wires would be taken off?

'A. Not at that time.

'Q. Did you at any time?

'A. When I was explaining to them I didn't tell them, I didn't say unloading or taking their wires off, I said of course when the College exchange was open it would make a big difference to our exchange. It was in the morning (afternoon) of course that they were arranging for to fill, and our board is always filled in the morning, with the exception of one position, the morning for an hour and a half possibly is the busiest time.'

As to Company's Attitude towards Employees in Matter of Change.

It was not until Wednesday, January 30, one day before the strike took place that the chief operators were asked to ascertain which were the busiest lines on the boards of the several operators, and steps taken to relieve each board of from four to six of its lines. Indeed at the time that the commission commenced its sittings, excepting in so far as the load had been lightened by the removal of these wires, and an expressed intention on the part of the local manager, there was no evidence as to how it was proposed to work out the 8-hour schedule, other than what might be gathered from the communications already quoted and the notices as posted. It was this uncertainty as to what the actual conditions would be which led the commission after it commenced its sittings to immediately endeavour to secure from the com-

pany a written statement of the manner in which the 8-hour system was to be carried out. This was finally obtained on February 13, the eighth day of the commission's sittings. It was contended that the confusion resulting as a consequence of the strike had prevented the preparation of the schedule at an earlier date. The operators, therefore, appear to have been perfectly right in their contention that it was impossible for them to say what hours and in what manner they might be obliged to work under the 8-hour system, and considering the information at their disposal and the fact that under the 5-hour system they had been in the habit of working a continuous stretch of 5 hours without intermission, it was not unreasonable for them to have supposed that under the 8-hour system it was the company's intention to substitute for the one stretch of 5 hours continuous work, two stretches of 4 hours each at a pressure differing but slightly from that to which they had been accustomed. The company, indeed, admitted before the commission, in view of the testimony given, that the operators generally had not been fully aware of the details of relief and unloading that were to be afforded under the 8-hour schedule, and that an increase in hours at the pressure which existed under the 5-hour schedule would have proven injurious to the health of the operators. It was further stated that the company could appreciate the right of the operators to protest to the management, if, through lack of information, the operators had misconceived the change which was proposed, though the company deprecated the strike form of protest.

As to this contention by the company that the protest of its employees should not have taken the form of a strike, we are compelled to say that from the company's attitude towards its employees as disclosed by the evidence and other matters in connection with the present inquiry, we are unable to see how any form of protest, considering the manner in which the change was brought about, was left to the employees, except, perhaps, an appeal to the government for an investigation into the situation, a course which does not appear to have suggested itself to the employees at the outset, but which they adopted on the day following that on which the strike took place. They had sought to approach the company by petition and by retaining counsel to advise and assist them. The company refused to deal with their counsel, and the employees were given to understand that a petition would avail but little, seeing that the company's decision in the matter had been reached and was unalterable. The intervention of the mayor of the city was requested, and at the mayor's request officers of both the Dominion and provincial governments endeavoured to effect a settlement by conciliation, and to induce the company in the interests of justice to submit to arbitration the points in difference between their employees and themselves. Efforts at conciliation were in a measure frustrated through the company's delay of at least twenty-four hours in replying to a proposal submitted by the officers of the two governments. Arbitration was absolutely refused. When subsequently a Royal Commission was appointed by the government, and the parties were asked if they would abide by the findings of the commission based upon the evidence, the operators agreed to be bound, but the company absolutely refused. When later during the course of the inquiry the evidence given by many of the leading physicians of the city of Toronto, including the evidence of the physicians who appeared before the Commission at the company's request, clearly indicated that a due regard for the health of the operators necessitated an inquiry by a committee of medical experts, and it was asked by the Commission if such committee were appointed by

the government at the public expense would the company agree to be bound by such regulations as such a committee might recommend as necessary in the interests of the health of its employees, the company refused to be bound in any way. Considering all these facts, as well as the circumstances that the operators were for the most part young women, possessed of slender resources, and many of them entirely self-dependent with no kind of permanent organization which could ensure unity and concerted action among them, it is to us not a matter of surprise that the operators should have had little faith in the possible hope of preventing the change through personal interviews either individually or by committee with the management of the company, and should have believed that the company's attitude in the matter of a reconsideration of the proposed change would be both unyielding and arbitrary.

Statement of Proposed Conditions under 8-hour Schedule, Submitted February 13.

In submitting, on February 13, the statement which had been prepared as to the details of and the manner in which it was intended to work out the 8-hour system, Mr. W. A. H. Kerr, counsel for the company, said: 'While there may be some matters that will have to be changed as the system works out, I can say, and am instructed to say, that this is substantially the 8-hour system as conceived by the company, and that in the working out of it nothing will be done which will make the work of the operators more onerous. If there are some changes in the working out of the system it will be for the lightening of the work where the 8-hour system does not adjust itself exactly in accordance with the proposition. This is the way the company intend the system should be tried, and if it does not work satisfactorily in some minor points, the efforts of the company will be to remove these causes of difficulty as far as the operators are concerned.'

The statement submitted contained the schedule of hours and reliefs for the several exchanges in connection with both the local and long distance lines. It was supplemented by memoranda explanatory of the working of the 8-hour system as shown in the schedules in so far as the local and long distance operators at the Main exchange were concerned. The schedules and memoranda were as follows :—

MAIN SCHEDULE.

No. of Operators.	Hours on Duty.	Relief.	No. of Supervisors.	Hours of Duty.
18.....	7-11 12- 4	20m. 9, 11, 12 & 4	4.....	7-11 12- 4
35.....	8-12 1- 5	20m. 9, 12, 1 & 5	6.....	8-12 1- 5
36.....	9- 1 2- 6	20m. 9, 1, 2 & 6	2.....	9- 1 2- 6
Total.....	89			
18.....	11- 2 4- 7		4.....	11- 2 4- 7
21.....	12- 2 5-10		2.....	12- 1 5- 9
9.....	11.45-2.30 5-9	At P. B., X At Main.....	4..... 2.....	1- 2 5-10 12- 1 5-10
Total.....	48 89			
Grand total..	137		Total...24	

Number of day operators.....	89
" relief.....	48
" supervisors.....	22
" monitors.....	3
" assistants.....	3
" chiefs.....	1
" teachers.....	1
" night.....	13
" extras.....	21
Total.....	201

Extras to come on as follows:

8 a.m.....	12
8 a.m. (call up).....	2
10.30 a.m. (call up).....	7
Total.....	21

NORTH SCHEDULE.

No. of Operators.	Hours on Duty.	Relief.	No. of Supervisors.	Hours on Duty.
8.....	7-11 12- 4	20m. 9 and 11	2.....	7-11 12- 4
18.....	8-12 1- 5	20m. 9 " 12	2.....	8-12 1- 5
2.....	8- 1 2- 5	20m. 9 " 1	1.....	9- 1 2- 6
11.....	9- 1 2- 6			
Total.....	39			
4.....	11- 2 4- 7		2.....	11- 1 4- 7
4.....	11- 1 5- 9			11- 2 5- 8
6.....	12- 1 5-10			
4.....	12- 1 6-11			
10.....	12- 1 5-10			12- 1 5-10
Total.....	23		Total	7
	39			
Grand total...	67			

Number of operators.....	67
" supervisors.....	9
" assistants.....	2
" monitors.....	1
" chiefs.....	1
" night operators.....	6
" extras.....	7
Total.....	93

PARKDALE SCHEDULE.

No. of Operators.	Hours on Duty.	Relief.	No. of Supervisors.	Hours on Duty.
7.....	7-11 1- 4	20m. 9, 11, 1 & 4	1.....	7-11 1- 5
11.....	8-12 1- 5	20m. 9, 12, 1 & 5	1.....	7-11 12- 4
5.....	9- 1 2- 6	20m. 9, 1, 2 & 6	2.....	8-12 1- 5
Total.....	23			
6.....	11- 2 4- 7		1.....	11- 2 4- 7
1.....	11- 1 5-10		1.....	11- 1 5- 9
11.....	12- 1 5-10		3.....	12- 1 5-10
2.....	12- 1 6-11			
Total.....	20		Total	9
	23			
Grand total...	43			

Number of operators.....	43
" supervisors.....	9
" monitors.....	1
" assistants.....	1
" chiefs.....	1
" night operators.....	4
" extras.....	4
Total.....	63

LONG DISTANCE.

Number of Operators.	Hours on Duty.	Number of Supervisors.	Hours on Duty.
13	7-11	1	7-11
	1-5		1-5
20	8-12	5	8-12
	1-5		1-5
Total		1	11-1
33			5-10
		4	12-1
13	11-1		5-16
	5-10	2	5-11
10	2-1	Total.....	13
	5-10		
12	5-10		
Total			
35			
33			
Grand total...			
68			

Number of operators	68
" supervisors	13
" monitors	2
" assistants	3
" chiefs	1
" messengers	4
" checkers	4
" clerks	1
" night operators	5
" extras	15
Grand total	117
At 8 a.m.	5
At 8 a.m.	4
At 10.30 a.m.	6
Total	15

Memorandum Showing Working of 8-hour System in Main Exchange.

The total number of line operators for local lines required for the 8-hour system is 171. These operators are divided into four classes: day operators, relief operators, night operators and extras. The numbers of these respective classes are shown by exhibit.

Day work begins at 7 a.m. and ends at 10 p.m. Night work runs from 10 p.m. to 7 a.m. At 7 a.m. 18 operators come on duty. At 8 a.m. 35 operators come on duty. At 9 a.m. 36 operators come on duty. Making a total of 89 operators, being the full day peak staff. At 9 o'clock 10 extras will also come on duty for the purpose of relieving the day staff for 20 minutes each. Those who come on at 7 will be first relieved. The 10 extras would replace 10 of the 18 7 o'clocks, the remaining 8 of the 7 o'clocks and 2 of the 8 o'clocks would be relieved at 9.20, and so on, as shown by the following table:—

	7.	8.	9.
9—9.20.....	10		
9.20—9.40.....	8	2	
9.40—10.....		10	
10—10.20.....		10	
10.20—10.40.....		10	
10.40—11.00.....		3	7
11.00—11.20.....			10
11.20—11.40.....			10
11.40—12.00.....			9
Total.....	18	35	36

The remaining 11 extras are for absentees, emergencies, &c.

The same system exactly will be followed in the afternoon, the relief beginning at 2 and ending at 5 o'clock.

The 10 extras will thus have worked 6 hours relieving, and will put in the balance of their 7 hours and 20 minutes as the circumstances require. Between 12 and 2 they will each have their hour for lunch. Sometimes they will be allowed to take their 20 minutes morning relief at their lunch hour if they so desire. Their second 20 minutes they will get after 5. These girls will, as a rule, be girls who are not yet fully qualified for the full day time.

The 18 relief operators who come on at 11 and the 21 relief operators who come on at 12 are to enable the day operators to have an hour each for dinner.

The 18 who are on from 11 to 2 will relieve 54 hours, that is, 54 operators for one hour each. The 21 who are on from 12 to 2 will relieve 42, so that 96 operators could thus be given an hour each. As there are only 89 of the regular day operators this allows of a margin for absentees, &c., &c.

At 4 p.m. 18 7 o'clocks cease work for the day. Their places are filled by the 18 relief operators who have been off duty from 2 to 4.

At 5 o'clock 35 8 o'clocks cease work for the day. Their places are filled by 30 operators, 21 of whom have not been on duty since 2, and 9 of whom have not been on duty since 2.30. After this the load is gradually decreasing.

At 6 o'clock the whole of the 36 9 o'clocks go off duty. Their places are not filled.

At 7 o'clock 18 of the relief operators end their day's work.

At 9 o'clock 9 more reliefs end their day's work, leaving 21 on duty from 9 to 10.

At 10 o'clock the 18 night operators come on and stay until 7 a.m., each having an hour relief.

The 18 reliefs who come on duty 11-2 and 4-7, the 21 reliefs who come on duty 12-2 and 5-10 will each be paid 20 cents lunch money.

The supervisors.—The exhibit shows their hours. From 9 to 6, 12 supervisors are on duty. One hour on the floor to one-half hour at information desk. The exhibit shows the diminution in the less busy hours.

Some modification is under consideration of the relieving supervisors during the lunch hour. Those whose duty runs 11-2 and 4-7 will be given 20 cents lunch money each day on duty.

Memorandum Showing Working of 8-hour System for Long Distance.

The total number of L.D. line operators required for the 8-hour system is 88. These operators are divided into four classes—'Day, Relief, Night and Extras.' The numbers of these are shown by exhibit.

Day work begins at 7 a.m. and ends at 11 p.m. At 7 a.m. 13 operators come on duty. At 8 a.m. 20 operators come on duty, making a total of 33, this being the full day staff up to 5 p.m. At 9 a.m. 4 extras come on duty for the purpose of relieving the day staff for 20 minutes each. Those coming on at 7 a.m. will be first relieved, then will follow the 8 o'clocks. The remaining 11 extras are for absentees, emergencies, &c., &c. The same system exactly to be followed in the afternoon. The relief beginning at 2 p.m. and ending at 5 p.m. The 4 extras will thus have worked their 6 hours relieving and will put in the balance of their 7 hours and 20 minutes as circumstances require. Between 12 and 2 they will have their hour for lunch, sometimes they will be allowed to take their 20 minutes relief at lunch time, if they so desire. These girls as a rule will be girls who are not yet fully qualified for the full day duty. Eleven operators who come on duty 11 to 1, and 10 who come on 12 to 1, are to enable the day operators to have an hour each for lunch. Thirteen operators who come on 11 to 1 will relieve thirteen 7 o'clock's for two hours lunch, the 10 who come on 12 to 2 will relieve 20 hours, or 20 operators for one hour each. So that 33 operators will be given one or two hours for lunch as the case may be, and as the day staff is 33 operators this will be sufficient. To provide for absentees, of relief staff, extra operators will call up in case they are required. At 5 p.m. 13 7-o'clocks and 20 8-o'clocks cease work for the day. Their places will be filled by 10 operators who have been off duty from 1 to 5 p.m., and 10 operators who have been off duty from 2 to 5 p.m., also 12 operators who have not been on duty during the day. At 10 p.m., 23 reliefs end their day's work, and at 11 p.m. the balance of reliefs, 12 in number, end their day's work, and night operators, 5 in number, who came on duty at 10 p.m., stay until 7 a.m., each having an hour for relief. Ten reliefs who come on duty 12-2 and 5-10 will each be paid 20c. lunch money.

Supervisors.—The exhibit shows their hours from 8 a.m. to 5 p.m. Six supervisors are on duty. One hour on the floor and one hour at information desk. Some modifications are under consideration for relieving supervisors. Those whose duty may run 12-2 will be given 20c. lunch money.

On this statement being handed into the commission, counsel for the employees after conference with the operators' committee expressed the following opinion: 'I desire to say in respect to this, and I think it is only fair to say it, that this arrangement, if it is determined that the 8-hour day is the proper day for a telephone operator to work, that this seems to be a fair arrangement of the 8 hours to give the greatest relief to the operators if carried out, which I must presume will be done.'

At the time this memorandum was filed with the commission a statement of importance as to the re-employment by the company of all operators formerly in its employ was also handed in. To appreciate its significance it is necessary to revert a little.

Question of Reinstatement of Employees.

When the operators on the morning of February 4 (Monday), offered themselves for re-employment in accordance with the resolution passed at the mass meeting on the Tuesday night previous, a large number were taken on. The company, however, retained in its service a number of those who had been brought in from outside, and would give no undertaking that all its former operators would be re-engaged. In fact, it was stated that the company would not re-engage on any condition some of its former employees who had gone out on strike. Even this was a modification of the position which the company had intended at the outset to take. In the letter of January 30, of the president to the local manager already referred to, the president had said: 'My personal feeling in the matter is that under no conditions would we take back an operator who actually leaves the service.' Also, 'Our strong point will be to show our utter independence of the disaffected operators, but I would not undertake to take back any who actually leave the service. An operator may ask for shorter hours and then decide that she will keep at work, but if she really leaves the service that will be final.' It has been shown that on January 31, the employees were asked to indicate their intentions in regard to the threatened strike by signing one of two papers marked respectively: 'We will continue in the service and report regularly for duty' and 'we resign from the service to-day.' Miss Bogart, the chief operator at the Main exchange was asked if she remembered anything being said to the operators, when they were signing these papers to the effect that those who resigned would never come back into the service again, and she replied, 'Yes, that it had been so stated by Mr. Maw, and that she herself may have said it to some.' During the course of the inquiry the evidence, as has been shown, was such as to cause the company to admit that the operators generally had not been fully aware of the details of relief and unloading that were to be afforded under the 8-hour schedule, and that an increase in hours at the pressure which existed under the 5-hour schedule would have proven injurious to their health, and that the company could appreciate the right of the operators to protest to the management if, through lack of information, they had misconceived the change which was proposed, though the company deprecated the adoption of the strike form of protest. In view of these admissions, the company on February 13 issued the statement above referred to and which was as follows:—

'The company will re-employ all its former operators who desire to return, and will pay them the salaries to which the positions they held under the 5-hour system entitled them to under the 8-hour system. For instance, one who was a supervisor when she ceased work will receive supervisor's pay under the new schedule.

'Owing, however, to the promotions and arrangements already made by the company, it may not be possible to give the returning employees the work they were previously engaged on.'

Up to the time that these admissions were made by the company and this statement issued, the efforts of the commission had been directed in the main to an investigation of the causes which led up to the strike and an examination of the contentions of the parties in regard to their respective positions. The admissions of the company on February 13, and the nature and extent of the evidence which had been taken up to that time, caused us to feel that we were in a position, without the examination of further witnesses, to find in regard to the causes of the dispute and

the relative positions of the parties. A resumption of work having been effected, all the former employees reinstated, and the public service in this manner safeguarded from further interruption, we continued the taking of evidence with special reference to the contention of the operators that the work under the hours of labour fixed by the new schedule was excessive and likely to prove injurious to their health. In this connection we obtained the views, already set forth, of members of the medical profession in Toronto upon the merits of the respective contentions of the parties, and in particular upon the new schedule in respect of the duration and intensity of work, and the reliefs it afforded. The evidence thus adduced caused the company, on February 18, to present to the commission a further modification of the proposed arrangement of the 8-hour system as set forth on February 13, which modification provided for a further shortening of the working time and an extension of the relief periods.

The Schedule as Revised Before Commission.

In stating the position of the company in this connection, Mr. Walter Cassels, K.C., counsel for the company, said: 'There was another matter which on my own responsibility, not acting on my own responsibility without authority, I think from what I have heard of the evidence would be a reasonable giving by the company at the present moment. It is something that occurred to me after having heard the evidence from day to day, and it is this; at present the hours of day labour are 7 hours and 20 minutes. We may call it a 9-nine hour day with a break of an hour and forty minutes. After hearing one or two of these doctors my personal inclination very strongly was, instead of making that a 7-hour and 20 minutes day's work, that there should be two hours, then an intermission of half an hour, then an hour and a half, then an intermission of an hour for lunch, and then two hours, and intermission of half an hour, and then an hour and a half. . . . I have asked for that (authority) because it occurred to me that that makes a very important change. . . . I was glad to get the company to assent to it, and I think it is very reasonable.' Mr. Cassels further stated it was understood that the pressure at which the operators would work under this arrangement would be a moderate pressure and not similar to the pressure under the 5-hour system, and it was agreed that the undertaking applied to all the Toronto exchanges.

The situation, as it appeared to the commission at the time, was stated in the following words, to which no exception was taken by the parties or their counsel:—

'If we understand you rightly, and understand the evidence which has been given here, it would appear that when the strike took place the operators were under the impression that they were to be obliged to work eight hours, the day was to extend over nine hours, but was to be divided into two parts of four-hour stretches, one four-hour stretch, then an hour intermission, and then another four-hour stretch. The work was to be carried on at the same pressure as it had been under the five-hour system. As a result of the investigation thus far, of what has been said in evidence, and of getting to an understanding of the intentions of the company, the position now is, the company intends that they shall work two hours, then have an intermission of half an hour, then work an hour and a half, then an intermission of an hour, then work two hours, then half an hour intermission, and then work one and half hours; the day covering the same period of time, but they are to have seven hours actual work with a less pressure instead of eight hours at high pressure.

When we began to investigate this matter it was a question of the five hours con-

tinuous work against two four-hour periods of continuous work, with the impression, at all events, that both were at high pressure. We may take for granted that was the relative position of the two parties at the time the strike occurred. Since that time we have come now to quite a different position altogether; the company undertakes, in the first place, that instead of having eight hours work with an hour intermission, there will be only seven hours work in the day, and that instead of having that work continuous, it will be broken into periods with half hour reliefs, morning and afternoon, and an hour intermission. There is the further undertaking that the pressure will be reduced, and it will be such a pressure as would be moderate and not too great a tax upon the operators. . . . that is a very different position than existed at the outset, and a position which, had this inquiry taken place before any actual strike occurred, might conceivably have prevented the strike altogether.'

After conference with the committee representing the operators, Mr. J. Walter Curry, K.C., counsel for the employees, made the following statement in regard to the arrangement as above set forth: 'In respect to the matter that the commission asked me to consider with the girls, that is the question of the seven-hour switchboard work, work two hours, then a half an hour intermission, then work one hour and a half, then an hour intermission, then two hours work and a half hour intermission, then one and a half hours work, at what is said to be low pressure as compared with the five hours at high pressure, the opinion of the committee is that that is more in the interest of their health, but they say further that the seven hours work in that way is still too heavy a load for them, and it is not such hours of service when it is spread over nine hours that they ought to be asked to work, that the strain is too great upon them for that period. I understand from Mr. Dunstan, and it is agreed between himself as representing the company, and myself as representing the girls, that no girl working in that way shall work at any time a longer period than two hours; that is, she shall not work for two hours and twenty minutes, or two hours and forty minutes and three hours, but she shall be relieved at the end of her two-hour period. I understand also that. . . . there shall be no compulsory overtime, and I understand that to mean this, that in case of an accident, the street car service being delayed or something of that kind, and those coming to relieve cannot get there, emergencies arising over which the company has no control, that the girls will undertake to try and meet them, and that no compulsory work means, of course, that they shall not be compelled as a matter of habit to work overtime. That the condition as a general condition of service shall be sufficiently pliable that they shall meet emergencies.

'Then, in respect to the relief, that the work of relief shall not extend at any period over two hours, that the relief shall not be compelled to work any longer than two hours before they themselves get relief.'

It was further stated that it had been agreed that a girl leaving the service in the position of being a competent operator, earning a certain rate of wages, in the event of her again filling in an application and being taken back, she was to be taken back as an experienced operator in the same class, if she can reasonably be expected to have the same competency when she comes back as she had when she left; that she was to start in as of the same grade as she left, in the same position that she had when she left, and her chances of advancement to be the same.

That the net result of the changes introduced by the company on February 1, and the modifications of these changes effected as the result of the present inquiry has been to insure for the operators conditions of employment more advantageous to their health than the conditions against which the operators protested, or the conditions as they existed prior to the strike, will be apparent from the following statement made

by the commission at the conclusion of its sittings, and the concurrence expressed therein by counsel for the employees.

The COMMISSIONERS.—‘You feel that the arrangement which the company has suggested this morning, and which has been come to as a result of this inquiry, is, so far as the condition and the health of the operators are concerned, more satisfactory than the arrangement that was in force before?’

Mr. CURRY.—‘Somewhat more satisfactory. I won’t say how much, but that is always conditional on the fact that there must be low pressure.’

This arrangement was accepted by the operators as that under which they would agree to continue at work on the understanding that it should be made the subject of consideration by the commission, and that the findings of the commission should have a reference thereto.

To what extent in the light of the evidence taken before us, the arrangement as come to may be viewed as satisfactory, due regard being had to the health of the operators, will appear from the opinions and recommendations which we now beg to express, and with which we conclude this already somewhat lengthy report. In this connection it might be added that counsel for the company agreed that the 7-hour schedule should also apply to the long distance operators, the half-hour intermissions or reliefs to be arranged to the satisfaction of the operators. In our opinion whatever schedule is ultimately made to apply to the local operators should, in a similar manner, be made to apply to the long distance operators.

VIII.—CONCLUSIONS AND RECOMMENDATIONS.

Reference to opinions expressed elsewhere in report.—The change in wage and hour schedule of February 1.—Injurious to health of operators.—Change made from motives of cost and service, without regard to health of employees.—Advantage taken of position of operators in making change.—A strike under circumstances all but inevitable, and precipitated by company.—Assertion that it was a physical impossibility for operators to stand strain justified.—Conflict in evidence as to original intention of company.—Reasonable grounds for view held by employees.—Facts and considerations to be kept in mind in determining proper conditions of operating.—The age and sex of employees.—Telephone operating considered as a training for other occupations.—Nervous strain involved in telephone operating under any condition.—Elements contributing to nervous strain.—Concerted action of special senses.—Physical exertion involved helpful under certain conditions.—Strain accentuated from many causes.—The methods of operating as practised at large exchanges.—Factors that determine.—Ability to secure operators largely a question of wages.—Methods adopted to secure a maximum of work at a minimum of cost.—Health of operators sacrificed to motives of gain.—Views of commission on relation of health of operators and wages.—Effects of certain industrial processes.—Medical aspects of the problem.—Investigation by committee of medical experts recommended.—Interference of State by legislation necessary.—Immediate restrictions required.—Difficulties of making effective restrictions.—Solution to be found in relation of service to amount of load.—Principle underlying operating in adjustment of load to ability of operator.—Suitable provisions for intermissions and reliefs and limitation of total hours of work necessary.—Long periods of uninterrupted operating injurious.—Length of work period to depend in part on total work per day.—Periods may vary from $2\frac{1}{2}$ to $1\frac{1}{2}$ hours according to conditions.—Length of relief period to depend in part on work periods.—Relief sufficient, but working period too long under schedule as revised before the commission.—Six working hours with proper reliefs suggested.—Arrangement recommended for the Toronto exchange.—Overtime and like practices should be prohibited.—Working seven days in week should be prohibited.—Sunday rest and weekly half holiday advisable.—The question of vacation.—Recommendation as to age of employment—eighteenth year should be completed.—Examination as to health, &c., recommended.—Certain improvements suggested.—Perfecting of switchboard, sterilizing of instruments, suitable arrangements for sitting accommodation, effective ventilation of operating room.—Evidence in regard to listening or observation board.—Recommendation that criminal laws respecting divulgence of information by telegraph operators be made to apply also to telephone companies.—Permanent conciliation board recommended.—References in report principally to Main exchange at Toronto.

WE have throughout the pages of this report expressed opinions on most of the general questions which the inquiry and evidence have raised for consideration ; it remains, therefore, to only briefly summarize the more important conclusions, making such additions and recommendations as appear to be desirable and necessary.

The change in the wage and hour schedule which the Bell Telephone Company

sought to put into effect at its Toronto Exchanges on February 1, and which was the occasion of the protest of the operators, and the strike commenced on the day previous, was made, we believe, under conditions which to the company itself were known to be unfavourable and likely to lead to trouble; it was a change from a condition of employment known to be oppressive and injurious to one conceded by the management as an alternative in 'a choice of evils.' Had the change been subsequently worked out as it appears to have been originally intended, it would, in our opinion, have been as oppressive and injurious from the point of view of the health of the operators as was the former condition, while financially, it meant to many of the operators a lessening of their total earning capacity. It was made, we believe, from motives of cost and service pure and simple, and without any real consideration for the health and well being of those whom it was most to affect. The company had found that its service was suffering; this, in the opinion of its officers and experts, was due to the high pressure at which those in its employ were obliged to work and the low wages paid, a pressure described by the local manager as 'extremely high,' and a wage characterized by him as too low to enable the operators 'to earn enough to pay for their board and clothing.' An increase in the wage schedule was a necessity, if the company was to maintain its service, for without an increase in wages, operators could not be obtained, and without operators the service could not be kept up. To offset the increase in cost occasioned by the increase in wages, the hours of service were lengthened, the percentage increase in the hours of employment being made considerably in excess of the percentage increase in the rate of wages. The company sought to bring about the change on the shortest possible notice, and in a manner which affords grounds for believing that it hoped to enforce the new schedule by taking advantage of the necessities of its employees, and the fact that as young women, many of whom were self-supporting, a threat of dismissal would be sufficient to prevent any general or prolonged resistance. With such knowledge as the operators had of the company's intentions, and the attitude assumed by the company towards its employees, and in regard to the efforts made to adjust the difficulties, a strike under the circumstances was all but inevitable; it was, moreover, we believe, precipitated by the action of the company in compelling its operators to agree in writing to be bound by the new schedule or resign immediately from its service.

Having regard for the knowledge which the operators had of the conditions as they had existed prior to the change, and such information as they possessed as to the company's intentions under the proposed 8-hour schedule, there were, in our opinion, ample grounds for the contention of the operators as set forth in the communication of His Worship, the Mayor of Toronto, to the Department of Labour, that it was a physical impossibility with the enormous telephone business of the city of Toronto for the operators to stand the strain of such long hours. In this connection it is not necessary to more than mention that the company admitted before the Commission the limited extent to which the operators appear to have been informed of its intentions at the time of the change, and the company's ability to appreciate their right to protest under the circumstances; and the further fact that the statement presented to the Commission on February 13, favourable as it was, compared with what the operators had believed to be the company's intention, was itself in the light of the medical evidence given before the Commission subjected to a further modification by a reduction in the total working time of twenty minutes and an extension of the reliefs by

that amount of time. The statement of February 13, fixed the actual working time under the 8-hour system at 7 hours and 20 minutes, and contained provisions for morning and afternoon reliefs of 20 minutes each, which was a very different proposition to an eight-hour system, based on two consecutive stretches of four hours each, without reliefs, which was the system as the operators had conceived it to be according to the company's intentions. There is apparent conflict in the evidence as to what really was the intention of the company with regard to the proposed eight hour schedule at the time of the change; as the matter is one which is no longer of any special concern, the evidence on this point may be left to speak for itself, for the purpose of the findings which are expected to be made it is perhaps sufficient to say that in our opinion the employees had reasonable grounds for holding the view they did.

As to the question what, all circumstances considered, are the conditions under which the work of telephone operating should be carried on, and as to whether in the present case the conditions as accepted by the operators are in the terms of our Commission, a *right settlement*, full regard being had to the health of the operators, we beg, before expressing an opinion, to enumerate some of the more salient facts which the present inquiry has disclosed, and some of the considerations which must be allowed to govern in attempting to form a judgment on a matter of so grave concern.

It is to be remembered in the first place that the class of persons employed as operators is composed mostly of girls and young women between the ages of 17 and 23, that persons of these years are preferred to others because of the greater facility with which they learn the work and acquire dexterity, that these are years during which the nervous and physical system of a woman is peculiarly sensitive to strain and susceptible to injury, and that harm done to, or impairment of the system sustained at that time of life is apt to be more far reaching in its consequences than would be the effects received from similar causes in maturer years. The effects moreover upon posterity occasioned by the undermining or weakening of the female constitution cannot receive too serious consideration.

The work of telephone operating does not appear to be of a kind to fit a woman for any other occupation or calling; additional significance is therefore to be given to the fact that the average time spent by operators in the service is from two to three years, and that the period of service is usually given at the time when a young woman is best able to learn with advantage the trade or calling which is to put her in the way of acquiring a livelihood.

Secondly, the work of telephone operating under any conditions involves a considerable strain upon the nervous system. Some of the doctors maintained that it was not a fit work for any woman even where carried on at a moderate rate. The faculties are kept constantly on the alert, there is a high tension on the special senses, and a certain amount of mental worry. The strain is in proportion to the nervous force exhausted, and the exhaustion of nervous energy is a matter only of degree depending upon the duration and intensity of employment. Telephone operating in this particular differs from most other occupations in which female labour is employed, and where the strain is mainly physical. Comparisons, therefore, with other occupations are apt to be misleading. It is only necessary to mention some of the elements which contribute to the nervous strain of operating to see this, and to see why this particular class of work is deserving of special consideration.

The special senses of sight, hearing and speech are called into operation not only continuously but constantly in a concerted manner; when not actually employed they are not resting because necessarily on the alert. The physical strain, save for the obligation of sitting continuously in one position over a considerable period of time, and the reaching and stretching entailed where switchboards are large in size, or operators expected to assist with the work on boards adjoining their own is not considerable, and, to a degree, helps to offset the effect of the nervous strain; on the other hand where there is not a proper regard for these matters the strain may be increased rather than diminished. The liability to injury from shocks, the harsh words and abuse of subscribers, the irritation caused by the intermittent glowing of lights reflecting the impatience of subscribers, the occasional buzzing and snapping of instruments in the ear, the sense of crowding where work accumulates and the inevitable anxiety occasioned by seeking to make the necessary connections whenever a rush takes place, all combine to accentuate the strain upon an operator, and they are all factors more or less absent from other callings in which women are engaged.

Thirdly, the manner in which operating is carried on at the large exchanges adds to the strain which under almost any conditions, is considerable. 'Cost, service and ability, to secure operators, are, we believe, the main, they might, we think, be almost described as the sole determining factors in this connection. The last-mentioned—the ability to secure operators—is, we believe, chiefly a matter of wages, for few women know till they have been some time in the service, the full nature of the strain it involves. Hours are, of course, a factor also, but they operate in relation to wages, in determining the available supply, and only secondarily as a consideration in employment. The question of wages being left to the market, cost and service dictate the conditions under which operators are obliged to work, and this leads to the adoption of methods whereby a maximum of work may be had at a minimum of cost. In this connection enter all those elements which relate to switchboard economy and which affect the duration and intensity of employment, such as double work, overtime, services not paid for, team work, overloading, high pressure, and the like, which have been described in some detail in the body of this report; they are all, it is true, subject to regulation within certain bounds, but there is hardly a point at which the health and well-being of the operators does not come in this connection into direct conflict with the motive of gain which is more or less a part of every business enterprise.

From the testimony given it would appear that from the manner in which the Bell Telephone Company carried on operations during the past three years at the main exchange in Toronto, where this conflict between so-called business and health became apparent, in many cases, not only was the question of health a matter of small consideration, but the management knowingly permitted the work to be continued under conditions and in a manner absolutely detrimental to the health of its operators. We believe that where it is a question between the money-making devices of a large corporation and the health of young girls and women, business cupidity should be compelled to make way. The evidence given before us, and the facts of experience, as cited, go to prove that this is a matter which cannot with safety be entrusted to the parties concerned, but is one which in the interest of the protection of the health and well-being of persons engaged in this form of industrial pursuit calls for legislative interference on the part of the State.

Because, perhaps, of the comparatively recent introduction of industrial processes such as that of telephone operating, where the motive power is electrical, and where the whole trend of invention has been of a nature to intensify the strain by heightening the possible speed at which operations may be carried on, but little attention has thus far been paid to the possible inimical effects upon the constitutions of women engaged in such callings or the possible deleterious effects upon their offspring. The problem from this point of view is medical rather than economic, and a full determination of the effect of this class of employment upon the health of those engaged in it can, therefore, be had only as the result of expert medical investigation.

Because of the fact that the number of young women engaged in telephone operating is already large and is increasing from year to year, and because it is the nervous system of operators rather than the physical which requires special consideration, we believe that the interests involved are of so grave concern as to warrant a further inquiry by a commission of medical experts, who could examine more particularly into this side of the question, and that the state should be guided in matters of legislation by the findings of such a commission, and we would recommend that such a commission should be forthwith appointed.

While the general and larger question of the extent to which women should be permitted to engage in occupations of this kind should in our opinion be made the subject of a careful and complete inquiry by medical experts, we believe that the evidence which we have had to consider in connection with the present investigation points clearly to the necessity of immediately restricting in certain particulars the conditions under which this employment is to be carried on, and that it is quite sufficient to justify the recommendations which we feel called upon to make.

We agree entirely with the view expressed by the local manager that *it is the pace that kills*, and the working of women at high pressure at work of this kind should be made a crime at law as it is a crime against Nature herself. On the other hand it is difficult to see wherein it is possible for the State to effectively regulate the speed of operating. Happily, the solution is to be found, at least in part, in another way. The efficiency of the service is something which a company in its own self-interest is bound to protect, and it has been found that operating carried beyond a certain rate of speed leads to an imperfect service. Even from the company's standpoint the question in the words of one of its experts has come to be 'primarily one of service rather than of load,' 'There is much more question in my mind,' wrote Mr. Hammond V. Hayes, Chief Engineer of the American Telephone and Telegraph Company, Boston, who reported on the matter for the Bell Telephone Company. 'There is much more question in my mind, if an operator on a 5-hour schedule can carry appreciably more load than if she works 8 hours and gives an absolutely equivalent service. There is one point to be considered in this connection, and that is, that the load must be so adjusted as to leave a reasonable amount of spare time in each hour so that the unusual rush of business can be handled satisfactorily.'

Whatever may be urged to the contrary, the whole principle underlying the methods of operating is based, we believe, on having the 'operating curve' follow the 'traffic curve' as closely as possible and on an adjustment of the load to the ability of the operator. Under the 5-hour system as practised by the company the effort seems to have been to discover 'the breaking point,' and cause the load given to each operator to approach as nearly to it as possible. Experience, however, went to prove

that what was 'the breaking point' with the operator was also a 'breaking point' in the service and a change was accordingly decided upon. Because, as Mr. Hammond V. Hayes says, 'the load must be so adjusted as to leave a reasonable amount of spare time in each hour so that the unusual rush of business can be handled satisfactorily.' There is always the possibility of a feeling on the part of those who have to do with the regulating of these matters, that 'the reasonable amount of spare time' provided as a protection against emergencies, is also a sufficient protection in the matter of health, while on the other hand what is a reasonable amount of spare time for such a purpose is likely from motives of economy and cost to be confined within as narrow limits as possible. Unless then the speed of operating is to be arbitrarily fixed in some manner not altogether apparent as yet, the restrictions which it is necessary to make must be of a kind which will limit the period for which work shall be carried on at any one time, and the total amount which an operator shall be permitted to perform in any one day or week; in other words, there must be provision for intermissions and reliefs, and a limitation of the total hours of work.

The work of operating continued uninterruptedly over any considerable period of time is certain, we think, to prove injurious. The same quantity of work, where it exceeds a certain amount is better we believe spread over a period of time with intermissions and reliefs, than carried through at a stretch. We have only the strongest condemnation to offer for such a system as prevailed under the so-called 5-hour schedule, where work was continued for 5 hours at a stretch. It demonstrated conclusively, at least this fact, that 5 hours operating in a day under certain conditions was calculated to prove absolutely detrimental to the health of the operators.

The length of any one period should depend in part on the total number of working hours fixed for the day. The majority of the medical witnesses were of the opinion that a total working time of 5 hours divided into two periods of two and a half hours each, with an intermission of at least one hour for lunch was preferable to any other proposed scheme. The two and a half-hour periods were conceded in this case on account of the considerable length of that portion of the day during which there was freedom from actual or anticipated work and consequently greater opportunity for recuperation. Where such a condition does not obtain, two hours is, we believe, as long a stretch as should be permitted at any one time without a suitable period of relief being afforded, and from an hour and a half to an hour and three-quarters at one time, is, we think, as long a time as should be expected, where any considerable amount is to be covered in the course of a day.

The length of time to be fixed for reliefs should depend in part on the amount of work preceding and following the relief period. It was the general opinion of the doctors who appeared before the commission that the longer the periods of relief the better, and that periods of less than fifteen and twenty minutes were of little value.

In the arrangement as come to before the commission, the total number of working hours was fixed at seven, spread over a period of nine hours, divided as follows: 2 hours work, $\frac{1}{2}$ hour relief, $1\frac{1}{2}$ hours work, 1 hour intermission, 2 hours work, $\frac{1}{2}$ hour relief and $1\frac{1}{2}$ hours work. The relief provided by this arrangement is, we think, sufficient. On the other hand, the total length of working day, all circumstances considered, is, we think, still too long. In our opinion a day of six working hours spread over a period of from 8 to $8\frac{1}{4}$ hours, and under as favourable conditions as may be expected in an exchange doing a large business is quite long enough for a woman

to be engaged in this class of work, if a proper regard is to be had for the effect upon her health. We believe that medical men would favour a still shorter time, and would certainly contend that a longer period would prove injurious. If such a total working time were agreed upon the periods of work should be made not to exceed $1\frac{1}{2}$ hours at a stretch, in which event the periods of relief might be fixed at twenty minutes, and the intermission for those who desired it placed at two hours or an hour and a half, instead of one. This arrangement would enable operators living at a distance from the exchange to go home for their meals instead of being obliged to take them hurriedly, to bring them with them to the exchange, or obtain them at a restaurant in the city. It would help too to meet what is an objection to the half-hour relief where operators are not provided with suitable accommodation in the way of grounds or rooms for recreation, by removing the temptation for operators to leave the company's premises to spend the time shopping or on the streets, while with the shorter work period the shorter reliefs would prove as adequate for rest. The day in this respect, while somewhat resembling, would exceed that of the school teacher by an hour, and the work would be carried over six instead of five days in the week. The element of strain is greater, we believe, in telephone operating than in teaching, and it is pretty generally admitted that the hours of teachers are quite long enough considering the work they are called upon to do. In addition, with this shortening of total hours and provisions for reliefs, we concur in the recommendation strongly made by nearly all of the physicians that there should be an adequate relieving staff present at all times to meet emergencies and for the purpose of giving quick relief for those needing it. We would recommend that an arrangement along these lines be forthwith adopted at the Toronto exchange.

Whatever the period of working hours may be, overtime, we believe, should be absolutely prohibited, as should also the practice of compelling operators to work a fraction of an hour either before or after the schedule time, with, or as has been customary at the Toronto exchange, without compensation.

In most occupations in which women are engaged, where payment is by the week or month, as is the case with many factory employees, shop girls and stenographers, there is no Sunday labour. It is, moreover, a common practice in these occupations for a portion of a day, in one day of the week to be granted as a half-holiday. Where the remuneration is fixed at so much per week or month, this time, which the employee has for herself, is usually taken for granted. In the case of the telephone operators at Toronto a half-holiday on one of the working days of the week does not seem to have been the regular practice, and Sunday labour appears to have been engaged in on a certain number of Sundays in the year by operators who received an additional allowance for this work. We believe that work on seven days in the week should be prohibited, and that in no case should an operator be permitted, after having worked six days, to enter upon a subsequent day's work until after a break of at least twenty-four hours. We believe, moreover, that the weekly half-holiday in addition, is, in every way, as necessary and desirable in this occupation as in any of the occupations in which it is to be found at the present time.

It was with regret that in looking over the exhibits we found a report from one of the officers of the company recommending the doing away with the customary two weeks holiday during the year, as a means of effecting a further economy in the company's business. We were pleased to learn that this recommendation had not been acted upon, and that both the local manager and general superintendent strongly disapproved of the adoption of any such course.

We believe that seventeen is too young an age for a girl to enter upon the duties of telephone operating, and would recommend that young women should be prohibited

from entering this class of employment until they have completed their eighteenth year. We would also recommend that before being accepted by the company, operators should be required to pass an examination as to their health, especially as to their nervous system, throat, lungs, sight, hearing and tendency towards tuberculosis. These recommendations are strongly supported by the medical testimony. We would also mention as matters deserving of special consideration by the company the following improvements suggested by some of the medical witnesses.

The construction of the switchboard so as to do away with the necessity of far reaching, the perfecting of the lighting of the switchboard, and devices used for discovering the numbers; the sterilizing of the mouthpiece used by operators each day, instead of once in two or three months, and the providing of each operator with head-gear for her exclusive use; the construction of the seats so as to make them more comfortable, and so as to permit of an operator standing, the operators not to be required to be seated continuously; a more effective and better ventilation of the operating room.

During the taking of evidence it was stated that there was in connection with the main exchange a listening or observation board or desk where the operator could cut in on any line in the telephone office, and listen to the conversation taking place on such line. This listener was used as a part of the telephone system for the sole purpose, it was alleged, of benefiting and perfecting the service, to ascertain whether the telephone obtained for purely private house purposes was, as a matter of fact, being used for business purposes; also to ascertain the causes of any defects in the service in order that such might be remedied, the manner in which the operator answers, wrong numbers, bell clicking, persons rung up when not wanted, slow answering, slow disconnections, line out of order and all matters relating to service. Mr. Dunstan claimed that this board was never used for improper purposes. It was, however, used in such a manner that the persons holding conversations were not aware that they were being listened to, and their conversations at times taken down and recorded.

Experienced operators were selected for this work, those who understood the system in all its details, and what troubles were likely to arise and able to detect them. It was stated that this operator was usually given from one to ten lines a day to attend to, while the operators on the local board had an average of 100 lines, the reason being that the operator on the listener was placed there for the express purpose of listening to conversations, and record the whole or parts of same in writing, while the operators on the other boards, if attending to their duties, had no time to listen to conversations. It was shown that operators could and did improperly use lines other than those given to them by Mr. Maw, and that conversations overheard in this way were repeated among the operators. Mr. Maw stated that he heard rumours of people thinking the operator had overheard something, but that he had been unable to trace it, although he had made the strictest investigation. While this work was stated as being a most important part of the telephone system, yet the five-hour system had not been made applicable to it. Mr. Maw, on this subject, gave the following evidence:—

‘ Q. What are your instructions with respect to that particular board?

‘ A. That board—we select an experienced operator, one who understands our system in all its details, and what troubles are likely to occur, and how to detect them in operating.

‘ Q. One operator attends to the whole of that work?

‘ A. Yes, sir.

‘ Q. For how long?

‘ A. She is on from 9 to 5.30, I think, with her lunch hour, of course.

'Q. Is that during the five-hour system as well?

'A. Just the same; there was no alteration in that.

'Q. They never had a five-hour system there?

'A. They never had.

'Q. Mr. Kerr desires me to ask whether any of these operators object to the kind of work they are assigned to in connection with the observation board; do you know they have objected?

'A. They have objected to coming and working that long; object very much; I tried much to get a number of them, especially supervisors, I tried to get; they were getting \$27 and I offered them \$30 to come downstairs, and they said no, they could make more on overtime and working five hours, and that was their objection to taking a long day and only getting \$3 additional.

Q. What was the necessity of having a long day for them instead of five hours?

'A. It is only a clerical occupation like a business office.

'Q. Their attention is not so close as the regular operators?

'A. No, I think not; it is a general work.

'Q. And they are not pressed so hard as the other operators, are they?

'A. Well, they just take records as they come to them, as many as they can, but they can observe them all.

'Q. They have only ten lines, while those on the switchboard have a hundred or more to attend to?

'A. Yes, they have ten at times.'

Referring to Miss Leckie, an ex-employee, he stated:—

'Q. Did she object to the service?

'A. Not that I know of.

'Q. To the hours?

'A. She objected to the hours.

'Q. Objected to the wages?

'A. Yes, the wages, the hours and the wages.By her own wish she would place a line that was not authorized, and I dismissed her for it.

'Q. She was obtaining information she had no right to obtain?

'A. Yes, sir.'

In his evidence Mr. Dunstan stated that there was infinitely more privacy in telephoning than there was in telegraphing, as every telegram passed through the hands of two or more people, and that every postal card may be read by a postmaster.

Now that the fact that leakages of information obtained by means of the listener have been admitted, we would recommend that the criminal laws applicable to news improperly obtained or divulged by telegraph operators or officials be amended so as to apply to telephone companies.

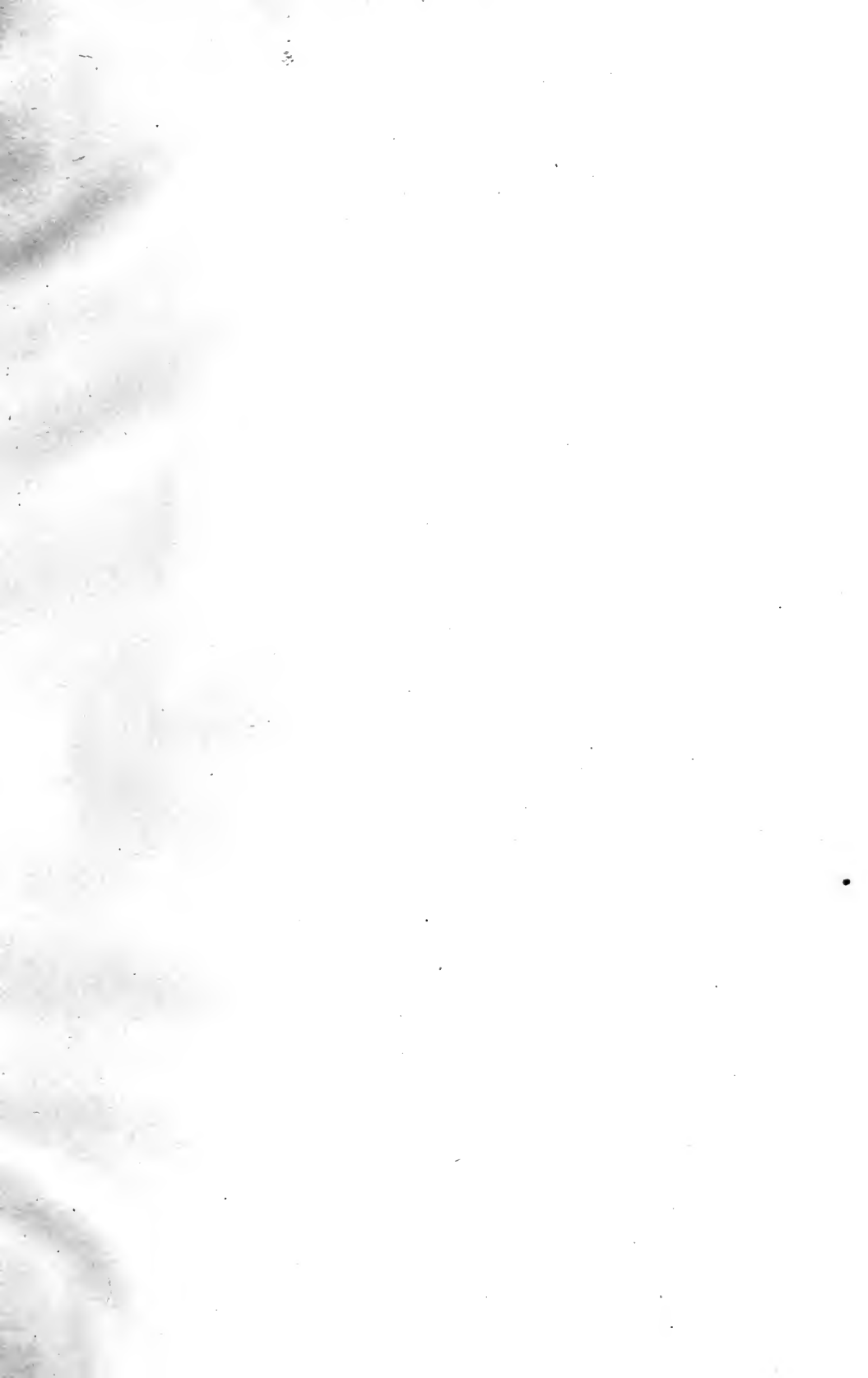
In conclusion, we would say, that in our opinion many of the difficulties inevitable to the successful operation of a large telephone exchange might be overcome and harmonious relations between the company and its employees promoted were a permanent board of conciliation established, composed of representatives of the officials of the company and its operators, to which board questions concerning arrangement of hours, reliefs, overtime, discipline and the like might be referred at stated intervals, an appeal to be had to the head officers of the company where matters in dispute might fail of successful settlement before the board.

The evidence and our findings refer principally to the Toronto Main Exchange, the work of which is much heavier than that of the branch exchanges and, in our opinion, heavier than that of exchanges in other cities in Canada.

W. L. MACKENZIE KING,

JOHN. WINCHESTER,

Commissioners.





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